



**Wildland Fire Safety Strategy Meeting**  
*Gettysburg, Pennsylvania/Emmitsburg, Maryland*  
*May 2-7, 2016*

June 2016





## Forward

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Dear Wildland Fire Service Community-

**Everyone Goes Home®**—it must be our goal.

Reducing the number of firefighters who die in the line of duty—it must be our focus.

My eyes stay on the flag, the symbol of lasting integrity, duty, and honor. My right hand and arm comes down from the brow of my cover and returns to my side as I remain at attention. The family, flag in hand, knows it is time to retreat from their position at my front. Try as I might though, my eyes drift to their faces. I see the sadness, the grief, the resolve. They move on and so do I.

I have been privileged to be associated with the wildland fire professionals of this great nation since 1970. During my time with the U.S. Forest Service, I served for more than a decade as the Chief Fire Officer for the largest single organizational group of wildland fire responders in the world. Consequently, I have presented our nation's flag to more than 150 families whose loved ones have perished in the line of duty. I've attended far too many funerals and memorials. The joy of fellowship I feel for those who I call sisters and brothers in this work keeps me engaged with the effort to reduce the numbers of wildland fire professionals who die performing a public service. The expressions on the faces of their survivors provide an emotional impetus to "do better."

The public needs us—we work for the good of the nation. Ours is an honorable profession, closely allied with our sisters and brothers who focus their time on the communities, people, and buildings of our great nation. However, where we do our work, and how we do our work, is defined by the nature of the "wild" land. In the United States, over a billion burnable acres define our response area. We are a profession born of fire in a nation born of fire. The ecology of those wild lands demands that fire have a place there. Our society has grown and has placed homes, towns, and villages on those burnable wild lands. Fire has always been there and does not depart simply because we chose to build on those lands. With the continued placement of homes and improvements on those wild lands, there will always be work for our nation's wildland fire professionals.

While tens of thousands of wildland firefighters practice their profession, too many die in the line of duty. In the over one hundred years since we inserted firefighters in the wildland to change the course of the flow of wildfire away from those things we value, firefighters have died. Despite improvements in practice and technology, decades have revealed a fatality rate of almost 19 wildland firefighters per year. The toll is too high. The cost is too much. The statistic is irrefutable and cold. The effect on families and to us who survive them is nearly beyond expression.

Luckily, our great nation has developed tools and assets, including the National Fallen Firefighter Foundation and the Wildland Firefighter Foundation, to help those who survive cope with loss. However, I feel, as do many of you, that coping with loss is insufficient. It is time to change our national paradigm of accepting fatalities as a cost of protecting our wild lands. As our partner, the National Fallen Firefighter Foundation has resolved to assist the wildland community in developing a plan to take action to PREVENT the loss of firefighters.



In the following pages, you will read the outcomes of an initial Wildland Fire Safety Strategy Meeting coordinated by the National Fallen Firefighters Foundation. In this gathering, drawing together, there is a flickering of hope for somehow, someday, preventing the next death. This assembly of a widely divergent group of wildland fire professionals peeled back layers of tradition, history, and autonomy, and asked questions about how we take action to improve our wildland record of accident, injury, and fatality. The frustration of our profession is profound when in retrospect we think, “this didn’t need to happen.”

I know, perhaps more than most, how dispersed, independent, and autonomous those who practice this profession are. We work in a variety of organizations, departments, conditions, and places. We value our autonomy. We glory in our independence. We have the best system of working together in the world, but that system needs refinement to achieve even better results. Our hearts are drawn together when one of us dies. We must be drawn together before a tragedy.

I continue to be involved in this effort because my professional life beckons me to be engaged in developing a better future for those young and old who do their duty every day in our nation. I want them to glory in the joy of a job well done, of a sisterhood and brotherhood which comes from successful service and which stands in stark contrast to faces marked by ash soaked tears.

As a community, we must move forward to improve our record, no matter what it takes. This gathering was a beginning. Let us rally to this cause and bring our best thinking and energy to the wildland component of EVERYONE GOES HOME®.

### **Tom Harbour**

National Director of Fire and Aviation Management (Retired)  
United States Forest Service





## Introduction

On the morning of October 9, 1871 fire broke out in a small barn on DeKoven Street in Chicago, Illinois. The city's fire department was initially sent to the wrong location, and what began as a small fire spread rapidly. Before it was extinguished, the Great Chicago Fire (as we now know it) burned more than 2000 acres, destroyed 17,500 buildings, and killed close to 300 people, and has gone down in the history books as one of the worst fire tragedies of the United States, overshadowing a lesser-known but vastly more destructive fire that started just a few days prior. On October 7, 1871, fire erupted in the dense Wisconsin forest, spread to the small village of Sugar Brush and on October 8, reached Peshtigo, Wisconsin. The fire killed more than 1,200 citizens of Wisconsin, and completely devastated entire towns and villages.

This is not the first time that an urban fire has overshadowed the destruction caused by wildland fire. The time is long overdue for our nation to recognize the great contributions of the wildland fire service, and commit to providing the additional resources, research, training, and education needed to prevent line-of-duty deaths and injuries to our wildland brothers and sisters. In recent decades the U.S. Forest Service, under the leadership of Chief Tom Harbour, has worked diligently to focus on the health and wellness of its most valued resource, the men and women who serve and protect the nation's forests. There is no doubt that one of Tom's legacies will be his efforts to bring every wildland firefighter back home after their tour of duty, and that the U.S. Forest Service and other agencies that fight wildland fires will continue to work to reduce line-of-duty deaths and injuries.

