

# THE GOVERNOR'S TASK FORCE ON RESPONDER SAFETY

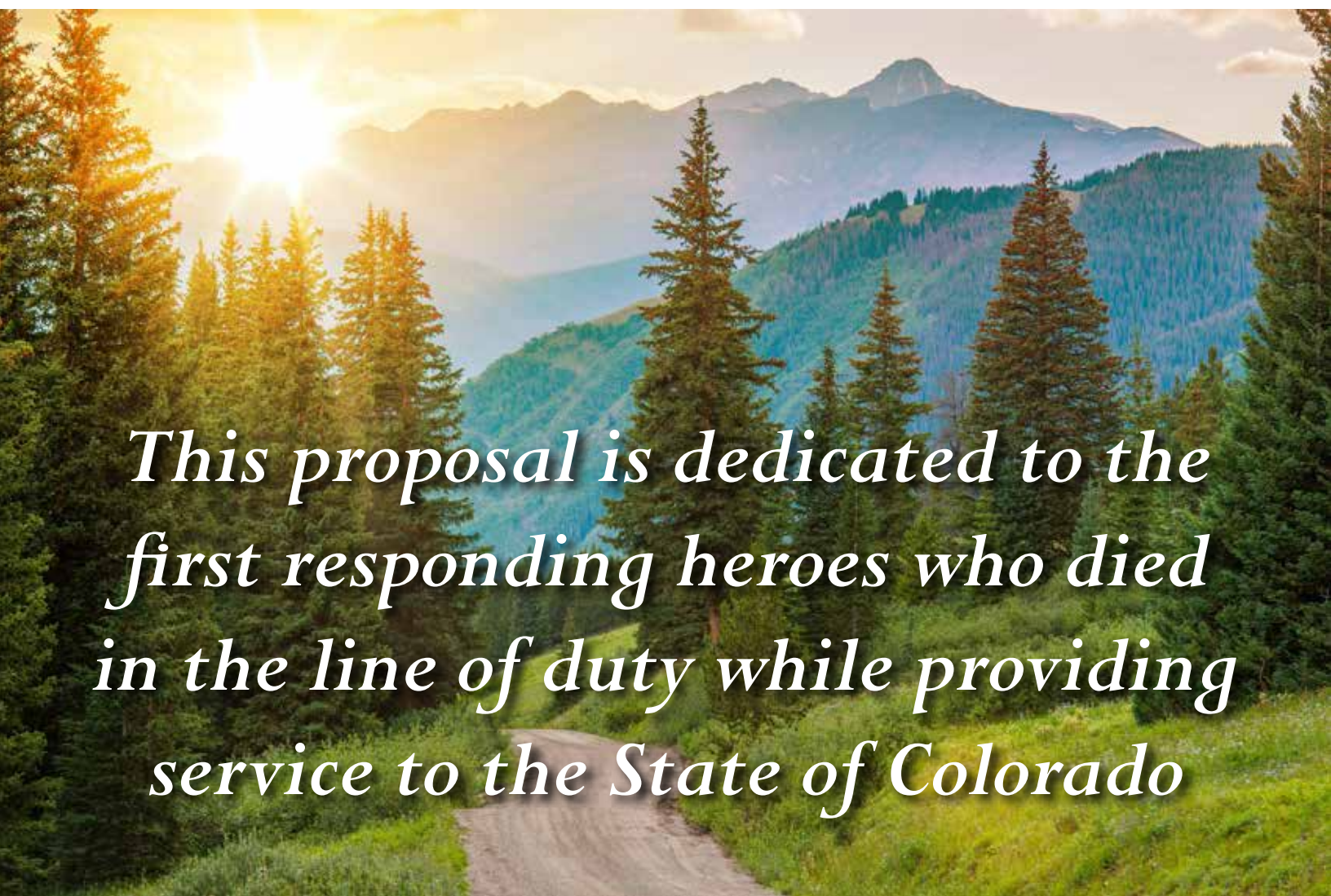
June 2017

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# Contents

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1	From The Chief Of The Colorado State Patrol
2	Task Force Members
3	Acknowledgments
6	Executive Summary
10	Introduction
12	Focus Areas: Training & Operations
22	Focus Area: Infrastructure
26	Focus Area: Technology
30	Focus Area: Policy & Procedures
34	Focus Area: Communication
39	Implementation
	Appendix A. Detailed Recommendations And Actions



*This proposal is dedicated to the first responding heroes who died in the line of duty while providing service to the State of Colorado*

# From the Chief of the Colorado State Patrol

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I would like to thank Governor John Hickenlooper for providing us the opportunity and honor to review the safety of first responders on all of Colorado's roadways. This task force was created to identify challenges and opportunities that impact those that support Colorado's travelers, commuters, and citizens.

As a member of the law enforcement community, I know that it is critical to maintain and foster relationships with all of the first responders that strive to create a safe environment for all. Governor Hickenlooper instilled a sense of urgency to identify best practices and opportunities to keep first responders safer and encouraged that the task force encompassed a diverse membership of responders that represented the entire State of Colorado.

The dedication of the members of the task force was evident in the product that was developed. As the leader of an agency that has lost three members in an eighteen month period in 2015-2016, I am humbled at their perseverance, commitment and selfless giving of their time and expertise. Special thanks are to be given to the Colorado Association of Chiefs of Police, the County Sheriff's of Colorado, the Colorado Association of Fire Chiefs, the Towing and Recovery Professionals of Colorado and the Colorado Department of Transportation.

The collaboration and ideas contained within this document are innovative and provide a quality resource with recommendations for a safer environment for Colorado's first responders. This proposal is an in-depth look at what is currently being done, but to be effective it is important to address that there is much more work that needs to be done to prevent future deaths of our first responders. Only with the partnership and support from Colorado's leaders and citizens, can we increase safety for those courageous servants that work daily to protect us all.

I am confident and optimistic that the work started by this task force will continue in the years to come by developing innovative strategies that meet the changing landscape of our motoring public.

With Gratitude and Respect,

A handwritten signature in black ink, appearing to read 'S. Hernandez', written in a cursive style.

Colonel Scott Hernandez

Chief of the Colorado State Patrol

# Task Force Members

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## Chair



Deputy Chief Mark Savage  
*Colorado State Patrol*

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# Task Force Members

## Members

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Director Cliff Dawson, *Red Rocks Community College*  
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Staff of the CSP Policy and Research Unit

The task force received support from the Colorado first responder community. The contributions of our partner agencies are invaluable in delivering safety and security for responders and Colorado citizens alike. The following agencies and organizations from across Colorado assisted the task force in its work:

CSP	Drive Smart
CDOT	Douglas County Sheriff's Office
Castle Rock Fire Department	Loveland Fire Rescue Authority
Colorado Department of Revenue	Pueblo County Sheriff's Office
CDPS Division of Fire Prevention and Control	Red Rocks Community College
Colorado POST	Towing and Recovery Professionals of Colorado
Denver Police Department	Thyfault Foundation
Denver Regional Council of Governments	West Metro Fire Department

Thank you to FHWA, NHTSA, NCAR, NREL, the National Law Enforcement Memorial, and Arrow Electronics for sharing your expertise and your support of the task force.

# Executive Summary

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## One scene. One culture. Save lives.

Colorado's first responders are highly trained, extremely capable professionals. A comprehensive review of practices and of the working environment reveals that our culture, the way we practice our professions, must change for safety to improve in lasting and meaningful ways for all, citizens and responders. Culture change is not for responders alone; our citizens also need an updated understanding of their role in creating safety for all. One scene, one culture saves lives because everyone's actions matter. Together, we minimize crash exposures in the execution of our work, our responses to roadside activities, and our choices when our vehicles become disabled.

Moving forward, Colorado's first responders must convert from individual cultures which tend to generate solidarity within each discipline, emphasize differences, prioritize tradition over necessary evolution, and work adjacently, to a singular, one scene culture in which all disciplines execute their individual missions together as one, multi-talented unified team: a team of experts saving lives together.

Colorado's citizens must convert from bystanders to participants in a one scene culture. For citizens, culture change requires an updated understanding of citizens' role in safety. The citizen requires a current

understanding of the risks to themselves and others when they are outside of their vehicle, trained reactions to first responder activities that promote safety, and confidence that changing long-standing behaviors serves a necessary purpose.

The task force acknowledges that changing culture is not a small undertaking. However, when we successfully change this culture, we will change outcomes permanently. We will save the lives of responders and citizens alike.

The recommendations presented in this report represent a concerted effort to align our common practice through the life cycle of every engagement working within the roadway environment. To deliver immediate and lasting results, Colorado's first responders must advance beyond the current state of the practice. Through many points of view we can execute a singular vision. One scene, one culture to save lives every day.

This executive summary presents an overview of the task force findings. Colorado State Patrol (CSP) Deputy Chief Mark Savage chaired the task force with leadership support from CSP and Colorado Department of Transportation (CDOT) personnel in assembling expertise for executing the work.

# Executive Summary

## Overarching Recommendations

The task force also identified two overarching concepts that provide a continuum of practice philosophy based in valuing the safety of our people, responders and citizens, over other considerations with a structure for multi-disciplinary leadership. The overarching recommendations provide a pathway to a one scene culture and the beginning of a common understanding.

### Overarching Recommendation 1:

*The State should establish and fund a permanent, multi-disciplinary standing committee on first responder safety, led by CSP, responsible for achieving a one scene culture by executing unified and comprehensive updates to training, operations, policies and procedures, communications, and infrastructure, including technological advances.*

Lasting transformation to an intrinsic, one scene culture cannot be achieved through a champion-driven effort. Champion-driven initiatives frequently stall or lose progress when primary proponents move on to new assignments. All Coloradans benefit from a commitment to continuous improvement and a cadence of accountability. To deliver enduring value and accountability the multi-disciplinary standing committee's structure, composition, and responsibilities need formalization. The State should appoint a permanent, multi-disciplinary standing committee responsible for executing these recommendations and for reporting on the committee's activities and accomplishments at least annually.

