

Understanding law enforcement attitudes and beliefs about traffic safety

Task 1 Report: Literature Review

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Table of Contents

1	Executive Summary	1
2	Introduction.....	3
3	Methods.....	7
4	Results.....	8
4.1	Factors Influencing Traffic Safety Enforcement Behaviors	8
4.2	Prioritization.....	16
4.3	Strategies and Interventions to Increase Traffic Safety Enforcement.....	17
5	Conclusions.....	19
6	References.....	20
7	Appendix A.....	23
7.1	Formative Interviews.....	23
7.2	Methods.....	23
7.3	Results	24

List of Figures

Figure 1. Model of Traffic Safety Enforcement	5
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List of Tables

Table 1. Definitions of Constructs Used in Integrated Behavior Model	6
Table 2. Examples of Questions and Response Formats from Previous Research to Measure Police Officer Attitudes and Behaviors about Traffic Safety Enforcement	10
Table 3. Examples of Questions and Response Formats from Previous Research to Measure Police Supervisor Attitudes Toward Traffic Safety Enforcement	14

1 EXECUTIVE SUMMARY

Motor vehicle traffic crashes are a serious public health concern causing a tremendous burden on society. While progress in traffic safety has been made, motor vehicle traffic crashes are still the leading cause of death of those age 8 to 24 years, and are the third leading cause of death for those age 25 to 34 years (Liu, Singh, and Subramanian 2015, pp. 1-5). To reach the goal of zero deaths on our nation's roadways, traffic safety initiatives must have a prominent role among state highway safety agencies and stakeholders. Traffic safety enforcement is critical and has shown to be effective in reducing a number of risky driving behaviors (DeAngelo and Hansen 2014, pp. 231-257; Stanojevi et al. 2013, pp. 29-38; Nikolaev et al. 2010, pp. 182-193; Ryeng 2012, pp. 446-454; Nichols and Ledingham 2008). However, some traffic safety professionals have perceived a change in the prioritization of traffic safety, suggesting it may be becoming less important among law enforcement. It is difficult to determine whether this perception is accurate and the reasons and nature of this possible change. A variety of factors including competing priorities, budget limitations, political support, and agency culture can influence engagement in traffic safety. A decrease in law enforcement's engagement in traffic safety could make it more difficult to reduce fatalities and serious injuries. Law enforcement plays a critical role; therefore, understanding the attitudes and beliefs of law enforcement leaders and officers regarding traffic safety is critical to growing a positive traffic safety culture and ultimately achieving a goal of zero deaths.

The goal of this project, "*Understanding Law Enforcement Attitudes and Beliefs about Traffic Safety*," is to understand how the culture within law enforcement agencies impacts the extent and effectiveness of their traffic safety enforcement efforts.

The project seeks to answer several critical questions:

- What self-reported values, attitudes, and beliefs predict prioritization of traffic safety enforcement behaviors of agency leaders and officers?
- How do law enforcement leaders and officers within the agencies selected prioritize traffic safety relative to other public safety issues?

Using an online survey developed to measure law enforcement culture, this project will seek to measure the attitudes and beliefs of law enforcement leaders and officers regarding traffic safety. Four states have agreed to participate in this study by championing the survey within their state and local law enforcement agencies (Illinois, Connecticut, Louisiana, and Idaho).

To inform this project, a literature review of published research on factors influencing the traffic enforcement behaviors of law enforcement leaders and officers, prioritization practices, and strategies that have been suggested to increase traffic safety enforcement was completed. This review identified various relevant factors that informed the constructs of the behavioral model used, which lead to the question design for the survey developed for this project.

Researchers have studied a variety of different factors associated with police behaviors including individual, situation, organizational, and community level factors. Individual level factors discussed include: officers' attitudes about traffic safety enforcement and officers' beliefs about their role orientation. Situational factors discussed include the effects of demeanor on police behavior in traffic encounters. The organizational context in which officers' work includes:

supervisory influence, organizational logistics, informal work rules, and the social norms of the police environment are included in this literature review as well as factors at the community level such as: the political environment, community influences, and the social conditions of the community. Insights into these factors and how they influence traffic safety enforcement behaviors are discussed. It is recognized that police officers are faced with many competing priorities. One method of prioritization discussed in this review of literature is evidence-based policing. Evidence-based policing is an approach to help officers and administrators prioritize activities based on what research evidence indicates “works in policing” (Sherman 2013, p. 377). The effectiveness of traffic safety enforcement to reduce risky driving behaviors has been established; thus, researchers have identified various strategies to increase traffic safety enforcement. Strategies identified by researchers are discussed in this literature review such as supporting agency efforts to prioritize traffic enforcement, creating accountability for traffic safety among officers (Wiliszowski et al. 2001; Dahl and Thompson 2017, pp. 1-48), and gathering public support for traffic safety enforcement (Wiliszowski et al. 2001).

2 INTRODUCTION

Traffic safety is a critical public health issue. More than 30,000 people die annually on U.S. roadways (NHTSA 2015). “Car crashes rank among the leading causes of death in the United States” (Tefft 2012, p.1). Traffic safety enforcement is one approach to improving roadway safety that can reduce crash fatalities and serious injuries.

A variety of studies have established the effectiveness of traffic safety enforcement. When budget cuts significantly reduced the size of the Oregon State Police in 2003, researchers measured a significant increase in injuries and fatalities on the roads (even after controlling for a variety of other factors) (DeAngelo and Hansen 2014, pp. 231-257). Other studies have similarly evaluated the impact of law enforcement on various traffic safety behaviors. Stanojevic, Jovanovic, and Lajunen (2013, pp. 29-38) found in a comparison of two regions, one with traffic enforcement and one without, the absence of traffic enforcement affected a variety of driving behaviors including speeding more frequently, using seat belts less often, driving more aggressively, driving after exceeding the legal limit for alcohol more often, and engaging more frequently in aggressive and ordinary driving violations. Other researchers have similarly found traffic enforcement efforts to be effective with specific behaviors including cell phone use while driving (Nikolaev et al. 2010, pp. 182-193), speeding (Ryeng 2012, pp. 446-454), and seatbelts (Nichols and Ledingham 2008, pp. 1-68). One study documented that convicting a driver of a traffic offense reduced the relative risk of a fatal crash in the month after receiving a traffic conviction by about 35% (Redelmeier, Tibshirani and Evans 2003, p. 2177). It is important to note that some of these studies were conducted in other countries, and while they can offer insight, there are inherent limitations in making comparisons with the United States. Additionally, an assumption made prior to this literature review was that traffic safety enforcement is an effective strategy; thus, exploring how policing of traffic safety relates to traffic fatalities or to effectiveness in general is outside the scope of this literature review.

