



Government Services

STREAMLINING EMERGENCY MANAGEMENT FOR COMPLEX OPERATIONS





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DISASTER MANAGEMENT IS COMPLEX AND CONSTANTLY EVOLVING

Emergency managers need to be able to see through the “fog” of a disaster. Much like a pilot who relies on a combination of instincts and experience, the advice of other crewmembers, and a dashboard of instruments to obtain information from various sources in order to safely navigate through the clouds, emergency managers juggle complex information-gathering and decision-making processes. Emergency managers must rely on many disparate sources of incomplete data along with a wide range of individuals and agencies (public and private) to effectively plan and execute successful disaster response operations. Similarly, just as aircraft and aviation technology have become more complex, so have the communities and infrastructure involved in disaster operations, leading to increased systemic interdependencies. In order to handle the enormity of a large-scale disaster response, emergency managers have evolved to use a more project management approach to effectively manage disasters.

Emergency management response and recovery efforts after a large, declared disaster can often start to look like plans to build the world’s next tallest skyscraper – a large, complex, seemingly insurmountable project. There are many different issues that need attention at various times during the response, some simultaneously. However, unlike

a construction project, people’s lives, security, and a mental return to a sense of normalcy depend on emergency managers’ success in their work breakdown structure.

Knowing what to pay attention to, and when, is based on experience and prior deliberate planning with other community members and stakeholders. Scenario-based planning that incorporates the elements of operational design is the most effective method to understand the complex issues responders face after an incident. However, even the best plans require a “maestro” to organize the multiple workstreams into a cohesive, productive, and effective response. It is here that we start to blend the disciplines of emergency management, project management and even business process efficiency methodologies, such as lean six sigma and root cause analysis. These are the tools of today’s successful emergency managers. Recognizing this is important to develop new training programs for tomorrow’s leaders in emergency management.

SCENARIO-BASED PLANNING THAT INCORPORATES THE ELEMENTS OF OPERATIONAL DESIGN IS THE MOST EFFECTIVE METHOD TO UNDERSTAND THE COMPLEX ISSUES RESPONDERS FACE AFTER AN INCIDENT.



WE NOW UNDERSTAND THAT ACTIONS STARTING IN PRE-INCIDENT OPERATIONS LIKE THREAT MONITORING CAN IMPACT THE SUCCESS OF LATER RESPONSE ACTIONS.

A DISASTER LIFECYCLE IS A CONTINUUM

Even the way we look at disaster response timelines has changed. Instead of distinct phases with a beginning and end, the disaster lifecycle has been broken down into smaller parts to view the entire process as a continuum from threat identification through disaster closeout. This continuum model of smaller micro-phased operations is used when the borders of one micro-phase can blend into another, rather than defining distinct beginnings and ends. We now understand that actions starting in pre-incident operations like threat monitoring can impact the success of later response actions.

Immediate lifesaving efforts after an incident are heroic. These missions are generally what the public most closely follows in the media. These efforts are made possible by extensively trained first responders who constantly put their lives at risk to save others. It is difficult, physically demanding and one of the most unifying phases of the response efforts where everyone is willing to put unlimited resources to a problem. I cannot emphasize enough the respect and admiration I have for our first responders. For 20 years, I too, was a first responder. However, immediate response operations are generally tactically focused and isolated making them less complex than the next phase on the operational continuum – community stabilization.

