

# Baltimore City Mayor's Office of Emergency Management



## The Status of Emergency Management in Baltimore City





Mayor's Office of Emergency Management  
2018 Annual Accomplishments Report



## For additional information

Director's Office

David McMillan, Director

Office: 410-396-6188

Email: [David.McMillan@baltimorecity.gov](mailto:David.McMillan@baltimorecity.gov)

Meghan Hardy, Executive Assistant

Office: 410-396-3381

Email: [Meg.Hardy@baltimorecity.gov](mailto:Meg.Hardy@baltimorecity.gov)

### **Operations Branch**

Anthony Smith

Deputy Director, Operations & Homeland Security

Office: 410-396-3375

Email: [Anthony.Smith2@baltimorecity.gov](mailto:Anthony.Smith2@baltimorecity.gov)

Chaya Deitsch

Acting Logistics Section Chief

Office: 410-396-3511

Email: [Chaya.Deitsch@baltimorecity.gov](mailto:Chaya.Deitsch@baltimorecity.gov)

Christopher Hiles

Training & Exercise Section Chief

Office: 410-396-3364

Email: [Chris.Hiles@baltimorecity.gov](mailto:Chris.Hiles@baltimorecity.gov)

### **Administration and Finance Branch**

Jennifer Meleady

Deputy Director, Admin & Finance

Office: 410-396-3321

Email: [Jennifer.Meleady@baltimorecity.gov](mailto:Jennifer.Meleady@baltimorecity.gov)

Edward Strouse

Planning Section Chief

Office: 410-396-3318

Email: [Edward.Strouse@baltimorecity.gov](mailto:Edward.Strouse@baltimorecity.gov)

Crystal Bright

Deputy Preparedness Section Chief

Office: 410-396-3356

Email: [Crystal.Bright@baltimorecity.gov](mailto:Crystal.Bright@baltimorecity.gov)

Edmund Goode

Fiscal and Admin Section Chief

Office: 410-396-3383

Email: [Edmund.Goode2@baltimorecity.gov](mailto:Edmund.Goode2@baltimorecity.gov)

***For information or comments on this report, please contact Jennifer Meleady.***



## Table of Contents

For additional information.....	2
Table of Contents.....	3
About MOEM .....	4
Introduction .....	4
Mission Statement.....	4
Vision.....	4
Growth .....	4
Sections.....	5
Staff.....	5
Impact on Communities.....	5
MOEM In Action.....	6
2019 Goals and Objectives.....	6
MOEM's Major 2018 Accomplishments .....	6
What is Emergency Management.....	7
Principles of Emergency Management .....	8
Phases of Emergency Management.....	9
Continuity of Operations .....	12
Why Continuity? .....	13
Business Continuity.....	15
Risks to the City of Baltimore.....	17
Mitigating Baltimore City's Risks.....	18
Mitigation Grants .....	20
Steps to Reduce Flood and Water Damage .....	21
Trends in Emergency Management.....	25
1. Risk-Based Planning .....	25
2. Social Media and Technology Use .....	25
3. Public-Private Partnerships.....	26



# ABOUT MOEM

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## Introduction

The Mayor's Office of Emergency Management (MOEM) has been, and is still, undergoing a major transformation since the fall of 2017. We have moved from a mostly uniformed office to a civilian office. We started with six employees in the summer of 2017 and grew to 14 in 2018. We have identified policies, plans, procedures, and other important documents to write, review, or rewrite. And, we have continued to provide on-scene emergency management coordination capabilities to incidents, as needed.

The purpose of this document is for MOEM to identify our accomplishments, both professionally and personally, so we can see where we've come from and plan for our future. We also want to appreciate the work of our staff. We are by no means done with our transformation, and a lot of work still remains, but this first ***Status of Emergency Management in Baltimore City*** will enable us to recognize the impact we have on the City of Baltimore as we engage in greater impacts in the future.

## Mission Statement

It is the mission of the Mayor's Office of Emergency Management (MOEM) to maintain the highest level of preparedness to protect Baltimore's citizens, workers, visitors, and environment from the impact of natural and man-made disasters. MOEM will prepare the City for emergencies, prepare the public for emergencies, and coordinate interagency response and recovery. To achieve this mission, MOEM will implement a comprehensive program of disaster mitigation, preparedness, response and recovery.

## Vision

- Well-prepared households and businesses
- Resilient communities
- Integrated, efficient, and rapid response and recovery

## Growth

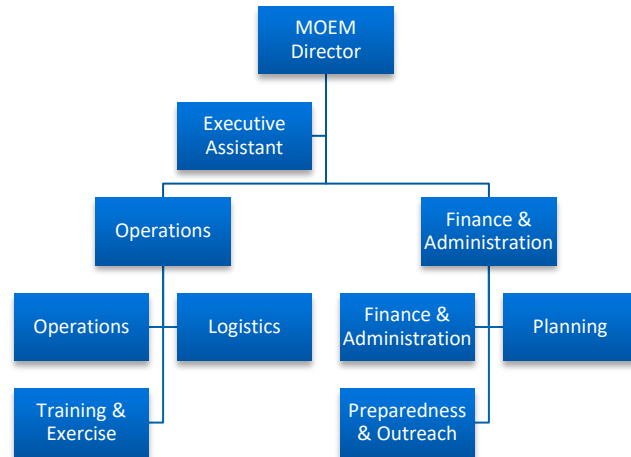
MOEM began with a mostly operations-focused, mostly uniformed staff in early 2017, but by the end of that year, the process to change from uniformed to civilian had begun and a number of key positions were filled, which more than doubled the size of our staff. We plan to complete the transition from Baltimore City Fire Department to a standalone agency in 2018-2019. We will be fully civilian before the transition is complete. Our current organization chart calls for us to have 15 employees, and we project we may need to have as many as 20-25 employees to really have a fully engaged emergency



management team capable of operations, planning, training & exercise, administration, finance, human resources, grants management, and preparedness/public outreach.

## Sections

There are currently two branches in MOEM: Operations and Finance & Administration. Each is managed by a deputy director, which report directly to the MOEM director. Under Operations, there are three Sections: Operations, Logistics, and Training & Exercise. Under Finance and Administration, there are three Sections: Planning, Preparedness & Outreach, and Finance & Administration. There is also an Executive Assistant who reports directly to and supports the MOEM Director.



