# DomPrep Journal

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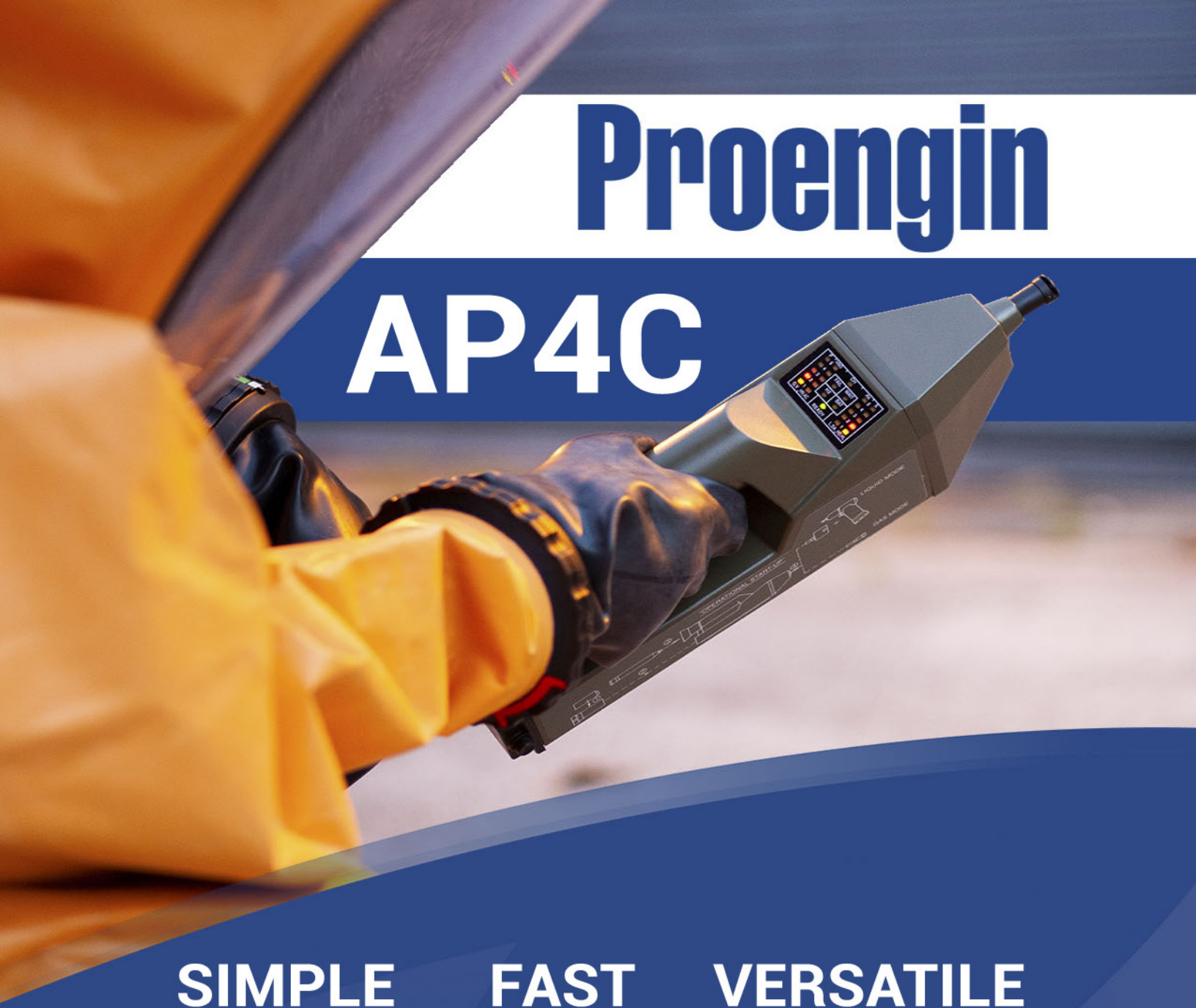

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**Business Office**
P.O. Box 810
Severna Park, MD 21146 USA
www.DomesticPreparedness.com
(410) 518-6900

**Staff**
Martin Masiuk
Founder & Publisher
mmasiuk@domprep.com

Catherine Feinman
Editor-in-Chief
cfeinman@domprep.com

Carole Parker
Manager, Integrated Media
cparker@domprep.com

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# Search for Opportunities

*By Catherine L. Feinman*

For more than 20 years, DomPrep has promoted the lessons learned and best practices of agencies and organizations that have managed various disasters. There is so much valuable advice that can be gleaned from such reviews. For example, reviewing past events is critical for learning how to avoid previous preparedness and response pitfalls. However, as lessons learned and best practices are being incorporated into current plans, these plans need to be regularly reviewed and modified to take into consideration innovative solutions and technological advances. Simply responding to a current disaster by doing what should have been done during the last disaster would lead to missed opportunities for building community resilience.

Resilience involves studying past events, being familiar with currently available resources, and comprehensively planning for what may or may not have ever happened before. Accurate risk modeling, better funding opportunities, and fresh ideas would help communities become more resilient in the current environment. Creating new uses for existing resources is one concept worth exploring. Responses to common threats such as wildfires, for instance, could benefit from exploring forward-thinking ideas for integrating the extensive existing pipeline infrastructure to help fight fires. For responses to all types of threats, interoperable communications is often a critical component in determining how successful the response is perceived. New technologies, standards, and procedures are having a significant impact on the emergency communications ecosystem.

Despite some resources being readily available through various government agencies or private industries, some still are underutilized when not well-known or understood. Research again plays a key role in finding these existing opportunities. In the healthcare sector, the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response provides assistance to help improve communities' readiness and response capabilities. Effective disaster planning, which promotes resilience, is built over time and requires a holistic approach – knowledge of the past, understanding of current resources, and thinking outside the box for new solutions.

Numerous opportunities exist to improve community resilience. It is just a matter of finding the right ones for current and future needs. This March edition of the *DomPrep Journal* provides guidance from knowledgeable emergency planners to help other disaster preparedness and response professionals start searching for the numerous opportunities available to them.

# Embracing Resilience: At a Crossroad of Opportunity

*By Gregory Brunelle & Deborah Weiser*

*March 2021 marked the 10th anniversary of the Great East Japan (Tohoku) Earthquake. On the afternoon of 11 March 2011, a magnitude 9.1 megathrust earthquake struck where the Pacific Plate subducts underneath the Honshu region of Japan. This was a massive event. The earthquake rupture lasted* 150-160 seconds*, with shaking in many communities felt for five or more minutes. The* energy released *by the earthquake could power the city of Los Angeles for more than a year. Japan was* shifted *8 feet to the east and the* earth's axis shifted *about 6.5 inches. The subsequent tsunami reached more than 10 meters in many places, devastating large portions of* Japan's eastern coast*. The* resulting destruction *is estimated to have caused tens of billions of dollars in damage, destroyed tens of thousands of buildings, and caused the deaths of nearly 20,000 people.*

Japan has a long history of regularly occurring major earthquakes and averages more than 100 magnitude 5 or larger earthquakes annually. Recognizing this hazard, the Japanese government has invested heavily in mitigation. Japan has some of the world's most rigorous earthquake engineering standards and building codes. Immediately after the 2011 earthquake, Japan's national government centralized its recovery efforts and adopted a broad strategy of rebuilding stronger, truly focusing on resilience. Rather than investing in a single large mitigation solution (e.g., taller seawalls), they pursued multi-layered protection strategies including natural barrier enhancement, elevated roadways between the sea and their communities, and natural area restoration.