However, despite these efforts, fatality rates over recent decades have remained static, and many in the wildland community feel the time has come to "do more." Beginning with the May 2016 Wildland Fire Safety Strategy Meeting documented in this report, the National Fallen Firefighters Foundation has made a commitment to partnering in this process. The staff ride at Gettysburg National Military Park focused on the leadership skills of generals and commanders on both sides of the Civil War, and served as an excellent platform to launch into a discussion of firefighter safety, risk assessment, and eliminating the preventable loss of life of wildland firefighters. While the Battle of Gettysburg did not end the War Between the States, it did turn the tide of the war. My hope is that the recent meeting of 33 leaders and practitioners from the wildland firefighting community will serve to begin to turn the tide of wildland firefighter fatalities.

**Chief Ronald J. Siarnicki**

**Executive Director**

**National Fallen Firefighters Foundation**



## May 2-7, 2016 Wildland Fire Safety Strategy Meeting

There is nothing more tragic in the wildland community than the loss of a firefighter, and its impacts on the lives of the family, friends, and co-workers. Given the small, tightly knit wildland fire community, each loss is personal, devastating, and remembered.

Few organizations better understand the repercussions on families and organizations or have more experience in supporting survivors after the death of a firefighter than the National Fallen Firefighters Foundation (NFFF). The NFFF has also taken the lead in spearheading national efforts to prevent line-of-duty deaths and injuries through their Everyone Goes Home® program. As part of this ongoing effort, the NFFF has committed to partner with the wildland community in a self-examination process to identify strategies and establish safety goals to prevent deaths and injuries.

The NFFF recognizes the wildland component of the fire service has a specific set of concerns, emanating from both the services they provide to the public, and the environment in which those services are rendered. To begin the process of addressing these concerns, the NFFF brought together a group of dedicated individual from across wildland fire disciplines for a Wildland Fire Safety Summit from May 2 to 7, 2016. To set the stage for discussion, participants first spent two days participating in an L-580 Leadership Staff Ride at the Gettysburg National Military Park. They then moved to the National Emergency Training Center in Emmitsburg, Maryland for two days of discussion and consensus work to identify problems and recommend solutions for life safety issues that affect the wildland community.

### Meeting Objectives

1. Determine a clear definition of wildland firefighter tolerable operational risk.
2. Establish a broad interagency 10-year goal to reduce wildland firefighter fatalities.
3. Identify broad and basic wildland firefighter health risks, and establish a 10-year goal to reduce risks to firefighter health.
4. Identify current and future fire technology and science/research necessary to reach the 10-year goals.
  - a. Determine barriers to coordination.
  - b. Establish a communications process to eliminate duplication of effort and enhance coordination.
  - c. Strategize ways to operationalize research.
5. Develop a plan to communicate safety goals and encourage buy-in at the individual firefighter and organizational levels.

### Background

Congress created the National Fallen Firefighters Foundation in 1992 to lead a nationwide effort to honor America's fallen firefighters. Charged with the mission to honor and remember America's fallen fire heroes and to provide resources to assist their survivors in rebuilding their lives, the non-profit foundation has since developed and expanded programs which fulfill that mandate.

More recently, the Foundation broadened its mission to include the prevention of line-of-duty deaths and injuries. In Tampa, Florida in March 2004, a Firefighter Life Safety Summit was held to address the need for



change within the fire service. More than 200 individuals gathered representing a broad spectrum of the fire service and related organizations. All came to Tampa with one goal in mind: dig deep to articulate policies and training programs to drastically reduce firefighter line-of-duty deaths (LODDs). As a result of the March 2004 meeting, the NFFF launched the Everyone Goes Home® program, a major national initiative to reduce firefighter deaths and injuries. The Everyone Goes Home® program and the 16 Firefighter Life Safety Initiatives, which serve as a blueprint for its implementation, are supported by every major fire constituency organization in the United States. Following this event, the NFFF sponsored five mini-summits to support Firefighter Life Safety Initiatives outreach; one of these focused specifically on wildland firefighting.

In March of 2014, at the 10-year anniversary of the first Tampa summit, it became clear that it was time to assemble again—to assess how far the fire service had come in implementing the 16 Firefighter Life Safety Initiatives and in achieving the LODD reduction goals. It was also the appropriate time to ask whether the 16 Firefighter Life Safety Initiatives were still on-target and to develop priorities and strategies for the next decade. TAMPA2, as it became known, sought to bring a similar group of fire service leaders together, but with an added focus on the company officer/crew boss and developing the next generation of leadership.

Members of the wildland community participated in TAMPA2, as they did with the original Tampa Summit. Their input helped to form the recommendations issued in the final report from that event. The global concepts of the 16 Firefighter Life Safety Initiatives (Appendix A on page 14 of this document) are relevant to all firefighters, including those in the wildland community. However, stable fatality rates among wildland firefighters over the last decade have made it clear to both NFFF and wildland leadership that a specific, targeted effort is needed to address wildland fire specific issues, and to develop actionable strategies to reduce deaths and fatalities among wildland firefighters.