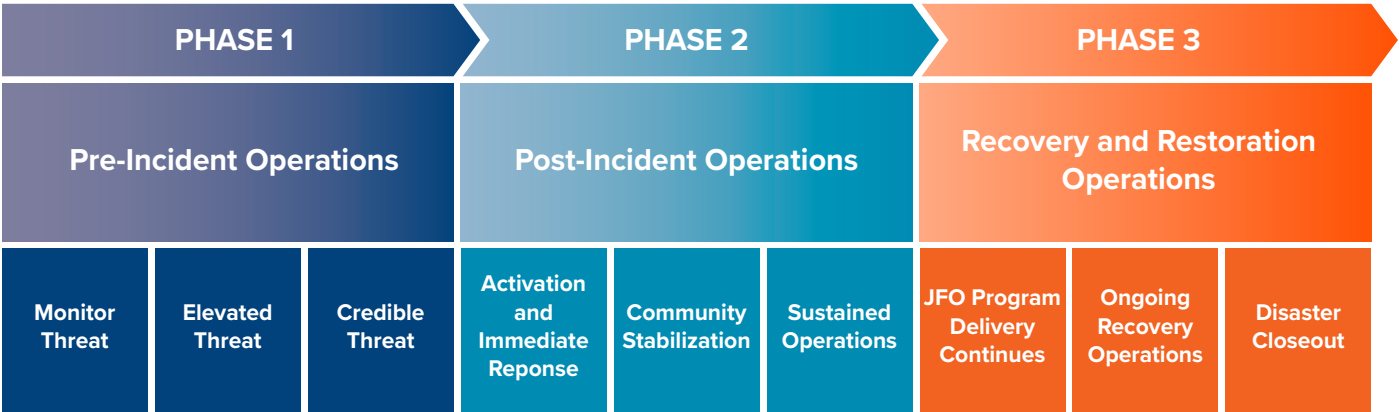



Figure 1: The Disaster Management Continuum



BEING ABLE TO MANAGE MULTIPLE WORKSTREAMS IS IMPORTANT BUT KNOWING HOW TO DO SO IN A WAY THAT MAKES THE MOST OF THE LIMITED RESOURCES AVAILABLE IS CRUCIAL.

As the disaster response transitions from Phase 2a (Activation and Immediate Response) into Phase 2b (Community Stabilization), emergency managers are faced with the complexities of stabilizing the impacted area and its infrastructure while under the scrutiny of survivors and the public for evidence of efficiency and effectiveness. This portion of the disaster lifecycle often requires the efforts of multiple entities simultaneously (Emergency Support Functions and Critical Infrastructure Sectors, and includes the private sector) to develop solutions that are fast, efficient and effective. For example, restoring power

OVER 85% OF INFRASTRUCTURE AND INDUSTRY IS OWNED AND OPERATED BY THE PRIVATE SECTOR. ENABLING THE PRIVATE SECTOR IS THE KEY TO EFFICIENT DISASTER RECOVERY.

to a hospital may require ESF-1 (Transportation), ESF-2 (Communications), ESF-3 (Public Works), ESF-5 (Emergency Management), ESF-8 (Public Health) and ESF-12 (Energy), along with private sector partners to prioritize resources and capabilities to plan and execute the necessary tasks. Restoring power to a hospital may be only one of many actions that need to be addressed in a timely fashion and may be only one intermediate (and objective) part of a higher-level effort, such as restoring the medical capability of an entire community. This is where complex project

management and business process optimization can offer the most value to emergency managers. Being able to manage multiple workstreams is important but knowing how to do so in a way that makes the most of the limited resources available is crucial.

These types of operations require participation from public entities (local, state, federal, tribal and territorial) in partnership with the private sector. It is the public sector's responsibility to recognize that they need to enable, not duplicate or replace, the private sector's capabilities in disaster response.

To make these types of operations possible it is imperative that the public sector is able to collect and analyze disaster impact data quickly and within context to properly augment the private sector in stabilizing and recovering. Over 85% of infrastructure and industry is owned and operated by the private sector. Enabling the private sector is the key to efficient disaster recovery.

One of the most valuable capabilities the government brings to disaster response is the ability to aggregate situational awareness data. Being able to see the entire picture allows emergency managers to best understand the "battle space." This facilitates the understanding of root causes, rather than just seeing tactical symptoms. Determining root causes aids in the identification of critical paths among disaster response lines of effort. Harmonizing these is critical for efficient disaster response.

COMMUNITY LIFELINES PROVIDE A BLUEPRINT FOR RESPONDERS

To assist planners and responders in being able to conceptualize the basic functions required for a community to fully recover, FEMA designed a community lifeline model. This community stabilization

blueprint helps emergency managers to breakdown community function into buckets. By focusing on function in developing response and recovery objectives, emergency managers can start to synchronize the multiple workstreams necessary.

Lifeline	Components	Example Stabilization Targets
Safety and Security	<ol style="list-style-type: none"> 1. Law Enforcement/Security 2. Fire Service 3. Search and Rescue 4. Government Service 5. Community Safety 	<ul style="list-style-type: none"> • Threats to life safety are no longer a concern for all response personnel and impacted communities • Government essential functions, including executive leadership, are operational • Sufficient search and rescue assets are on-scene to assist all survivors • Sufficient fire resources are available to support fire suppression efforts
Food, Water, Shelter	<ol style="list-style-type: none"> 1. Food 2. Water 3. Shelter 4. Agriculture 	<ul style="list-style-type: none"> • All survivors, their pets, and service animals have access to food, water, and sanitation • Sheltering (including reception, capacity, and wrap-around services) is supporting the displaced population. • Sufficient resources are in place to sustain agricultural requirements
Health and Medical	<ol style="list-style-type: none"> 1. Medical Care 2. Public Health 3. Patient Movement 4. Medical Supply Chain 5. Fatality Management 	<ul style="list-style-type: none"> • All survivors, their pets, and service animals have access to required medical and veterinary care • Emergency medical systems are capable of managing patient movement requirements • Public health services are accessible to all survivors • Sufficient temporary fatality management support is in place to meet processing demand • Medical supply chain capable of adequately resupplying medical care providers
Energy (Power and Fuel)	<ol style="list-style-type: none"> 1. Power Grid 2. Fuel 	<ul style="list-style-type: none"> • Generators are providing temporary emergency power at critical facilities necessary to stabilize other lifelines • Fuel distribution is available for responders • Sufficient fuel distribution is available for survivors, including to support individual dependent on power for life-sustaining medical care
Communications	<ol style="list-style-type: none"> 1. Infrastructure 2. Responder Communications 3. Alerts, Warnings, and Messages 4. Finance 5. 911 and Dispatch 	<ul style="list-style-type: none"> • Survivor have access to commercial communications infrastructure to contact or be contacted by emergency services • Land mobile radio communications network is operational • Public safety answering points are available to the public • Survivors have access to financial services
Transportation	<ol style="list-style-type: none"> 1. Highway/Roadway/Motor Vehicle 2. Mass Transit 3. Railway 4. Aviation 5. Maritime 	<ul style="list-style-type: none"> • Multimodal routes (air, rail, road, port) are clear of debris and accessible by normal or alternate means
Hazardous Materials	<ol style="list-style-type: none"> 1. Facilities 2. HAZMAT, Pollutants, Contaminant 	<ul style="list-style-type: none"> • All contaminated areas are identified and secure