### Overarching Recommendation 2:

*To improve first responder safety, all responders and the travelling public must take steps to eliminate, reduce, and minimize exposures to active traffic.*

To maximize safety for first responders and for the travelling public, responder exposure to active traffic must be minimized at the same time as disruption of normal traffic flow is minimized. Balancing this necessary conflict requires first responders to lead operational decision-making from minute zero: to make choices that reduce the duration and proximity of first responder exposure to active traffic and reduce secondary crash risk. At the same time, the travelling public needs a current understanding of their own traffic exposure risk and avoidance strategies to execute safer practices.



# Executive Summary

## Focus Area Recommendations:

The following recommendations support and extend the overarching recommendations.

### Focus Area: Training & Operations

- Establish and fund a permanent, multi-disciplinary standing committee responsible for executing these recommendations.
- Evaluate and review the training methodology for routine based activities. These include traffic stops, crash investigation, medical calls, towing and recovery, debris removal, driving to calls for service and emergency response.
- Develop a multi-disciplinary training subcommittee that uses data based analysis for the ongoing coordination of first responder and scene safety training.
- Develop and implement standardized training approaches for all first responders and scene safety. This includes shared and coordinated nomenclature, common scene/incident objectives, and communication and prioritization of incident objectives.
- Execute all enforcement, maintenance, and response/mitigation activities in a manner that minimizes responder exposure to active traffic.
- Develop a unified, multi-disciplinary readiness philosophy for operating in the roadway environment.
- Infuse common, multi-disciplinary culture with personal accountability.

### Focus Area: Policy & Procedures

- Formalize agency commitments to “Quick Clearance” practices.
- Work away from traffic exposures.
- Request traffic control support from public works agencies for extended work near active traffic.

### Focus Area: Infrastructure

- Develop an implementation plan to improve existing operating conditions, where needed most, around Colorado.
- Consider first responders specifically as users within the framework of project development, planning and design.
- Update existing installations in the course of routine maintenance where first responder safety can be improved.

### Focus Area: Technology

- Provide drivers with automated messaging of responder activities ahead via existing devices and technologies.
- Expand driver notification, collision avoidance, and traffic management opportunities for high speed, high risk locations.
- Promote development of intrusion alert systems for first responder vehicles and encourage continued development of new technologies, including collision avoidance systems, for all vehicles.

### Focus Area: Communication

- Develop a communication plan that creates social norming and prioritizes first responder safety.
- Develop a “Move Over” Campaign Kit.
- Create a responder and partner communication plan.



# Executive Summary

## Implementation

Changing the way that Colorado first responders and the travelling public work together will take time to reach full maturity. Establishing a one scene culture for all Colorado first responders is realistic but requires long-term commitment by all. Beginning now through existing efforts, we will make a positive impact on first responder safety using the core recommendations presented in this report. To expedite implementation, we propose taking the following immediate actions.

- *The State should establish and fund a permanent, multi-disciplinary standing committee responsible for executing the task force recommendations.*
- *The State should charge CSP with leading the standing committee.*
- *The State should direct all state agencies to take action on these recommendations, including updating policies and procedures and formalizing a communication strategy for immediate action, to the extent practicable.*
- *The State should encourage county, city, town, and transportation planning organization officials to direct their respective agencies to review the task force recommendations and take action on them, to the extent practicable. This encouragement should be extended to industry as well. Leadership of regulatory, professional, and industry (towing, freight, design, and construction) like FHWA, NHTSA, POST, CACP, CSOC, Colorado Fire Chiefs, TRPC, CMCA, APWA, ITE, ACEC, and CCA should receive encouragement also.*

## Conclusion

Colorado's first responders are an essential part of what makes Colorado a wonderful place to live. Providing for human safety while first responders work to address hazardous situations in a changing environment requires change by all. No single tactic, piece of equipment, or policy will deliver improved outcomes alone. Creating and requiring a human focused, one scene culture will save lives in perpetuity.



# Introduction



First responders perform a critical role in providing for safety of Colorado’s citizens using our transportation system. From enforcing Colorado’s laws to supporting our citizens when they are involved in traffic crashes, responders expose themselves to risk of bodily harm daily. While it is not possible to eliminate risk and perform the duties necessary to fulfill first responder missions, it is feasible to reduce risk by improving our practices.

In Colorado, three Colorado State Patrol troopers were struck and killed while working in the roadway environment within eighteen months during 2015-2016. The following provides context about traffic exposure risk for all first responders working in the roadway environment. Per FHWA, in a typical year, the following number of responders are struck and killed:

- 12 Law Enforcement Officers
- 5 Fire and Rescue Personnel
- 60 Towing and Recovery Professionals
- Several transportation professionals from DOT’s, Public Works, and Safety Service Patrol Programs.<sup>1</sup>

Additionally, secondary crashes, crashes occurring as a consequence of a primary crash, are estimated to cause 18 percent of all fatalities on freeways. Both first responders and the travelling public are exposed to secondary crash risk during mitigation of the primary crash and during the system recovery period.

The mission of the task force was to:

- examine current practices of Colorado’s first responders,
- identify opportunities to improve safety,
- find and propose solutions for safety obstacles,
- bring forward actionable ideas to put to work immediately, and
- provide for sustained success in reducing first responder casualties.

CSP Deputy Chief Mark Savage identified task force leadership based on their individual abilities to engage multiple points of view, subject matter expertise, and commitment to Colorado’s community of first responders. The task force leadership met nine times between January and March 2017. In addition to the task force leadership, over two hundred first responders (law enforcement, fire, emergency medical services, public works, emergency management, and towing professions), communication officers, and public works professionals participated in developing the body of this work either through direct participation in focus area committees or by responding to survey requests.

The task force conducted research, analyzed data, and made recommendations over the course of three months. The entirety of the work was divided into six topic or “focus areas”. The focus areas were selected to address all aspects of practice within the roadway environment:

<sup>1</sup>Federal Highway Administration, *National Traffic Incident Management Responder Training Program Train-the-Trainer Guide* (Washington, DC: USDOT, 2013)

<sup>2</sup>National Traffic Incident Management Coalition, *Improving Traffic Incident Management Together* (Washington, DC: AASHTO, 2004)

## Focus Areas

- Training** all aspects of training to include basic training, field training, and continuing education
- Operations** all field operations from routine to extraordinary in scope and complexity
- Infrastructure** the physical roadway environment and its associated safety and communication devices
- Technology** the existing and future elements of the transportation system relating to remote interactions between first responders, communication centers, and drivers
- Policy & Procedures** the official requirements and guidance of first response agencies
- Communication** all aspects of internal and external messaging to include education, information, and social norming.

Each focus area leader was empowered to assemble and direct a multi-disciplinary team at their discretion. Focus area leadership collaborated weekly and met in person three times to coordinate work efforts, share information, and de-conflict findings.

Communication is a standalone focus area of this task force; however, well-executed, intentional communication efforts are also necessary for successful implementation of strategies identified within each of the other focus areas. For each focus area, three distinct audiences were identified:

- *external - general public – in particular, road users, drivers, members of the travelling public*
- *internal – the responders themselves*
- *internal – partner agencies and organizations*

The focus area discussions highlight critical audience-related considerations without presenting fully developed communication plans or strategies for each audience and recommendation. Development of specific solutions and strategies for all three audiences is anticipated as part of executing each action item.

The task force also identified two overarching concepts that provide a continuum of practice philosophy based in valuing the safety of our people, responders and citizens, over other considerations with a structure for multi-disciplinary leadership.



# Introduction

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## Overarching Recommendation 1:

*The State should establish and fund a permanent, multi-disciplinary standing committee on first responder safety, led by CSP, responsible for achieving a one scene culture by executing unified and comprehensive updates to training, operations, policies and procedures, communications, and infrastructure, including technological advances.*

As presented in this report, a primary opportunity for improving first responder safety is based in multi-disciplinary collaboration. In Colorado, no single body represents the many disciplines of first responders. As such, our current ability to collaborate is limited to those instances generated by champions within our ranks. Long-term success in collaboration is accomplished through stability in execution. Establishing a permanent body representing the safety interests of all first responders provides both needed stability and a mechanism to develop, define, enact, and continuously improve a one scene culture of response. With a statewide service area, a primary mission of community protection, and an obvious connection to the importance of this effort, CSP is ideally suited to lead the multi-disciplinary standing committee.

Lasting transformation to an intrinsic one scene culture cannot be achieved through a champion-driven effort. To deliver enduring value and accountability the multi-disciplinary standing committee's structure, composition, and responsibilities need formalization. Executive action to appoint the committee members and to require reporting on the committee's activities and accomplishments, at least annually, is needed.

## Overarching Recommendation 2:

*To improve first responder safety, all responders and the travelling public must take steps to eliminate, reduce, and minimize exposures to active traffic.*

To maximize safety for first responders and for the travelling public, responder exposure to active traffic must be minimized at the same time as disruption of normal traffic flow is minimized. Balancing this necessary conflict has spurred emergency response and transportation experts to develop an entirely new practice called traffic incident management (TIM). TIM practitioners are actively researching and developing best practices to keep everyone safe. At the core of TIM is the need for first responders to lead operational decision-making from minute zero: to make choices that reduce the duration and proximity of first responder exposure to active traffic and reduce secondary crash risk.

Colorado's TIM practice is established and growing. The task force observations indicate a need to advance beyond the current state of the practice and to build upon the existing body of knowledge to achieve better outcomes.