## Refocusing Everyone Goes Home® for the wildland community

In a sense, the May 2016 meeting was a follow-up to the shorter, one day, mini-summit focused on wildland fire held by the NFFF in 2005. That event was held just one year after the development of the Everyone Goes Home® program and adoption of the 16 Firefighter Life Safety Initiatives as strategies for its implementation. Attendees addressed a myriad of issues affecting the Wildland Fire Service, and developed recommendations within three key areas, identified potential partners, and suggested timelines for their implementation. These recommendations can be seen in Appendix C on page 16 of this document. The final report of the 2005 mini-summit can also be viewed online at:

<http://everyonegoeshome.com/wp-content/uploads/sites/2/2014/08/sandiego.pdf>

While the basic principles of the 16 Firefighter Life Safety Initiatives developed in 2004 by the NFFF apply to both wildland and structural firefighting, their specific application in the wildland environment involves very different considerations. The May 2016 meeting began with an idea about saving lives and concluded with a determination to build on the discussions which occurred during the week. Those discussions highlighted the complexity of wildland fire, the threats (and opportunities) to our nation from wildland fire, and the key considerations faced by scientists, administrators, and first responders.

Those considerations for wildland fire are as diverse as the United States. In addition to the groups specifically identified as wildland firefighting organizations (mostly common at the Federal or State level but also including private contractors), there are thousands of local fire departments frequently involved in



fighting grass, brush and wildland fires. Initial responses to tens of thousands of wildland fires occur locally, exposing first responders to a variety of risks.

The sad outcome of the complexity of the current system and our nation's engagement in wildland fire has been a continuing record of fatalities, accidents, and injuries for first responders. While a great success of those responders has been to keep civilian deaths from wildfire at a very small number, wildland fire responders continue to die in the line of duty. Taken over many decades across all departments and organizations, wildland fire accounts for nearly 19 deaths per year. Despite the relatively small number of firefighters engaged in wildland activities, these figures represent almost 20 percent of the total line-of-duty deaths that occur in the United States in firefighting work. It has been reported that based on statistical inferences, **wildland firefighters die in the line of duty at a rate of 6 times higher than that of structural firefighters.**

Building on NFFF energy and commitment, the May 2016 meeting had a specific wildland focus. Representatives included 33 women and men from 10 organizations, including 5 federal departments (USDA, USDI, DHS, DHHS, Commerce) 3 state organizations (TX, AZ, NASF), and 2 fire departments. Chief Ernest Mitchell, Jr., who leads the U.S. Fire Administration, vigorously engaged on both Friday and Saturday. This wildland fire session included selected scientists, leaders, and practitioners ranging from first responders to senior leaders of those responders. While this group represented a cross-section of key wildland fire organizations, attendees recognized there are thousands of different groups, organizations, departments, and firefighters who were not at this meeting and were unable to have the unique experience and discussion which the NFFF allowed at this gathering. A full list of participants is included in Appendix B of this document on page 15. Chief Tom Harbour, recently retired as Director of Fire and Aviation Management for the U.S. Forest Service, facilitated the meeting.

## May 3-5, 2016 Gettysburg, Pennsylvania

The first two full days of the meeting took place on a staff ride at Gettysburg National Historic Battlefield. The staff ride is intended for senior-level leaders in the wildland fire service, as part of a series of opportunities for continuing leadership development through the L-580 Leadership is Action program. The staff ride experience is a planned learning event that has been used effectively by the U.S. Military for decades, and has been embraced by wildland fire as a method of building leadership by learning from the past. The Gettysburg Battlefield has been used effectively to develop wildland fire leaders and this particular visit helped form a basis for continuing discussion on wildland fire risks.

In July of 1863, one of the most significant "incidents" in American history occurred in the small town of Gettysburg, Pennsylvania, when two American armies collided at a crossroads. The leaders of these two armies, many of whom are now permanent fixtures in American history, faced leadership challenges surprisingly similar to those faced by today's incident managers. Using the battlefield as a historical backdrop, the Staff Ride is facilitated by experts in leadership and incident management. The Staff Ride focuses on individual and team decision making, successful traits of senior leaders, and incident management at a strategic level—all of which would be important to the discussions taking place in the next stage of the meeting.



## May 6-7, 2016 Emmitsburg, Maryland

Following the conclusion of the staff ride, the group moved to the National Emergency Training Center (NETC) in Emmitsburg, MD to discuss specific issues associated with wildland fire accidents and injuries. Several additional wildland subject matter experts joined the group, including U.S. Fire Administrator Ernest Mitchell, Jr.

Chief Harbour opened the meeting, identifying the problem to be addressed. Though numbers are uncertain, it is estimated that 20,000 wildland firefighters serve in the U.S. While fatality rates are dropping among structural firefighters (due in large part to LODD prevention programs, including EGH), rates among wildland firefighters have proved to be more difficult to affect, averaging around 18.6 firefighter deaths per year, as they have for decades.

“Why involve the Foundation?” he continued. Because there are people in the wildland community that think we can do better. The Foundation has extended significant resources to the Everyone Goes Home® program, and has consciously reached out to the wildland community to offer their assistance. Compassion, education, and engagement are key components of the work of the NFFF, and their participation provides the perspective of a non-biased entity (the Foundation) on the problem.

