Toxic Chemical Spill and Train Derailment Response Plan Ohio

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GPH-GU 5270 1 001
Management of Public Health Disasters
Fall 2023

December 6, 2023

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Preface

A toxic chemical spill and a train derailment event present a complex emergency scenario. This unfortunate occurrence can result in the unintentional release of hazardous substances from railway tank cars as a result of the derailment. Train derailments can be caused by an assortment of circumstances, including track problems, equipment breakdowns, human error, or inclement weather. Toxic spills can result in significant threats to public health, the environment, and assets. Toxic substances that escape into the environment may trigger acute and chronic health risks, long-term ecological degradation, and major financial repercussions.

Ohio, currently the seventh most populated state in the country, is expected to have 11.78 million residents by 2023, with over 5,28,000 foreign-born individuals, constituting approximately 4.5% of the total population. Among the state's residents, 93.9% speak English, while the remaining population converses in various languages. Spanish is spoken by 2%, and the remainder communicates in languages such as German, French, Russian, Chinese, Arabic, Hindi, and several others. In total, Ohio boasts linguistic diversity with more than 14 languages spoken.

This large demographic diversity raises an array of issues and considerations in emergency response. Messages and emergency response must be inclusive of the main languages, as well as be responsive to needs of people with disabilities and those at increased risk of exposure due to difficulties in evacuating (older adults, children, pregnant people, non-English speaking, disadvantaged, homeless, incarcerated, etc.). Effective public communication is needed to ensure inclusivity for all members of the affected population.

Known as "The Heart of It All," Ohio has a comprehensive transportation network that includes roads, trains, and canals. The state is well-known for its economic prowess and solid railway infrastructure. This economic vibrancy, however, is not without its hazards, most notably dangerous chemical accidents, and train derailments. Ohio is home to several industrial industries, chemical plants, and logistical centers, with trains transporting a substantial share of products. As a result, the state is particularly vulnerable to events involving hazardous material transportation. According to the Federal Railroad Administration's Hazardous Materials Transportation Data

Center, there have been 220 incidents involving the release of hazardous materials from trains in Ohio between 2012 and 2022. Of these, 146 were classified as "significant" incidents, meaning that they resulted in a release of at least 100 pounds of hazardous materials or an evacuation order.

Ohio's transportation network, which connects roads, trains, and canals, is critical to the flow of products across the Midwest and beyond. The presence of hazardous chemicals and the regular transportation of products through rail are facilitated by the state's industrial infrastructure.

This Disaster Plan, intended to supplement existing operational processes, strategies, and protocols, recognizes Ohio's unique difficulties and features. It emphasizes the critical need of developing a comprehensive and adaptive response strategy to lessen the threat to public safety, the ecosystem, and the economy.

Signature page

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Mission

To save lives, protect assets, and accelerate recovery from catastrophic events by establishing city-wide initiatives and emergency operational resources to prevent, mitigate, prepare for, respond to, and recover from any emergency, regardless of cause, whether in peacetime or a national security situation. Our objective is to efficiently respond to and reduce the effects of a toxic chemical spill and train derailment in Ohio. This purpose is founded on the desire to save lives, protect the environment, as well as minimize economic losses. In order to fulfill this purpose, we have created extensive disaster management programs that place a strong emphasis on cooperation and coordination with regional organizations, federal agencies, and the corporate sector.

Statement of Purpose

This strategy is the foundation for directing response activities in catastrophic occurrences such as a toxic chemical spill and a train derailment threat. The objective is multidimensional, and it comprises the following goals:

I. **Identification of Hazards:** First and foremost, this strategy seeks to identify both natural and man-made hazards that have the potential to endanger Ohio citizens' lives, damage property, and have an influence on the state's environment. Incidents involving dangerous chemical discharges caused by train derailments are especially concerning.

II. **Assigning Responsibilities:** This plan gives particular emergency management roles and tasks to various state departments and organizations to guarantee a quick and orderly response. This division of duties ensures that available resources are used efficiently and effectively.

III. **Effective Resource Deployment:** This strategy supports the appropriate assignment and usage of Ohio's resources in addition to allocating tasks. Personnel, equipment, and other resources necessary to mitigate the consequences of toxic chemical spills and railway derailments are included. Our objective is to answer quickly and efficiently.