Various research studies have shown that many citizens support traffic safety enforcement efforts. A survey of California drivers showed that, despite the state's heavy seat belt enforcement efforts, more than half of the respondents supported "very strict" enforcement (Insurance Institute for Highway Safety, Highway Loss Data Institute 2003). In another study, public opinion data collected from two experimental target areas and one comparison area suggested that citizens strongly supported aggressive traffic enforcement practices and that the implementation of such strategies did not reduce their support (Chermak, McGarrell and Weiss 2001, pp. 365-391). The Center for Health and Safety Culture has conducted several surveys of adults and found support for traffic safety enforcement as well (Linkenbach et al. 2012, pp. 1-118).

Despite the positive benefits resulting from traffic enforcement efforts and community support, there is a perception that fewer resources are being allocated to traffic safety enforcement and there is some evidence of a declining trend in traffic safety enforcement (Dahl and Thompson 2017, pp. 1-48; Wiliszowski, Lacey, Cyr, and Jones 2001). Political, financial, and cultural factors may affect the level of engagement in traffic safety enforcement by these agencies. For example, leaders of such agencies that are appointed or elected may feel political pressure to not enforce laws that are perceived to be unpopular amongst voters, or changes in the workforce like a reduction in staff

through budget cuts or retirement may result in changes in the level of engagement with traffic safety. Traffic safety enforcement may be viewed as a lower priority than criminal enforcement. In some communities with close social affiliations, officers may be reluctant to enforce laws because they anticipate being socially ostracized.

While existing research has examined a variety of factors impacting enforcement activities, less research has been conducted exploring how law enforcement officers feel about traffic safety enforcement. One study in Western Australia sought to determine how law enforcement agencies understand their own impact on traffic safety, and how this understanding impacts their enforcement activities and effectiveness (Community Development and Justice Standing Committee 2015). This study found that law enforcement did not fully understand the effectiveness of the strategies they were employing to increase roadway safety and therefore were unable to adequately measure their own impacts. However, the study does emphasize that law enforcement officials are “key players in instituting the behavior change that is critical to improving safety on our roads” (Community Development and Justice Standing Committee 2015, p.10). In 2013, Florida’s Department of Transportation (FDOT) conducted a survey of 46 law enforcement officers. Perceived effectiveness of enforcement of different violations correlated with the officers’ sense of the seriousness of the violations as well as with their sense of the frequency of violations (Haleem et al. 2014, pp. 83-99). However, neither study measured attitudes or beliefs about enforcement. Law enforcement’s attitudes and beliefs about traffic safety may contribute to intention and use of strategies to directly impact roadway safety.

By understanding the shared beliefs and attitudes that influence law enforcement engagement in traffic safety, transportation and public health leaders can take appropriate steps to bolster engagement. Questions remain among traffic safety stakeholders and researchers about how to grow traffic safety enforcement to reach the goal of zero deaths on our nation’s roadways.

The goal of this project is to understand how the culture within law enforcement agencies impacts the extent and effectiveness of their law enforcement efforts. Traffic safety culture is defined as “the values and beliefs shared among groups of road users and stakeholders that influence their decisions to behave or act in ways that affect traffic safety” (Ward, Otto, and Herbel 2016, pp. 11). Table 1 provides definitions of constructs used in the Integrated Behavior Model used for this project. The project seeks to answer several critical questions:

- What self-reported values, attitudes, and beliefs predict prioritization of traffic safety enforcement behaviors of agency leaders and officers?
- How do law enforcement leaders and officers within the agencies selected prioritize traffic safety relative to other public safety issues?

For this project, a simple behavioral model is proposed to demonstrate how understanding the cultural factors of law enforcement leaders and officers about traffic safety can increase engagement of traffic safety enforcement behaviors and thereby improve traffic safety. As shown in Figure 1, values associated with traffic safety enforcement will impact attitudes and beliefs that will predict engagement in traffic safety enforcement behaviors. Measuring and understanding

how these cultural factors interact and predict traffic safety enforcement behaviors are critical to growing a positive traffic culture.

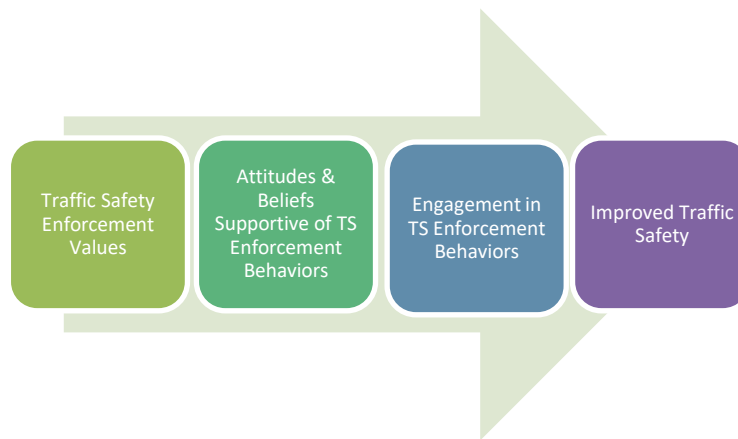


Figure 1. Model of Traffic Safety Enforcement

Table 1. Definitions of Constructs Used in Integrated Behavior Model

Attitudes	Subjective evaluation of an object or behavior in terms of emotional reaction (e.g., “Speeding is exciting”) and perceived utility (e.g., “Seat belts are useless”).
Behavioral Beliefs	Expectations about the physical and social consequences of a behavior (e.g., “If I speed, I will likely get an expensive fine,” “If I drink and drive, my friends will exclude me”).
Construct	Constructs are the concepts developed or adopted for use in a particular theory. An example of a construct is “attitude” or “perceived control.”
Control Beliefs	Beliefs about my ability to engage or not engage in the behavior based on factors that are either internal or external to oneself (e.g., “Crashes are determined by fate,” “I am comfortable not speeding even if everyone around me is”).
Intention	The deliberate decision to commit a behavior in an anticipated situation (e.g., “I intend to wear my seat belt every time I am in a vehicle”).
Normative Beliefs	Beliefs about (1) what behaviors are most common in a group (e.g., “All my friends speed”); (2) what important people in that group expect (e.g., “My parents expect me to wear a seat belt”); and (3) what are the shared characteristics of people perceived to typically engage (or abstain) in that behavior.
Perceived Control	Perception of our ability to determine our own behaviors (e.g., “I can choose my own speed in traffic”).
Perceived Norms	The behavior believed to be common and expected in a given context (e.g., wearing a seat belt when driving with parents).
Prototypical Image	The stereotype of people perceived to typically engage in the behavior (e.g., “People who speed are cool”).
Values	Ideals to which we aspire that define the goals for our behavioral choices and direct the formation of our belief systems (e.g., “I must protect my family,” “I desire a life without stress”).
Willingness	The predisposition to commit a behavior if an unexpected situation arises (e.g., “I am more willing to speed if everyone else around me is speeding”).