Victor Stagnaro, NFFF Director of Fire Service Programs, welcomed the group noting, “we’re here to learn the lessons from the names on the Memorial.” Chief Mitchell, an early advocate for the Everyone Goes Home® program, related the successes and failures of initial efforts by the NFFF to engage the structural firefighting world in LODD prevention a decade ago. He noted that it was not necessarily a smooth path toward internal fire service acceptance at every rank. “What works?” he asked and answered that from an internal perspective we must. “1) Engage the whole community; 2) manage expectations; 3) focus on early messages; 4) provide education and training early in a career and; 5) get buy-in from leadership at every level.”

The meeting continued with updates from each of the agencies present on existing and ongoing research within their organizations. Understanding the recent advances in the science surrounding wildland fire management is fundamental to change.

A panel discussion then ensued which began with the general theme of “acceptable risk/acceptable loss” but which highlighted several important features of the work ahead. The discussion highlighted many of the issues and perceptions surrounding risk which have limited the success of previous safety initiatives:

- Risk is inherent in wildland firefighting.
- Currently there is no authoritative national census on wildland firefighters across the spectrum of agencies and organizations.
- There is no definition of risk commonly accepted among the wildland community including those “final decision-makers” (agency administrators).
- Expectations regarding the acceptance of risk are different in protecting public vs. private lands.
- Managing fire (using the right kind of fire in the right place at the right time with right types of assets) reduces risk, but is often not an option. Laws, rules, regulations, practice and other influences often limit “wildland fire management.”
- Managing community building practices reduces risk, but is often not an option.
- Individual tolerances for risk vary widely and are influenced by many factors



- Perceptions of risk levels and risk tolerances can vary between levels of leadership on the fireground, and between leaders and firefighters.
- The public is often conflicted about risk.
- Our perception of public wants/desires is often conflicted/complicated and can directly affect risk based decisions in our response to wildfire.
- We (the profession, leaders [agency and political], public, and scientists) need to discuss values at risk (monetary, biological, etc.). What are we protecting or not protecting, and what are the positive and negative effects of these decisions in the long and short-term?
- Being risk averse can lead to additional risk burdens for other firefighters, landscapes, and for communities.
- Among the assumptions which need to be challenged are:
  - Firefighters are dying because they are too willing to accept risk;
  - Firefighters are dying because of the unpredictability of fire: and
  - Firefighters are dying because of the perceived/real public and political pressures to engage.
- We expect firefighters at any level of experience to predict fire behavior. Those firefighters and their leaders (at all levels) work with variable tools and skills. Those tools are based on imperfect science in a complex adaptive system working within the chaos of a natural event.
- Our current response to wildfire is out of alignment with the biophysical reality we face today. We still respond to fire in the same manner we always have without adjusting to the fires we encounter today.
- We routinely accept risk, but we never accept loss. However, accepting risk means we are accepting the chance of suffering loss. The question that may need to be resolved is what is the community willing to risk and what is the community willing to lose when fighting a wildland fire.

Significant discussion ensued regarding this subject, and it was clear that these difficult questions would not be answered within this venue. One attending scientist noted recent important publications on risk management (For example, see Thompson et al., 2016. RMRS-GTR-349). However, the ideas and issues brought forth by both panel and audience did inform the very lively discussions in the three breakout sessions that followed. Groups were asked to identify issues and potential solutions regarding their assigned topics, as well as the meeting objectives. Below is a summary of each group's discussions.

***On Risk***

*"We took unnecessary risk, which was bad war, and the only bad war, I think, too, in all our tactics."*

Page 228, Fighting for the Confederacy by Porter Alexander, CSA, in reference to the Battle of Gettysburg.

*Risk was a key topic at this gathering of wildland fire professionals.*



## Breakout Session 1

### Barriers to coordination/Action Steps to break down barriers

Problem Statement: The wildland fire service is growing, but we may be sacrificing quality.

**Action: Emphasize quality rather than quantity. Seek an “enlightenment” mirroring that we heard of about the USMC. As a long-term goal, *We need a quality fire service, quality organizations, that take care of its people.***

Problem Statement: Line-of-duty death prevention efforts lack focus.

**Focus efforts on 5 major categories of LODDs and injuries: 1) aviation; 2) driving; 3) burnover; 4) snags/rocks/rolling debris; and 5) medical events.**

Problem Statement: A clear definition of wildland firefighter tolerable operational risk does not exist.

**Action: A possible definition is: “we will put wildland firefighters at risk for saveable lives, we will accept calculated risks to protect valuable infrastructure or property, and we will not unnecessarily expose wildland firefighters to risk of injury, death, or disease.”**

Problem Statement: Establish a broad interagency 10-year goal to reduce wildland firefighter **fatalities**.

**Action: Establish a 50% reduction in wildland firefighter fatalities in 10 years (from 18.6 to 9.3) as a recommended goal.**

Problem Statement: Wildland firefighters appear to be at higher risk of cancer, suicide, PTSD, and other occupational diseases and behavioral health issues, but there is little data to support these assertions and few programs in place for prevention.

**Action: Gather data and increase awareness on off-duty deaths. Then adopt strategies to reduce them, through behavioral health support and cancer prevention programs.**

Problem Statement: Identifying and benchmarking where our LODDs and injuries are will assist in defining our prevention opportunities.