## Staff

The staff of MOEM come from a variety of backgrounds and experience levels, but all are skillful and talented. Amongst the 12 current employees, there are almost 100 years of combined emergency management experience, not including emergency response experience. The staff have nearly 20 bachelor’s or master’s degrees among them. All are working on, or have received, certifications from the International Association of Emergency Management (IAEM) and on completing training programs through the Federal Emergency Management Agency (FEMA).

## Impact on Communities

MOEM responds to many of the emergencies that happen throughout the City of Baltimore and is a coordinating agency that works with the Baltimore City Fire Department to obtain resources—including response from other agencies, equipment, supplies, personnel, etc. MOEM was part of the response and recovery process for the Frederick Avenue Corridor flooding in 2018 and continues to work with City stakeholders to mitigate flooding issues.

MOEM was part of the planning team for all of the City’s major special events and activities in 2018. We also provided Community Emergency Response Team (CERT) training to citizens and civic organizations.

Our agency developed a planning program to help other City agencies construct continuity of operations (COOP) plans, participated in Baltimore’s Disaster Preparedness and Planning Project (DP3) with the Department of Planning, and is currently rewriting the City’s Emergency Operations Plan (EOP).



# MOEM IN ACTION

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## 2019 Goals and Objectives

- Hire personnel so MOEM is fully staffed
- Ensure personnel are fully trained so they can participate effectively in EOC operations and as on-call Duty Officers for MOEM
- Update the Emergency Operations Plan (EOP)
- Finalize the MOEM Continuity of Operations Plan (COOP) draft and continue working with other City agencies to draft their COOP plans
- Ensure grant funding is spent in an efficient, effective, and appropriate manner
- Ensure MOEM Operations are handled professionally and effectively
- Implement a community outreach program that is better aligned with the needs of Baltimore City's communities
- Document the recovery process, and ensure all necessary individuals are trained and can serve in assigned functions
- Work with the appropriate agencies and stakeholders to update the sheltering process
- Develop a Planning, Training, and Exercise Plan for three years into the future
- Continue to roll out BMORE ALERT to City agencies

## MOEM's Major 2018 Accomplishments

- Successfully responded to and worked through the recovery process for the Frederick Avenue Corridor flooding. Assisted with SBA Declaration and Disaster Loan Outreach Center (DLOC). Developed and led efforts to apply for Flood Mitigation projects through FEMA after three floods in the Frederick Avenue Corridor.
- Successfully coordinated special events with partners, including: Fleet Week, Light City, Preakness, Artscape, AFRAM, MLK Parade, Moonrise, and Book Festival.
- Successfully evacuated/sheltered in place over 35,000 people due to a severe weather event during the Moonrise Festival.
- Successfully conducted aerial Drone support during the 26<sup>th</sup> Street Bridge incident.
- Successfully conducted and/or supported exercises in support of stakeholders, including the Baltimore Ravens, the Baltimore Orioles, Amtrak, Sinai Hospital, and Under Armor.
- Effectively conceptualized, developed and implemented the City's Continuity Planning Program (CPP), which is assisting 12 City agencies with writing a Continuity of Operations Plan (COOP).
- Effectively participated in the DP3 Update.
- Successfully developed the City's BMORE Alert process in preparation for city-wide rollout.
- Effectively supported the City's Flood Threshold Project.



# WHAT IS EMERGENCY MANAGEMENT

## Definition

Emergency management is the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters.

## Vision

Emergency management seeks to promote safer, less vulnerable communities with the capacity to cope with hazards and disasters.

## Mission

Emergency management protects communities by coordinating and integrating all activities necessary to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recover from threatened or actual natural disasters, acts of terrorism, or other manmade disasters.

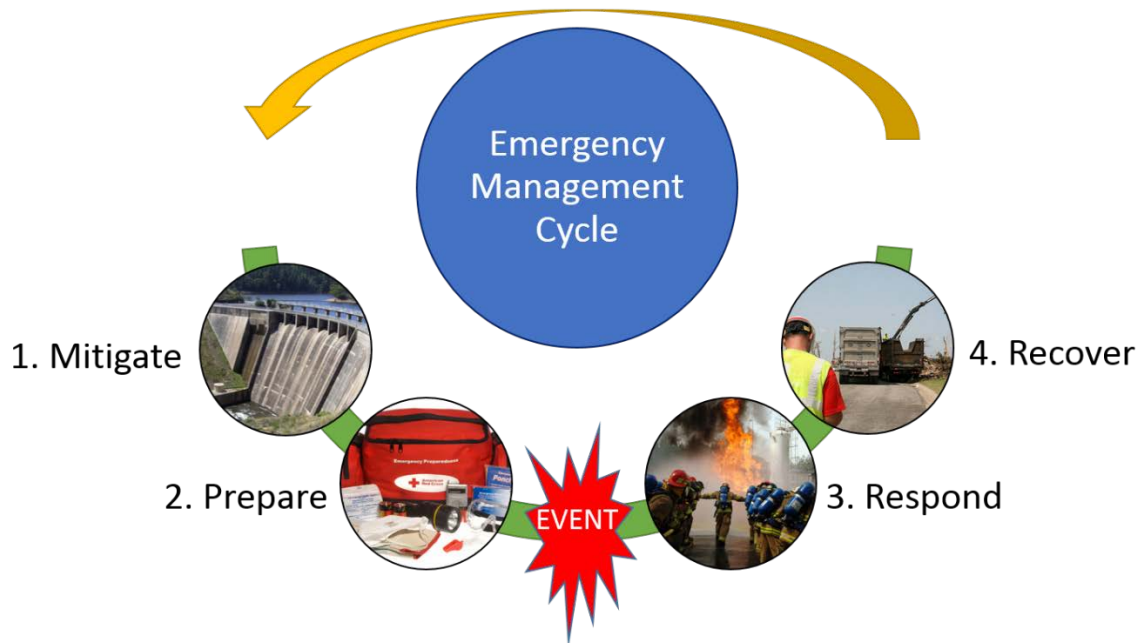


Image source: <http://www.coppelltx.gov/government/departments/emergency-management/about>



## Principles of Emergency Management

Emergency Management must be:

1. Comprehensive. Emergency managers consider and take into account all hazards, all phases of emergency management, all stakeholders, and all impacts relevant to disasters.
2. Progressive. Emergency managers anticipate future disasters and take preventive and preparatory measures to build disaster-resistant and disaster-resilient communities.
3. Risk-Driven. Emergency managers use sound risk management principles (hazard identification, risk analysis, and impact analysis) in assigning priorities and resources.
4. Integrated. Emergency managers ensure unity of effort among all levels of government and all elements of a community.
5. Collaborative. Emergency managers create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication.
6. Coordinated. Emergency managers synchronize the activities of all relevant stakeholders to achieve a common purpose.
7. Flexible. Emergency managers use creative and innovative approaches in solving disaster challenges.
8. Professional. Emergency managers value a science- and knowledge-based approach based on education, training, experience, ethical practice, public stewardship, and continuous improvement.<sup>1</sup>

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<sup>1</sup> Source: [https://training.fema.gov/hiedu/docs/emprinciples/0907\\_176%20em%20principles12x18v2f%20johnson%20\(w-o%20draft\).pdf](https://training.fema.gov/hiedu/docs/emprinciples/0907_176%20em%20principles12x18v2f%20johnson%20(w-o%20draft).pdf)





# Phases of Emergency Management

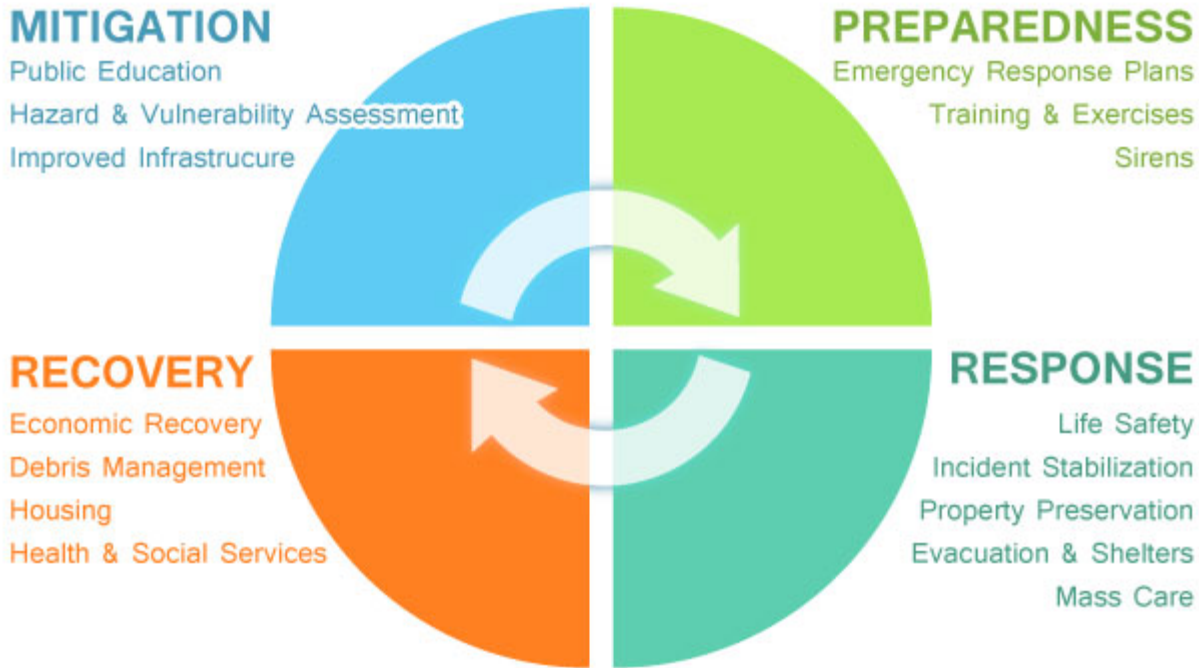


Image source: [https://www.miottawa.org/Sheriff/emergency\\_management.htm](https://www.miottawa.org/Sheriff/emergency_management.htm)

## What is Mitigation?

Mitigation includes activities that attempt to lessen the impacts of a disaster—impacts including damage to property and the effect of the disaster on the individual, family, business, and community.

**Example:** Not building in a floodplain. To see if your location is in an established floodplain, enter your address into FEMA's Flood Map Portal at <https://msc.fema.gov/portal>.

### Additional Resources:

- <https://articles.extension.org/pages/13242/steps-to-reduce-flood-and-water-damage>
- [https://www.lsuagcenter.com/topics/family\\_home/hazards\\_and\\_threats/publications/wet-floodproofing](https://www.lsuagcenter.com/topics/family_home/hazards_and_threats/publications/wet-floodproofing)
- [https://www.fema.gov/media-library-data/20130726-1756-25045-8598/protecting\\_home\\_book\\_508compliant.pdf](https://www.fema.gov/media-library-data/20130726-1756-25045-8598/protecting_home_book_508compliant.pdf)

## What is Preparedness?

Preparedness includes actions taken to plan, organize, train, and equip response activities. Preparedness is a continuous process of evaluating and improving a community's ability to prevent, protect against, mitigate, respond to, and recover from disaster.



**Example:** Creating a home or office severe weather plan. Learn how to prepare by visiting the KnowWhat2Do Make A Plan portal at <https://www.KnoWhat2Do.com/make-a-plan>

**Additional Resources:**

- [https://www.fema.gov/media-library-data/1459189789918-a77ac65fa20237a76f195d5ab1c0b579/FloodRisksWinterFlooding\\_09\\_2015.pdf](https://www.fema.gov/media-library-data/1459189789918-a77ac65fa20237a76f195d5ab1c0b579/FloodRisksWinterFlooding_09_2015.pdf)
- [https://www.fema.gov/media-library-data/1449000184738-f9b5c358e59f9c3812cb7af212c4ec25/Before\\_the\\_Flood\\_05\\_2015.pdf](https://www.fema.gov/media-library-data/1449000184738-f9b5c358e59f9c3812cb7af212c4ec25/Before_the_Flood_05_2015.pdf)
- [https://www.fema.gov/media-library-data/1409002852888-3c5d1f64f12df02aa801901cc7c311ca/how\\_to\\_prepare\\_flood\\_033014\\_508.pdf](https://www.fema.gov/media-library-data/1409002852888-3c5d1f64f12df02aa801901cc7c311ca/how_to_prepare_flood_033014_508.pdf)

## What is Response?

Response includes actions taken during or immediately following a disaster or emergency. These actions include the mobilization of emergency services and first responders, and the activation of an emergency operations center (EOC) when necessary.

**Example:** Knowing the appropriate response to best protect yourself in an emergency situation. Do you know the difference between Sheltering-In-Place vs. Evacuation? Test your knowledge at <https://knowwhat2do.com/communication/emergency-notification>.