3 METHODS

To obtain research articles for this review, a keyword search was conducted using the TRID database and Montana State University Library search engines “Academic Search Complete,” “EBSCO,” and “CatSearch.” Word search and phrase combinations included: “traffic safety enforcement,” “police culture,” “attitudes and beliefs about traffic safety enforcement,” “traffic policing,” “ecological influences on policing,” “situational factors influencing police behavior,” and “attitudes and traffic safety enforcement.” Once articles were reviewed for relevance, additional key words were used in combination to narrow the search on police culture and the influencing factors associated with police decision making regarding traffic safety enforcement. Additionally, the reference lists of relevant articles were also reviewed for other potentially relevant articles that may have been missed with the key word searches.

4 RESULTS

Results of the literature review focus on various factors influencing the traffic safety enforcement behaviors of law enforcement leaders and officers, prioritization practices, and strategies that have been suggested to increase traffic safety enforcement.

4.1 Factors Influencing Traffic Safety Enforcement Behaviors

Researchers have investigated different ecological factors influencing police behaviors (Hassell 2007, pp. 257-276; Johnson and Billings 2011, pp. 305-323). Factors influencing police practices can be categorized into: individual factors, situational factors, the organizational context in which officers work, and community level factors. Insight into these ecological factors and how they influence behaviors can provide a better understanding of the police culture influencing traffic safety enforcement.

4.1.1 Individual Factors

Two prominent individual factors influencing police behaviors studied in the literature include officers' attitudes about traffic safety enforcement and beliefs about their role orientation. Role orientation refers to "officers' conception of the proper and legitimate scope of police business" (Worden 1989, p. 687).

4.1.1.1 Attitudes

Various attitudinal dimensions of police culture have been studied with results showing inconsistent relationships between officers' attitudes and subsequent behaviors. For example, one study found when traffic enforcement was held as a personal priority for police officers, they were more likely to issue citations (Johnson 2011, p. 300). Similarly, when officers believed that traffic enforcement was rewarded by their department, they were more likely to issue citations (Johnson 2011, p. 300). Officer attitudes in this study did significantly influence officer behavior in relation to issuing traffic citations (Johnson 2011, p. 302).

Another study suggested variation in cultural alignment (the degree to which an officer's attitudes aligned or did not align with the traditional police culture) accounted for differences in search behaviors during proactive traffic stops (Paoline and Terrill 2005, pp. 455-472). In this study, officers were clustered into various groups based on their cultural views. Officers in the "pro-culture" group were identified as positively oriented toward the traditional views of police culture. Traditional police culture was defined as ascribing to tenets such as "distrust and suspiciousness of citizens, the need to 'maintain the edge' during interactions with citizens, a lay-low/cover your ass approach to police work to minimize procedural errors, a strong endorsement of the crime fighting mandate of the police, a 'we-versus-they' sentiment toward citizens, and a strong loyalty to fellow officers" (Paoline and Terrill 2005, pp. 456-457). Those categorized as negatively aligning with the traditional police culture were in the "con-culture" group, and those categorized as "mid-culture" were in the middle range on this continuum.

Results suggested that officers in the pro-culture and mid-culture groups were "significantly more likely to search suspects and their surroundings when compared to con-culture officers" (Paoline

and Terrill 2005, p. 467). Paoline and Terrill's (2005, p. 468) research demonstrated a "cultural attitude and behavior link."

Other studies have found officer attitudes to have small or not statistically significant effects on behavior (Worden 1989, pp. 667-711; Engel and Worden 2003, pp. 131-166). In an analysis of multiple studies regarding police behavior, Riksheim and Chermak (1993, p. 360) concluded that the "influence of officer attitudes remains in question." In one study, two attitudes (officers who believed that citizens were respectful were more proactive than those who believed citizens were disrespectful and/or abusive, and officers who believed that police were supported by the courts and by prosecutors were more proactive than those who believed they were less supported) were statistically significant, but neither had strong explanatory power (Worden 1989, p. 691). While not specific to traffic enforcement, Engel and Worden (2003, p. 154) found officer attitudes were not statistically significant when looking at how they allocated their time (time spent on problem solving), but "officers' perception of their supervisor's priorities mediate the effect of officers' own priorities on their behavior." When officers' perceptions of their supervisors' priorities for problem solving were omitted from the model, officers' own priorities for problem solving had a statistically significant effect on the time they spent on problem-solving activities (Engel and Worden 2003, p.155).

4.1.1.2 Role Orientation

The traditional role orientation in policing literature is one of an aggressive crime-fighting orientation where the primary focus of officers is dealing with criminal behaviors (Paoline and Terrill 2005, pp. 455-472). A broadened view of officer role orientation including traffic safety enforcement behaviors such as speeding, driving distracted, and wearing seat belts may influence their engagement in traffic enforcement behaviors.

Offering some insights into how role orientation influences attitudes among officers regarding enforcement aimed at specific criminal behaviors and traffic policing was that of a merge that occurred in New Zealand between two different agencies, New Zealand Police and the Traffic Safety Service (primarily responsible for "road policing") (Griffiths nd, pp. 1-10). The merge between these two agencies made traffic safety enforcement a responsibility of one agency. Prior to this merge, New Zealand Police officers were not accustomed to issuing citations for traffic violations. They were focused on criminal activities and criminal offenders. Some perceptions held by officers about road policing duties included: "traffic duties weren't real policing," and that issuing tickets for traffic safety were regarded as "punishment" versus a way to modify behaviors (Griffiths nd, p. 1). This transition required police officers to expand their role orientation to include focusing their duties not just on criminal acts, but also the general public who were offending on the road. Prior to the merge, the general public rarely had encounters with the police (Griffith nd, pp. 1-10).

Table 1 includes examples of questions and response formats from previous research to measure police officer attitudes about traffic safety enforcement and their role orientation toward police work.

