

## Using ALPRs for Traffic Safety Purposes

### SUPPORTING STATEMENT

#### Part B.

#### COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

#### Table of Contents

B. Collections of Information Employing Statistical Methods.....	1
B.1. Describe the potential respondent universe and any sampling or other respondent selection to be used.....	2
B.2. Describe the procedures for the collection of information.....	2
B.2.1. Procedure.....	2
B.3. Describe methods to maximize response rates.....	5
B.4. Describe any tests of procedure or methods to be undertaken.....	6
B.5. Provide the names and telephone numbers of individuals consulted in the design.....	7

#### B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

This National Highway Traffic Safety Administration’s (NHTSA) proposed information collection will employ case study methods to gather and analyze information collected from respondents. The following sections describe the procedures for case study selection, respondent recruitment, and data analysis.

The objective of this study is to conduct preliminary qualitative research on the feasibility of using Automated License Plate Readers (ALPRs) as countermeasures to improve traffic safety, with emphasis on ALPR use for detecting drivers with suspended, revoked, or restricted licenses. The unit of analysis is a law enforcement agency (LEA) site; the research will target 9-12 LEA sites. At each site, four individuals will be interviewed: 2 patrol officers, 1 supervisor, and 1 administrator.

The questionnaires will include questions on extent of ALPR use, databases and Hot lists, effectiveness and value, challenges and problems, legal issues, law enforcement and community acceptance, and privacy. The information collected in this study will provide a rich and detailed qualitative portrayal of the state of knowledge and practice of LEA use of ALPR for traffic safety. This information collection is not a statistically representative sample of LEAs or use of ALPRs by LEAs. The information collected will not be used to infer conclusions about national use of ALPRs by LEAs.

## **B.1. DESCRIBE THE POTENTIAL RESPONDENT UNIVERSE AND ANY SAMPLING OR OTHER RESPONDENT SELECTION TO BE USED.**

The universe for the study is LEAs using ALPR for traffic safety purposes. Through an extensive literature review, the research team at the Texas A&M Transportation Institute (TTI), which is under contract to the Volpe Center, US Department of Transportation (DOT) (under contract to NHTSA), identified LEAs that were likely to be using ALPRs for traffic safety. Additional sites were identified by NHTSA Regional Offices and the International Association of Chiefs of Police (IACP). The current number totals 26 LEAs.

TTI developed a framework to characterize these LEAs by geography, jurisdiction type, and ALPR regulatory requirements (see Appendix B). TTI also identified LEAs operating in regional clusters to address potential interoperability issues. Using this information, the research team will select the primary sites for the 12 case studies, along with back-up case study sites from among the potential LEAs.

The case study sites will be purposefully selected to represent a cross-section of LEAs by the framework criteria: geography, jurisdiction, and regulatory environment. The initial recruitment will target 12 case study sites. Two key eligibility requirements are (1) using ALPR for traffic safety purposes and (2) willingness to participate as a case study site. We will replace ineligible or non-responsive sites with ones on back-up list as needed. At each eligible site, four individuals will be identified for interviews: 2 patrol officers, 1 supervisor, and 1 administrator, allowing the research team to obtain information on the same issues through differing perspectives. In total, interviews will be conducted with no more than 48 LEA personnel. We expect a response rate not lower than 50% or 24 interviews across the case study sites.

## **B.2. DESCRIBE THE PROCEDURES FOR THE COLLECTION OF INFORMATION.**

### **B.2.1. PROCEDURE**

Case study interviews will be completed either through in-person visits to the sites or by telephone. Six case studies will be in-person; the remainder will be by telephone. The research team will pre-identify each site as either an onsite or telephone case study. The procedures for the collection of the information is virtually the same regardless of whether information will be collected on-site or via telephone.

### **Approach for Contacting the Site**

With an appreciation for the heavy and unpredictable work demands in policing and acknowledging that the research process will need to begin with permission or endorsement from the Chief as the head of agency, we will use a multi-step approach to ensure that the research team makes contact with the Chief. The specific activities include:

- Mailing an Advance Letter (Appendix C)
- Emailing a follow-up message (Appendix D)
- Telephone call to identify coordinating individual (Appendix E)

The initial contact will be by an advance letter that is mailed to the Chief on letterhead with TTI and US DOT logos, which serves as an introduction to the study. Within 7 days of the advance letter mailing, TTI will send a follow-up email to the Chief with additional information on the research study and next steps in the process. Within a few days of the follow-up email, a telephone call will be made to the Chief's secretary to introduce the study, to describe the communications sent to the Chief, and to elicit his/her help in identifying a contact within the LEA who can serve as the on-site coordinator of interviews. The study team will collect contact information (telephone and email) for this individual. It is expected that this individual will be someone at the LEA who is quite familiar with the agency's use of ALPR.