## What is Recovery?

Recovery includes activities that continue beyond the initial disaster response. Recovery focuses on restoring critical community functions to normal and managing reconstruction. Rebuilding efforts include mitigation practices to reduce risk for the future.<sup>2</sup>

**Example:** Coping with the physical and emotional impact of disaster-related loss, stress, and trauma. See the KnowWhat2Do Disaster Recovery resources at <https://knowwhat2do.com/make-a-plan/disaster-recovery>.

**Additional Resources:**

- [https://www.hud.gov/sites/documents/HH\\_REBUILD\\_2015\\_DR.PDF](https://www.hud.gov/sites/documents/HH_REBUILD_2015_DR.PDF)
- [https://www.fema.gov/media-library-data/20130726-1614-20490-6095/fs\\_aftertheflood\\_012013.pdf](https://www.fema.gov/media-library-data/20130726-1614-20490-6095/fs_aftertheflood_012013.pdf)

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<sup>2</sup> Source: <http://www.coppelltx.gov/government/departments/emergency-management/about>



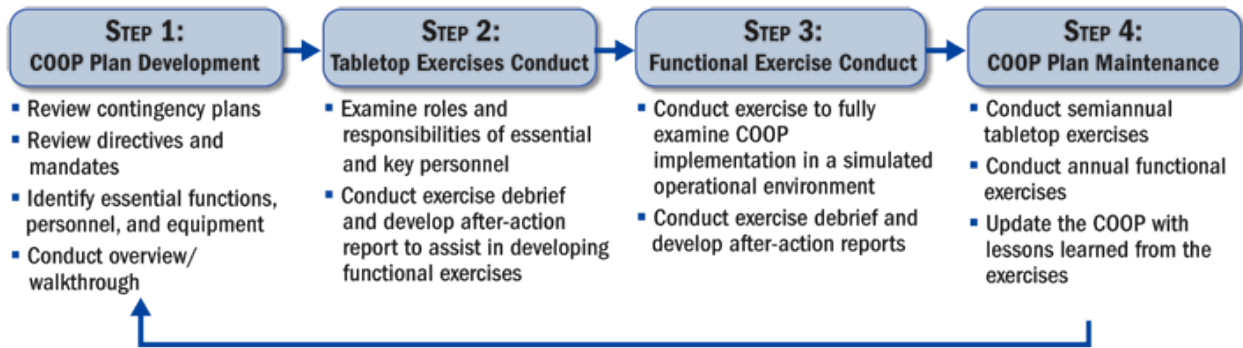
# What does MOEM do?





# CONTINUITY OF OPERATIONS

Continuity of operations is an effort within individual departments and agencies to ensure that essential functions continue to be performed during a wide range of emergencies, including localized acts of nature, accidents, and technological or attack-related emergencies. In order to achieve that goal, the objective for organizations is to identify their essential functions and ensure that those functions can be continued throughout, or resumed rapidly after, a disruption of normal activities.



Source: <https://aqlern.usda.gov/customcontent/APHIS-COOP-Specific/M/010207----.htm>



# Why Continuity?

## Regular Day

Day to day, the whole community works together to provide essential functions, capabilities, and services to each other.



## Continuity Event

An event can disrupt the performance of essential functions, capabilities, and services at all levels.



Source: <http://nh.childcareaware.org/continuity-of-operations-plan-coop>

A continuity plan is the roadmap for the implementation and management of a robust continuity program.

### Essential Functions

The critical activities that must be performed by an organization, even despite a disruption of normal activities.

### Orders of Succession

Provisions for the assumption of senior agency offices during an emergency in the event that any of those officials are unavailable to execute their legal duties.

### Delegations of Authority

Identification, by position, of the authorities for making policy determinations and decisions at HQ, field levels, and all other organizational locations. Generally, pre-determined delegations of authority will



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



take effect when normal channels of direction have been disrupted and will lapse when these channels have been reestablished.

### Continuity Facilities

Locations, other than the primary facility, used to carry out essential functions, particularly in a continuity event. The terms "continuity facilities" and "alternate facilities" refer to not only other locations, but also nontraditional options, such as working at home (teleworking) and mobile-office concepts.

### Continuity Communications

Communications that provide the capability to perform essential functions, in conjunction with other agencies, under all conditions.

### Essential Records Management

The identification, protection, and ready availability of electronic and hard-copy documents, references, records, information systems, data management software, and equipment needed to support essential functions during a continuity situation.

### Human Capital

During a continuity event, emergency employees and other special categories of employees who are activated by an agency to perform assigned response duties.

### Tests, Training, and Exercises (TT&E)

Measures to ensure that an agency's continuity plan is capable of supporting the continued execution of the agency's essential functions throughout the duration of a continuity event.

### Devolution of Control and Direction

Capability to transfer statutory authority and responsibility for essential functions from an agency's primary operating staff and facilities to other agency employees and facilities.

### Reconstitution

The process by which surviving and/or replacement agency personnel resume normal agency operations from the original facility or a replacement primary operating facility.

### Four Phases of Continuity of Operations:

1. **Phase I:** Readiness and Preparedness
2. **Phase II:** Activation and Relocation—Plans, procedures, and schedules to transfer activities, personnel, records, and equipment to alternate facilities are activated.
3. **Phase III:** Continuity Operations—Full execution of essential operations at alternate operating facilities is commenced.
4. **Phase IV:** Reconstitution—Operations at alternate facility are terminated and normal operations resume.



Under What Conditions Will a Continuity Plan Be Activated?