Table 2. Examples of Questions and Response Formats from Previous Research to Measure Police Officer Attitudes and Behaviors about Traffic Safety Enforcement

Measurement Constructs	Response Formats	Source
<i>Officer Attitudes</i>		
I generally have enough time in my shift to conduct traffic enforcement.	Four-point scales ranging from strongly disagree (1) to strongly agree (4).	Johnson 2011, pp. 293-306
I generally have enough equipment to conduct traffic enforcement.		
I believe that traffic enforcement is rewarded in my department.		
I believe that traffic enforcement is a priority for me.		
I believe that traffic enforcement is a priority for my immediate supervisor.		
<i>Role Orientation</i>		
Do you think police should help to quiet family disputes that get out of hand?	1 = no; 2 = yes	Worden 1989 pp. 667-711
Do you think the police here should handle cases involving public nuisances such as barking dogs and burning rubbish?	1 = no; 2 = yes	
Police should not have handle calls that involve social or personal problems where no crime is involved.	1 = strongly agree; 4 = strongly disagree	
<i>A high value on the index reflects a broad role orientation</i>		
Enforcing the law is by far a patrol officer’s most important responsibility.	4 point Likert Scale: 1 = disagree strongly, 4 = agree strongly	Paoline 2004, p. 233
How often do they think that patrol officers should be expected to do something about neighbor disputes?	4 point Likert Scale: 1 = never, 4 = always	
How often do they think that patrol officers should be expected to do something about family disputes?	4 point Likert Scale: 1 = never, 4 = always	

How often do they think that patrol officers should be expected to do something about public nuisances?	4 point Likert Scale: 1 = never, 4 = always	
How often do they think that patrol officers should be expected to do something about nuisance businesses?	4 point Likert Scale: 1 = never, 4 = always	
How often do they think that patrol officers should be expected to do something about parents who don't control their kids?	4 point Likert Scale: 1 = never, 4 = always	
How often do they think that patrol officers should be expected to do something about litter and trash?	4 point Likert Scale: 1 = never, 4 = always	
<i>Attitudes Towards Citizens</i>		
Officers have reason to be distrustful of most citizens.	Likert scale (agree)	Cordner, 2017, pp. 11-25
Most people respect the police.		
The relation between police and people here is good.		
Most people in this community respect police officers.	1 = strongly disagree; 4 = strongly agree	Worden, 1989, pp. 706-707
The likelihood of a police officer being abused by citizens in this community is high.	1 = strongly agree; 4 = strongly disagree	
Police officers have reason to be distrustful of most citizens.	1 = disagree strongly, 2 = disagree somewhat, 3 = agree somewhat, and 4 = agree strongly	Engel and Worden, 2003, pp. 146
How many of the citizens in your beat would call the police if they saw something suspicious?	1 = none, 2 = few, 3 = some, and 4 = most	
How many of the citizens in your beat would provide information about a crime if they knew something and were asked about it by police?		

How many citizens in your beat are willing to
work with the police to try to solve
neighborhood problems?

* indicates authors did not list exact question or response in original document

4.1.2 Situational Factors

Situational factors that influence police behavior include the “structural characteristics of the immediate situation: the nature of the problem, the attributes and actions of the citizens, and contextual variables” (Worden 1989, p. 668). It has been suggested that “situational factors are the most common factors used by researchers to assess police decision-making” (Sun, Payne, and Wu 2008, p. 23). Worden (1989, p. 668) found that situational factors significantly influenced officers’ decisions to make arrests, but had a smaller effect on their choices among informal courses of action. In a study assessing the coercive and noncoercive behaviors of police, Sun, Payne, and Wu (2008, p. 27) found that a citizen’s gender, wealth, demeanor, and emotional state were significant situational factors associated with both coercive and noncoercive police behavior, but had “stronger explanatory power in predicting police coercive behavior than noncoercive behavior.” In this study, the coercive behaviors included such things as arrest, interrogation, search, and restraint. Noncoercive behaviors included activities such as providing physical assistance and information requests by citizens, filing an incident report, and acting on citizens’ behalf (Sun, Payne, and Wu 2008, p. 25).

One specific situational factor of interest among researchers has been the effects of demeanor on police behavior in traffic encounters. One study found citizen demeanor interacted with “several variables in predicting various forms of police behavior” (Engel, Sobol and Worden 2000, p. 255). Another study identified that a driver’s demeanor was important in determining the outcome of a traffic encounter (Schafer and Mastrofski 2005, pp. 225-238). It was found that while “a citizen’s demeanor would not increase the likelihood that they would receive a ticket; it could, however, decrease the likelihood of such an occurrence” (Schafer and Mastrofski 2005, p. 231). It was also noted in officer interviews and in-field observations of this study that citizens’ willingness to accept responsibility for the violation and to act civilly could influence an officer’s enforcement decisions regarding sanctions (Schafer and Mastrofski 2005, p. 231).

4.1.3 Organizational Context

Officers’ behaviors are influenced by the organizational context in which they operate (Lundman 1979, pp. 159-171; Schafer and Mastrofski 2005, pp. 225-238; Cordner 2017, 11-25; Johnson 2011, pp. 293-306). Understanding the nuances of working in a particular police department and the influences of the organizational culture can offer insight into traffic safety enforcement behaviors and the prioritization of police efforts. Researchers have studied the police culture at various organizational sublevels including the state level (Johnson and Billings 2010, pp. 305-323), precinct level (Hassell 2007, pp. 257-276), and at the level of workgroups (Ingram, Paoline, and Terrill 2013, pp. 365-397). It has been suggested that “variable structural arrangements within an organization produce variable cultures” (Hassell 2007, p. 258).

Some of the influencing organizational factors studied in the literature include: supervisory influence, organizational logistics, informal work rules, and social norms of the police environment.

4.1.3.1 Supervisory Influence

Research suggests supervisory influence plays a role in police behavior (Johnson and Billings 2010, pp. 305-323; Johnson 2011, pp. 293-306; Engel and Worden 2003, pp. 131-166). In a study to understand individual and supervisory influences on the variation of officers issuing traffic citations, Johnson (2011, pp. 293-306) found supervisory influence was significantly related to the degree to which officers issued traffic citations. Specifically, “perception by the officers that their supervisors rewarded traffic enforcement and the modeling by supervisors in their own issuing of citations both increased the issuing of citations by patrol officers” (Johnson 2011, p. 303). In this study, supervisors’ demographics were also correlated with patrol officers’ issuing of traffic citation rates. Specifically, supervisors with a college degree were more likely to supervise patrol officers with higher traffic citation rates than supervisors without a college degree (Johnson 2011, p. 301).