**Action: Establish a centralized system and process to collect data on deaths and injuries.**

Problem Statement: Disparate standards exist for medical evaluation, standards, fitness, medical surveillance across organizations

**Action: Establish consistent standards across all organizations.**

Problem Statement: Different agencies and organizations have disparate capabilities to care for injured or ill firefighters in the field.

**Action: Establish standards and funding for EMTs on each crew, and establish standard baseline medical qualifications.**

Problem Statement: Firefighter safety begins in training and education, but wildland firefighter training and education varies widely.



**Action: 1) Create a 'National Wildfire Academy' to standardize training; 2) cross train all mid-level and chief officers; 3) shift from a course model, to a fire program/academy model; (4) emphasize education as well as training. In general, "train for certainty, educate to address uncertainty"**

Problem Statement: For complex reasons, firefighters are accepting a higher level of risk in the wildland-urban interface (WUI).

**Action: Explore why (if) firefighters feel higher levels of risk are appropriate in the WUI. Assuming part of the issue lies with community members, start educating communities on 'living with fire,' and work together to develop a national strategy to support local zoning regarding limiting building, setbacks, etc. in the WUI. Work with communities to explore modification of response in the WUI.**

## Breakout Session 2

### Operationalization of research to practice

Problem Statement: A gap of implementation of the research results exists between the time of implementation and also the audience of implementation.

**Action: Introduce results of research products and findings at all levels of the organization, down to the lowest level (as applicable). Additionally, translating research results into practice is one issue, but how we incorporate research results, tools, software into training and then the support of training development (courses, materials, delivery) is also an issue needing our attention.**

**Coordination of science, training, and education is a significant topic for redesign and improved implementation.**

Problem Statement: Results of the research are sometimes released or published in a format which may not easily present the intended information in a usable format applicable to all personnel.

**Action: Vital information from the results of the research must be placed into the right learning system to reach the intended audiences, in the right manner, in order to make it operational.**

Problem Statement: Are we able to reach the target audiences?

**Action: The organization should use all possible media resources to market and release research results and materials.**

Problem Statement: No effective/single resource or mechanism exists to coordinate the information from the research and distribute into the organization's learning systems.

**Action: A broad interagency, wildland fire research dissemination mechanism should be created created to help maintain consistency with scientific information across all organizations, so that the broader wildland community is training and educating their people based on sound scientific information. Until that time, though, each organization should develop an effective resource focused on the transferring key scientific information into the organization's training and education programs.**

Problem Statement: Training and education opportunities are not widely emphasized and/or supported.

**Action: Organizational emphasis should be initially placed on the "middle manager" (1st and 2nd level supervisor) level of the organization. This can be achieved by supporting middle manager level attendance at training events, conferences, educational events, presentations, etc. None of our**



**wildland community can afford to stop learning at every level, but this group felt the “middle manager” level should be our initial focus.**

Problem Statement: Organizational personnel may not be in support of research and the implementation of the research findings without a clear correlation to the organizational goals.

**Action: Each organization shall adopt an organizational value on supporting and advocating for the need and implementation of the most recent and applicable research in wildland firefighting.**

### **Breakout Session 3**

#### **Reaching the firefighter with the agencies’ safety goals**

Problem Statement: Directives such as “zero fatalities” and “everybody goes home every day” set unrealistic expectations among families and firefighters, and can be viewed as unattainable by some.

**Action: Clearly articulate that the objective to drive safety efforts is reduce the number of preventable fatalities. While not completely being able to identify “preventable” accidents, the idea is to “prevent the preventable.”**

Problem Statement: Top down, cohesive messaging must articulate the “here’s why” to every audience.

**Action: Messaging must communicate the goal AND intent clearly and to all levels.**

Problem Statement: Negative messaging can have unintended consequences, and imply punitive repercussions.

**Action: Messaging must be positive, and focus on the goal.**

Problem Statement: Inconsistent messaging can be counterproductive, particularly in the wildland firefighting environment, where multiple agency involvement is the norm.

**Action: The goal and related messaging must be consistent across all agencies.**

Problem Statement: Messaging and information sometimes appears to be aimed at high-level personnel removed from the wildland fire ground.

**Action: Programming, messaging, and information to support the goal should be for all levels but there is a specific need for the command level, crew boss level, and firefighter levels.**

Problem Statement: First line supervisors are the cultural change agents in many organizations.

**Action: Specific attention must be paid to getting “buy-in” at the first line supervisor level.**

Problem Statement: Firefighting is inherently dangerous and loss of life will occur.

**Action: Firefighters must build competencies based on acknowledgement of the severity of the environment they work in. Leaders, firefighters, the public and scientists should engage in a vigorous discussion about the risks associated with wildland firefighting .**

Problem Statement: Recognizing that all risk is personal, with good intent, firefighters must rely on their experience to make informed risk decisions in alignment with a broader (yet to be well articulated) doctrine associated with risk management.



**Action: Firefighters must be empowered through training and education to apply their own level of risk assessment. Supervisors must support, assist in development of, and monitor this training and education. The concepts of risk management which guide education and training should be articulated and well known to all engaged in wildland fire.**

Problem Statement: Remove the stigma from crew bosses and superintendents when they recognize a risk and decide not to engage in firefighting.