Additionally, affordable housing and community economic development plans provided a rebalancing to address equitability. Using state-of-the-art risk modeling solutions as the basis for this approach, government officials are also better able to communicate risk to their citizens. Those efforts continue to this day, with regular hazard assessments and ongoing investments in mitigation embedded in public and private economic development. Japan has listened to its history, regularly examines its possible future, invested in its cities and infrastructure, instilled a culture of preparedness in its residents, and learned from the past as it looks to the future. The United States should do the same.

### *Partial Mitigation Is Not Enough*

The United States has experienced an unprecedented number of major disasters in its recent past, and every indication is that this trend will continue. A few well-known examples demonstrate the slow evolution of resilience-focused disaster recovery.

Hurricane Katrina (2005) was one of the strongest hurricanes ever recorded in the Gulf of Mexico. The destruction it wrought across southern Mississippi and Louisiana resulted in devastated communities and caused several hundred billion dollars in damage. In the aftermath, Congress approved billions in recovery efforts, but it is widely accepted that not enough mitigation has been undertaken.

The Mississippi River Delta is an incredibly complex natural region. The main focus in post-Katrina rebuilding has been storm surge, as rising sea levels, stronger hurricanes, and eroding natural barriers are amplifying the risk annually. The levee system built after Katrina, while stronger than the previous barrier, may not be tall enough; at best, it is only a part of the solution. For example, New Orleans relies on an antiquated storm water pumping system that will cost more than $1 billion to replace, and it is not needed solely for major hurricanes. Heavy rain events quickly overwhelm the system, resulting in flooding across the city. Natural ecosystems, which protect communities, require considerable investment in protection and restoration. And additional investment is needed to address existing economic and social inequalities that disasters quickly exacerbate. More aggressive and holistic mitigation is needed.

***After experiencing numerous major disasters in its recent past, the U.S. is now at a point from which it can quickly embark on a new journey toward resilience.***

In 2012, Superstorm Sandy resulted in the most devastating natural disaster in several northeastern states' histories. In this instance, recovery efforts were more holistic, albeit still underfunded. The impacted states received tens of billions of dollars in Community Development Block Grant–Disaster Recovery (CDBG-DR) funding to augment their recovery efforts. The flexibility of this program allowed for a broader approach, and saw reconstruction efforts focus on mitigation and long-term resilience. Additionally, projects included consideration of local history, economic development, cultural preservation, social equity, and climate change. However, years of high-risk community development, and a lack of investment in hardening infrastructure, means that much more funding is still needed to reduce future impacts.

Texas has a well-established risk from tropical systems. Major hurricanes such as Harvey (2017), Rita (2008), and Ike (2005) brought damaging storm surge, widespread flooding, and impactful winds. Hurricane Harvey shattered records by dumping more than 60 inches of rain in parts of Harris County and major flooding across large swaths of the state, causing more than $125 billion in damages. Although tens of billions of dollars have been provided for recovery, the list of flood mitigation projects that have been identified far exceed available funds.

### *No End in Sight*

Annually over the past decade, the United States has witnessed at least a half a dozen billion-dollar disasters, culminating in 2020, when more than 20 billion-dollar disasters occurred (see Fig. 1). Both the types of disasters, as well as their locations, have been broadly distributed. Severe storms have repeatedly struck the central and southern United States. Hurricanes have pounded the Gulf Coast and Atlantic seaboard. Wildfires have destroyed entire communities in California and the Pacific Northwest. All of this is in addition to the many hundreds of localized floods, tornadoes, ice storms, and other natural hazards that occur every year. Constant exposure to billion-dollar disasters can cause disaster fatigue, which has been exacerbated by the mental, physical, and economic challenges caused by the COVID-19 pandemic. As such, support for expensive resilience-focused recovery investments can wane due to competition with other priorities.

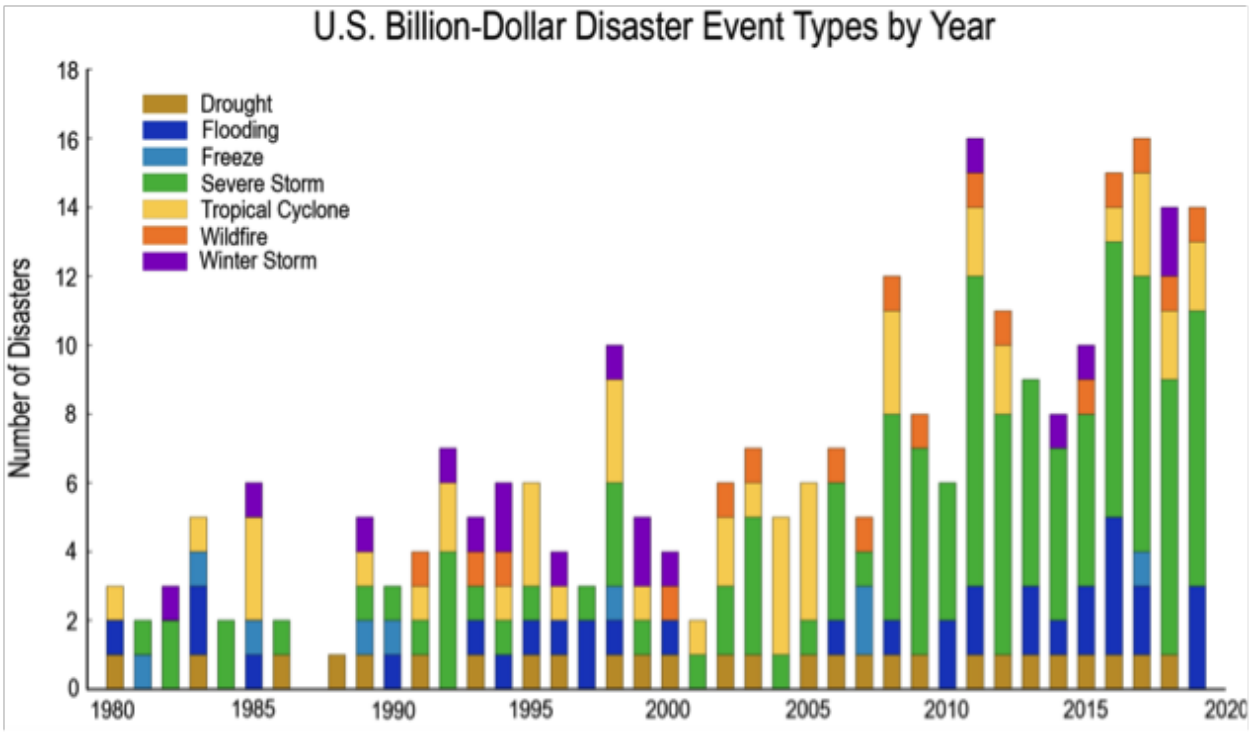


**Fig. 1.** U.S. billion-dollar disaster event types by year (*Source:* Climate.gov, 2019).

Compounding this issue is that many mitigation projects are not obvious, thus the community does not directly experience the investments made. For example, Dr. Lucy Jones, one of the world's leading seismologists, recently noted that one of the greatest risks to the Los Angeles region is the vulnerability of its water system to an earthquake. The cost to retrofit the system would be many billions of dollars. And investing such money now would not result in any notable change for residents. After the project, water will still flow from faucets, as it does today. Justifying such an expense, when so many other pressing societal issues remain unfunded, is difficult. However, the assuredness of access to water after an earthquake is far from guaranteed. As was witnessed recently in Texas, when frozen water pipes led to an unprecedented crisis (particularly for lower socioeconomic residents), the primary impacts of a natural hazard are only part of the story. Following a major earthquake, and absent a substantial investment in water system mitigation, the greater Los Angeles region could experience a water crisis for more than a year.