### **Approach for Contacting the Interviewees**

The key steps for contacting interviewees include:

- Telephone call to coordinating individual to identify interviewees (Appendix F)
- Email invitation (including informed consent document) to the interviewees (Appendix G)
- Follow-up email confirming interview (Appendix H)

A telephone call will be made to the coordinating individual to introduce the study, to describe the communications sent to the Chief, to verify that the individual has been assigned as the coordinator within the LEA, to confirm that the LEA uses ALPR for traffic safety purposes, and to elicit his/her help in identifying interviewees.

In addition, as part of the telephone call, the contractor notifies the coordinating individual that the research team has defined a list of data elements that it plans to collect from each case study site (in addition to the interview questions). These data elements are either quantitative or include other information the interviewees may not have readily available in memory. The list of data elements are:

- Percent of ALPR use for traffic safety purposes
- Statistics on effectiveness in detecting drivers who:
  - Are unlicensed
  - have suspended licenses
  - have revoked licenses
  - have restricted licenses
  - Have inappropriate endorsements
- Initial purchase costs (number of units/ per unit cost)
- Deployment costs
- Maintenance costs
- Training cost (initial and ongoing)
- Numbers of citizen/ community complaints (what percent for traffic safety uses)
- Nature of the complaints
- Written policies or procedures for data capture (specific to traffic safety)
- Written policies or procedures for data analysis and/or use of hot lists or linking with other databases
- Written policies or procedures for data storage and retention.

The list will be sent to the coordinating individual so that he/she may gather the information and submit it to the research team (see Appendix I for the cover email).

If a site has been pre-selected for an on-site visit, the schedule for the visit will be arranged together with the coordinating individual. This individual also will be asked to identify and then provide contact information for interviewees (i.e., two patrol officers, a supervisor, and an administrator).

An email will be sent to interviewees to introduce the study (see Appendix G). The informed consent document will be sent as an attachment and will provide the toll-free telephone number to call with questions about the study, as well as the telephone number to call with questions regarding Human Subjects protection. Subsequent email exchanges will be used to schedule the interviews and to ensure that the interviewee understands the information provided on the consent form. It is assumed that by agreeing to participate, the interviewee has provided consent. The contractor will use a spreadsheet to track the participation (i.e., consent) of each invited individual.

Table 1 presents the case study recruitment plan. The timing identified in the plan assumes a best case scenario. In reality, the research team may make several calls on different days/times to reach the Chief’s secretary, as well as several call on different days/times to make contact with the coordinating individual. It is also assumed that not all LEAs contacted will confirm their use of ALPR for traffic safety purposes. If this cannot be confirmed with the coordinating individual, then the LEA will be replaced with another from the back-up list, and the case study activity will begin anew at Day 1.

**Table 1. Case study activities/milestones.**

Timing	Task	Estimated Sample Size
Day 1	Mail official letter to Chief (head of agency)	12
Day 4	Send follow-up email to Chief (head of agency)	12
Day 7	Telephone call to Chief’s secretary	12
Day 10	Make contact with coordinating individual	12
Day 17-24	Conduct site visit and/or conduct interviews	48

Case studies will be conducted over an 80 day period.

### **Conducting the Interviews**

Sites will be assigned to TTI interview teams of two persons: a leader and an associate. The leader will be responsible for making contact with the LEA, the coordinating individual, and the interviewees. Both interview team members will conduct each interview as either primary asker of questions or primary recorder of responses.

All members of all interview teams will undergo a one-day training workshop to ensure that the same understanding of (1) the recruitment plan, (2) the information to be gathered by each interview question, (3) the format for interview notes, (4) the procedures for collection other data items, and (5) how to transcribe the interview notes into the Excel database.

There are three distinct questionnaires, each tailored to the specific target population (ALPR users, managers and administrators). The questionnaires are qualitative and will cover the following topics:

- Extent of ALPR use for traffic safety purposes (overall and relative to other purposes).
- ALPR databases and hot lists (development, implementation, maintenance, and sharing)
- Effectiveness and value
- Challenges and problems
- Legal issues ( and how they have been addressed)
- Law enforcement and community acceptance
- Privacy concerns.

### **Monitoring the Progress of Data Collection**

The lead researcher will be responsible for the timely and successful collection of the necessary case study information. A detailed schedule of the case study execution will be developed by the PI in association with the lead researchers. A template will be developed for lead researchers to provide weekly updates on the case study execution to the principal investigator (PI) from TTI. In addition to communicating status, the weekly update will also include information on challenges or concerns. The PI will communicate this information to Volpe in bi-weekly check-in calls.

### **Entering Data into an Electronic Database**

Case study research generates a large amount of data from multiple sources. Systematic organization of the data is important for effective analysis and interpretation. For this study, Excel will be used to organize the information from each site. Data will be transcribed from the interview notes into the Excel spreadsheet. The document title will be the LEA site. Each topic (e.g., legal issues) will have its own worksheet. Interview answers for all individuals at the site will be entered as a row in the spreadsheet. Codes will identify the type of individual providing the response (e.g., analyst, administrator, patrol officer, etc.). Data elements will be entered into the same excel file, where feasible.