Like first responders, the travelling public has an essential role in delivering safe travel for all. Risk reduction by the travelling public requires an updated understanding of traffic exposure risk and routine execution of risk avoidance strategies for successful, predictable execution.



# Focus Area: Training & Operations



By their nature, first responder operations conducted in the roadway environment are necessarily urgent and require unconscious competence in execution of trained behaviors. Exposure to traffic related risk is perpetually present in every operation at the primary activity site and within the portion of the traffic stream affected by queuing or turbulent traffic flow created by the presence of non-recurring congestion. All kinds of first responder activities, not only crash investigations and mitigation, result in non-recurring congestion or disrupt typical traffic flow. Consequently, actions that first responders can take to minimize time exposed to traffic provide direct safety benefits to the responder and travelling public alike.

As the roadway working environment changes, the need for implementation of updated strategies persists. Today's responders are exposed to increased volumes of traffic, smaller operating footprints, and increasingly distracted motorists. At the same time, a great deal of research activity, new best practices, new technologies, and new training strategies relating to first responder safety are emerging. While training and operations are clearly distinct elements of the totality of service, the two cannot succeed in isolation. As presented in this report, two independent teams with different points of

view generated several closely related recommendations and action items. Most importantly, all agree that Colorado should establish a unified, multi-disciplinary standard one scene approach, with a statewide footprint, to all aspects of training and operations for first responders working in the roadway environment.

Colorado's first responders are highly trained, extremely capable professionals. In an ever-evolving environment, with necessary but very serious human risks, responder training and operations programs must also adapt to respond to the evolution of best practices, new threats, situational complexity, new safety challenges, and other opportunities to advance first responder safety.

The goal is to provide a balanced approach to work in the roadway environment that values human capital, responders and citizens, while executing all parts of our missions as protectors of the community. For emphasis and clarity, the most integrated recommendation and associated actions is presented first in this report followed by recommendations with more discernably differentiating qualities. Each team approached the work of the task force independently. A description of each team's work precedes the independent recommendations.

# Focus Area: Training & Operations

## Focus Area:

### Training & Operations Recommendation TO1

*Establish and fund a permanent, multi-disciplinary standing committee responsible for executing these recommendations.*

A critical element of converting best practices from champion-based, localized activities into institutionalized daily practice is understanding responsibility for leading, developing, measuring, and delivering consistent results. In Colorado, each responder discipline has adequate institutional structure to manage discipline-specific practices; however, a cohesive, inclusive structure does not exist. Without continuing commitment and a statewide footprint for collaboration, the advances identified by this task force will not achieve maximum benefit. *The State should direct formation of a permanent, multi-disciplinary standing committee responsible for executing the actions contained in these recommendations.* Benefits of operating this committee include building upon current efforts and successes, knowledge transfer, and increased collaboration opportunities for first responder leadership.

#### TO1.1 Immediate Opportunity: Statewide Committee Participation

With primary leadership responsibility assigned to CSP because of the agency's statewide footprint, establish, fund, and maintain a multi-disciplinary committee representing not only each responding discipline's leadership but also the entirety of Colorado's population by seeking participation from around the state. Essential committee responsibilities include: defining, planning, implementing, delivering and evaluating first responder services within the roadway environment. Recruit participation and committee leadership using sustainable strategies designed to minimize committee vacancies and provide for smooth transitions of the members' responsibilities. *Deliver enduring value and accountability by formalizing the committee's structure, composition, and responsibilities through executive action to appoint the committee members and to require reporting on the committee's activities and accomplishments, at least annually, is needed.* Formalizing the committee in this way will assure that the committee's work lasts beyond the tenure of current champions.

#### TO1.2 Short-term Opportunity: Mutual Understanding

For maximum success across missions, a common understanding of our mutual aim to balance competing priorities is essential. The initial standing committee should determine, evaluate, and document the depth and breadth of committee responsibilities in a multi-year strategic plan or other guiding document. The guiding document should provide the committee with composition and structure, direction on fundamental responsibilities, establishment of priorities, fiscal analyses, basic philosophy, measures of effectiveness, and an understanding of the desired end state.

#### TO1.3 Short-term Opportunity: Current State

At the direction of the standing committee, CSP should lead an effort to prepare for continuous advancement of first responder safety by collecting and analyzing information about the current state of the practice statewide to establish a baseline to compare to for future measurement of increasing effectiveness and efficiencies in delivering responder safety. In particular, the effort should identify and evaluate those areas where multiple disciplines conduct intersecting activities.

#### TO1.4 Short-term Opportunity: Full-time Support

Executing the mission of the multi-disciplinary standing committee on first responder safety will require an increase in effort over the current state. Support CSP leadership in executing the mission effectively by assigning a full-time member with a minimum rank of Captain to carry out day-to-day operations of the committee. The activities and commitment of this member should not replace current participation from any agency but should support and enhance those efforts.

# Focus Area: Training & Operations

## *TO1.5 Long-term Opportunity: Mature Operating Environment*

A shortcoming of initiatives seeking to change behavior is the presumption that the specific strategies generating desired results initially will retain their efficacy over time. To minimize the risk of declining results, Colorado should establish a cadence of introspection, performance measurement, adaptation, and on-going assessment of future conditions in executing a common, safety focused philosophy. Essentially, we will be most successful in improving safety for Colorado's first responders when we understand and execute an outcome-focused philosophy with a disciplined, routine rhythm.

## *TO1.6 Long-term Opportunity: Joint Training Facilities*

Plan, develop, operate, and maintain multiple one scene joint training facilities across Colorado using a joint training platform. Begin planning steps immediately and implement as aggressively as feasible within available fiscal and staffing allocations.

## *TO1.7 Long-term Opportunity: Connect Standing Committee with Responders Statewide*

Extend the reach of the standing committee by continuing to establish localized Standing Program Management Teams (SPMTs) to build partnerships, train together, and customize tactics to address issues that are specific to local regions and/or corridors. For example, a local SPMT may identify and address deficiencies in assets, training, communication systems, equipment, etc. Additional functions of SPMTs include providing local: After Action Reviews, joint training opportunities, programming, trainers, collaborative problem solving, information exchange, etc.



### Communication Audience of Emphasis: Internal

*Partner agencies must understand the purpose and benefit of short and long-term investment of time, talent, and resources in generating safety benefits for their members working in the roadway environment.*





# Focus Area: Training & Operations

## Training Approach & Recommendations

Evaluation of all aspects of first responder safety on Colorado's roadways requires an evaluation of training. To accomplish this task, a multi-jurisdictional team was assembled to conduct a broad based review of training practices at all levels to include basic training, continuing education, and innovative training practices. Over the course of six meetings and independent work, the team members researched and discussed training items, approaches, and concerns that could be enacted, modified, developed, or addressed to keep all first responders on Colorado's roadways safer in the performance of their duties.

In addition to representing multiple disciplines, the team members included: educators; executives; and experienced and new practitioners. This combination of expertise was useful in identifying common needs and challenges for all responders.

To establish a comprehensive review, the following were agreed upon as priorities for the assessment of training with respect to first responder safety while working in the roadway environment.

- First responder safety
- Public safety
- Elimination or reduction of secondary crashes by reducing human exposure risks for responders and the public

- Modification and training for pro-active law enforcement and first responder stops and engagements
- Multi-disciplinary partnerships (fire service, law enforcement, public works, EMS, coroners CDOT and tow carriers) using a "one scene" methodology
- Commitment to continuous improvement and adaptation to achieve a desired future state of operations in an evolving transportation system. Deliver an operating state that monitors best practices, trends, threats, and opportunities for collaboration proactively.

With the variability of the roadway environment throughout the state, realistic training scenarios are critical to providing responders with adequate decision-making skills. Responders are at risk in urban and rural locations alike although perceptions of risk vary with roadway geometry, traffic volumes, topography, availability of secondary resources, etc. Critical opportunity assessment skills, solid situational awareness, and strong communications skills, in any situation, delivered with other disciplines in mind will result in safety enhancements for all.

Following are the training recommendations for career-long training and multi-disciplinary practice for Colorado's first responders.

## Focus Area: Training Recommendation T1

*The standing committee should review the training methodology for routine based activities. These include traffic stops, crash investigation, medical calls, towing and recovery, debris removal, driving to calls for service and emergency response.*

First responders are exposed to serious safety risks during every activity executed in the roadway environment. While many responders are highly sensitive to exposure while responding to crashes, many are less aware of alternate approaches available to minimize the similar exposures occurring during activities considered routine.

### T1.1 Immediate Opportunity: Basic Training Assessment

Assess basic training lessons and curriculum in partnership with Colorado Police Officers Standards and Training (POST), Colorado Department of Public Safety, Colorado Division of Fire Prevention and Control, Colorado Department of Public Health and Environment, and CDOT to establish new requirements that highlight lessons learned from all Governor's task force groups.

### T1.2 Immediate Opportunity: Field Training Evaluation

Evaluate field implementation of skills, tactics, and techniques currently trained for routine based activities to establish new requirements that reinforce newly acquired best practices over historic approaches.

# Focus Area: Training & Operations

## *T1.3 Short-term Opportunity: Sharing of Knowledge Base*

Use revised training requirements to provide training advancement and information sharing to all memberships of County Sheriffs of Colorado, Colorado Association of Chiefs of Police, Colorado Fire Chiefs, Towing and Recovery Professionals of Colorado, and CDOT Training Academy regarding new standards for first responder safety.

## *T1.4 Short-term Opportunity: Accelerate Mastery*

Use updated field implementation requirements designed to advance beyond the current state of the practice to accelerate the adoption rate and mastery of best practices.