### *An Opportunity Exists*

There is hope on the horizon. Earlier this year, the Biden Administration announced its intention to increase mitigation funding by injecting $10 billion through existing Federal Emergency Management Agency programs. What will help to get large, impactful mitigation projects started may be found in the anticipated infrastructure bill. Not only would both investments begin to undo decades of neglect of America's infrastructure, but they would also serve to create jobs and build a genuinely more resilient nation.

Regardless of the source or amount of available funding, it is important to ensure that projects are designed and built as accurately and efficiently as possible. There are several

examples of mitigation projects that were underbuilt due to funding limitations. Fortunately, emerging technologies are available that can assist decision-makers, engineers, and mitigation specialists to more accurately understand the risks they wish to eliminate or greatly reduce.

The past decade has witnessed the rise of machine learning as a companion to engineering, environmental and geophysical sciences, and traditional physical modeling to allow for faster and more accurate risk modeling. It is also considerably less expensive than traditional methods of assessing potential impacts and the physical improvements that minimize or eliminate them. Additionally, the availability of massive amounts of computational power allows for a nearly unlimited number of scenarios to be assessed and analyzed, with the most cost-effective options to be determined. Armed with faster, better, and cheaper assessment and planning tools, mitigation experts are more empowered to achieve the collective goal of building a resilient future in a much more cost-effective and timely manner.


The United States finds itself at a point from which it can quickly embark on a new journey toward resilience. Repetitive major disasters, and their associated costs, have provided a convincing argument that significant investments in mitigation must be made. Technological advancements provide for faster, smarter, and more effective project identification and design. The Biden administration has laid out initial funding opportunities to fuel the start of this work. These efforts must be strongly supported if the United States is going to maintain its place in the global economy and withstand future disasters.

*Gregory (Greg) Brunelle, MS, MA, is vice president of Emergency Management & Global Engagement, One Concern. He has spent more than 25 years in public safety and emergency management. His career began as a front-line responder in the fire service and has included leadership roles in healthcare, government, and private sector crisis management – including the New York State Office of Emergency Management, where he helped lead the response to Superstorm Sandy and dozens of other disasters. He also serves as the chair of the Advisory Board for the Institute of Disaster Mental Health at SUNY New Paltz (because resilience begins at the individual level).*

*Debbie Weiser, Ph.D., is the senior manager of Customer Success, One Concern. She brings a lasting commitment to reducing risk from natural disasters, extensive professional and academic experience with disaster preparedness, and a passion for using science and data to make the world safer. Her dissertation research examined induced earthquakes, with a focus on applying scientific concepts to quantify and minimize earthquake risk. She managed and contributed to multiple research projects about earthquakes and disaster risk reduction while working at the U.S. Geological Survey. She played a key role on the team that created The Great ShakeOut, a widely successful international earthquake drill.*

# Mitigating Wildfires – Conceptualizing Possibilities

*By Senay Ozbay*

***Mitigating wildfires is not only essential for protecting life, property, and critical infrastructure. It also is essential for controlling climate change, which ultimately causes disasters around the world. National Fire Protection Agency (NFPA) estimates that wildfires now cost between $63 and $285 billion a year. According to data from the Fourth National Climate Assessment, wildfires cause 5-10% of annual global CO2 emissions each year. As long as wildfires continue to intensify and burn more area, CO2 emissions are expected to increase because climate change leads to warmer temperatures and favorable wildfire conditions. Furthermore, an Environmental Protection Agency (EPA) report comprises the cost of health effects from exposure to U.S. wildfires between 2008 and 2017 as $450 billion.***

Many of the wildfire mitigation projects implemented or proposed focus on preserving life, property, and infrastructures. To preserve all, mitigation projects should focus on long-term sustainable efforts. Mitigating the cause of wildfires from the root will save lives, build community resilience, mitigate long-term health effects, and reduce the number of disasters caused by climate change.

### *Project Concept Proposal*

In order to avoid a conflict of interest with other current governmental initiatives and strategies, government bodies at the federal level along with state representatives (preferably the governors' authorized representatives from Oregon, Washington, and California and federally recognized tribal nations) should outline options that are solely based on scientific information and technology resources available for mitigating wildfires. Once the project is outlined, then the relevant private companies could present their proposals with real-life best practices from a similar initiative. These companies could be vetted through their previous accomplishments in private sector, water, gas, and oil industry pipelines covering large geographic areas.


### *Scientific Background*

Water sprinkler systems could be enhanced to cover large geographic areas. Similar sprinkler systems could be installed to suppress potential fire hazards. Subsequently, permanent irrigation systems could be built and incorporated into various models developed through National Oceanic and Atmospheric Association (NOAA) and other private

partners to design the system. Water then could be collected in smaller man-made creeks – essentially mini dams without interrupting wildlife and nature. There are 18 river basins in the U.S., with each watershed having a unique ecosystem. "If a state's boundaries follow the watershed, they would be able to streamline land and wildlife management." These water sources could be accessed through pipelines running around and across the forest.

Some federal critical infrastructures are managed or overseen by the federal government. As such, any initiative for reducing loss of life or damage to property and infrastructure could be protected with memoranda of understanding and agreements executed in coordination with the federal government. NOAA's High-Resolution Rapid Refresh (HRRR) weather prediction model provides critical details of rapidly evolving weather events to forecasters and decision makers, which helps improve severe-weather forecasts and warnings across the country. The HRRR-Smoke accurately forecasts the behavior of wildfire smoke and its impact on weather. According to the U.S. Fire Administration, the experimental version of this model "played a pivotal role in mitigating the impacts of wildfires last summer."

The U.S. has approximately 2.6 million miles of pipeline, which serves as a transportation hub for critical infrastructure and natural resources. Utilizing technologies and resources that are readily available just requires a formal process of coordination between the private, nonprofit, and governmental sectors (under the direction of governors and tribal leaders of the respective states and the president).

***With approximately 2.6 million miles of pipeline, could the U.S. use this transportation hub to help suppress wildfire hazards?***

### *Current Initiatives & Partners*

Although a 10-year strategy to reduce wildland fires effectively calls attention to the importance and maintenance of ongoing collaboration among some key national agencies with an emphasis on planning and implementation of policy, it does not underscore the importance of current science and technology available to combat wildfires. Mitigation efforts, though, primarily focus on risk reduction, management of land, and resources.