**Action: ICs and other command level officers need to empower superintendents and crew bosses to use their training and experience to make good risk decisions. Supervisory personnel must not be penalized for minimizing or averting risk for the welfare of their crews.**

Problem Statement: The public's expectations must be realigned to meet safety goals. The public must understand the inherent risk to firefighters, and the role the public plays in the prevention of serious accidents and fatalities.

**Action: A portion of the messaging to support the goal must be directed toward the public.**

Problem Statement: Family members must understand the inherent risks of firefighting, including the potential higher risks of cancer, suicide and PTSD, and other occupational diseases. Spouses, parents, and children of firefighters are effective advocates for safety efforts.

**Action: Messaging must be directed to families to support safety goals.**

Problem Statement: Preparation, plans for support during, and follow up support needs to be in place in every organization in the case of a line-of-duty death or injury.

**Action: Organizations must prepare for a serious accident or fatality. Programs including the NFFF's Taking Care of Our Own® and the National Interagency Critical Incident Stress Management wildland-specific "You Will Not Stand Alone" can assist organizations in developing a plan to provide both short and longer-term support for family and co-worker survivors, and assistance to the family in applying for applicable benefits. Such plans need to be supported with resources/assets to accomplish these goals.**

## Conclusion

As the meeting progressed, the consensus of the assembled intellect was that our objectives were important long-term goals which need to be accomplished, but considering the complexity, diversity, history, and future of wildland fire, the specific answer to each objective was not achievable at this particular meeting. These questions need to be answered by consensus across a wider audience, gathered by some key important group, like the NFFF. The consensus opinion of the assembled experts was that the NFFF has initiated an important discussion, perhaps THE most important discussion effecting responders, for wildland fire. Wildland fire in America has had over one hundred years to develop its particular culture, issues, and problems. Helping to cure and change those issues, as recognized by the NFFF, will require additional effort in modifying the complex larger wildland fire system.

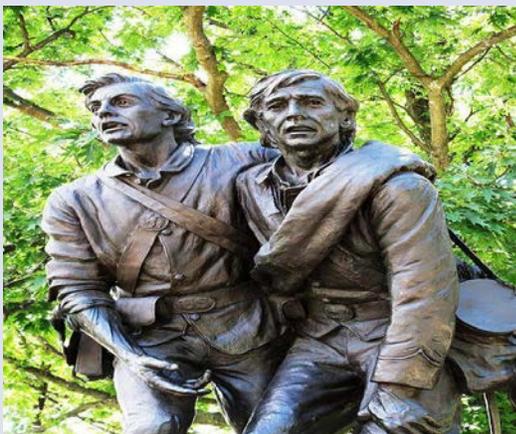
In discussing those issues, what made this particular meeting different? Perhaps most importantly, the NFFF sponsorship provided the possible key link for everyone involved in wildland fire. There was no overarching sponsoring agency, nor hidden agenda to deal with. The NFFF served as an expert, non-partisan convener. The key question was "how can the NFFF assist those engaged in wildland fire reduce line of duty death,



accident, and injury?" The NFFF's focus on compassion and service provided a compelling springboard to open an honest discussion among those assembled. The ability to have a staff ride ahead of the discussion opened minds to possibilities. The prompting of the staff ride made questions of leadership and character foremost in people's mind as they assembled in Emmitsburg to discuss the issues surrounding wildland fire. The objectives established for the meeting portion of the week encouraged deep discussion about the overall lack of progress the community as a whole has made over the years in reducing fatalities. There was much discussion about the inherent hazards of the wildland fire work and the environment (the wildland) in which it is performed. Very importantly, there seems to be a rising sense among wildland operators and within the leadership of the NFFF that the current fatality rate for wildland responders is unacceptable.

All the while, evidence is mounting that the wildland firefighting environment is becoming more complex, and the consequences to responders and the public, communities and the land more severe:

Three of the deadliest wildfires in our history have occurred in modern times:



***The Maryland Monument***  
***Gettysburg National Historic Battlefield***  
*A final tribute-part of the inscription reads*  
*"Brothers again..."*

In the context of the week's events, the idea of sisters and brothers supporting each other, as expressed by the words on this monument, was particularly poignant.

- Storm King /South Canyon in 1994; Iron 44/Buckhorn in 2008; and Yarnell Hill in 2013. In these three fires, a combined total of 42 wildland fire responders were killed.
- Property loss is also on the rise. At least 10 modern wildfires have had insured property losses over \$200 million and four modern wildfires – Oakland Hills in CA; Cerro Grande in New Mexico; and, the Southern
  - California events in 2003 and 2007 – have resulted in property losses of over \$1 billion each.
  - As many as 9 states (WA, OR, NM, AZ, NV, CO, TX, GA, MN) have experienced their "largest ever" wildfires in recent times. More agencies, with more responders (large fires had 27,000+ committed responders in 2015), were engaged in wildfire response last year than ever before.
  - The fire season is getting longer and suppression costs are increasing. Compared to the 1970s, western fire seasons have increased nearly 78 days and research suggest in the next 50 years, western fire seasons could increase up to another 23 days.

Absent any change of practice or condition, the resultant exposure of responders to the prospect of serious accident and injury will be such that additional line-of-duty deaths would occur. As noted by participants at the meeting, "It is time for serious change, for hard truths to be spoken and action to be taken," and "we need to translate our pain into action." This meeting provided a basis for future action. The National Fallen Firefighters Foundation is willing to catalyze this change, but recognizes key actions lies in the hands of responders, scientists, the public, and leaders at all levels in wildland fire.