## *T1.5 Long-term Opportunity: Culture Change*

Develop and schedule training opportunities for all first responders at the basic training academies of all disciplines and change the culture of response to a “one scene” methodology.



### Communication Audience of Emphasis: Internal

*Individual first responders must understand the relationship between the decisions they make, the strategies they execute in the field, and safety outcomes for all responders, not just for same agency responders.*

## Focus Area:

### Training Recommendation T2

*Develop a multi-disciplinary training subcommittee that uses data based analysis for the ongoing coordination of first responder and scene safety training.*

Provide performance measurement and accountability among responders by using data-driven decision-making followed by analyses to confirm quality of impact on safety outcomes driven by changes in training and field practice.

## *T2.1 Immediate Opportunity: Establish Baseline Dataset*

Research opportunities to use statistics that provide factual information, including detailed crash data, for the assessment of first responder and scene safety from all partner agencies. This includes secondary crash information, injuries to first responders and impacts to public safety.

## *T2.2 Short-term Opportunity: Training Coordination Committee*

Establish through the standing committee and leadership of all partner agency organizational groups, membership for the evaluation and training coordination committee.

## *T2.3 Long-term Opportunity: Continuous Improvement*

Use information and recommendations from the standing committee to stay informed about first responder safety challenges and use recommendations to continue the development and delivery of coordinated innovative training that responds to the evolution of best practices, new threats, situational complexity, and other opportunities to advance first responder safety.



### Communication Audience of Emphasis: Internal

*Partner agencies must commit to continuous improvement to achieve first responder safety perpetually as the roadway environment continues to change.*

# Focus Area: Training & Operations

## Focus Area: Training Recommendation T3

*Develop and implement standardized training approaches for all first responders and scene safety. This includes shared and coordinated nomenclature, common scene/incident objectives, and communication and prioritization of incident objectives.*

Provide lasting results by building on the existing body of knowledge and institutionalizing a one scene methodology among all Colorado first responders, regardless of discipline, location, and agency structure.

### **T3.1 Immediate Opportunity: Unify Practices**

Establish a multi-disciplinary, multi-jurisdictional training coordination committee with the responsibility for conducting on-going training practices and standardization of operations on behalf of all responders. Research and review all training of multi-disciplinary partners to establish commonalities and needs for improvement.

### **T3.2 Short-term Opportunity: Define One Scene Approach**

Establish a complete and realistic understanding of one scene approach to response, resources, expectations, and performance measurement. Train all responders for success in one scene response and commit to multi-disciplinary accountability for a one scene concept.

### **T3.3 Short-term Opportunity: Common Operating Framework**

Use recommendations from training coordination committee and commonalities of multi-disciplinary partners to develop a common operating framework with common nomenclature and objectives for adoption by all.

### **T3.4 Short-term Opportunity: Train Together**

Provide funding to support regional training facility development that can be utilized for multi-disciplinary first responder and scene safety training. Currently two known opportunities exist (Douglas County and Mesa County training facilities). Supporting regional training facility development maximizes investment by combining resources.

### **T3.5 Short-term Opportunity: Mitigate Obstacles for Small Agencies**

Research funding sources for the ability to provide training and resources to smaller first response agencies of all disciplines to ensure training and revised strategies have the ability to be implemented.

### **T3.6 Short-term Opportunity: Statewide Commitment and Accountability**

Establish a statewide, multi-disciplinary responder commitment to information sharing, individual skill improvement, equipment knowledge, and peer-to-peer accountability on a continuing basis.

### **T3.7 Long-term Opportunity: Statewide Common Training and Operational Framework**

Establish common training and operational framework that focusses on first responder and scene safety that is reviewed and coordinated annually by State guiding organizations such as POST, Colorado Department of Regulatory Agencies, CDOT and CSP. This oversight, led by CSP, with participation from local agencies of varying size, structure, and location, will review local training and policy that ensures coordinated and similar operational guidelines.

### **T3.8 Long-term Opportunity: Regional Training Facilities**

Establish, fund, operate, and maintain regional training facilities that allow for on-going cross-jurisdictional and multi-disciplinary first responder and scene safety training. Focus the training opportunities on reality based training that can exercise classroom learning generated through the statewide training and operational framework.



#### **Communication Audience of Emphasis: Internal**

*Partner agencies must understand purpose and benefit of training and operating in a common framework. Cross-jurisdictional and multi-disciplinary participation cannot be maintained without commitment of executive leadership of first responder agencies across Colorado.*

# Focus Area: Training & Operations

## Operations Approach & Recommendations

As can be observed, eliminating all exposure to active traffic would dramatically reduce first responder risk. However, in viewing our transportation system holistically, stopping all traffic movement during first responder activities would likely result in risk transfer, not risk avoidance. While traffic blockages are in place, vehicles upstream of the blockage must slow or stop to adapt to the situation. Especially, on high-speed facilities, driver inattentiveness and following too close can result in failure by a driver to adapt quickly enough to avoid crashing into another vehicle. This type of consequential crash is referred to as a secondary crash.

Secondary crashes are estimated to cause 18 percent of all fatalities on freeways. Both first responders and the travelling public are exposed to secondary crash risk during mitigation of the primary crash and during the system recovery period. Additionally, when a secondary crash occurs, the need to respond to multiple, sequential crashes draws significant quantities of resources, personnel and equipment, into a concentrated area for long periods. While these resources are committed to crash mitigation, they are unavailable for other, equally important assignments.

To maximize safety for first responders and for the travelling public, responder exposure to active traffic must be minimized at the same time as disruption of normal traffic flow is minimized. Balancing this necessary conflict has spurred emergency response and transportation experts to develop an entirely new practice, TIM. TIM has been developed through multi-disciplinary collaboration and is based in the National Incident Management System (NIMS) of which the Incident Command System (ICS) is a fundamental element. TIM practitioners are actively researching and developing best practices to keep everyone safe in accordance with the National Unified Goal (NUG). At the core of TIM practice is the need for first responders to lead operational decision-making from minute zero: to make choices that reduce the duration and proximity of first responder exposure to active traffic and reduce secondary crash risk.

For maximum success, not only must we train our first responders in the most current best practices toffered by the industry, but also we must perform those practices in the field. The operations team evaluated field operations and equipment topics relating to activities occurring within the roadway environment. To accomplish these tasks, a multi-disciplinary team of experts, including several TIM experts, was assembled to conduct a candid review of field practices both as compared with current

training and as compared to risk exposure.

Over the course of three meetings and independent work, the team members: researched and discussed operational tactics; compared operations around the state; developed, distributed, and reviewed responses from two first responder surveys (regarding practices and equipment); debriefed relevant elements of the recent CSP line of duty deaths; and talked at length about personal and organizational accountability for first responder safety.

The review identified the following as most critical to improving first responder safety now and into the future:

- *Develop and implement a multi-disciplinary one scene approach statewide*
- *Minimize first responder exposure to traffic every time for every activity*
- *Prioritize safety of human life and health over other considerations*
- *Emphasize personal and organizational accountability for human safety in everything we do*

Through the team discussions and review of the survey responses, traffic exposure risk is present statewide; however, availability of responder resources, physical conditions, and perceptions vary widely. Consequently, like the training team, the operations team discussed the need for a common practice or operating philosophy, a one scene approach, among responders of different disciplines to produce a safer working environment for Colorado's first responders.

Clearly, Colorado's first responders work quickly and diligently in executing their missions within the roadway working environment. To provide on-going support for their safety, practices must adapt to respond to current conditions, even when adaptation requires first responders to modify well honed skills in favor of similarly effective techniques that reduce human risk. Some historic, reliable approaches, while still highly effective, may not offer maximum risk reduction to the individual responder. Supporting first responders in accepting alternate techniques for their specific safety benefits will require discipline among supervisory staff and practitioners alike. Every member of every team must be accountable for their personal safety and the safety of each first responder.

Following are the operations recommendations for improving safety outcomes for Colorado's first responders.

# Focus Area: Training & Operations

## Focus Area: Operations Recommendation OP1

*Execute all enforcement, maintenance, and response/mitigation activities in a manner that minimizes responder exposure to active traffic.*

First responders are adept at executing their work quickly. In an effort to be quick, responders may not prioritize minimization of exposure to active traffic highly enough in developing action plans for the work at hand. Many types of first responder work, not only crash mitigation, encounter active traffic exposures and require active traffic avoidance.

### **OP1.1 Immediate Opportunity: Work Location Selection**

Prioritize deliberate location/relocation of activities to locations where active traffic is (in order of preference): absent, volume and/or speed of active traffic are minimal/reduced, a one lane buffer between responder activities and traffic is established, high visibility of roadside activities is available, and advanced warning of roadside activities is available.

### **OP1.2 Immediate Opportunity: Relocate Non-responders**

Encourage citizens to relocate minor incidents via direction from dispatch while other services are on the way. Additionally, incorporate relocation of non-responders, to a safer location, into crash mitigation planning when relocation of the entire work area is not feasible.

### **OP1.3 Short-term Opportunity: Queue Management**

Incorporate queue management into incident mitigation planning/activities, including engaging public works agencies in implementation of traffic control and advanced warning strategies, as available to minimize secondary crash exposure.

### **OP1.4 Short-term Opportunity: Maximize Unified Command**

Use a one scene, multi-disciplinary approach to incident mitigation by engaging all responders in Unified Command approach to incident mitigation for crashes/incidents of all sizes and complexities to maximize efficiency of scene mitigation and minimize scene duration.

### **OP1.5 Long-term Opportunity: Common Understanding of One Scene Culture**

Establish mutual understanding of a unified operational philosophy, focused on first responder safety, to include: common understanding of available resources, methods for requesting assets, mutual aid communication protocols, incident influence areas, etc. Oversight of the philosophy's practice should be led by a CSP as part of the standing first responder safety committee, with participation from local agencies of varying size, structure, and location to ensure delivery of coordinated and similar operational practices statewide.