To produce an effective wildland fire mitigation project, the Federal Emergency Management Agency (FEMA) must identify the appropriate bodies – in addition to the NFPA, NOAA, National Weather Service, and Incident Meteorologists – that are trained to support wildfire suppression efforts. Support for this effort includes project managers and the private sector (e.g., the water sector and companies that produce fire sprinkler systems). The private sector could expand the use of sensors in high-risk areas. Similar to fire sprinkler systems, these sensors would be activated when heat rises to a range of 135 to 165 degrees Fahrenheit. Similar functioning sensors are also utilized in the oil and gas pipeline industry.

### *Potential Funding Sources*

Wildfires often result in major disaster declarations. As such, Hazard Mitigation Assistance that is available under major disaster declarations would be a potential funding source. In addition, FEMA established a third type of declaration, Fire Management Assistance Grants, which could be used for mitigation. Another possible funding source is mitigation grants

that agencies have available for terrorism prevention/counterterrorism initiatives. With caveats for combining different types of declaration funds (e.g., duplication of benefits is not allowed), these funds could possibly be reallocated to cover certain aspects of this project to prevent forestry and livelihoods from becoming potential targets. Global warming mitigation and sustainability grants available at all levels of government as well as through nonprofit and private philanthropic organizations could be combined into this extensive effort. Lastly, other funding sources such as preparedness grants are another source that could be diverted into this measure.

***Steps to Coordinate This Initiative***

1. Assess the weather and climate impact on areas/forestry at risk for wildfires – based on more than just trees and homes burned/at risk of burning, but on the number of people, livelihood, and economic resources at risk/impacted.
2. Coordinate with the water and dam sector, NOAA incident meteorologists, large-scale fire sprinkler system producing companies, and gas pipeline industry expertise. Draft a possible layout with the approximate cost of the project.
3. Determine grants available at all levels of government, as well as nongovernment philanthropic organizations and ways to consolidate these funds for this initiative.
4. Calculate the loss incurred from wildfires: physical (long-term health effects), life, property, infrastructure, as well as impact on the environment. Compare that loss to the estimated number of project costs and expected recovery costs within the same time frame. The project costs relative to the monetary and life losses highlight why it is worth looking into this mitigation project. Nevertheless, these calculations may not accurately capture the long-term sustainable efforts that could be built through the adoption and implementation of this project.

The frequency and severity of wildfires are not decreasing. However, mitigating the potential loss of life and property resulting from this growing threat presents challenges that require new innovative solutions. Using existing infrastructure and technologies coupled with cooperative interagency agreements, the U.S. could develop comprehensive mitigation strategies with enormous possibilities. The above steps are the path to one such possible solution.

*Senay Ozbay is a Certified Emergency Manager through the International Association of Emergency Managers (IAEM) and holds a Master of Public Administration in Emergency and Disaster Management from Metropolitan College of New York. She worked as a disaster case manager for Catholic Charities Diocese of Trenton, the Federal Disaster Case Management Program, and helped survivors recover and return to the new normal from Superstorm Sandy. Shortly after, she took on the role of district health emergency planner and coordinator for the Central Virginia Health District, Virginia Department of Health, where she managed the Emergency Preparedness and Response program and accreditation process. She was the public health emergency management planner and coordinator for the city of Alexandria, Virginia, where she managed the Public Health Emergency Management Division. As a dedicated public servant, she recently joined FEMA as an emergency management specialist for Individual Assistance Branch in Recovery.*

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# Tips & Tricks for Effective Disaster Planning

*By Robert J. (Bob) Roller*

***One of the most critical yet least understood core emergency management capabilities is planning, which reduces the chaos present during a disaster. However, the emergency management community is awash in various planning systems, various types of plans, and confusing terminology that complicates the work. This often causes problems when emergency managers are tasked to lead new planning efforts, to update existing plans, and to adapt them to real-life emergencies. Eleven tips and tricks can help solve these problems.***

At its most basic, effective disaster planning should be seen as a well-organized problem-solving activity with the plan serving as the document where the results of this activity are recorded. The points below are intended to help beginning and advanced planners alike skillfully manage both the development and revision/adaptation of those plans as conditions require.

1. *Know thyself*. Disaster planners should focus on being professional problem solvers rather than creative writers. It can be both terrifying and liberating to recognize that planners are not supposed to know the answer to the problem at first glance. That is okay. Working through the process to gain situational awareness of the problem empowers planners to develop and recommend potential solutions. Deciding the answer before understanding the problem or considering alternative solutions is the emergency management version of "fire, ready, aim."

2. *Define the problem*. After accepting that planning is organized problem solving, it should be obvious that the problem cannot be solved until the problem itself is clearly identified. Being told to simply "write a plan" is troublesome because it is not possible to develop a clearly articulated solution without a clearly defined problem. The plan is simply the documented results of the planning process. Therefore, do not worry about the plan until the team works through the process. Instead, focus the early efforts on clearly identifying the problem that leadership actually wants solved. This also enables stakeholders to contribute exactly the right information to resolve that problem.

> ***Plans are worthless, but planning is everything.***
> ***– Dwight D. Eisenhower***

3. *Plan to plan*. The time and resources available to develop disaster plans can vary from multiple years and millions of dollars to almost no time and almost no money, depending on the situation. Before the team starts working through

the process, take time to plot major milestones to account for the time needed to complete each step, action, milestone, project, etc. If possible, ask the decision-maker who will ultimately approve the finished plan to approve this document as well. This step is particularly important for longer-term planning efforts where it is important to manage expectations regarding the speed of the planning process and to schedule the interim meetings needed to ensure the effort remains on track. If necessary, plan backward from the completion deadline to ensure the team has enough time to complete all the steps in the process. If it becomes obvious that there is not sufficient time to complete the plan in the time allotted, then talk to the decision maker regarding either reducing the tasks, extending the deadline, or providing more recourses. As is often the case, plans can be either fast, cheap, or good, but only two of these options can be selected.

4. *Get a hammer*. Busy schedules, competing requirements, and being tasked with other important work are some of the barriers that can distract critical stakeholders who need to support the effort. If a planner is going to get the right people in the room (or Zoom meeting) and keep them long enough to get the work accomplished, then they need a tool of coercion. A simple memo with the task (e.g., problem) clearly stated along with a hard deadline and clearly defined lead and support agencies is the most powerful tool they can have to get people to the planning table and to keep them there. This tasking is a "policy hammer" that can be used to coerce and cajole others to support this important work. The size and effectiveness of this hammer is also proportionate to the seniority of the official who signs the memo.
5. *Include everyone who might otherwise impede the work*. The number of people who actively contribute to a planning effort is usually a much smaller group than the number of people who must eventually approve the plan through the various review and approval steps. Invite anyone who can veto the plan into the effort early. Even if they do not contribute much, they feel included. They also are less likely to block or submit major revisions during the final review and approval stages if they can discuss their concerns earlier.