The continuity plan could be activated in response to a wide range of events or situations—from a fire in the building, to a natural disaster, to the threat or occurrence of a terrorist attack. Any event that makes it impossible for employees to work in their regular facility could result in activation of the plan.<sup>3</sup>

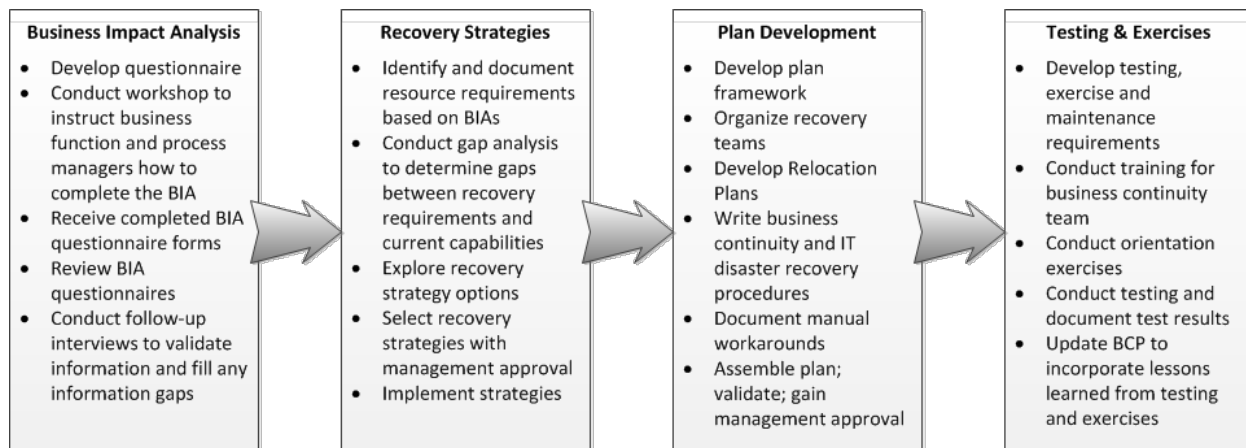
Resources for Continuity of Operations Planning

- Standard on Continuity, Emergency, and Crisis Management (<https://www.nfpa.org/1600>)—National Fire Protection Association (NFPA) 1600
- Continuity Guidance Circular, Continuity Guidance for Non-Federal Entities (<https://www.fema.gov/media-library/assets/documents/132130>)—FEMA

## Business Continuity

In the private sector, when business is disrupted, it can cost money. Lost revenues and extra expenses mean reduced profits. Insurance does not cover all costs and cannot replace customers that defect to the competition. A business continuity plan to continue business is essential. Development of a business continuity plan includes four steps:

1. Conduct a business impact analysis (<https://www.ready.gov/business-impact-analysis>) to identify time-sensitive or critical functions and processes and the resources that support them.
2. Identify, document, and implement strategies to recover critical functions and processes.
3. Organize a business continuity team and compile a business continuity plan (<https://www.ready.gov/business/implementation/continuity>) to manage a business disruption.
4. Conduct training (<https://www.ready.gov/business/implementation/training>) for the business continuity team and testing and exercises (<https://www.ready.gov/business/testing>) to evaluate recovery strategies and the plan.



<sup>3</sup> Source: [https://www.fema.gov/pdf/about/org/ncp/coop\\_brochure.pdf](https://www.fema.gov/pdf/about/org/ncp/coop_brochure.pdf)



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



Information technology (IT) includes many components such as networks, servers, desktop and laptop computers, and wireless devices. The ability to run both office productivity and enterprise software is critical. Therefore, recovery strategies for information technology should be developed so technology can be restored in time to meet the needs of the business. Manual workarounds should be part of the IT plan so business can continue while computer systems are being restored.<sup>4</sup>

### Resources for Business Continuity Planning

- Professional Practices for Business Continuity Professionals (<https://www.drii.org/certification/professionalprac.php>)—DRI International (nonprofit business continuity education and certification body)
- Open for Business Toolkit (<https://www.disastersafety.org>)—Institute for Business & Home Safety

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<sup>4</sup> Source: <https://www.ready.gov/business/implementation/continuity>





# RISKS TO THE CITY OF BALTIMORE

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Communities use the Threat and Hazard Identification and Risk Assessment (THIRA) to assess risk and set capability targets that reflect their preparedness goals, answering three key questions:

- What threats and hazards can affect our community?
- If they occurred, what impacts would those threats and hazards have on our community?
- Based on those impacts, what capabilities should our community have?

The Stakeholder Preparedness Review (SPR) is a self-assessment of community preparedness in each of the 32 Core Capabilities established by FEMA. Additional information about the Core Capabilities can be found at [https://www.fema.gov/media-library-data/1539717874998-  
ea2967ed01ff81fd04f9f1d2a6ad71f5/0\\_ALL\\_v25.pdf](https://www.fema.gov/media-library-data/1539717874998-<br/>ea2967ed01ff81fd04f9f1d2a6ad71f5/0_ALL_v25.pdf). The THIRA/SPR goes beyond evaluating risk, as it also identifies what communities need to do to address that risk.

By completing the THIRA process, communities can better understand what they need to prepare for and how to translate that information into action. Communities begin by identifying the threats and hazards that would most challenge their capabilities. They then provide context for those threats and hazards, developing scenarios that describe how they may affect the community. The scenarios include factors and conditions that would make those threats and hazards especially challenging for delivering capabilities. This helps communities better understand what they need to be prepared for.

Communities then set capability targets that are specific, measurable, actionable, relevant to potential threat and hazard impacts, and time-bound. Setting preparedness goals for addressing the impacts of their most challenging threats and hazards every three years helps communities track progress over time and describe their preparedness in specific, measurable terms.

According to the ***Baltimore City Disaster Preparedness and Planning Project (DP3)***<sup>5</sup>, managed by the Baltimore City Department of Planning, Office of Sustainability, risks to the City of Baltimore include:

- Flooding
- Coastal hazards (such as hurricanes, sea level rise, storm surge, and coastal inundation)
- Precipitation variability (including heavy precipitation, winter storms, and drought)
- Dam failure
- Extreme wind
- Extreme heat
- Poor air quality

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<sup>5</sup> Source: <https://www.baltimoresustainability.org/plans/disaster-preparedness-plan>



## Mitigating Baltimore City's Risks

MOEM is responsible for emergency planning for all risks to the City of Baltimore. The agency works with stakeholder agencies and subject matter experts throughout the planning process. This is one way to mitigate risks to the City, because it allows the stakeholder agencies to plan ahead for preventing, protecting against, and responding to risks before situations arise. This is called sunny day planning, and it gives agencies the opportunity to plan, review, and test plans through exercises—and then revise plans to ensure they are the best versions of the plans they can be.

The Frederick Avenue corridor flooding that took place in 2018 is fresh in everyone's minds as a major impact to the City. As such, MOEM is partnering with the Departments of Public Works, Transportation, and Planning to mitigate future flooding. There are three mitigation projects currently being considered.