## Recommendations

At the conclusion of a week's worth of diligent soul searching, learning, and effort, the combined group offered some "hard truths" and ideas for consideration into the future, including these recommendations:

1. Change the wildland fire paradigm from "can we accomplish the mission?" to "can we survive the mission?" We need to ask, "how can we respond in a manner which protects citizens, sustains landscapes, and allows reasonable risk for responders?"
2. Change the conversation dealing with risk—we should be asking clearly and upfront if the gains are worth the exposures. The discussion about values and "trade-offs" is critical.
3. Expectation should drive preparation—change the expectation that we can be successful in EVERY mission ALL the time.
4. Expose all responders to "the Cohesive Strategy" (the Wildland Fire Cohesive Strategy endorsed by States, USDA, USDI, DHS and others) at the start of fire school, so that new recruits understand the link between communities, landscapes, and responders. Develop "Cohesive Strategy" materials appropriate to the audience. Understanding the "Cohesive Strategy" could lead to new approaches in wildland fire.
5. Introduce results of research products and findings at all levels of the organization, down to the lowest level (as applicable). While there is much science which needs to be done, there is a tremendous amount of information which is not being utilized effectively. Use this information to improve practices, training, and education.
6. Until some broader interagency, wildland fire mechanism is developed, each organization should develop an effective resource focused on the transferring key scientific information into the organization's training and education programs. Some mechanism should be developed to help maintain consistency with scientific information being featured so that the broader wildland community is training and educating based on sound scientific information.
7. Enhance the ability of the wildland fire service to take care of its people prior to and in the aftermath of a firefighter injury or fatality.
8. Seek an 'enlightenment' of the wildland fire service; mirroring the transformation which occurred when the U.S. Marine Corps went through significant periods of growth.
9. Focus efforts on 5 major categories of line-of-duty death and/or injury: 1) aviation accidents; 2) motor vehicle accidents; 3) burnovers; 4) snags/rocks/rolling debris; and 5) medical incidents.
10. Continue to concentrate on the existing priorities of: 1) firefighter safety; 2) adaptive communities; and 3) resilient landscapes.

**The single most important recommendation from this gathering is use this meeting, this energy, this work, as a basis to go forward.** The legacy of this gathering will be in the follow-up each of the attendees and the group does to pursue this honorable intention of protecting and enhancing our nation, while reducing line-of-duty deaths, accidents, and injury to wildland first responders.

*If not us, who? If not now, when?  
-attributed to Hillel the Elder (c. 50 B.C.)*



**Wildland Fire Safety Strategy Meeting**

Group picture taken on the steps of the National Fallen Firefighters Memorial Chapel



## Appendix A: The 16 Firefighter Life Safety Initiatives

1. Define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability and personal responsibility.
2. Enhance the personal and organizational accountability for health and safety throughout the fire service.
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities.
4. All firefighters must be empowered to stop unsafe practices.
5. Develop and implement national standards for training, qualifications, and certification (including regular recertification) that are equally applicable to all firefighters based on the duties they are expected to perform.
6. Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform.
7. Create a national research agenda and data collection system that relates to the initiatives.
8. Utilize available technology wherever it can produce higher levels of health and safety.
9. Thoroughly investigate all firefighter fatalities, injuries, and near misses.
10. Grant programs should support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.
11. National standards for emergency response policies and procedures should be developed and championed.
12. National protocols for response to violent incidents should be developed and championed.
13. Firefighters and their families must have access to counseling and psychological support.
14. Public education must receive more resources and be championed as a critical fire and life safety program.
15. Advocacy must be strengthened for the enforcement of codes and the installation of home fire sprinklers.
16. Safety must be a primary consideration in the design of apparatus and equipment.



## Appendix B: Attendees at the May 2016 Meeting

Name	Organization
Christina Anabel	Human Innovation and Organizational Learning/ Rocky Mountain Research Station
Michael Anderson	Travis County (TX) ESD#2- Pflugerville Fire Dept.
George Broyles	U.S. Forest Service
Nelson Bryner	NIST
Corey Butler	NIOSH
Joe Domitrovich, Ph.D.	U.S. Forest Service
Pete Duncan	U.S. Forest Service
Chris Fogle	U.S. Forest Service
Matt Gibson	U.S. Forest Service/Northern Rockies Training Center
Tom Harbour	U.S. Forest Service (retired)
Curtis Heaton	U.S. Forest Service
Todd Hoefen	U.S. Geological Survey
Michael Krupski	U.S. Forest Service Sawtooth National Forest/ Sawtooth Hotshots
Erica Kuligowski, Ph.D., Evans Kuo	NIST U.S. Forest Service Washington Office Fire and Aviation Management
Kimberly Lightley	U.S. Forest Service
Robert Manwaring	U.S. Forest Service
Charles McHugh	U.S. Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory
Kevin Milan	South Metro (CO) Fire Rescue
Ernest Mitchell, Jr.	U.S. Fire Administration
Anthony Petrilli	U.S. Forest Service
Tricia Sanborn	National Fallen Firefighters Foundation
Tim Sexton	U.S. Forest Service
Dan Smith	National Association of State Foresters
Victor Stagnaro	National Fallen Firefighters Foundation
Mark Stanford	Texas A&M Forest Service
Woody Stratton	U.S. Fire Administration
Larry Sutton	U.S. Forest Service
Jennifer Symonds, D.O.	U.S. Forest Service
Jason Virtue	U.S. Forest Service
Jeffery Whitney	Arizona State Forestry
Christopher Wilcox	U.S. Fish and Wildlife Service
Robin Wills	National Park Service