***Everybody has a plan until they get punched in the mouth – Mike Tyson***

6. *Train the team*. The emergency management community is awash in planning systems and terminology that look similar but are, in fact, wildly different. If eight emergency managers were asked "What is a strategic plan?", they might provide eight different answers – all of which could be correct. This also holds true for other commonly used and commonly confused terms. Each piece of doctrine developed by each organization defines these terms as best suits


themselves. Do not assume everyone understands the planning process or the terminology, even if they say they do. Budget time early in the planning effort to explain what the team is trying to accomplish, how they are going to do it, and what terms they are going to use. Think of the planning leads as "professors of planning" and recognize the need to teach this subject to the planning stakeholders so they can effectively contribute to the work.

7. *Leverage the authority of the deciders*. It is common for many people around the planning table to have strong opinions on any given topic, and these opinions can sometimes lead to lengthy debates where no consensus position seems obvious. However, it is also sometimes true that certain planning team representatives have the formal authority to decide the answer to these questions based on the formal authority of the organizations they represent. For those circumstances where an office or individual has the authority to decide an issue (legal, medical, etc.), identify these superheroes early and leverage their authority to reduce unnecessary debate on otherwise lengthy discussion topics.
8. *Show the work*. Explaining how the planning team got to an answer is just as important as providing that answer. Just like a teacher who wants to see how a student solved a math problem, it is important for decision makers to understand how the team came to a particular conclusion. The decision makers

need to see the interim products, understand the underlying logic behind them, and then validate these data points to continue planning. Failing to do so risks providing a finished product to a decisionmaker only to find out they disagree with the foundational elements that undergird the entire plan. By showing the completed work at each stage as well as the logic behind it, the planning team obtains the guidance it needs to continue planning and also reduces the risk that the entire plan would need to be rewritten once provided to leadership for final approval.

***In the new world, interoperability facilitates the task flow throughout the coordination process and spans physical, electronic, and cyber security.***

9. *Leverage the exercise capability early and often*. Many planners fall into the bad habit of only seeking to exercise plans once they are completed. This validation effort is a necessary but not sufficient use of exercises and personnel. If the planning team adds an exercise component to the start of the planning effort as well as to the end, they can both validate the problem they are trying to solve and galvanize the support of stakeholders who would not otherwise believe that the problem existed or should be a priority to solve. In addition, include the exercise team in the development process, so they understand the context and issues that exist behind the plan. This understanding increases the likelihood that the validation exercises at the end of the effort reflect the intent of the plan as the team understood it.
10. *Know where to begin revisions and adaptations*. When updating or adapting a plan for real-world requirements, attack the facts and assumptions first. Once these changes are incorporated, evaluate how this impacts the roles and responsibilities, the concept of operations, and other elements of the plan.
11. *Write journal articles to share what has been learned*. All stakeholders are in this together. Sharing and seeking lessons learned builds disaster planning resilience across jurisdictions.

*Robert J. (Bob) Roller serves as the Federal Emergency Management Agency's (FEMA) National Planning Branch Chief, where he supervises the development, implementation, and assessment of major federal government-wide planning efforts that address complex and catastrophic disasters. In addition to his steady state responsibilities, he is a qualified planning support section chief within the National Response Coordination Center, where he leads FEMA planning efforts for multiple disasters and supported response operations for the COVID-19 pandemic. He joined FEMA in 2017 after serving at the U.S. Department of Homeland Security (DHS) Headquarters, where he led the development of multiple DHS-wide planning efforts – including pandemic workforce protection, land migration surge contingency planning, and the annual DHS Operational Planning Guidance. He also has 15 years of experience as a firefighter and EMS provider in both wilderness and urban environments. He is currently a volunteer firefighter/paramedic/swiftwater rescue technician in Maryland and belongs to several mountain rescue teams, including one he co-founded. The opinions printed here are his own.*

# Technical Assistance for Healthcare System Preparedness

*By Audrey Mazurek & John Hick*

***The mission of the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) is to save lives and protect Americans from 21st century health security threats by leading the nation's medical and public health preparedness for, response to, and recovery from disasters and public health emergencies. To accomplish this mission, ASPR collaborates with hospitals, healthcare coalitions, community stakeholders and groups, state, local, tribal, and territorial governments, the private sector, and other partners across the U.S. to improve readiness and response capabilities.***

Healthcare system preparedness has evolved significantly over the past decade to accommodate the diverse needs of communities, to be flexible and compliant with various government and private sector requirements, and to effectively respond to various emergencies and disasters. Multiple reports and stakeholder feedback since 2010 led to a call to expand healthcare system preparedness information availability. In response, ASPR designed and launched an innovative program in 2015 to advance and enhance healthcare system preparedness and response across the nation comprised of three domains:

- Technical Resources (TR)
- Assistance Center (AC)
- Information Exchange (IE)

ASPR TRACIE is a comprehensive, one-stop, national knowledge center for healthcare system preparedness that provides technical assistance (TA) and facilitates the efficient and effective exchange of information.

As a planning resource and in the dynamic environment of a disaster, ASPR TRACIE simplifies access to resources and experts, serving as a force multiplier through improved information sharing while reducing duplication of effort. ASPR TRACIE continues to be a unique, key federal assistance source for healthcare system preparedness across the country.

A December 2020 white paper highlights the development process and quality of ASPR TRACIE TA provided across the spectrum of healthcare disaster preparedness and response activities. The program's growth and success are attributable to their ability to:

- Anticipate stakeholder needs
- Capture user feedback to influence the TA model
- Meet the needs of stakeholders during real-world incidents, including the COVID-19 pandemic

***Operationalizing a Concept***

ASPR TRACIE was developed through a collaboration between multiple HHS operating divisions, other federal government departments/agencies; local, state, tribal, and regional government agencies; national associations; nonprofit organizations; and private sector partners. Early outreach with these stakeholders elicited ideas, comments, and recommendations for ASPR TRACIE's development process, services, and resources. With this support and input, the ASPR TRACIE program was able to develop and launch a website focused on healthcare system preparedness resources, receive requests for information, and promote peer-to-peer discussion boards through the IE. The ASPR TRACIE program strives for continuous quality improvement and maintenance of a high level of customer service satisfaction. Today, the program maintains a 99% overall customer satisfaction rating and 99.5% satisfaction rating for timeliness of TA responses.

***Understanding the Healthcare System Preparedness Landscape***

The ASPR TRACIE team had to first understand stakeholders' needs and how to best meet them, while simultaneously adapting as expectations, needs, and threats evolve. To meet these needs, one of the first tasks was to identify and categorize healthcare system preparedness and response topic areas. Together with partners, stakeholders, and subject matter experts (SMEs), the ASPR TRACIE team identified 57 topic areas and developed Topic Collections (TC), showcasing medical and healthcare preparedness plans, tools, and templates curated by ASPR TRACIE staff and vetted by the SME Cadre.

***In 2020, visitors to the ASPR TRACIE website topped one million, monthly visits broke records (311% increase over 2015-2019), and IE membership rose 122%.***

***Providing a Forum to Address Critical Issues***

The ASPR TRACIE Resource Library contains thousands of resources from numerous contributors that can be easily accessed and downloaded. All ASPR TRACIE content is free and publicly accessible from the Resource Library, TCs, and AC sections. ASPR TRACIE also has the ability to quickly disseminate information through a robust listserv, which has a reach of more than 1.5 million healthcare professionals.

The ASPR TRACIE Information Exchange is comprised of nearly 10,000 members and serves as a unique, near real-time peer-to-peer discussion area that facilitates quick conversations, collaboration, and resource sharing on a wide range of healthcare system preparedness topics.