The analysis will be qualitative. A coding scheme will be developed. The coding categories will be organized by the key research questions. It will be applied to the information in the Excel database. The analysis of codes will be used for explanation building, to structure hypotheses and assumptions about LEAs' use of ALPR for traffic safety purposes. In addition, a more qualitative analysis of themes emerging from interviews will be conducted. Themes will be analyzed within individual sites first by the team members responsible for that case study, then findings on each theme will be aggregated across sites by the program manager. Then, information derived from the literature review and data elements will be used to validate or credibility check the resulting themes

### **B.3. DESCRIBE METHODS TO MAXIMIZE RESPONSE RATES.**

The case study design has two places where attrition can take place: recruitment of the agency and recruitment of the interviewee. Methods that will be used to maximize response at both points are described.

## **Maximizing Agency Response**

The key eligibility criterion for study participation is that the agency is using ALPR for traffic safety purposes. If an agency is not using ALPR for traffic safety purposes, we will terminate the recruitment and replace the agency with one from the back-up list that represents the same geography, jurisdiction type, and regulatory requirements, if possible.

Agencies that meet the eligibility criteria may not be willing to participate, so we will seek to maximize response to the initial recruitment request. If an agency is not willing to participate, we will try to identify and counter any concerns. If the concern is because of the perceived burden of an on-site visit, we will ask if it would be amenable to do telephone interviews. If yes, we will code this site as a telephone site and a replacement LEA will be sought as an on-site case. In an effort to maximize recruitment, we will also stress the importance of the study and explain how the study results will be used. If an agency continues to refuse to participate, we will terminate the recruitment and replace the agency with one from the back-up list that represents the same geography, jurisdiction type, and regulatory requirements, if possible.

In addition, we understand that non-contacts may depress the response rates. A lead researcher will be assigned responsibility for each case study site. This person will make as many calls as are needed on different days/times to reach the Chief's secretary and as many calls as are needed on different days/times to make contact with the coordinating individual.

## **Maximizing Interviewee Response**

The coordinating individual at the LEA will support the research team's efforts to schedule and complete the four interviews at each case study site. The lead researcher for each site will work with the coordinating individual to ensure initial contact is made with each interviewee. This person will make as many calls as are needed on different days/times to schedule the interview. He/she will send a reminder of the interview day/time.

### **B.4. DESCRIBE ANY TESTS OF PROCEDURE OR METHODS TO BE UNDERTAKEN.**

A small pilot test was conducted to assess the recruitment process and to test the interview questions. Two LEAs participated in the pilot: Oxnard Police Department (PD) and Bakersfield PD; both are in California. The following recruitment plan was followed:

For Agencies:

- Mailing an Advance Letter
- Emailing a follow-up message
- Telephone call to identify coordinating individual

For Interviewees:

- Telephone call or email to coordinating individual to identify interviewees
- Emailing the interviewees the informed consent document

At both LEAs a coordinating individual facilitated the scheduling of the interviews. All interviews were via telephone. At Oxnard PD, interviews were conducted with a patrol officer, supervisor and administrator. At Bakersfield PD, an interview was conducted with a supervisor. The interviews averaged 40 minutes.

A key finding was that the recruitment process worked well. We learned that after the mailing of the advance letter and the follow-up email, it is best to follow up with the Chief's secretary, as he or she can facilitate contact with the Chief and/or other appropriate individuals. In debrief interviews, the interviewees indicated that the recruitment process developed for the study was appropriate, and they did not have any suggestions for improvement. Use of ALPR for traffic safety purposes is one of the eligibility requirements, and we learned that "use" is a nuanced term. The interview team needs to be aware that in some PDs, traffic safety use is not easily separated from use in general. The patrol officer engages the ALPR system without a specific use in mind but generally as part of their patrol duties. So interviewers need to probe to disentangle traffic safety from other uses.

The questions were comprehensible and answerable by respondents. A few modifications were made:

- One question was deleted as being redundant, and another question that served a wrap-up purpose was deleted as not necessary.
- Another question was relegated to be a follow-up probe.

Based on the results, revisions were made to the questionnaires and the final versions were developed (see Appendix J). A justification table for each interview question is presented as Appendix K.

#### **B.5 PROVIDE THE NAMES AND TELEPHONE NUMBERS OF INDIVIDUALS CONSULTED IN THE DESIGN**

Johanna Zmud, Ph.D.  
TTI Project Manager  
Senior Research Scientist  
Texas A&M Transportation Institute  
1747 Pennsylvania Ave., NW, Suite 400  
Washington, DC 20006  
202-679-3195  
[j-zmud@tti.tamu.edu](mailto:j-zmud@tti.tamu.edu)

Margaret Petrella  
Volpe Project Manager/COR  
Social Scientist  
Volpe National Transportation Systems Center  
55 Broadway  
Cambridge, MA 02142  
617-494-3582  
[Margaret.petrella@dot.gov](mailto:Margaret.petrella@dot.gov)

Randolph Atkins, Ph.D.  
NHTSA Subject Matter Expert/Social Science Researcher  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, SE, W46-500  
Washington D.C. 20590

202-366-5597  
Randolph.atkins@dot.gov