### **FEMA Advance Assistance**

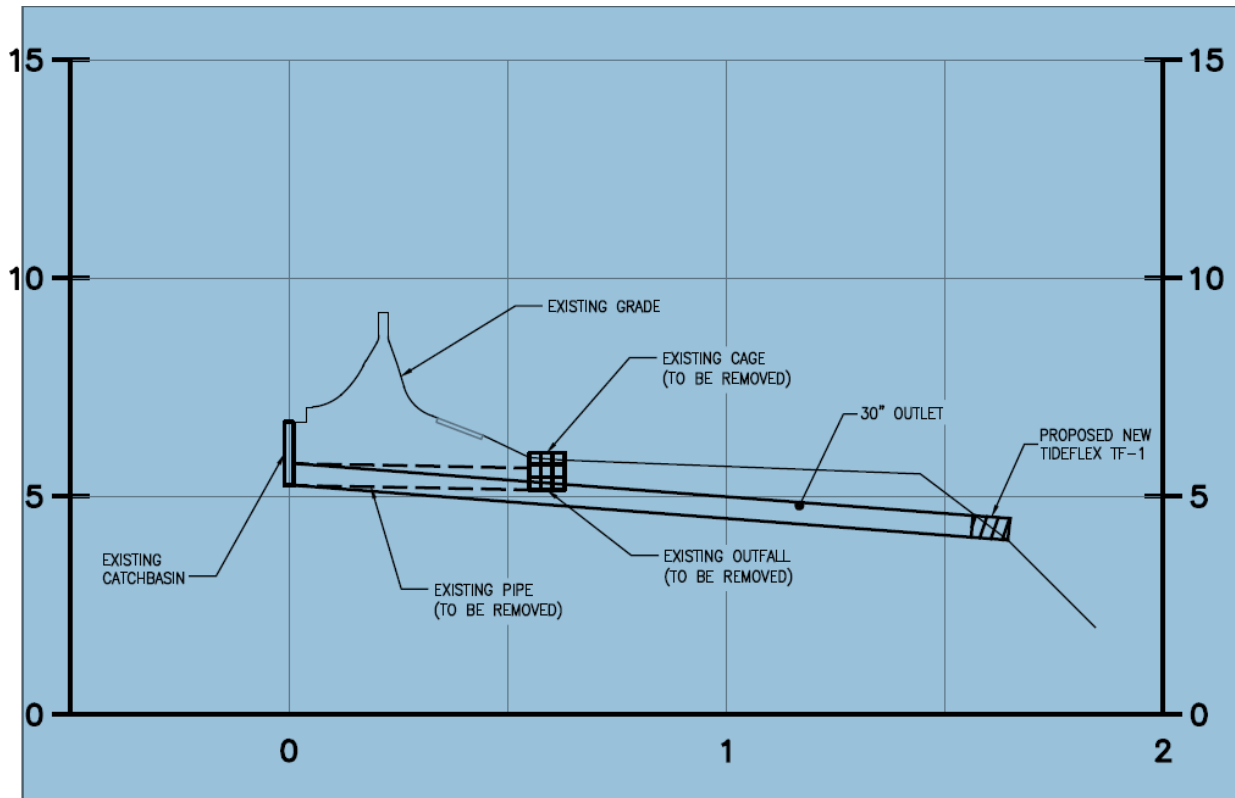
Advance Assistance can be used to develop mitigation strategies and obtain data to prioritize, select, and develop community flood hazard projects for future funding. FEMA will select sub-applications that address flood risk on a community level based on final priority scoring criteria and that benefit communities with high participation and favorable standing in the National Flood Insurance Program (NFIP). Consideration of Advance Assistance early in the decision-making process can help facilitate the development of a viable project, as well as project implementation.

### **Floodplain Storage and Diversion**

Floodplain storage and diversion means the redirection of storm or floodwaters into lakes, channels, floodplains, irrigation canals, wetlands, or other natural or manmade green infrastructure surface storage (e.g. bio-swales, bio-retention, bio-detention basins). Floodwaters are stored, with some floodwater being detained on the surface and released over time.

As floodwaters are diverted and stored, water seeping into the ground beneath the storage area recharges the aquifer, which in turn, can limit land subsidence and, in case of drought, provide storage for water supply and reuse (storm water harvesting).

This project would consist of applying for Advance Assistance through the Maryland Emergency Management Agency (MEMA) and FEMA to prepare documents for a floodplain storage and diversion project. The project would include up-sizing two culverts along Maiden's Choice Run, adding storage in an empty lot along Frederick Avenue to store excess water flowing from Maiden's Choice, and installing a pumping mechanism with backup power to pump water out of storage and back into Maiden's Choice when water levels recede.



**PIPE PROFILE**

1" = 30' HORIZ.

1" = 3' VERT.

In a project of this type, water is captured during high rainfall events and stored in vaults (usually under a roadway). Once the water body has returned to normal levels the water in the vault is pumped out gradually.

- Projected Cost: \$1.2 million
- Federal Share: \$900,000
- Local Share: \$300,000

**Non-Localized Flood Control**

Non-Localized Flood Risk Reduction Projects are those that lessen the frequency or severity of flooding and decrease predicted flood damage within an area that is hydraulically linked or connected to a drainage basin that is regional in scale. These projects reduce flood hazards in areas larger than that of localized flood reduction projects and may include large-scale channelization of a waterway.

Modifications must be for the purpose of increasing risk reduction capabilities of the existing structures and cannot constitute only repairs. These projects cannot constitute a section of a larger flood control system or duplicate the flood prevention activities of other Federal agencies on the same site. ***These projects types are only eligible under the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation Grant Program (PDM).***



These projects are very similar to floodplain storage projects except different methods are used to slow the water flow.

This project would mirror the floodplain storage and diversion project. The only exception would be this water would be housed in vaults placed under Frederick Avenue, instead of in an open area.

- Projected Cost: Depends on method used. Estimated at approx. \$800,000
- Federal Share: \$600,000
- Local Share: \$200,000

## Property Acquisition

Property Acquisition and Structure Demolition: The voluntary acquisition of an existing flood-prone structure and, typically, the underlying land, and conversion of the land to open space through the demolition of the structure. The property must be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions.

For this project we would apply for a grant through MEMA and FEMA to buy flood-prone properties along Frederick Avenue and turn them into open space. This space could be used for future flood-proofing projects, such as floodplain storage and diversion, or other beneficial uses, such as recreation areas, parks, urban gardens, or nature training areas.



Cost of these projects would depend on the fair market value of the property and demolition and restoration costs. All of the projects discussed could be potentially funded under the currently open FMA or PDM Grant.