### *Utilizing Subject Matter Experts*

The key to achieving ASPR TRACIE's goals is the assemblage and utilization of a unique cadre of vetted SMEs who volunteer their time to the project to curate and review resources, provide input on TA requests, and collaboratively develop new resources when topic gaps are identified. This cadre is composed of more than 1,000 professionals in the fields of healthcare, disaster medicine, public health, and public safety recognized for improving and advancing their field of expertise.

### *Growing Knowledge Through Technical Assistance*

The Assistance Center can be accessed by phone, online form, and email and is staffed weekdays between 9:00 a.m. and 5:00 p.m. Eastern Time, excluding federal holidays. The AC is managed by experienced ASPR TRACIE staff with knowledge of healthcare and public health preparedness and response. Since 2015, the ASPR TRACIE AC has received over 8,300 TA requests from users in all levels of government, healthcare, and the private sector. Requests for TA increased by 138% in 2020 over previous monthly averages. Nearly 75% of TA requests in 2020 were related to COVID-19.

The ASPR TRACIE team administers TA through written products, toolkits, phone calls, emails, and webinars. TA responses are customized to meet the needs and timeline of the

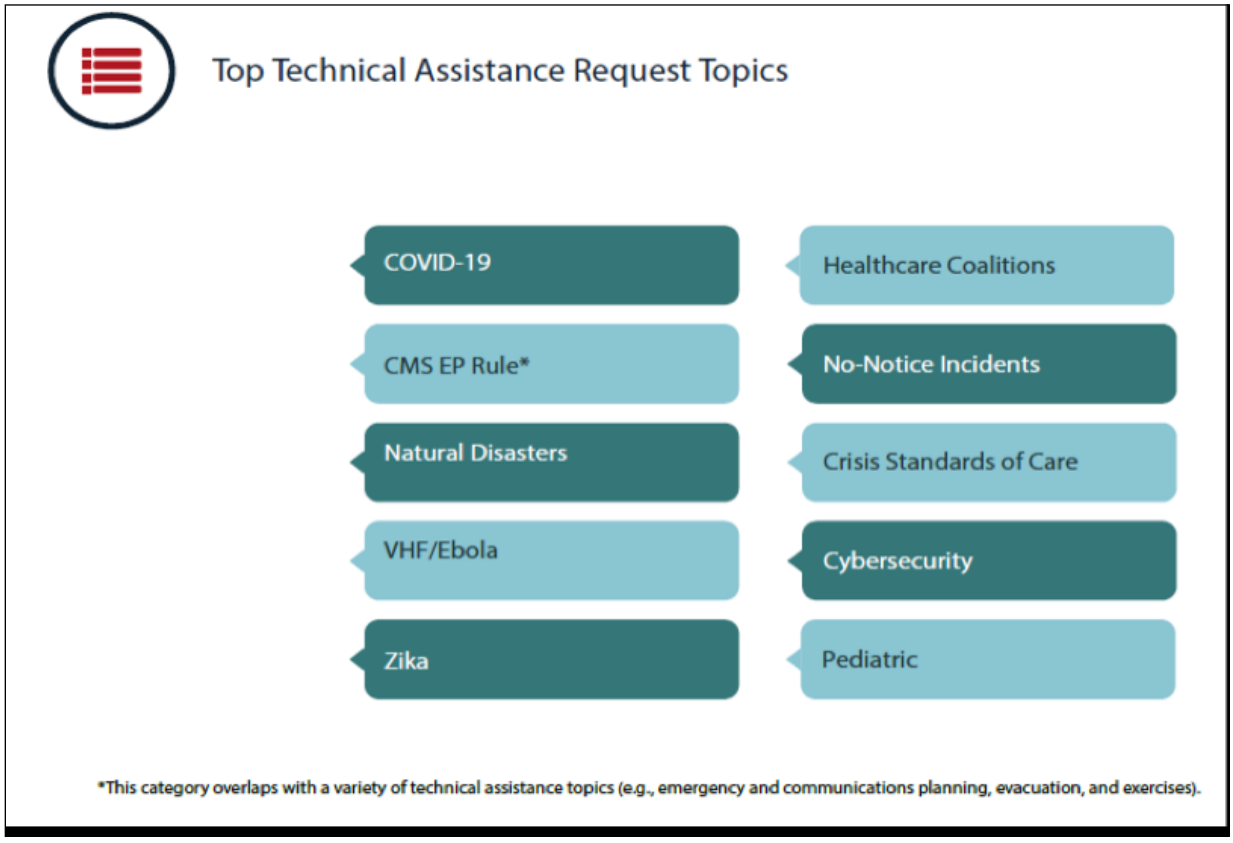


**Fig. 1.** Top 10 TA Request Topics, 2015-Present (*Source:* ASPR TRACIE, 2021).

requestor. The ASPR TRACIE team reviews and develops an individualized work plan to provide a comprehensive response to each TA request. The team works with partners and the SME Cadre, as appropriate, to assist with fulfilling TA requests. Figure 1 illustrates the top 10 TA request categories since 2015.

If the request is outside of ASPR TRACIE's scope or resource availability, the requestor is notified and connected to the proper entity as practical. ASPR TRACIE does not provide formal policy recommendations and refers all grant-related questions to the appropriate ASPR or federal government personnel.


***Identifying & Filling Gaps in Healthcare System Preparedness***

To continuously meet stakeholders' evolving needs, the ASPR TRACIE team regularly determines areas for future work by assessing TA requests, monitoring IE discussions, and noting knowledge gaps identified during conferences, webinars, or meetings. These assessment methods enable the team to consider the best format to develop new, original, user-friendly resources (e.g., tip sheets, tools, templates, webinars) and prioritize next topics. Producing resources in various formats helps to meet diverse stakeholder needs and modes of learning.

The team is both flexible and adaptive to time-sensitive requests. For example, during the COVID-19 response, ASPR TRACIE was quickly able to respond to an influx of TA requests and provided direct assistance to interagency partners by creating new online resource collections, hosting webinars, and reviewing hundreds of resources to include the most up-to-date information on the website. The team created over 100 products in 2020, including new tip sheets and other resources specific to COVID-19 preparedness, response, and recovery, as documented in a Calendar Year 2020 Resources Digest.

***The Future of Technical Assistance***

The HHS 2019-2022 National Health Security Strategy emphasizes that, as the healthcare systems threat landscape transforms and the global public health of communities continues

to expand in diversity and complexity, the potential for disruption to both public health and healthcare systems increases. The tremendous expansion in the volume of website visitors and TA requests received during the COVID-19 pandemic clearly demonstrates the critical need for the services ASPR TRACIE provides. It also substantiates how healthcare and public health practitioners rely on this federal source as a key component of their daily work.

The growing frequency and complexity of TA requests requires more innovative solutions to produce the right information for the right stakeholder at the right time. This includes developing resources that serve as "just-in-time" guides for both planners and responders, more effectively sharing knowledge and efficiently capturing lessons learned from SMEs, while anticipating and addressing the needs of stakeholders before disaster strikes. For example, the February 2021 Healthcare System Cybersecurity: Readiness & Response Considerations is one of the few available documents that addresses a comprehensive approach to clinical, financial, and system planning for the consequences of information system downtime. One of ASPR TRACIE's most downloaded documents, the EMS Infectious Disease Playbook, synthesizes multiple sources of information in a single planning document addressing the full spectrum of infectious agents to create a concise reference resource for emergency medical services (EMS) agencies developing their service policies.