Another study regarding supervisory expectations on officers’ decision making found that officers’ perceptions of their supervisors’ priorities significantly influenced officer behavior; however, it was found that officers often had misperceptions about the actual attitudes and priorities of their supervisors (Engel and Worden 2003, pp.131-166). A survey by the Center for Health and Safety Culture of law enforcement officers in rural Utah revealed that perceived support for enforcement among supervisors as well as the perceived norm of enforcement behavior within the agency were found to be important predictors of enforcement behavior (CHSC, 2016).

Traffic enforcement is a police activity often subject to administrative control because expectations for the number of citations and stops an officer is expected to make can be established (Schafer and Mastrofski 2005, pp. 225-238). Johnson and Billings (2010, p. 316) found that span of control, or the number of troopers per supervisor was significantly correlated to vehicle stops; specifically, the more troopers per supervisor resulted in fewer vehicle stops per trooper. Further, the reverse was found for criminal arrests per trooper, and the authors speculated that “when closely supervised they are more likely to comply with the agency traffic enforcement goal (which they may not personally share), and neglect this duty in favor of more criminal enforcement when not supervised as closely” (Johnson and Billings 2010, p. 320). In a study of DUI enforcement, “discretionary behavior increased with the size and complexity of the organization studied” (Mastrofski, Ritti, and Hoffmaster 1987, p. 399). In smaller organizations, the discretionary behaviors of officers were more closely aligned with administrative priorities (Mastrofski, Ritti, and Hoffmaster 1987, pp. 387-402).

While research suggests supervisors influence their subordinates regarding traffic safety enforcement, the style of supervision may not matter (Engel, Sobol and Worden, 2000, 262-293). Engel, Sobol and Worden (2000, pp. 262-293) explored the relationship between different styles of supervision and their influence on officer decision making, and results showed the supervisory styles of sergeants were not significant predictors of their patrol officers’ behaviors to issue traffic citations. Table 2 provides examples of questions and response formats from previous research to measure supervisor attitudes toward traffic safety enforcement.

Table 3. Examples of Questions and Response Formats from Previous Research to Measure Police Supervisor Attitudes Toward Traffic Safety Enforcement

Measurement Constructs	Response Formats	Source
<i>Supervisor Attitudes Toward Traffic Enforcement</i>		
I believe that traffic enforcement is rewarded in my department.	Four-point scales ranging from strongly disagree (1) to strongly agree (4)	Johnson 2011, p. 299
I believe that traffic enforcement is a priority.		

4.1.3.2 Organizational Logistics

It has been suggested that “police culture is substantially organizational” (Cordner 2017, p. 22). Organizational logistics studied in the literature include: officer workload, procedural issues, work rules, and the informal working environment including the social norms of the group.

In a statewide assessment of law enforcement agencies to better understand involvement in high visibility enforcement patrols, agency priorities, and issues regarding traffic enforcement, Dahl and Thompson (2017, pp. 1-48) found a variety of factors influencing the level of participation in proactive traffic enforcement among agencies. Some of those organizational factors identified included inadequate staffing, the low prioritization of traffic enforcement, and a high volume of calls of service resulting in minimal time spent on proactive traffic enforcement (Dahl and Thompson 2017, pp. 1-48). Johnson and Billings (2010, pp. 305-323) found that trooper workload was a significant predictor of trooper proactivity regarding vehicle stops per trooper. Districts with higher numbers of incidents per trooper had significantly fewer vehicle stops per trooper, but the reverse was true when looking at criminal arrests and citizen services per trooper (Johnson and Billings 2010, pp. 305-323). Similarly, Phillips and Sobol (2012, p. 559) suggested “workload dimensions may shape police decision making in traffic stop incidents”. Another study revealed the only variable that had a statistically significant effect on the decision to engage in traffic-related activities was the total amount of uncommitted time available to beat officers (Smith, Novak, and Frank, 2005; p. 337). Another study found that discretionary time had the largest effect on the number of traffic stops that were made (Worden, 1989, p. 691). In contrast, Johnson (2011, p. 300) found that “whether or not the officer perceived enough time or equipment to conduct traffic enforcement was insignificant” in predicting officer citation rates.

The organizational procedures created to guide officer actions may also have an influence on traffic safety enforcement behavior. A study about enforcement of driving while impaired in Canada revealed that while many officers wanted to enforce DWI laws, procedural and legal barriers often reduced enforcement actions (Jonah et al. 1999, pp. 421-443). Research in New Zealand also found that procedural and legal barriers resulted in reduced enforcement actions (Hurst 1980, pp. 259-266). This research indicated that law enforcement’s perceived beliefs and attitudes about enforcement directly affected their likelihood to engage in these actions.

In addition to organizational logistics and procedural issues playing a role in influencing traffic safety enforcement behaviors, the informal working environment and social norms of the group have also been studied by researchers (Schafer and Mastrofski 2005, pp. 225-238; Worden 1989, pp. 667-711; Johnson 2011, pp. 293-306). Studying organizational work rules can provide insight into the informal working environment as work rules can be both formal and informal. Klinger (1997, pp. 284-285) suggested that the varied work of police officers makes it impossible for police administration to devise rules for every situation; many of the working rules provided to officers are “broad guidelines about how to handle situations”. Klinger (1997, pp. 277-306) also suggested that the informal rules of the organization influence officers’ decisions and actions. From the negotiated-order perspective, Klinger (1997, p. 286) suggested that police officers socially construct their working norms for conduct, and once these norms are established, informal rules are often sustained by the social norms of the group.

Schafer and Mastrofski (2005, pp. 225-238) found that social norms influence the decisions made during traffic enforcement encounters. Worden (1989, pp. 670-671) suggested that the link between officers’ attitudes and behaviors can be made stronger when “situational pressures such as social norms, the norms of reference groups, and the behavior of others” are present.

4.1.4 Community Level Factors

Community level factors influencing police behavior include variables such as the political environment, the community influence, and the social conditions of the community.

4.1.4.1 Political and Community Influences

The work of police is not done in isolation, but is done in the public eye, garnering scrutiny, and influence from a number of difference sources including political and social factors. Mastrofski, Ritti, and Hoffmaster (1987, pp. 387-402) suggested that when studying DUI discretion among officers, the political environment is relevant. The political milieu according to Mastrofski, Ritti, and Hoffmaster includes “elected officials, interest groups, business, bureaucrats, and the news media, and these entities send messages about what issues deserve attention and what administrative responses are likely to satisfy local demands for accountability” (1987, p. 391). In their study, it was found that officers in larger police organizations used more discretion and were less likely to make DUI arrests than smaller agencies (Mastrofski, Ritti, and Hoffmaster 1987, pp. 387-402). Larger agencies were “preoccupied with other issues and did not find a high DUI arrest rate particularly useful for sustaining community support” (Mastrofski, Ritti, and Hoffmaster 1987, p. 387). Further, it was found that officer discretion in smaller agencies was more closely aligned with administration priorities (Mastrofski, Ritti, and Hoffmaster 1987, pp. 387-402). Other studies about enforcing underage drinking laws found that political factors can influence enforcement – especially among sheriff departments (Wolfson, Wagenaar, and Hornseth 1995).