## Mitigation Grants

### Hazard Mitigation Grant Program

This project would include equipment and systems for the purpose of warning citizens of impending hazards. Two rain gauges would be installed in Maiden's Choice Run giving us a return period on the affected streams and providing an alert system that would trigger two sets of beacons on Frederick Avenue. The City would be responsible for erecting the poles and supplying signage. The contractor would install the beacons, including cabinets containing the necessary electronics. The contractor would



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



also configure the City's Conrail system (which is used to monitor stream gauges) with rules for flood warning notifications and to activate the Frederick Avenue beacons.

The cost of this project would be around \$70,000. The State currently has two HMGP Grants open, and both have enough funds to complete the project. A letter of intent must be filed with the State by December 31.

### **PDM/FMA Grant Program Project Development Mitigation Plan Requirement**

Due to this requirement and the Federal grant guidance, there is very little flexibility in which type of projects can be completed with this funding. Flood insurance is required for FMA only.

## Steps to Reduce Flood and Water Damage

Many things can be done before an impending flood to reduce damage to home and property. This checklist can help you prepare to reduce the impact of water or a flood on your home and family.

### **Know your flood risk.**

Call your local emergency management office, building department, or floodplain management office for information about flooding. Ask to see a flood map of your community. There may be a projected flood elevation for your neighborhood. This information may be on a community website and will help you determine required preparation.

See How to Find Your Flood Map at the FEMA Map Service Center:

[https://www.floodsmart.gov/floodsmart/pages/flooding\\_flood\\_risks/ffr\\_overview.jsp](https://www.floodsmart.gov/floodsmart/pages/flooding_flood_risks/ffr_overview.jsp).

### **Check your sump pump.**

Clean the sump pump and pit; test the pump by pouring water into the pit. Consider having a spare, portable sump pump. Make sure the discharge hose delivers the water several feet away from the house to a well-drained area that slopes away from the house. If the hose outlet is too close to the house foundation or on flat ground, the water may simply recycle down through the house drain tile. Don't run sump water into the sanitary system (sewer). It may overload the system and cause sewage backup, plus, it may be illegal.

See some sump pump tips at <https://articles.extension.org/pages/73844/sump-pump-tips-to-help-you-plan-ahead-for-an-emergency>.

### **Move valuables to higher locations.**

Move irreplaceable items, such as family photo albums, high school yearbooks, personal videotapes, tax records, insurance policies, and household inventories, to high shelves, or even the attic. Make copies and store them in another location not likely to flood.



## **Prevent sewer backup.**

Sewer backup often occurs when storm water enters the sanitary sewer and causes an overload of water in the system. The overloaded system begins to backflow into household lines, causing sewer water to enter basements. One way to prevent sewer backup in your home is to plug or cap all sewer openings in the basement (such as floor drains, toilets, sinks, or showers). After lifting toilets and taking off sink traps, you can cap openings with wooden plugs, expandable plugs, screwed caps, or other methods. Check floor drains for a float plug—a mechanism in which a floating plug, which looks like a ball in the drain pipe, will rise with the water level and plug the drain.

## **Plug basement floor drains that have removable grids.**

Remove the grid and install a plug. Some hardware stores sell a plug that has a rubber center that expands to fill the pipe when the top and bottom metal plates are squeezed. The plates are drawn together by a bolt, so you will need a wrench.

Another option is to use a flexible rubber ball, about  $1\frac{1}{4}$  times the inside diameter of the pipe, which can be wedged into the drain to create a tight seal. The pressure might be quite high, so brace the ball securely against the ceiling with a 2 x 4 board of appropriate length. To avoid damage to plaster ceilings, hold a flat board or piece of plywood on the ceiling and slide the bracing (vertical) 2 x 4 against the bottom of the board. For a suspended tile ceiling, remove ceiling tiles to get access to the ceiling joists, span a second 2 x 4 across the two joists, and wedge the bracing (vertical) 2 x 4 between it and the ball.

## **Cover basement floor drains that have permanent grids.**

Place a partially inflated inner tube around the drain, and top it with a square or two of plywood (not particle board). The plywood must be larger across than the inner tube to cover it. Brace this in place just as with the ball on the drain. Be prepared for some seepage.

## **Reduce flooding from other drains.**

Unbolt toilets from the floor and plug the outlet pipe using the same procedure as for floor drains. Shower drains can be plugged this way, too. Most washing machines and basement sinks have their drain connections about 3 feet above the floor so may not overflow if the water doesn't get that high. If necessary, these drains can be disconnected and capped or plugged with expandable plugs or braced rubber balls.

## **Prepare appliances for flooding.**

For protection against shallow flood waters, the washer and dryer can sometimes be elevated on masonry or lumber at least 12" above the projected flood elevation, to keep the motors above the water level. Other options are moving the washer and dryer to a higher floor or building a floodwall around the appliances. Shut off appliances at the fuse box or breaker panel. If high water is imminent and large appliances can't be moved, wrap them in polyethylene film, tying the film in place with cord or rope. The water will still get in, but most of the silt won't, so cleanup will be easier. For gas-fired clothes



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



dryers and hot water heaters, it is best to shut off the gas and disconnect the appliances from the gas lines. Rapidly rising waters can cause the dryer to float, and floating debris can displace appliances, breaking the gas line and creating a fire hazard.

### **Shut off electricity to areas of the home that might flood.**

Even if floodwaters do not reach electrical outlets, the risk of electrical shock to someone working in a flooded basement is high, due to electric motors in furnaces, freezers, washers, dryers, and other appliances. Shut off electrical breakers or unscrew fuses. Don't stand in water while turning off electrical switches. If this must be done, use a dry piece of wood or a plastic or rubber pole to do the switching, and stand on a block of wood or a plastic crate that doesn't conduct electricity. If floodwaters are getting close to the electrical entrance box, call the power supplier and have the electrical supply to the house disconnected.

If the floor is damp, but not flooded, ground fault circuit interrupter (GFCI) outlets reduce the risk of electrocution. In newer homes, GFCI outlets can be identified by the "test" and "reset" buttons between the top and bottom outlets. GFCI outlets can be added to any outlet or in an extension cord to reduce the hazards associated with working around water.

### **Anchor fuel tanks securely.**

A fuel tank can tip over or float in a flood, causing fuel to spill or catch fire. Cleaning up a house that has been inundated with flood waters containing fuel oil can be extremely difficult and costly. Fuel tanks should be securely anchored to the floor. Make sure vents and fill line openings are above projected flood levels. Propane tanks are the property of the propane company. You'll need written permission to anchor them. Ask whether the company can do it first. Be sure all work conforms to state and local building codes.