Figure 2: The Community Lifeline Model

HAVING THE SITUATIONAL AWARENESS OF THE 'BATTLE SPACE' ALSO ALLOWS EMERGENCY MANAGERS TO SEE ROOT CAUSES IN INFRASTRUCTURE IMPACTS AND PRIORITIZE WORKSTREAMS THAT ACHIEVE BENEFITS FOR MULTIPLE LIFELINES.

EMERGENCY RESPONSE AND LINES OF EFFORT MIRROR PROJECT MANAGEMENT METHODS

It is through the Lines of Effort (LOE) construct that we start to see how closely emergency management can resemble the work breakdown structure (WBS) used in project management. Each line of effort supports a long-term desired “end state.” Within the LOE are multiple intermediate objectives that build upon each other to realize the ultimate end state. Combining the concept of community lifelines with the LOE model, we can begin to build a blueprint for effective response and recovery operations out of the resulting chaos following a large-scale disaster.

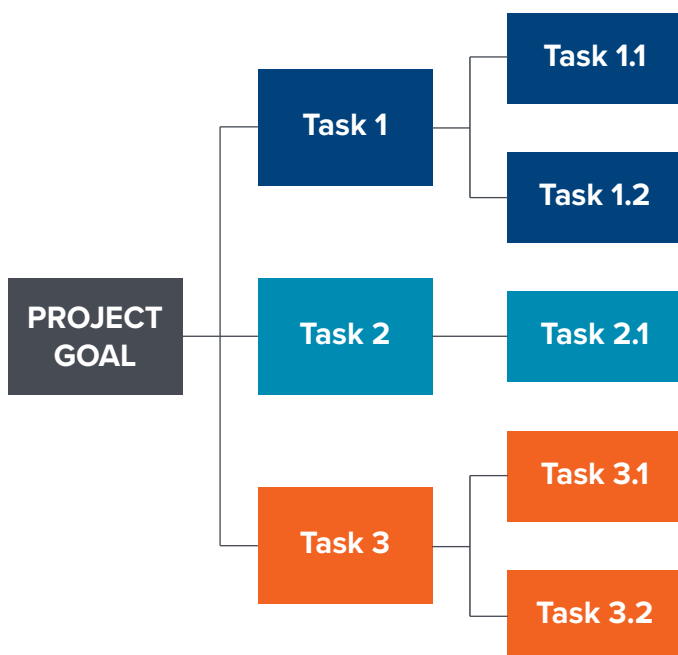


Figure 3: Example of a Work Breakdown Structure

By inserting a community lifeline stabilization target for a specific community as the desired end state of a LOE, we can build our response work breakdown structure. Using the example in the beginning of this article (restoring the community medical system), a fully developed LOE begins to form. The Health and Medical Lifeline gives us the following criteria to consider for stabilization. The actual criteria will be up to the impacted community to develop:

- All survivors, their pets and service animals have access to required medical and veterinary care.
- Emergency medical systems are capable of managing patient movement requirement.
- Public health services are accessible to all survivors.
- Sufficient temporary fatality management support is in place to meet processing demand.
- Medical supply chain is capable of adequately resupplying medical care providers.