### **OP1.6 Long-term Opportunity: Culture Change**

Deliver consistency in scene management and mitigation by providing: multi-disciplinary scene size up for situational awareness, unified work location/relocation approach, seamless delivery of communication services between agencies and to the travelling public, and establishment of common "plain english" language among first responders. Integrate communication centers and transportation management centers fully into all aspects of delivering services in the roadway environment.

### **OP1.7 Long-term Opportunity: Interoperable Communications Practices**

Leverage FirstNet and resolve outstanding interoperable issues between disparate radio systems used in Colorado. In addition, align operational practices for like functions among emergency communication centers (PSAP, PSCC, TOC/TMC, and other) to improve quality of information relay for radio and other communication and notification (center-to-center, center-to-responder, and center-to-public) messaging for both unique and automated messages.

# Focus Area: Training & Operations

## *OP1.8 Long-term Opportunity: Co-location of Communications Practices*

Provide co-location of communications centers and traffic management centers to create consistency among call takers relating to reporting party communications, radio communications with responders, and public information distribution, whenever possible. Co-location also offers opportunities to consolidate activities where resources and data are available to multiple parties within a single center.

## *OP1.9 Long-term Opportunity: Frequent After Action Reviews*

Provide an environment of continuous improvement by conducting multi-disciplinary After Action Reviews frequently.



### Communication Audience of Emphasis: Internal

*Individual first responders must understand the relationship between the decisions they make, the strategies they execute in the field, and safety outcomes for all responders, not just for same agency responders.*

## Focus Area:

### Operations Recommendation OP2

*Develop a unified, multi-disciplinary readiness philosophy for operating in the roadway environment.*

Establish our multi-disciplinary priorities so that we can have a readiness philosophy for all to follow that prioritizes safety of human life and health over other considerations.

## *OP2.1 Immediate Opportunity: Executive Engagement*

Engage subject matter experts (such as FHWA, IAFF, IACP) in leveraging their knowledge and experience to target current best practices. Use this engagement as the basis for development of an executive level briefing to support upper management of agencies in implementing a common readiness philosophy to expedite implementation of the current best practices regarding first responder safety in roadway environments for line level staff.

## *OP2.2 Short-term Opportunity: Align Functions with Philosophy*

Align education, agency policies, field training, and performance measurement forms to produce consistent results focused on responder safety and based in current responder safety best practices. This alignment should include holding trainers accountable to reinforce the desired responder safety best practices for all activities in the roadway.

## *OP2.3 Short-term Opportunity: Actively Inform Updates to Statewide Reporting*

Continuously monitor and contribute to the creation of the new crash reporting form (DR3447) to capture data that will help measure the performance of crash mitigation strategies with respect to first responder safety.

## *OP2.4 Long-term Opportunity: Measure Philosophical Values*

We measure what we value. First responders value what we measure. Demonstrate consistency between philosophy and performance expectations by adapting competency-related performance measurement to focus on drivers of the common readiness philosophy. Report progress and competency to the Governor's office annually, via the standing committee, to establish and maintain a common understanding of progress.

# Focus Area: Training & Operations

## Focus Area: Operations Recommendation OP3

*Infuse common, multi-disciplinary culture with personal accountability.*

Demonstrate our commitment to our first responders' safety by creating a culture to hold each other accountable through modeling desired behavior at every level; support of peer-to-peer re-enforcement of safety-focused actions where rank does not interfere with re-enforcement; and back up peer-to-peer accountability with course correction, as needed.

### *OP3.1 Immediate Opportunity: Model Behavior*

Demonstrate leadership and individual commitment to first responder safety, at all levels, by modelling the self-discipline to choose safety over emotion and by intervening positively when others from any agency revert to historic practices.

### *OP3.2 Short-term Opportunity: Support Reinforcement of Desired Behaviors*

Support efforts of first responders to reinforce desired behaviors by eliminating practices that penalize or appear to penalize such interventions. In particular, take steps at every level of leadership to support cross rank and cross agency safety interventions.

### *OP3.3 Long-term Opportunity: Provide Course Correction*

In recognition that first responders choose their profession with the explicit desire to serve our community, provide support and course correction in cases where safety practices fail to meet requirements. Adaptations for long standing practices will take time to develop into routine behaviors.



### Communication Audience of Emphasis: Internal

*Personal accountability drives performance. First responders should lead in disciplining themselves to practices that provide safety for themselves, other first responders and the travelling public.*



# Focus Area: Infrastructure

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Designing roadways for safety and effectiveness includes many considerations. Evaluating topics like managing points of conflict, geometry, topography, driver expectation, capacity, visibility, protection of roadside obstacles and drop-offs, recoverable roadsides, impacts to private property, and resource impacts provides engineers with a solid basis for design. While many features of the roadway environment are designed to accommodate breakdowns and work within the footprint, considering first responder safety discretely is most commonly associated with solving a specific observed condition. Considering the relationships between infrastructure characteristics and first responder safety holistically, system wide, and in conjunction with the current state of the practice of responder services could offer significant new opportunities to provide a safer working environment.

Reviewing the roadway environment from the perspective of providing a safe work space for first responders combined with driver awareness of responder presence requires perspectives from engineers and responders alike. The infrastructure team was comprised of executives, engineers, first responders, highway maintenance experts, public information professionals, construction experts, operations experts, and TIM professionals. The team met in person and

worked independently to investigate how the roadway environment and its geometrics in combination with the devices in place to gather information and notify the travelling public affect first responder safety. Notably, the public notification discussion cross-cut with the technology team discussion. As part of the investigation, CDOT construction and operations experts, reviewed national and Colorado standards and best practices for construction and the flexibility within that guidance to provide more accommodating space and visibility or to provide designated places with those desired characteristics.

When considering ways to increase usable work space and visibility, the team acknowledged the realistic expectation that conversion of current shoulder spaces into travelled lanes in highly congested environments, where many first responder activities occur, will continue as traffic volumes increase and operational pressures mount. This functional change in use of space will contribute to risk mitigation analyses for the foreseeable future. Consequently, transportation planning and design processes should incorporate specific consideration of first responder operations in project development activities. More strategic thinking about enforcement areas and other refuges require consideration and consultation with first responders



# Focus Area: Infrastructure

throughout the process. In scanning the state of the practice, the team found that less infrastructure guidance on best safe practices for first responders exists than for workers in construction zones, yet many principles apply to both.

State and local transportation organizations around the country are wrestling with similar challenges. Consequently, the FHWA has also recognized that agencies must be more flexible and context sensitive to the needs of the community, users, and environment.

FHWA has recently relaxed its design controlling criteria to enable transportation agencies to do this, and has promoted such initiatives as Performance Based Practical Design and Data Driven Safety Analysis and Alternatives. This updated perspective has encouraged transportation agencies to design projects more to the needs of the users – including responders. Following are the infrastructure recommendations for improving safety for Colorado’s first responders working in roadway environments.

## Focus Area: Infrastructure Recommendation 11

*Develop an implementation plan to improve existing operating conditions, where needed most, around Colorado.*

A majority of the Colorado state highway system is not actively in the construction process on a lane mile basis. Therefore, the state should address current areas of concern proactively by investigating existing operating conditions and performance based on detailed crash data, physical conditions, and engineering studies; prioritizing identified areas of concern; developing mitigation plans; and implementing improvements, as feasible within fiscal constraints.

### 11.1 Immediate Opportunity: Identify Existing Opportunities

Using current, detailed information from the statewide crash database, physical characteristics of the roadway environment including: shoulder widths; roadway geometry; safety device installations (guardrails, rumblestrips, etc.); statistical analyses; input from first responders, and engineering judgment, identify areas susceptible to improved safety performance through implementation of mitigation strategies. Additionally, define a methodology for assessing need for safety improvements to include human risks and maximization of fiscal resource impact.

### 11.2 Short Term Opportunity: Identify Mitigation

Using the results of the existing conditions review, match safety improvement proposals with best practice strategies designed to mitigate specific location risks. Recommended improvement strategies may include shoulder widening, construction of enforcement areas, safety device modification, etc. With mitigation strategies known, prioritize a list of improvements for construction to follow the methodology defined in conjunction with the existing conditions review. In addition, identify and allocate construction funds to the maximum extent feasible.

### 11.3 Long Term Opportunity: Construct Improvements

Develop construction plans for selected improvements. Construct the improvements. Finally, monitor and report results to optimize mitigation strategies over time.



#### Communication Audience of Emphasis: Internal

*While implementing infrastructure improvements will take time, first responders need to know that their safety is an on-going priority for the transportation profession and for the State of Colorado.*

# Focus Area: Infrastructure

## Focus Area: Infrastructure Recommendation I2

*Consider first responders specifically as users within the framework of project development, planning and design.*

As a subset of users, some first responder needs and uses within the highway footprint may not receive adequate consideration in infrastructure planning, design, and construction. To achieve a responsible balancing of priorities in designing transportation systems for all users, first responders should be engaged as partners in defining adequate working spaces for conducting work within the highway footprint. To accomplish partnership CDOT's project development process should be updated to invite and listen to local first responders for the duration of the process. As noted above, flexibility in design standards allows freedom, but requires input from the right people at the right time. Institutionalizing this conversation more formally and consistently will ensure that transportation organizations, following CDOT's example, are aware of the responder observations, challenges, and needs; can consider them; and can potentially incorporate them into the project or forward that input to others who might also be able to address them in another way.

### **12.1 Immediate Opportunity: Engage FHWA**

Engage FHWA in defining the design flexibility available for accommodating first responder work area needs. In particular, review design strategies to incorporate identified shoulder and enforcement area needs based on crash data, engineering study, and first responder input.