In the years ahead, ASPR TRACIE will continue to exemplify the "art and science" of providing TA through continued collaboration, innovation, and closing identified knowledge gaps in healthcare system preparedness.

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*Audrey Mazurek, MS, has worked at all levels of government for over 17 years in public health preparedness and homeland security. She was a program manager with the National Association of County and City Health Officials (NACCHO); supported the U.S. Department of Homeland Security (DHS) in the development of an accreditation and certification program for private sector preparedness; and served as a public health emergency preparedness planner for two local public health departments in Maryland. She is currently the ICF TRACIE deputy program director for the U.S. Department of Health and Human Services, Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE) program.*

*John Hick, MD, is a faculty emergency physician at Hennepin Healthcare and a professor of emergency medicine at the University of Minnesota Medical School. He serves as the associate medical director for Hennepin County Emergency Medical Services and medical director for emergency preparedness at Hennepin Healthcare. He served the Minnesota Department of Health as the medical director for the Office of Emergency Preparedness and currently works part-time for U.S. Health and Human Services as an advisor to the director of the National Healthcare Preparedness Program. He is an expert on hospital preparedness and crisis medical care issues and has published over 50 peer-reviewed papers dealing with hospital preparedness for contaminated casualties, disaster standards of care, and surge capacity.*

# The New World of Interoperability Communications

*By Charlie Guddemi*

***Four years ago, during the 2017 Inauguration, the country and the world existed in a very different reality than they do today. Today, a "new world" exists within a global pandemic and among First Amendment activities and protests. The 2021 Inauguration was unique for these reasons but also presented challenges in communications that are not so new. Now, more than ever, agencies need to collaborate to ensure continuity of government and security of the homeland as well as the health of the overall emergency communications ecosystem.***

On October 28, 2020, the District of Columbia Homeland Security and Emergency Management Agency (HSEMA) in collaboration with the Emergency Communications Division of the Department of Homeland Security's Cybersecurity & Infrastructure Security Agency and the Metropolitan Washington Council of Governments (MWCOG), facilitated the "D.C. 2020 Interoperability Summit: Preparing for the 59th U.S. Presidential Inauguration in the 'New World'." The virtual summit brought together 40 subject matter experts who presented on the readiness of interoperability communications for the 2021 Inauguration. Participants included more than 450 federal, state, and local agency officials. In preparation for the 2021 Inauguration, agencies in and around Washington, DC:

- Reviewed the 2017 Inauguration activities and civil unrest that occurred throughout most of 2020;
- Anticipated the impact the pandemic might have on the 2021 Inauguration, which was the 67th National Special Security Event (NSSE); and
- Incorporated past interoperability lessons learned like those from the 2013 Navy Yard shooting. At the summit, former Navy employee Jennifer Bennet shared her real-world experience of survival during that chaotic event – as the building fire alarm blasted, shots were being fired, and co-workers were scrambling for their lives.

### *Applying Lessons Learned*

Following the 2017 Inauguration, a comprehensive after-action report of the communications planning and support was prepared to analyze the event and identify successes and areas of improvement for interoperability and communications. Additionally, since the last Presidential Inauguration, a myriad of people, policies, processes, and protocols that drive the District's communications ecosystems have changed. Therefore, the summit helped to establish common ground for interoperable communications for this NSSE by:

- Highlighting critical changes in interoperable communications policy, product, and/or processes;
- Building on best practices and lessons learned from the last Inauguration; and
- Addressing the challenges that 2021 Inauguration planners were facing and how those challenges would be mitigated.

The summit opened with a keynote speech by United States Secret Service (USSS) Director James Murray. As he explained, the USSS is a relatively small agency by design. Although it secures large-scale events, the USSS relies on external partnerships with local jurisdictions to ensure their security plans. Security includes on the ground, on the water, in the air, and in the cyber domain – with interoperability being a key component.

With more than 100 outside agencies being brought in to help with Inauguration Day, that key component had its challenges. To address these concerns, outside agency liaisons help to share communications among first responders who may bring various radio equipment and communication operations from across the country. To mitigate potential communication barriers, radios from outside agencies may be reprogrammed for use in current operations or agencies may be asked not to bring their radios at all. To address scanner application concerns, some communication lines have been upgraded with encryption. However, the risk remains for lost/stolen radios or other uncontrolled operations where communications can be overheard. Time and time again examples surface of agencies disregarding operational security or officer safety by failing to provide personnel with earpieces – or even worse, responders failing to wear and utilize this critical piece of equipment.

***In the new world, interoperability facilitates the task flow throughout the coordination process and spans physical, electronic, and cyber security.***

Interoperability facilitates the task flow throughout the coordination process and spans: physical/electronic/cyber security, venues, operational periods and functions, technology integration, communications (including primary, alternative, contingency, and emergency), and jurisdictions. For example, planning for an NSSE includes ensuring that dedicated resources remain available to manage daily operations and typical emergencies (e.g., 911 calls). Strong relationships with the cellular industry cannot be overstated. Planning for network optimization, planning for antenna enhancements, and deploying cell on wheels (COWS) or cell on light trucks (Colts) is crucial to supporting mass gatherings. The cellular industry remains one of the most important pieces of the communications ecosystem supporting all four components: public to government, government to government, government to public, and public to public.

A good communication plan also helps bridge interoperability gaps when agencies have not worked together before and do not share the same processes. For example, multiagency coordination centers share information and emergency operations centers share electronic platforms, with support staff on site to address technological issues. With many moving parts and many partner agencies, all key stakeholders need to be at the table when these centers are stood up.

### *Planning in a Pandemic*

Planning in a pandemic has altered the way agencies collaborate and coordinate. This has put additional emphasis on reliable interoperable communications. Increased use of video meeting platforms like the summit have facilitated planning when in-person meetings are


not possible. However, these platforms introduce new technological challenges as well as outside access concerns and appropriateness of topics addressed with an audience that may include unauthorized persons.

The office of the Statewide Interoperability Coordinator, housed at HSEMA, collaborates and coordinates at the local, federal, and regional levels and has had to adapt to this new world. With COVID-19, there was an internal need to become well versed in the virtual world to support the various groups and committees (e.g., using Microsoft Teams, Webex, Zoom, etc.). There also was a need to communicate on a more regular basis to address different dynamics across agencies. Sometimes it is necessary to overcommunicate.

During the Inauguration, agencies used internal communications to ensure that their personnel knew what was expected. A direct line of communication with organizers was maintained throughout the event. Just as important as internal agency communications were the external communications with other groups and the public. By leveraging digital technology, agencies were able to provide accurate and rapid communication both internally and externally. Public messaging for any NSSE or other major event requires careful coordination. Likewise, public health messaging needs to be consistent, especially during a pandemic. Technology such as exposure notification applications add more protection for identifying potential infections.