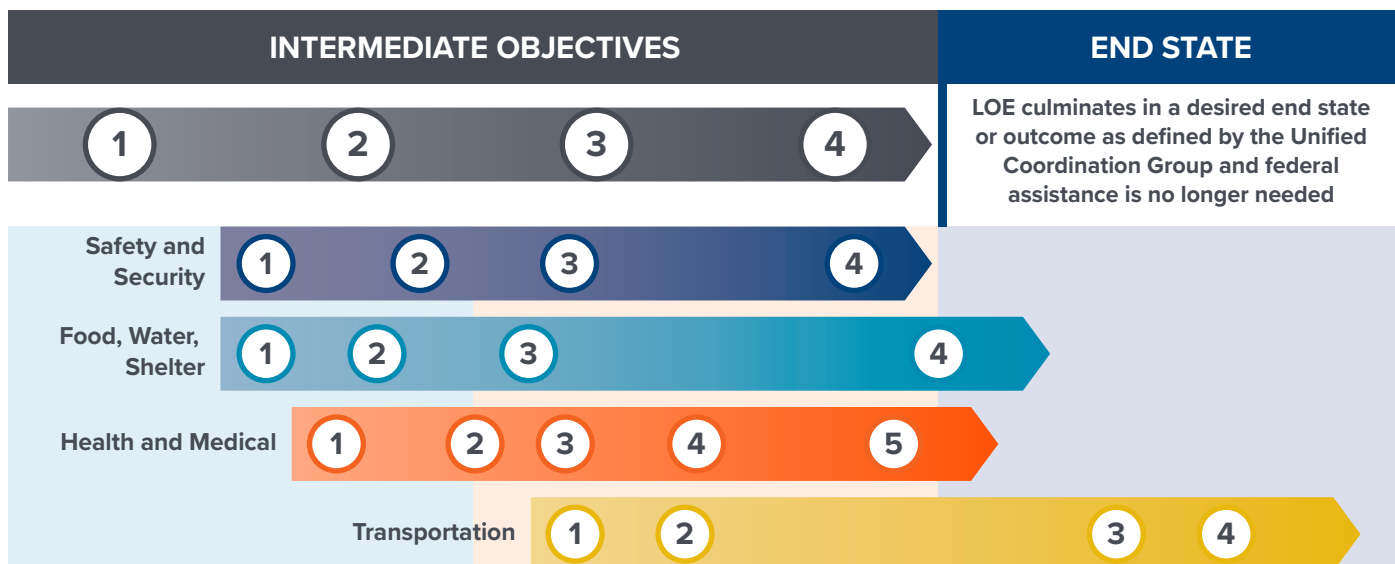


Figure 4: Example LOE Model

These stabilization criteria are prioritized and used to build intermediate objectives. When all lifelines and their associated LOEs are analyzed, emergency managers can see the interdependencies that exist and, can build the overall work breakdown structure with multiple LOEs being synchronized and evaluated for efficiencies. Having the situational awareness of the ‘battle space’ also allows emergency managers to see root causes in infrastructure impacts and prioritize workstreams that achieve benefits for multiple lifelines. For example, transportation routes that are blocked due to debris may be hindering multiple other stabilization efforts. Therefore, clearing debris from transportation routes of common need may be one of the highest priorities as it is a root cause/need – clearing debris and restoring the routes is critical to many separate response efforts. It is this orchestration that requires close relationships between public and private entities as they help facilitate understanding the resources and capabilities of each community component during a response. Building those relationships prior to a disaster is critical. A friend once told me, “if an emergency manager is handing out their business cards to agencies after a disaster has hit, they are already way behind the power curve.” As you start to see the level of complexity and necessary synchronized efforts for effective disaster response, you also come to appreciate the need for pre-disaster activities associated with planning and mitigation. Making a community resilient through planning, training and exercising—and while implementing disaster mitigation efforts—significantly reduces post-disaster impacts and greatly reduces

the amount of time to achieve stabilization within a community.

By merging proven tools in the disciplines of Emergency Management, Project Management and Business Process Optimization, emergency managers can create order out of chaos and do so in the most effective fashion. This helps achieve the overall goals of emergency managers, saving lives and minimizing suffering.





Frank Genco is a military veteran with over 30 years of experience in emergency management/disaster response and leadership. He is a Certified Project Management Professional and a Lean Six sigma Master Blackbelt. He holds an undergraduate degree in Economics from the United States Coast Guard Academy and Master of Science Degree in Aeronautical Science and a Master of Business Administration. During his career in the United States Coast Guard, he led disaster response activities nationally and globally. Since retiring from active duty, Frank has consulted for federal agencies and the private sector as a disaster response and planning subject matter expert. He has written catastrophic response plans for federal agencies and has been called on by global financial and energy corporations to audit disaster response and recovery plans. He has proven himself extremely effective for his clients in applying project management, business process optimization and risk mitigation principles to disaster response entities on a national and global scale. At ABS Group, Frank is part of a comprehensive team of emergency management professionals supporting many federal entities through Emergency Preparedness, Planning, Response, Recovery and Mitigation efforts.

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