### **12.2 Short-term Opportunity: Communicate Requirements**

Raise awareness of first responder work area needs among transportation planners and designer by engaging them in conversations designed to incorporate this user group into the planning, design, and construction process at CDOT. Engage CDOT's leadership in the profession to enlist a similar approach among other transportation agencies in Colorado.

### **12.3 Long-term Opportunity: Standards & Best Practices**

Perform a detailed technical review of current industry standards and the body of knowledge to identify best practices for accommodation of first responder work areas into infrastructure design. In particular, identify strategies to address topographically or otherwise constrained locations.

### **12.4 Short-term Opportunity: Update Guidance Documents**

Based on findings of standard guidance review, input from FHWA and first responders, update CDOT's Project Development Manual and project clearance documents to include consideration of first responders as distinct users. Additionally, update CDOT's M&S Standards, technical guidance, and procedural guidance to incorporate first responder participation and best practices. Support other transportation agencies in understanding and adopting updated practices.

### **12.5 Long-term Opportunity: Achieve Predictable Results**

Produce predictable results by treating first responder safety considerations as essential to project success. Incorporate best practices for transportation planners and designers into training and project reviews for transportation agencies within Colorado through leadership by CDOT personnel and by seeking out participation on those projects in which CDOT is involved.



#### Communication Audience of Emphasis: Internal

*Transportation planners and designers need a better understanding of first responder needs to provide better, more targeted designs.*

# Focus Area: Infrastructure

## Focus Area: Infrastructure Recommendation I3

*Update existing installations in the course of routine maintenance where first responder safety can be improved.*

The investigations described above may identify broadly impactful strategies that can improve first responder safety. In some instances, a particular strategy may have applicability without the presence of additional risk factors that would cause the specific location to become a high priority. The state should build implementation of these types of mitigations into routine maintenance activities, where applicable.

### 13.1 Immediate Opportunity: Identify Existing Opportunities

Conduct an existing conditions assessment as described above.

### 13.2 Short-term Opportunity: Identify Mitigation

Using the results of the existing conditions review, identify best practice strategies that can be implemented systemwide. Adapt maintenance protocols to include making necessary modifications to safety device installations and/or other infrastructure during the course of routine maintenance work effective as of the earliest possible date. Provide training adaptations for staff conducting the modifications to achieve maximum understanding of the purpose for the modifications and of the desired results.

### 13.3 Long-term Opportunity: Improve Safety

Improving safety is a long-term effort. Infusing everyday activities with safety advancement, where feasible, makes Colorado's first responders safer.



#### Communication Audience of Emphasis: Internal

*When everyday activities generate safety benefits we make Colorado better for first responders and Coloradans alike.*



# Focus Area: Technology

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Like many many aspects of how people connect with each other and the world around us, highway infrastructure is experiencing a technological explosion. From using real-time data relating to weather conditions, traffic flow, and asset availability in daily decision-making to communicating between vehicles and between vehicles and infrastructure, the possibilities for using technology to improve responder safety are substantial. Colorado should explore all realistic proposals with a focus on new applications of existing technologies directed toward keeping our responders safe while they work in the roadway environment.

Evaluation of technological possibilities relating to responder safety in the highway environment requires a broad set of skills. To complete a broad based investigation, the technology team included executives, communication specialists, data systems experts, intelligent transportation systems experts, technology specialists, engineers, responders, and transportation planners. The team focused on technology strategies that could improve responder safety across Colorado. A broad initial focus allowed for open-minded thinking; however, possibilities ultimately considered were limited to technologies that could assist a first responder. This team also wanted to think beyond what exists and is readily available; think more about the specific needs

of responders; identify the problem to be solved; and collect needs and challenges that could be presented to the technology industry for their input and innovative solutions.

Types of technology solutions considered relate to the roadway system, to the responder, to the vehicle, and/or to the communications systems. In considering our objective to provide the safest working environment practicable within a roadway setting, an over-arching theme developed – the responder must be visible to the encountering drivers (whether human currently or computerized in the future). In order to be visible, the responder must be detected and recognized, the responder's location and activity must be communicated to a system, and that communication must generate desired actions (a public notification, a specific driver response, sharing of situational awareness between agencies, etc.).

Improving prompt, reliable identification and communication of responder activities within the roadway environment improves the opportunity for drivers to participate in responder safety by executing desired actions. Currently devices and/or infrastructure that achieve some of the desired elements influencing responder visibility exist in practice. Rapidly developing

# Focus Area: Technology

and highly versatile technology gives great promise for even more accurate, faster, more efficient, and more wide-spread detection, communication, and action in the foreseeable future.

*Not only should Colorado act on suitable solutions, we should also establish a pathway for bringing new, life saving ideas into practice in conjunction with reasonable scrutiny (from engineers and practitioners) and public safe guards. The pathway*

*should include an understanding of testing and acceptance philosophies for new ideas/technologies. These recommendations do not advocate for experimentation, rather logical, tested, expansion of the tool set available to protect Colorado's responders and citizens from crash risk.*

Following are the technology recommendations for supporting Colorado's first responders in executing their missions on our roadways.

## Focus Area: Technology Recommendation TE1

*Provide drivers with automated messaging of responder activities ahead via existing devices and technologies.*

Expanding the use of current technologies to warn drivers of responder activities within the roadway supports drivers in identifying and reacting productively. For example, mobile apps, variable message signs, adjustable highway lighting, and flashing beacons can all provide drivers with advanced notice of responder activities. Similarly, variable speed limits and active traffic management strategies can be deployed to modify the environment for traffic flow in advance of first responder work areas.

### TE1.1 Immediate Opportunity: Automated Messaging Protocol

Engage first responders, communication professionals, traffic engineers, and traffic management centers to develop consistent messages and updated protocols for requesting and delivering automated, advanced warning messages to drivers. A primary focus should be on facilitating rapid, consistent posting (and removal) of first responder activity messaging via existing systems and devices.

### TE1.2 Short-term Opportunity: Adapt Traffic Management Strategies

Engage first responders, communication professionals, traffic engineers, and traffic management centers to adapt traffic management strategies in place for congestion management, road-weather safety applications, and other purposes to allow engagement during first responder activities. Opportunities for adaptation may be available by adjusting ramp metering systems and traffic signal timing upstream of responder activities.

### TE1.3 Long-term Opportunity: Data Sharing

Review technical and administrative requirements for direct data sharing between responding agency systems to establish reliable mechanisms for triggering real-time or near real-time implementation of automated messaging, traffic management, or other strategies immediately as first responder activity information is identified.



### Communication Audience of Emphasis: Internal

*Members of first responder agencies with the responsibility of sharing and communicating first responder information between agencies must understand the safety impact to the field members that they represent in order to deliver prompt, high-quality information exchanges targeted at identifying the presence of responder activities for drivers.*

# Focus Area: Technology

## Focus Area: Technology Recommendation TE2

*Expand driver notification, collision avoidance, and traffic management opportunities for high speed, high risk locations.*

When drivers understand the actions necessary to avoid collisions and have the simultaneous awareness of the need for action, many collisions are avoided. In locations where high speeds and applicable risk factors, of a relevant magnitude, are both present, engaging strategies aimed at influencing driver behavior is particularly desirable. Similarly, warning first responders of collision risk increases the opportunity for individual responders to execute evasive maneuvers successfully. Strategies may include motorist warning, notification, intrusion alert systems, in-vehicle collision avoidance systems, and/or implementation of traffic management strategies like variable speed limits.

### **TE2.1 Immediate Opportunity: High Speed, High Risk Locations**

CDOT should study comprehensive crash, traffic operations, and geometric data to identify characteristics of high risk locations on high speed facilities.

### **TE2.2 Short-term Opportunity: Increase First Responder Visibility**

Investigate effectiveness in visibility and function of incorporating ANSI rated, high-visibility materials into standard duty wear for first responders as a base layer rather than as an added layer.

### **TE2.3 Short-term Opportunity: Mitigate Risk at Identified Locations**

Enhance first responder safety by installing devices targeted at influencing drivers where the combination of speed and other risk factors warrants intervention. Mitigation strategies should be designed to respond to location specific considerations. Isolated locations may be challenged to implement traffic management or other communication system intensive strategies immediately. Prioritize immediately implementable solutions to maximize impact of available funds on entire system results.

### **TE2.4 Long-term Opportunity: Long-term Installations**

Plan, design, and implement targeted mitigation strategies in locations where immediately available strategies cannot adequately address risk and/or other system modifications expand the set of available mitigations to include solutions of greater complexity.



#### Communication Audience of Emphasis: Internal

*First responders must understand how and when to rely on systems designed to generate collision avoidance.*

# Focus Area: Technology

## Focus Area: Technology Recommendation TE3

*Promote development of intrusion alert systems for first responder vehicles and encourage continued development of new technologies, including collision avoidance systems, for all vehicles.*

Eliminating collisions between first responders and vehicles reduces human risk. While total risk elimination through collision avoidance techniques is likely impractical, technologies in this area are developing rapidly and have strong potential to increase safety outcomes. The State should support development and implementation of life saving new and emerging technologies, within a reasonable timeframe, by encouraging stakeholders to be adaptable and by taking steps to provide a pathway for testing and implementation.

### **TE3.1 Immediate Opportunity: Existing Intrusion Alert Systems**

Investigate existing intrusion alert systems to assess whether current technologies and delivery methods provide adequate reliability for use by Colorado first responders. Key considerations may include detection range, topography, underlying communication system requirements, prevalence of false intrusion alerts, and user input requirements.