Officers in some communities may experience pressure to engage in traffic safety enforcement; whereas officers in other communities may not have similar traffic enforcement expectations (Schafer and Mastrofski 2005, pp. 225-238). The expectations of the community to address traffic safety plays an important role in guiding the actions of police (Schafter and Mastrofski 2005, pp. 225-238). It was found in one traffic enforcement study that officers believed that “although citizens wanted traffic enforcement they perhaps didn’t want full enforcement” which required officers to attempt to find a balanced approach to traffic enforcement action (Schafer and

Mastrofski 2005, p. 235). Using citizen complaints to prioritize traffic safety enforcement efforts is another example of the community's influence on police behavior (Haleem et al. 2014, pp. 83-99).

Taking a slightly different approach to understanding how the community impacts proactive police behavior, Jackson and Wade (2005, pp. 49-68) studied the influence of social capital. Social capital in this study was measured with a three-item social capital scale that "focused on the community's ability to solve problems, plan for the future and economic prospects in the future" (Jackson and Wade 2005, p. 58). Findings from this research suggested that officers' perceptions of social capital within a community influence proactive policing and officers' sense of police responsibility (Jackson and Wade 2005, pp. 49-68). Officers with a more "negative perception of community social capital are more likely to indicate a higher sense of responsibility towards the community" and are "more likely to indicate higher levels of proactive behavior" (Jackson and Wade 2005, pp. 62-63). Further, the authors pointed out that while social capital and police sense of responsibility may be important factors in explaining proactive police behavior, the amount of crime in a community was the most important variable for explaining proactive behavior. A study by the Center for Health and Safety Culture (2016) found that perceived support from the community influences engagement in enforcement activities.

4.1.4.2 Social Conditions of the Community

An area of scientific investigation has been to understand how the social conditions of the community itself influence police behavior (Ingram 2007; Klinger 1997; Hassell 2007; Johnson, 2011; Johnson and Billings 2010) and findings have varied. Klinger (1997, pp. 277-306) suggested that police officers demonstrate more leniency in communities that have higher levels of social deviance and disorganization than officers patrolling communities with lower crime and deviance. It has been suggested that officers in higher-crime communities respond with less "vigor" (less formal authority) to minor violations (Klinger 1997, p. 279).

Another study examined the impact of place on enforcement behaviors. Traffic citations were more likely issued in neighborhoods with increased violent crime, more social disorganization, and in increased disadvantaged areas, as well as areas with higher concentrations of Hispanic and Black populations (Ingram 2007, pp. 371-393). Hassell (2007, pp. 257-276) suggested that immigration patterns and racial and ethnic segregation in communities have influenced police patrol work. Language barriers and perceptions of racial inequity are two such challenges noted in the literature (Hassell, 2007, pp. 257-276). Johnson (2011, p. 302) found that population size was positively correlated with citation rates, and "the higher levels of concentrated disadvantage in the community, the lower the patrol officers' citation rates."

Other studies have found social disorganization to be of less importance. Johnson and Billings (2010, p. 302) found that crime rates had no effect on the rates of vehicle stops suggesting that "social disorganization had no significant influence on explaining proactive trooper activity." Similarly, Johnson (2011, p. 302) found that crime rate was not a statistically significant predictor of patrol officer citation rates.

4.2 Prioritization

With the many competing priorities that police officers and administrators face, how law enforcement agencies prioritize activities (such as traffic enforcement) has gained the attention of

researchers. One method of prioritization that has gained momentum is called evidence-based policing. Evidence-based policing is described as “a method of making decisions about ‘what works’ in policing” (Sherman 2013, p. 377). Evidence-based policing embraces the use of research evidence to guide decision making. Using a strategy termed “triple-T” - “targeting, testing, and tracking,” police leaders and officers proactively manage police resources based on evidence (Sherman 2013, p. 379). This relatively new method of decision making is quite different from the previous way of doing business where there “was almost no targeting of patterns or predictions of crime or disorder, no testing of what worked best to prevent or solve crimes and problems, or much tracking and managing of what police were doing, where, when, and how, in relation to any specific objectives” (Sherman 2013, p. 378). Three strategic principles are at the foundation of evidence-based policing:

1. Police should conduct and apply good research to target scarce resources on predictable concentrations of harm from crime and disorder.
2. Once police choose their high-priority targets, they should review or conduct tests of police methods to help choose what works best to reduce harm.
3. Once police agencies use research to target their tested practices, they should generate and use internal evidence to track the daily delivery and effects of those practices, including public perceptions of police legitimacy.

Sherman 2013, pp. 382-383

More information on evidence-based policing as a way of prioritizing police work can be found in Sherman’s (2013, pp. 377-451) paper entitled: *Rise of Evidence-Based Policing*. In this paper, a detailed account of how evidence-based policing emerged and the challenges stifling the practice of the triple-T strategy are discussed (Sherman 2013, pp. 377-451).

4.3 Strategies and Interventions to Increase Traffic Safety Enforcement

Researchers have suggested some strategies and interventions to increase traffic safety enforcement. Based on an assessment of traffic law enforcement trends in eleven jurisdictions throughout the United States, Wiliszowski et al. (2001) provided recommendations for increasing traffic enforcement. Those recommendations included:

Garner Command Emphasis. Traffic safety experts and official agencies must stress the importance of traffic law enforcement to those in command of law enforcement agencies who direct the use of available resources and decide on how to fund efforts, perhaps by pointing out other enforcement benefits emanating from traffic stops (e.g., felony arrests, reduced burglaries, etc.). Another argument for increased emphasis on traffic enforcement, particularly with elected law enforcement commanders, is that the voting public considers this a primary concern.

Combat Personnel Shortages by Hiring Non-Sworn Staff Members. As stated above, in most of the jurisdictions studied, enforcement resources have remained stagnant in the face of an increasing population and number of licensed drivers. Generally, with more licensed drivers on roadways driving more miles, there are greater numbers of crashes and the ensuing investigations. These can impact the resources available for other aspects of traffic enforcement. Where feasible, jurisdictions should consider the use of less expensive non-

sworn personnel for the investigation of non-injury producing crashes. This could free precious enforcement resources for the direct enforcement of traffic laws.