IV. **Predetermined Actions:** Predetermined actions are unambiguously laid out in this plan of action. These acts include obligations and tasks that must be carried out by state agencies and partner entities. Their mission is to quickly remove or lessen the consequences of dangers and to respond to such occurrences efficiently.

V. **Resource Assessment:** Understanding the skills and resources of state agencies and cooperative groups is critical. This knowledge is documented in this plan, ensuring that the resources required to properly execute predefined tasks are accessible and maintained.

VI. **Continuity of Government Services:** Ohio is dedicated to providing government services without interruption during and after a toxic chemical spill and train derailment catastrophe. This plan covers strategies and methods to maintain vital service continuity.

VII. **Enhanced Cooperation:** Effective response necessitates collaboration and coordination across multiple groups. This includes local government, adjacent jurisdictions, as well as

state and federal authorities. Mutual aid agreements, which are an essential component of this approach, facilitate such coordination.

Comprehensive planning, training, and drills are essential components of our readiness activities in order to properly implement this strategy.

Authorities

I. Federal:

- The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-388, as amended).
- The National Response Framework (NRF), Second Edition, May 2013.
- Homeland Security Presidential Directive 5, Management of Domestic Incidents, February 28, 2003.
- Homeland Security Presidential Directive 8, National Preparedness, March 30, 2011.
- The National Incident Management System (NIMS), December 2008.

II. State:

- Ohio Revised Code, Section 5502
- ORC – State / Local Emergency Management Agencies
- Hazard Mitigation Assistance Guidance and Addendum, February 27, 2015

Communication Plans

Internal Communications:

Ohio has developed both primary and backup Emergency Operations Centers (EOCs) in preparation for a toxic chemical spill and train derailment. These EOCs will serve as major coordination points for our response activities. Furthermore, different state departments or sets of departments have designated specific sites from which they will administer and control their emergency operations. These locations are chosen strategically based on the nature of the situation and are outfitted with redundant communication systems to ensure dependability. Telephone networks, computer systems, radio networks, and fax machines are all examples of communication techniques. All department officials at the EOC are supplied with portable radios, chargers, backup batteries, headsets, and cellular phones, as needed, to ensure effective coordination.

External Communications:

The Ohio Office of Emergency Management Duty Officer is in charge of broadcasting warnings and emergency information to the public, in close conjunction with the Ohio Office of Communications and Public Information. This information will be disseminated through a number of means, including the Ohio state website, popular social media platforms such as Twitter and Facebook, and state television networks, and emergency alert networks. Our major goal is to guarantee that essential information is communicated to the public in a timely and accurate manner during any emergency.

Ohio Alert Systems (AMBER Alerts): A collaborative effort including police enforcement, broadcasters, transportation companies, and other groups. AMBER alerts seek public aid in identifying abducted children or missing persons using a variety of channels, including airwaves, highway signs, cellular notifications, and others. AMBER Alerts in Ohio are classified into four types: AMBER Alert, Endangered Missing Child Alert, Endangered Missing Adult Alert, and Ohio Blue Alert.

Emergency Alert System (EAS): Ohio has a comprehensive plan in place, developed in collaboration with the FCC, the State Emergency Communications Committee (SECC), the State of Ohio Emergency Management Agency (EMA), and the National Weather Service (NWS), to disseminate emergency information, instructions, and warnings to residents while adhering to FCC regulations.

NOAA Weather Radio: This nationwide radio network, provided by NOAA, is made up of over 985 transmitters that cover all 50 states and territories. It communicates important weather and emergency information in collaboration with the FCC's Emergency Alert System. Weather radios with special alarm-tone characteristics give fast notifications for life-threatening conditions.

State of Ohio Rain/Snow Monitoring System (STORMS): The Ohio Emergency Management Agency (OEMA) administers STORMS, a flood warning system that was set up in response to a terrible storm that occurred in 1990 close to Shadyside, Ohio. It uses real-time information from 65 Ohio counties' worth of river stage gauges and 416 precipitation gauges to help in flood predictions and mitigation.