### *Addressing New World Issues*

It is critical that the District stands ready to prevent, protect, respond to, and recover from communications and other unanticipated obstacles during NSSEs. As such, the District Office of the Statewide Interoperable Coordinator strives to ensure the seamless provision of interoperable voice, data, and video communications between key stakeholders and partners in the public and non-public sector. The District and the National Capital Region (NCR) continue to work together to address the new challenges public safety and first responders face (or will face) as a result of the changing society.

The summit included seven breakout sessions that focused on key topic areas that are evolving:

- *Cybersecurity* – preventing cyberattacks
- *Spectrum Deconfliction* – mitigating spectrum interference
- *NCR Communications Interoperability Group* – demonstrating how interoperability is based 10% on equipment and 90% on people
- *Emergency Communication Centers* – building operational resilience in changing times
- *Cellular Industry* – providing connectivity and meeting demand
- *Alerts & Warnings* – enhancing public information sharing
- *Unmanned Aircraft Systems* – assisting (or hindering) public safety response efforts

Closing the summit was a presentation by Cathy Lanier, senior vice president, chief security officer of the National Football League (NFL). This final session demonstrated how much the public sector could learn from the evolutionary interoperability efforts of the private sector. Each year, the NFL sponsors large-scale events that are held multiple times year, in different locations (in the U.S. and abroad). Monitoring, incident management, and investigations and analysis comprise a broad, integrated collection of their analytical capabilities. Superbowl LIV in Miami, Florida demonstrated the types of interoperability challenges the NFL faces: 18 months of planning; collaboration with 25 federal and 40 state and local agencies; 2- to 3-mile security perimeter locked down for 10 days before game day; 46,000 credentials with varying access controls issued; security of the airspace with varying air restrictions (e.g., drone/no drone zones); cyberthreat monitoring; and COVID-19. Lanier emphasized the need to embrace the cybersecurity aspect (artificial intelligence and facial recognition), while recognizing the potential vulnerabilities.

Interoperability and related technologies are complex and continue to evolve. Events like the 2021 Inauguration highlight the importance of monitoring social media for physical threats as well as the sociopolitical climate. It is important to remain flexible and change interoperability plans as the event moves between planning stages through game day operations. New technologies undoubtedly introduce new vulnerabilities. However, maintaining interoperability means balancing these vulnerabilities while continuing to integrate these new technologies. Welcome to the new world of interoperability communications!

*Charlie Guddemi is the District of Columbia's Homeland Security and Emergency Management Agency's (HSEMA) statewide interoperability coordinator. He serves as the secretary for the Statewide Interoperability Executives Council and is a member of the National Council of Statewide Interoperability Coordinators and FEMA's Region III Regional Emergency Communications Coordinators Working Group. He also participates on several Metropolitan Washington Council of Governments committees and working groups. For the 2021 Inauguration, he served as the co-chair for the District of Columbia's Presidential Inauguration Interoperability Communications Committee and a member of the U.S. Secret Service's NSSE Spectrum Deconfliction, Critical Infrastructure Protection and Interagency Communications/MACC Committees. Previously, he served 25 years with the United States Park Police, where he achieved the rank of deputy chief serving as the commander of the Services Division. His professional memberships include: ASIS International, IACP, FLEOA, and the FBI National Academy Association. He holds a Bachelor of Arts degree in Psychology from the State University of New York at Albany and is a graduate of the 237th session of the FBI National Academy.*

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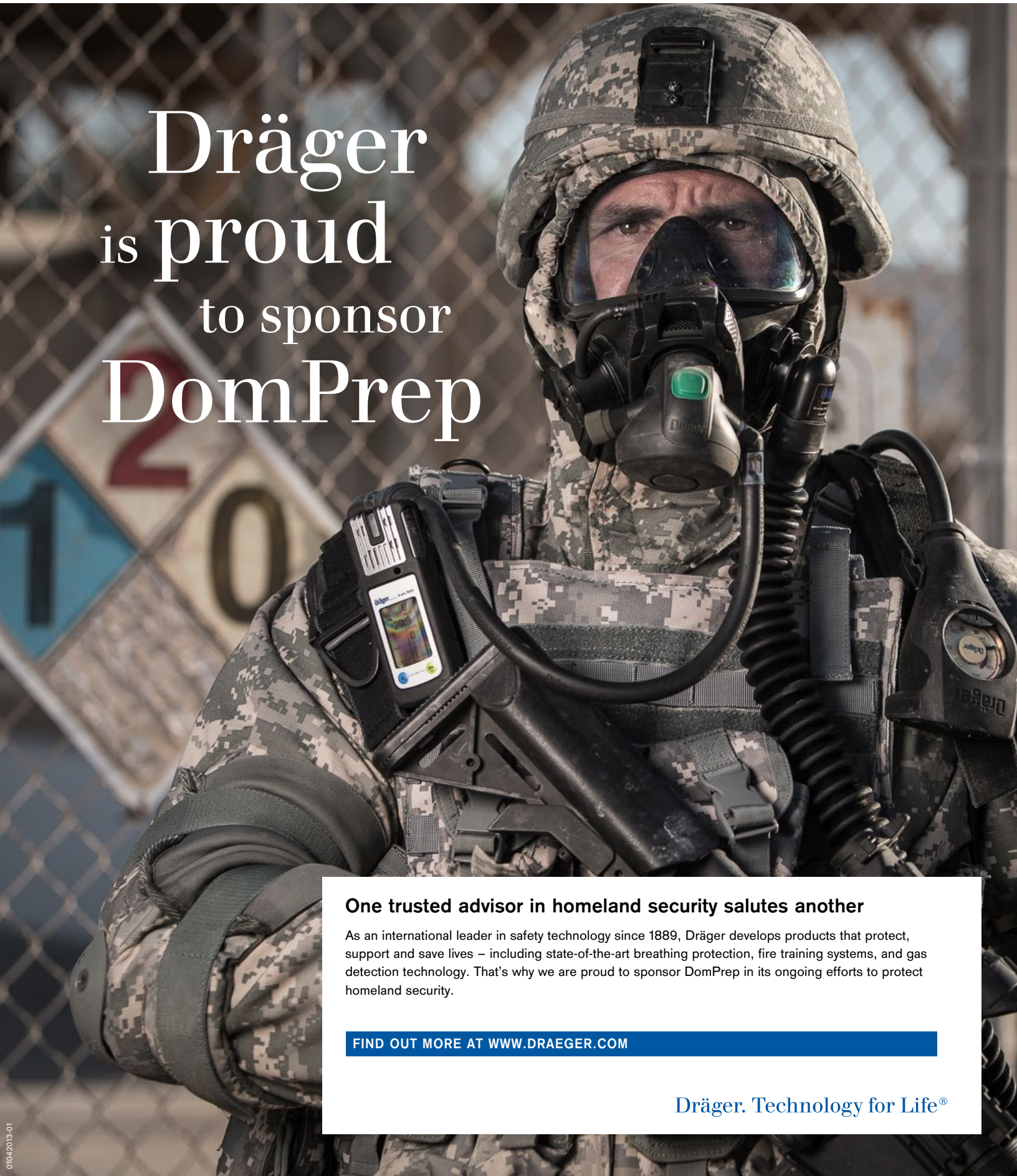

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