Value and Promote Officers Working in Traffic Law Enforcement. While many police officers do not consider it to be the most exciting or fulfilling work in their field, traffic law enforcement is essential, and one way in which officers are certain to make a positive impact on public safety. Some agencies which have endorsed the importance of officers handling traffic duties have accomplished this morale boost by: establishing special uniforms or patches designating traffic officers, mandating that all officers and supervisors within an agency perform traffic work from time to time, providing new special enforcement vehicles (unmarked vehicles) and/or equipment (e.g., video cameras) to traffic divisions first, and offering extra time-off for those individuals issuing the most citations.

Garner Public Support. In many areas, public support for traffic law enforcement is there and can be tapped to garner public funds and demand increased enforcement efforts.

Encourage Routine Data Collection Efforts and Use of Those Data. Virtually all law enforcement agencies encountered during this and many other projects are routinely collecting data. However, many are not summarizing and using this data to its fullest potential to identify areas which could be improved and identifying successes. When examining citation rates as a measure of traffic law enforcement effort, considerations should be made as to the categories of citations issued.

Promote grant funding for traffic-related labor, programs and equipment. Grants are an important source of funding for most law enforcement organizations. While some argue about the complexities surrounding the awarding of grant monies, no one disputes the value of the grants. Some also argue for greater flexibility in the use of the funds, claiming that "middle agencies" become involved in dictating how the monies must be spent. Separate from these issues, the authors would mention that data collection of labor hours expended and numbers of citations issued during funded programs, or after purchasing grant-funded equipment, should be compared to the same data collected prior to the granting of the funds to insure obligations have been met. However, overall, consideration should be given to streamlining grant processes wherever practical and directing as many of the resources into enforcement though mechanisms such as overtime, targeted training, or traffic enforcement-related equipment.

Promote accountability. To some extent, law enforcement agencies should be held accountable for public safety on roadways passing through their jurisdictions. While assistance and support from civic, professional and governmental agencies are imperative, law enforcement agencies are the only means of enforcing traffic laws.

Wiliszowski et al., 2001, Section 14

Many of the strategies identified by Wiliszowski and colleagues were also identified in a recent assessment of proactive traffic enforcement in Washington. Dahl and Thompson (2017, pp. 1-48) gathered survey responses about what law enforcement agencies believed worked well and did not work well to support their traffic enforcement efforts. Some of those strategies identified as working well included: overtime for high visibility enforcement (HVE) patrols, current funding

level provided for HVE, and performance requirements built into the HVE program (Dahl and Thompson 2017, p. 29). Some of the strategies identified as needing to be changed in the current structure and suggestions to support agencies' traffic enforcement efforts included: adjustments in their current performance measures for traffic stops, adjusting the process for scheduling flex patrols, adjusting schedules and using overtime for backfill for officers interested in HVE, helping agency leaders to be better equipped to train new officers in traffic enforcement, and finding ways to help agencies "adjust their priorities to include more proactive traffic enforcement" (Dahl and Thompson 2017, p. 31).

5 CONCLUSIONS

The goal of this project is to understand the cultural factors influencing law enforcement leaders and officers regarding traffic safety. The project seeks to answer several critical questions:

- What self-reported values, attitudes, and beliefs predict prioritization of traffic safety enforcement behaviors of agency leaders and officers?
- How do law enforcement leaders and officers within the agencies selected prioritize traffic safety relative to other public safety issues?

A literature review of published research was conducted to better understand factors influencing traffic safety enforcement behaviors, prioritization practices, and suggested strategies to increase traffic safety enforcement behavior.

To better understand the complex and multifaceted behaviors of law enforcement officers, researchers have identified factors influencing police behaviors at the individual, situational, organizational, and community levels. This review identified various relevant factors to inform the constructs of the behavioral model used for this project.

There is a climate of competing priorities in police work, one that requires leaders and officers to make decisions about what should be done and how much time should be allocated. One method of prioritization gaining momentum in police agencies is that of evidence-based policing (Sherman 2013, pp. 377-451). Evidence-based policing is a method to help leaders and officers use research to make informed decisions (Sherman 2013, pp. 377-541).

Research demonstrates traffic safety enforcement is effective (DeAngelo and Hansen 2014, pp. 231-257; Stanojevi et al. 2013, pp. 29-38; Nikolaev et al. 2010, pp. 182-193; Ryeng 2012, pp. 446-454; Nichols and Ledingham 2008), yet there remains speculation of a reduction in traffic safety enforcement prioritization efforts. Some research has shown a declining trend in traffic safety enforcement (Dahl and Thompson 2017, pp. 1-48; Wiliszowski et al., 2001) affirming the perceptions of some traffic safety professionals.

To grow a positive traffic safety culture that includes traffic safety enforcement prioritization, it is critical to understand how the culture within law enforcement agencies impacts the extent and effectiveness of their efforts. The results of this project will provide a better understanding of the attitudes and beliefs of law enforcement leaders and officers and inform how to grow a positive traffic safety culture and ultimately achieve a goal of zero deaths on the nation's roadways.

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7 APPENDIX A

7.1 Formative Interviews

The Center for Health and Safety Culture conducted four interviews with high level law enforcement leaders to inform the development of the survey and to identify any potential concerns regarding the project. Participants included:

- Colonel Kedrick Wills, Director of the Idaho State Police
- Mike Tooley, Director of the Montana Department of Transportation and former Chief of the Montana Highway Patrol
- David Thomas, Program Manager for the International Association of Chiefs of Police
- Tim Feathers, Executive Officer of the Wyoming Association of Sheriffs and Chiefs of Police (WASCOP), retired Police Chief, and retired Executive Director of WASCOP

The responses to the interviews aligned with what the Center discovered in the literature review.

7.2 Methods

The interviews were conducted over the phone and lasted between 20 minutes and one hour. Participants were provided the informed consent statement and interview questions prior to the interview. Researchers reviewed the following informed consent statement with each participant prior to starting the interviews.

Informed Consent Statement

You are being asked to participate in an interview as part of a research project for the Center for Health and Safety Culture. The goal of this project is to understand how values, attitudes, and beliefs within law enforcement agencies impact the extent and effectiveness of their traffic enforcement efforts. We will develop and implement an online survey to measure the attitudes and beliefs of law enforcement leaders, supervisors, and officers regarding traffic safety and related traffic enforcement activities. The purpose of this interview is to inform the development of the survey and to identify any potential concerns regarding this topic.