Move hazardous materials, including paint, oil, cleaning supplies, and other dangerous chemicals, to higher locations.

### **Discuss safe emergency procedures.**

Teach adults and older children where electric fuse boxes, water service mains, and natural gas mains are—and how to turn them off. Assemble supplies in case the electricity goes off. Gather water, food that requires no refrigeration or cooking, a non-electric can opener, and a battery-powered radio and flashlight, along with extra batteries. Keep the car fueled; gas stations may not be able to operate, due to lack of electricity.

### **Plan and practice an evacuation route.**

Contact your local emergency government office or local American Red Cross chapter for a copy of the community flood evacuation plan. This plan should include information on the safest routes to shelters. Individuals living in flash flood areas should have several alternate routes to higher ground. Where would you go if your home flooded—a local shelter? A family member or friend's house?



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



### **Assemble supplies for a possible evacuation.**

Gather water, nonperishable food, paper plates and cups, plastic utensils, extra clothing and shoes, blankets or sleeping bags, a first-aid kit and prescription medications, cash and credit cards, important phone numbers, and any special items for babies and the elderly.

### **Plan for pets.**

Pets may or may not be allowed in human shelters, due to health regulations. Check beforehand whether or not you can take your pets with you, and plan ahead for the pet's care. If left behind, stressed pets can damage your house; and their safety is at stake too.

### **Develop an emergency communication plan.**

Family members may be separated when a disaster occurs, because of work or school. Choose a long-distance relative or friend who can serve as the "family contact." After a disaster, it is often easier to call long-distance than to place a local call. Make sure everyone in the family knows the name, address, and phone number of the contact person. Discuss the situation with children honestly and openly. Hiding the situation from them will probably be even more stressful.<sup>6</sup>

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<sup>6</sup> Source: <https://articles.extension.org/pages/13242/steps-to-reduce-flood-and-water-damage>





# TRENDS IN EMERGENCY MANAGEMENT

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According to Tiffany Danko from Northeastern University (2019), there are three trends to watch in emergency management.

## 1. Risk-Based Planning

Today's emergency management vision includes a whole-community model, which promotes engagement between all sectors, in coordination with various levels of government, where information and capabilities are shared among interdependent groups in pursuit of greater community resilience. This whole-community approach highlights specific risks and hazards, such as aging infrastructure, and acknowledges the limited resources available to manage and respond to potential disasters. By recognizing the frequent lack of community resources, this approach further emphasizes the importance of risk-based planning for effective preparedness, mitigation, response, and recovery.

According to the Insurance Information Institute (<https://www.iii.org/fact-statistic/facts-statistics-us-catastrophes>), insured losses in the U.S. from natural disasters exceeded \$78 billion in 2017, while FEMA noted that there were 59 major federal disaster declarations that year ([https://www.fema.gov/disasters/year?field\\_dv2\\_declaration\\_type\\_value=DR](https://www.fema.gov/disasters/year?field_dv2_declaration_type_value=DR)). These dramatic events are driving organizations to develop risk-based planning strategies, with the understanding that no individual community, agency, or organization will have the full resources needed to respond to such catastrophic incidents.

An all-hazards approach (<https://www.everbridge.com/blog/what-is-the-all-hazards-approach>) to emergency planning requires communities to identify and assess risks and use measures of performance for plans and resources to aid in decision-making processes. All-hazards preparation does not (and cannot) mean that emergency management personnel plan for every possible contingency; rather, all-hazards preparation focuses on planning for those hazards that are most likely to affect a community or organization while remaining adaptable to effectively respond to the unexpected.

## 2. Social Media and Technology Use

Government agencies, as well as the general public, are now using social media as a go-to tool for rescue and response. Incidents such as Hurricane Harvey and the California wildfires of 2017 and 2018 have demonstrated the widespread use of social media as a communication tool by agencies, communities, and businesses, and the positive effects it can have. Further, the public now relies on social media to obtain information during times of crisis and to contact responders and community governments throughout their response to disasters and the subsequent recovery process.

This growing influence of technology and social media use in emergency management must be addressed by our profession. With this change, our communities must develop strategies to effectively communicate with the public during times of crisis using available tools while still managing



## Mayor's Office of Emergency Management 2018 Annual Accomplishments Report



expectations. This is further complicated by the need to plan for potential catastrophic outages of essential technologies and utilities such as the 9-1-1 system (e.g. in Houston during Hurricane Harvey) or power (e.g. in Puerto Rico during Hurricane Maria).

The reliance on technology by response agencies and communities also presents a potential vulnerability in today's cybersecurity environment. This type of vulnerability is known all-too-well by other businesses and infrastructure, demonstrated by the many data breaches (<https://www.businessinsider.com/data-hacks-breaches-biggest-of-2018-2018-12>) of 2018 that affected hundreds of millions of accounts, including the cyberattacks of Marriott Starwood and the Port of San Diego (<https://www.sandiegouniontribune.com/business/growth-development/sd-fi-port-cyberattack-20180926-story.html>). Building a culture of preparedness—one of FEMA's three strategic goals for 2018 to 2022 ([https://www.fema.gov/media-library-data/1533052524696-b5137201a4614ade5e0129ef01cbf661/strat\\_plan.pdf](https://www.fema.gov/media-library-data/1533052524696-b5137201a4614ade5e0129ef01cbf661/strat_plan.pdf))—requires emergency management professionals to envision potential uses of technology, while planning for catastrophic impacts and challenges to availability.

### 3. Public-Private Partnerships

Tomorrow's incident management workforce must focus on building collaborative partnerships with private agencies, businesses, public entities, volunteer organizations, and many others. Training emergency management professionals and building and sustaining community organizations requires ongoing education of the public and private partners that are so essential to resiliency and response.

These partnerships will work to protect critical infrastructure, strengthen community capabilities, and engage with essential businesses partners to build community resilience. Combined with intergovernmental cooperation at all levels, this enhances the strategic planning and resource identification required to meet the needs presented by catastrophic disasters while reducing the impact on our communities. These partnerships further ensure that the needs of under-represented or vulnerable members of the community are addressed and that emergency management departments are effectively serving all parts of our communities.<sup>7</sup>

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<sup>7</sup> Source: <https://www.northeastern.edu/graduate/blog/future-of-emergency-management>