### **TE3.2 Short-term Opportunity: Intrusion Alert Needs**

Establish minimum operating requirements for achieving effective intrusion alert for first responders and the entire first responder fleet of equipment. As practical, engage industry in development and demonstration of any missing components needed to implement a successful system. Encourage deployment of intrusion alert systems by establishing a documented pathway, with reasonable scrutiny (from engineers and practitioners) and public safe guards, for bringing promising systems into use as quickly as possible. An evaluation of implementation and transitional operations considerations is recommended.

### **TE3.3 Long-term Opportunity: Collision Avoidance and Other Emerging Systems**

Industry development of collision avoidance systems is progressing rapidly. Encourage inclusion of first responders among the topics incorporated into collision avoidance systems. Support deployment of collision avoidance systems with reasonable scrutiny and public safe guards.

### **TE3.4 Long-term Opportunity: Technology Pathway**

Support deployment of life saving, new and emerging technologies by establishing a documented pathway for bringing these ideas into practice in conjunction with reasonable scrutiny (from engineers and practitioners) and public safe guards.

### **TE3.5 Long-term Opportunity: Technology Testing Environment**

Provide a framework with opportunities to facilitate testing and acceptance of technologies that save lives within a working environment with reasonable control elements, oversight, and public safe guards. Use these deliberately created and manicured environments to encourage industry to bring solutions to Colorado.



#### Communication Audience of Emphasis: External

*First responder safety applications that rely on driver actions require drivers to execute necessary actions voluntarily and consistently.*

# Focus Area: Policy & Procedures



Achieving consistent, desired results requires applicability, clarity, and alignment of organizational policies, procedures, and recommended practices. Initially, the policy and procedures group reviewed current CSP policies to insure that the policies promoted the best practices for enhancing the safety of CSP members while they are engaged in their job along the roadways of this state. That initial charge grew to include participation by CDOT and a review of their procedures. With the inclusion of CDOT, the group looked beyond policies that directly impacted worker safety to examine how mutual and complementary policies could better manage incidents that occur on the roadway and in turn help to improve the safety of our people and the motoring public. Lastly, the group reviewed applicable Colorado Revised Statutes to identify instances in which current statutes might be improved in their ability to produce intended results by considering changes to increase first responder safety.

Determining whether policies and procedures align with current and best practices requires knowledge and understanding of an organization from multiple perspectives. To accomplish this task, a team of first responders and transportation professionals of varied experience was assembled. The group included executives and active practitioners alike. The team worked collaboratively and independently to review available information and to respond to findings and inquiries of other groups. The findings and recommendations of the policy and procedures group rely heavily on perspectives of law enforcement and transportation professionals; however, similar types of policies and procedures are prevalent throughout the first responder community. These recommendations and future policy development should occur in a collaborative environment as much as feasible to create cross discipline consistency in policy and practice.

Following are the recommendations of the policy and procedures focus area for supporting Colorado's first responders in executing their missions on our roadways.



# Focus Area: Policy & Procedures

## Focus Area:

### Policy & Procedures Recommendation P1

*Formalize agency commitments to “Quick Clearance” practices.*

An Interagency Memorandum of Understanding (MOU) is in development between the CSP and CDOT specifically related to the “Urgent Clearance of Highway Incidents and Safety at Incident Scenes.” As the name suggests, the intent of this MOU is to develop a common set of goals and objectives between the two agencies to promote the quick clearance of incidents, reduce the time that first responders are on scene, and manage traffic in a manner that promotes safety for the first responders and the motoring public. This MOU can serve as a template for similar agreements to include first responder agencies of any discipline.

#### **P1.1 Immediate Opportunity: CSP/CDOT MOU**

CSP and CDOT should provide leadership among first responders by completing and executing the “Urgent Clearance of Highway Incidents and Safety at Incident Scenes” MOU as soon as possible.

#### **P1.2 Short-term Opportunity: Template MOU**

Working from the CSP/CDOT “Urgent Clearance of Highway Incidents and Safety at Incident Scenes” MOU as a template, Colorado first response agencies should formalize their organizational commitment to their members and partners in promoting safety for all by executing similar agreements.

#### **P1.3 Long-term Opportunity: Statewide Commitment to “Quick Clearance” Practices**

Educate and incorporate first responder agencies not currently practicing quick clearance strategies into a common operational philosophy supported with formal endorsement or agreement based on the CSP/CDOT MOU.



#### Communication Audience of Emphasis: Internal

*Partner agencies must understand the purpose and safety benefit of mutual commitment to quick clearance strategies to achieve statewide impact.*



# Focus Area: Policy & Procedures

## Focus Area: Policy & Procedures Recommendation P2

*Work away from traffic exposures.*

First responders working near traffic are exposed to risk of an errant vehicle or inattentive driver striking them. Regardless of activity: traffic stop, crash investigation, patient care, motorist assist, debris removal, etc. the first responder should choose to work away from traffic at every opportunity. Activities not explicitly requiring work in place should be relocated to an unexposed or less exposed position.

### **P2.1 Immediate Opportunity: Update and Establish Policies**

Policies and procedures, especially those relating to crash investigation, motorist assistance, debris removal, patient care, and completion of administrative tasks, offer first response agencies opportunities to direct actions of responders away from traffic exposures. Where policies and procedures aren't explicit regarding the first responders need to choose walking routes, investigation points, and other work spaces to minimize traffic exposures, updates should be provided.

### **P2.2 Immediate Opportunity: Reinforce Desired Practices**

Approaching citizen engagements from the non-traffic side of any encounter offers responders a degree of additional protection from active traffic. Strategies and techniques for achieving equal tactical results from multiple engagement locations are available to support the mission and the responder at the same time. Reinforcement of recommended practices to work from the non-traffic side of encounters, to wear high-visibility personal protective equipment, and to conduct administrative activities away from traffic through updating policies and procedures supports our first responders' safety in the field.

### **P2.3 Short-term Opportunity: Share Policy Templates**

Through the work of this task force, CSP has identified specific policies in need of updates. Those specific updates can be completed immediately and can be used as templates for other agencies to consider in making updates of their own. While other types of responders and other organizational structures have their own considerations, minimizing traffic exposures is a universal need. Much of the language developed for CSP will have applicability across disciplines and agencies.

### **P2.4 Long-term Opportunity: First Responders Routinely Minimize Traffic Exposure**

First responders are acutely aware that exposure to active traffic poses a serious risk to their safety. However, adapting historic practices to increase buffer space between first responders and active traffic will require a concerted effort by all. Once rooted in unified policies and procedures, updated approaches to minimizing personal exposures to traffic will become primary tactical considerations for all first responders working in the roadway environment.



#### Communication Audience of Emphasis: Internal

*Individual first responders must understand the safety benefit of making decisions to minimize active traffic exposures.*

# Focus Area: Policy & Procedures

## Focus Area:

### Policy & Procedures Recommendation P3

*Request traffic control support from public works agencies for extended work near active traffic.*

First responder work conducted alongside active traffic requires attentiveness to traffic operations in addition to execution of specific tasks aimed at resolving the present situation. Many elements of first responder work require specialized expertise. While public works professionals are not crash investigators or trained to treat patients, they are traffic control experts. Engaging traffic control expertise for long duration activities, like extended lane blockages, alleviates a responsibility from other first responders so that they can concentrate on those activities most pressing for their expertise without distraction, directs traffic away from first responders in a managed way, and may provide additional crash impact protection to personnel and equipment working in the area.

#### **P3.1 Immediate Opportunity: Complementary Policies and Procedures**

Create companion policies between agencies to provide for both request of and delivery of traffic control support services by emergency services and public works agencies.

#### **P3.2 Short-term Opportunity: Extend Policy Impact**

The policy work initiated by CSP during this task force effort can be used as a basis for other agencies to update their own policies.

#### **P3.3 Long-term Opportunity: Prepare for Future Needs**

Historically, public works provided traffic control has been requested and provided infrequently. As agencies request traffic control support more routinely for extended engagements, an evaluation comparing resource availability and demand should be conducted to plan for and execute any necessary adjustments in approach.



#### Communication Audience of Emphasis: Internal

*Public works agencies, including CDOT are traffic control experts. They are well equipped to provide devices designed to accept impacts from errant vehicles and to provide positive guidance to drivers for routing around work zones by installing temporary traffic control devices that drivers are trained to respond to positively.*



# Focus Area: Communication

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Driving change in behavior and understanding requires development of a strategic communication plan that is reasonable and actionable, provides community outreach and raises awareness, offers training and education to both external and internal audiences through a collaborative effort to prevent line of duty deaths and increase safety for all first responders. An effective overall communication plan will include messaging, branding, graphic design and multimedia collateral for a variety of demographics and joint effort partnerships with extensive planning and thought into engagement and distribution to change driving behavior and create social norming of drivers to slow down and move over for all first responders.

A multi-disciplinary team of executives, seasoned communication professionals, active practitioners, and subject matter experts was assembled to develop a communication strategy and recommendations for this effort. The team prioritized and coordinated communication efforts for both internal and external audiences by: establishing current available resources, possible communication opportunities, and development of future resources with a timeline for effective and engaging communication and identification of partnerships available for collaboration and distribution of consistent messages. Communication efforts will build trust, solidify relationships, and develop an emphasis and prioritization of responder safety for all audiences to save lives and prevent injuries.

## Communication Strategy

To translate the work of this task force into language that penetrates the entire Colorado community, including first responders and citizens alike, while touching the nation, the communication strategy will utilize the following functions in approach:

- Function I:* Determine Current Communication Status Effectiveness and Available Campaign Materials and Resources
- Function II:* Define Key Audience Demographics, Develop Relationships & Community Outreach Partnerships
- Function III:* Develop Communication Plan & Distribution Timeline
- Function IV:* Develop & Produce Communication Collateral (Campaign Materials - Digital & Print Assets)
- Function V:* Monitor and Measure Communication Effectiveness and Adapt Strategy as Appropriate

Highlights of an initial communication strategy are presented here. Additional development of the components are required for execution. The primary goal of any communication strategy resulting from this effort is to establish prioritization of first responder safety as a social norm.