Several state departments of transportation sponsor this project. Your participation is voluntary. If you agree to participate, I will interview you. The interview will last about 30 to 40 minutes depending on your answers. I will take written notes during the interview. You may choose not to answer any questions that you do not want to answer and/or you may stop at any time. Your responses will be shared with the research team to inform the development of a survey. The final report may identify individuals who were interviewed, but specific statements will not be attributed to individual participants.

There are no foreseen risks, and the benefit to you is you can share your knowledge and understanding of this topic and readiness to engage in this project.

If you have any questions about the project, you can contact me at any time in the future. If you have additional questions about the rights of human subjects, please contact the Chair of the Institutional Review Board, Dr. Mark Quinn (mquinn@montana.edu).

By participating in the interview, you acknowledge that you have been read and understand the discomforts, inconvenience, and risk of this study and agree to participate in this research.

The researchers took written notes of the participants' responses and developed summary statements for each participant. Content analysis of the participants' responses will help inform the development of the survey in Task 2.

7.3 Results

This section is organized by interview questions. Specific statements are not attributed to individual participants.

7.3.1 Has law enforcement's support for and engagement in traffic safety enforcement changed in recent years?

All of the participants believe that engagement has decreased in recent years. However, participants also mention that there is still support for traffic safety enforcement. Some of the reasons the participants believe that engagement has changed include: increased technology has been utilized to assist enforcement, growing distrust in government has resulted in decreased enforcement, the "Ferguson effect" has resulted in a decline of self-initiated enforcement activities, community views of certain types of enforcement (i.e. seatbelt laws) are seen as an infringement on individual rights, and competing interests among multiple law enforcement priorities. Enforcement is a proactive activity that requires resources and time, both of which law enforcement agencies have seen decrease.

One participant discussed how throughout his career there had been a prevalent attitude that traffic safety was not real police work. He discussed how that changed with the "broken windows" theory, the idea that visible signs of disorder and decay can lead to criminal activity. Law enforcement began to understand traffic safety enforcement as criminal enforcement. If an officer pulls a person over for a seatbelt violation, they may have an opportunity to stop a criminal engaged in more dangerous activities.

7.3.2 What do you think about the research questions for this project? What's missing? What questions would you explore on this topic?

Research Questions are:

- How do law enforcement leaders and officers within the agencies selected prioritize traffic safety relative to other public safety issues?
- What are law enforcement's attitudes, beliefs, and enforcement behaviors regarding traffic safety?
- What are law enforcement's perceptions of how traffic safety enforcement behaviors have changed in recent years?
- How do the prioritization of traffic safety, attitudes, beliefs, enforcement activities, and perceptions of change vary between leaders and officers, agency types, and urban and rural settings?
- What are potential methods to increase engagement in traffic safety efforts based on the beliefs identified in this study?

The participants agree that these research questions make sense, cover the core issues, are comprehensive, and salient. They did provide additional advice including:

- Traffic safety should be focused on the safety of the community. Some law enforcement believe that criminals often engage in traffic violations and that enforcing traffic safety improves the safety of the overall community.
- Public perception is important. The public needs to understand that traffic safety enforcement is meant to increase the safety of the community.
- Agency type is important because each agency has a different mission and often that mission is mandated by law. Highway patrol's mission is traffic safety enforcement, so a trooper is going to have a different attitude than an officer from a municipal agency. For a municipal agency, traffic safety is one of many mandated activities. They have a broader mission that covers crime, calls for services, and quality of life issues. For a sheriff's office in an urban or metro area, traffic safety might be more of a priority, but in a rural area it is not a priority. There is a political component, they want to get reelected so traffic safety isn't a priority issue.
- Perceptions of leaders versus officers is an important topic. Leaders assume that their message is being heard by front line staff and that may not be the case.
- Resources play an important role.

7.3.3 Research indicates that there are three primary influences on traffic enforcement by officers: work environment, supervisors, and community influences. Would you agree?

All participants agree that these areas influence officers' engagement in traffic safety enforcement; however, they want to emphasize a few areas. Work environment and leaders can have a large effect on traffic safety. One participant told a story about how the police chief was a former highway patrol officer and under his leadership, there was an increase in traffic enforcement among officers as well as an increase in selected traffic enforcement patrols. The next police chief was a former detective, so he focused on "major crimes" and traffic safety was minimized. Leaders must make it clear that traffic safety enforcement is "what we do" for officers to engage. Another participant wanted to make sure that work environment included agency organizational culture. The organizational culture reinforces the attitudes and beliefs of the officer regardless of leadership.

7.3.4 How does law enforcement prioritize traffic safety enforcement relative to other policing tasks?

The participants listed many ways to prioritize enforcement relative to other policing tasks. Sometimes it depends on the agency culture, leadership priorities, and/or community priorities. Other ways to prioritize included:

- Type of agency and its mission- mandated missions drive fundamental perspectives and priorities
- Buy-in from other leaders
- Data driven decision making

- Traffic safety has become a means to an end - officers do it to catch criminals, which ultimately takes up more resources from proactive enforcement.

7.3.5 Recent news has highlighted conflict in some communities between law enforcement and citizens. Would you have concerns regarding trying to explore this topic in this current climate? How might we best navigate these concerns?

None of the participants have any concerns about exploring this topic in the current climate. In fact, most of them believe that due to the current climate, it is the exact time to do this research. It is an opportunity to address law enforcement relationships with the community. Because there have been too many negative interactions between officers and citizens, traffic safety enforcement offers have an opportunity to re-engage citizens about community wellbeing. One participant believes that the current climate is influencing all policing, making it an ideal time to better understand how it is affecting traffic safety enforcement.

The best advice one of the participants had for navigating these issues is to remain neutral. The researchers should not appear to support traffic safety enforcement or criminal enforcement. Another stated that they did not think law enforcement would be hesitant to discuss issues. They want to be heard and feel nobody is listening.

7.3.6 What tips do you have for recruiting law enforcement leaders and agencies to participate in this project?

It is important to communicate that the survey will provide information that can improve the agency and the profession. The law enforcement community needs good data to convince leaders to create change. As people always want to know “what is in it for me,” show them through examples how increased engagement in traffic safety results in reduction of major crimes. One participant discussed the importance of recruiting the agencies through a credible person who has an established relationship with law enforcement leaders. Credibility is very important to law enforcement. It is also important to communicate the intent and value of the research as well as how the results will be handled. Some leaders are operating in a challenging political environment, and they do not want to do anything that could potentially harm them. The results need to be useful to the law enforcement leaders to be effective.