## Appendix C: Recommendations of the February 2005 Wildland Life Safety Mini-Summit

### Operations

#### Within 2 years:

- Develop a single national model for fire incident personnel accountability.  
*Agencies to be involved: NFPA, FIRESCOPE, NWCG*
- Capture and incorporate technology from other agencies to improve wildland operations.  
*Agencies to be involved: DOD, DHS, FCC, Private sector technology sources*
- Develop a series of strategies to recruit, train and retain qualified individuals to serve on incident management teams.  
*Agencies to be involved: NWCG, DHS/FEMA/USFA/NFA, IAFC, IAFF, NVFC*

#### Within 2 - 5 years:

- Identify agencies to conduct ongoing causal factor analysis of wildland firefighter fatalities and injuries. Examine the issues from a human behavioral and psychological aspect. Develop strategies to match risk management principles with the causal factors identified.  
*Agencies to be involved: NIOSH, Universities, MTDC, USMC, NWCG*

#### Within 10 years:

- Develop a consistent and dependable funding source for fire service training and secure an independent agency to manage it.  
*Agencies to be involved: DHS, NWCG, CFSC, USFA, Insurance Industry*

### Health-Wellness-Fitness

#### Within 2 years:

- Develop funding mechanisms for implementation and maintenance of Health-Wellness-Fitness programs.  
*Agencies to be involved: Workers compensation carriers, ICMA, DHS, NVFC, IAFF, IAFC*

#### Within 2 - 5 years:

- Implement ongoing wellness-fitness programs (i.e. IAFF-IAFC model)  
*Agencies to be involved: NFPA, IAFF, IAFC, NVFC, ICMA, NASF, MTDC, BLM, USFS, NPS, BIA, FWS, DOD, DHS, Bureau of Reclamation.*
- Mandate pre-hire standards including medical exams, fitness tests, prohibition of tobacco use on and off duty, and drug screening.  
*Agencies to be involved: NFPA, IAFF, IAFC, NVFC, ICMA, NASF, MTDC, BLM, USFS, NPS, BIA, FWS, DOD, DHS, Bureau of Reclamation.*

#### Within 10 years:

- Identify the causes and effects of firefighter occupational diseases (e.g. cancer, respiratory, circulatory)  
*Agencies to be involved: NIOSH, CDC, DOD, ACS, AMA, American Lung Association, MSHA, MTDC*
- Develop and deliver programs on the prevention of occupational diseases.  
*Agencies to be involved: NFPA, IAFF, IAFC, NVFC, ICMA, NASF, MTDC, BLM, USFS, NPS, BIA, FWS, DOD, DHS, NIOSH, CDC, DOD, ACS, AMA, American Lung Association, MSHA, MTDC, NFA*



## Vehicles and Equipment

### Within 2 years:

- Develop and adopt national response standards for various types of wildland incidents:
  - A standardized national typing of apparatus with minimum levels of specific equipment for all apparatus; including aviation assets.
  - All involved standards agencies should work together to develop uniform wildland equipment standards.
  - ARFF standards for Heli-bases - at least equal to the Coast Guard Heli-Base Standards. (The requirements should increase in proportion to the fuel quantity or number of Type 1 Helicopters.)
  - A minimum number of equipment and aviation assets should be dispatched to all incidents based on Type 1; Type 2; Type 3 incidents.
  - The federal dispatch system should to be centralized. Dispatching at the local forest level is problematic. A unified system should account for all available assets, nationwide.
  - Standards should address crew transport vehicles and policies.

*Agencies to be involved: NFPA, NIMS, NWCG, NWSA, DOD, DHS, FEMA, USFA*

- Federal grant programs for equipment should focus on safety items. If a department is receiving federal excess or surplus equipment, there should be a contract that requires a minimum level of safety.

*Agencies to be involved: DHS, FEMA, USFA, DOD*

- All LODD, injury and near-miss investigations should include an analysis of equipment use, design, and application.

*Agencies to be involved: DHS, FEMA, USFA, OSHA*

- New technology should focus on built-in safety:
  - Grants should be available to manufacturers to develop better safety equipment.
  - All safety research should be focused directly on the causes of LODDs.

*Agencies to be involved: DHS, FEMA, USFA, NFPA, USFA, OSHA, FAMA*

- Technology transfer research should identify valuable equipment and technologies that are available outside the fire industry:
  - Personnel accountability technology is currently available (i.e. DOD) that is not currently being used in the fire service.
  - Research grants should be made available to develop safety features and equipment specific for the fire service.

*Agencies to be involved: DHS, USFA, DOD, San Dimas, Missoula, NASA, U.L.*



## NFFF Mission

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Our mission is to honor and remember America's fallen fire heroes and to provide resources to assist their survivors in rebuilding their lives and work within the fire service community to reduce firefighter deaths and injuries.

[www.firehero.org](http://www.firehero.org)



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