# Focus Area: Communication

## Target Audience

Preparation of this communication strategy identified distinct internal and external target audiences with different needs. The audiences, primary messages, strategies, and tactics are described below.

### External Audience (75%)

#### Statewide Communities Throughout Colorado

*The primary audience for increasing responder safety is the motoring public of Colorado defined as our external audience. This includes all people, of all demographics, specifically licensed drivers, people in the process of obtaining their driver's license, people attending driving schools, K-12 students, elderly drivers and visitors to Colorado.*

#### Nationwide

*Additional efforts to obtain National awareness by society for safety of first responders will be implemented through participation and support of National campaigns to change driving behavior to save lives and increase safety of first responders.*

## External Messages

The primary message for our external audience is to slow down and move over for all stopped emergency vehicles. Communication strategy will include use of social norming, making it unacceptable to endanger first responders. Campaigns will utilize data, emotional appeal, enforcement and penalties such as fines.

The campaign will utilize social norming to inform drivers to always remain inside their vehicle with their safety belt on for their safety when stopped on the side of the road, moving their crash off the highway when possible, remaining alert to oncoming traffic when changing a tire or issues of vehicle malfunction. This message will carry over to use of consistent language describing when officers and first responders are outside of their vehicle and the need for drivers to always remain alert, move over and slow down for stopped emergency vehicles.

Campaigns will emphasize the following tactics: Relationship, social norming, story telling or emotional, cause, word of mouth, community, social media, earned media, guerilla marketing, creative/viral, and advertisement of enforcement efforts.

Campaign materials will utilize:

- data and statistics relating to law enforcement officers and other first responders who have been killed in the line of duty,
- emotional appeals of their families left behind,
- information on the dangers of any person outside their vehicle near moving traffic,
- enforcement penalties and fines assessed for disregarding the safety of first responders by not moving over or slowing down,
- overall awareness of the impact that the disregard for first responder safety is having on a National level, and
- the increase in deaths of first responders providing services in the highway environment.

Prior to initiating any new communications and throughout the campaign, the team will evaluate the status of current communication and awareness resources and determine distribution methods while identifying opportunities for new resources and partnerships; building a tool kit of education and outreach materials with distribution strategy for each.

# Focus Area: Communication

## Internal Audience (25%)

### Statewide First Responders Throughout Colorado

*The internal audience includes all first responders and their respective organizational leadership. This audience comprised of state and local responders (law enforcement, fire, public works, coroners, emergency management, and towing professions) will receive consistent language and training materials, appropriate to all, through the collaboration of this task force. In particular, CSP will increase their training to prioritize officer safety as a primary responsibility when arriving on scene. Additional safety equipment and technology will be implemented. Training materials will be enhanced with multimedia, graphic design and visual, succinct elements as part of the communication efforts of this task force. Not only will all types of first responders receive training and messaging through this plan, the full range of competencies within each agency will be included (troopers, communication officers/dispatch centers, port of entry officers, investigators, and others). Collectively, first responders will be trained on collaboration with all other first responders in a one scene approach.*

## Partnerships

Communication materials will be developed in partnership, as a collaborative effort, with each affiliated member of this effort including both private and public sectors that have a touch and willingness to work together to improve first responder safety and to enhance social norming of responder safety as a priority for all drivers. Each partner will receive

communication and campaign materials to reach their specific demographic of audience as part of the overall communication plan.

To support the initial communication plan described above, the communication team offers these recommendations.

## Focus Area:

### Communication Recommendation C1

*Develop a communication plan that creates social norming and prioritization of first responder safety.*

Initial research and identification of current first responder safety communication status including: audience awareness, current national picture, and current materials available indicate that opportunities for successful development of a collaborative communication plan for Colorado are present. As information and partnerships develop, each partnership contributes toward enhancing materials, creating additional partnerships, and increasing the prioritization of responder safety as a focus area for communication and outreach. Each entity is continuing to collaborate and contribute to the overall communication plan and outreach.

#### C1.1 Immediate Opportunity: Research and Definition

Collect outlying statistics on first responder safety topics to combine with previously collected materials, local outreach, and national experience. Use this information to refine primary messages for target audiences.

#### C1.2 Immediate Opportunity: Partnerships

Solidify roles and responsibilities of partnerships within communications plan and associated timelines.

#### C1.3 Short-term Opportunity: Update Materials

Support successful communication plan implementation by updating materials, like the Colorado Driving Training Curriculum, to reflect desired messages.

#### C1.4 Short-term Opportunity: Engage Existing Pathways

Use partnerships and existing pathways to audience members to develop communications opportunities. For example, use opportunities to populate responder information to social traffic information sharing outlets via existing agreements, work with state law enforcement and fire professional organizations to reach their membership, and continue development of an outreach project through the teen driver coalition of Drive Smart.

# Focus Area: Communication

## *C1.5 Long-term Opportunity: Update Driver Manual and Test*

Emphasize “Move Over,” “Move Your Crash”, and motorist safety practices via updating information for and testing in preparation for completing driver’s licensure process.

## *C1.6 Long-term Opportunity: Engagement Calendar*

Develop statewide “Move Over” enforcement team operations calendar, training engagements, and campaign execution calendars and assignments with partners.

## **Focus Area:** Communication Recommendation C2

*Develop a “Move Over” Campaign Kit.*

This overall communication effort aims to increase education and public awareness of responder safety including: Move Over Law, Slow Down, Motorist Safety, Move Your Crash, Secondary Crashes, Move it, and Incident Safety is Belted Inside Your Vehicle

## *C2.1 Immediate Opportunity: Kit Components*

Establish a list of campaign kit components to include the full range of outreach opportunities.

## *C2.2 Immediate Opportunity: Protocols*

Develop communication protocols for campaign to provide for consistency in messaging and appropriateness of communication with a wide variety of audiences.

## *C2.3 Immediate Opportunity: Collaboration*

Meet with partners to generate ideas for kit components, materials, outreach events, etc.

## *C2.4 Short-term Opportunity: Car Wraps*

Install car wraps on CSP vehicles with messaging of “Move Over Save a Life”.

## *C2.5 Short-term Opportunity: Print and Digital Products*

Create posters, brochures, cards, social media posts, websites, blogs, videos, etc. to provide targeted messages for the campaign.

## *C2.6 Long-term Opportunity: Media Interviews*

Arrange and give face-to-face media interviews to increase education and public awareness of responder safety topics.

## *C2.7 Long-term Opportunity: Community and Education Events*

Deliver first responder safety messages via K-12 and other education engagements, responder memorial and remembrance events, and Citizen’s Academy type events.

# Focus Area: Communication

## Focus Area: Communication Recommendation C3

*Create a responder and partner communication plan.*

To maximize effectiveness of incorporating the findings of this task force into practice, an internal communication plan that delivers a multi-media presentation of the findings should be developed. All of the focus areas should be included for all partners.

### *C3.1 Immediate Opportunity: Report Task Force Findings to First Responder Community*

Create a multi-media presentation that provides the totality of the task force findings in a single communication of manageable duration and complexity.

### *C3.2 Short-term Opportunity: Training Materials*

Create training and communication materials for internal audiences based results of immediate and selected short-term actions from task force recommendations. Short-term action selections should be based on maintaining a desired communication cadence.

### *C3.3 Short-term Opportunity: Driving Behavior Video*

Produce a video for Colorado District Attorney's Council and Colorado Judges based on the current state of driving behavior throughout Colorado. Emphasis on the totality of poor driving behaviors that can be misdemeanor offenses are creating an environment of unsafe driving behavior. Totality of individual driving behavior, personal accountability and overall driving behaviors will be addressed in a comprehensive video production.

### *C3.4 Long-term Opportunity: One Scene Culture Development*

Document improvements in safety performance over time by creating a series of case studies or other documentation of the evolution of the state of the practice of multi-disciplinary response in Colorado to provide first responders with the ability to observe change as it occurs.







The members of the Governor's Task Force on Responder Safety are convinced that these 21 specific recommendations for action, research, evaluation, multi-disciplinary collaboration, and continued engagement will improve first responder safety outcomes for the long-term. We also recognize that many of these recommendations are already in motion through existing programs. Colorado can start right now to improve first responder safety using the core recommendations presented in this report. To expedite implementation, we propose taking the following immediate actions.

#### Implementation Recommendation 1:

The State should establish and fund a permanent, multi-disciplinary standing committee responsible for executing the task force recommendations.

#### Implementation Recommendation 2:

The State should charge CSP with leading the standing committee.

Executing the mission of the multi-disciplinary standing committee on first responder safety will require an increase in effort by all agencies over the current state. Support CSP leadership in executing the mission effectively by assigning a full-time member with a minimum rank of Captain to carry out day-to-day operations of the committee. The activities and commitment of this member should not replace current participation but should support and enhance those efforts.

#### Implementation Recommendation 3:

The State should direct all state agencies to take action on these recommendations, including updating policies and procedures and formalizing a communication strategy for immediate action, to the extent practicable.

#### Implementation Recommendation 4:

The State should encourage county, city, town, and transportation planning organization officials to direct their respective agencies to review the task force recommendations and take action on them, to the extent practicable. This encouragement should be extended to industry as well. Leadership of regulatory, professional, and industry (towing, freight, design, and construction) like FHWA, NHTSA, POST, CACP, CSOC, Colorado Fire Chiefs, TRPC, CMCA, APWA, ITE, ACEC, and CCA should receive encouragement also.