Mutual Aid Agreements

Facilitating the mutual interchange of emergency services is these agreements' main goal. This collaboration improves our ability to efficiently handle emergencies like toxic chemical spills and train derails. Here are a few instances:

Ohio Intrastate Mutual Aid Compact (IMAC): The Intrastate Mutual Aid Compact (IMAC) of Ohio, created in 2002 by Ohio Revised Code Section 5502.41, facilitates collaboration between political subdivisions for incident planning, response, and recovery as well as training and crises needing additional resources. IMAC is a component of all Ohio governmental subdivisions unless they choose to opt out through legislative methods. The Ohio Emergency Management Agency (EMA) provides IMAC with an Operations Manual that details the processes, forms, roles, and duties associated with resource requests. Additionally, the Ohio Emergency Management Agency (EMA) has a list of resources with descriptions, phone numbers, and locations around the state.

Emergency Management Assistance Compact (EMAC): All 50 states, the District of Columbia, Puerto Rico, the island of Guam, the U.S. Virgin Islands, and the Northern Mariana Islands have ratified EMAC (PL 104-321) and made it legal. Members of EMAC have access to resources from all fields, are protected when staff deploys, and are paid for expenses associated with missions.

Ohio Fire Chiefs Response System: During large fires, crises, or disasters, the Ohio Fire Chiefs Response System was established to assist local fire chiefs in promptly gaining access to extra fire service resources across the state. It is based on the knowledge gained from catastrophes in the past and the everyday struggles encountered by fire departments. This technology makes it possible to mobilize, deploy, and manage resources in ways that are not possible for one department to do alone. This system was set up by the Ohio Fire Chiefs' Association to assist local agencies in disaster response and ensure a prompt response to situations like catastrophic fires, hazardous materials accidents, and other occurrences that can overwhelm local resources.

Concept of Operations (CONOPS)

Phases of Emergency Management: Emergency management operations are carried out within four phases: mitigation, preparedness, response, and recovery.

1. **Mitigation:**
   - Mitigation involves measures which are taken prior to or following an emergency to eliminate or reduce the long-term threat to individuals and assets from natural, technological, and civil hazards. mitigation initiatives attempt to save the expenditures of emergency and recovery operations while protecting lives and property.
   - Mitigation initiatives are determined in State and local mitigation plans. The mitigation planning process includes identifying hazards that have occurred or might occur, as well as communities and resources that are susceptible to hazards that can be mitigated.

2. **Preparedness:**
   - Pre-emergency actions that ensure that specified groups will respond to emergencies effectively. Emergency preparation management consists of three major activities: planning (which includes resource assessment and procurement), training, and exercise.
   - Because it is impossible to entirely eliminate all hazards, preparatory measures can assist to decrease the effect of the remaining risks by taking specific activities before an emergency event happens.

     Preparedness measures include all of those involved in the incorporated emergency management framework - local, State, and Federal agencies, the private sector, nongovernmental organizations, and citizens.

3. **Response:**
   - In response to an emergency, or immediately following one, measures are taken to preserve lives, minimize property damage, and enhance the efficiency of recovery efforts. When an emergency incident is about to happen or as soon as it does, response commences.
   - Response refers to any actions made to prevent more harm and preserve lives.

4. **Recovery:**
    - Recovery efforts start as soon as an event occurs, and in certain cases, they could happen at the same time as response operations.
    - Recovery operations comprise both long-term initiatives to bring the site back to pre-disaster circumstances and post-event actions meant to restore infrastructure systems at the incident site to minimal working levels.
    - Restoring economic stability, constructing additional housing and community amenities, and attending to the requirements of the private sector resulting from the disaster are a few instances of long-term recovery activities.

I. Assessing the needs of the affected population including the needs of vulnerable population:

In the context of responding to a toxic chemical spill and train derailment in Ohio, a thorough evaluation of the affected community's needs, with particular emphasis on vulnerable populations, is a vital component in effective disaster management.

- Understanding the Hazard: The first step is figuring out what kind of hazard it is. We investigate the possible dangers related to the discharge of hazardous materials, such as chemicals, and the effects on the environment, public health, and infrastructure for our circumstances, which involves a toxic chemical leak.
- Vulnerable Communities: Assessment and acknowledgment of populations susceptible to potential risks, encompassing low-income households, the elderly, children, individuals with disabilities, and other groups vulnerable to chemical exposure (such as those with access and functional needs, those with chronic health conditions and or those who are hospitalized or in a congregate care situation. Impact on the environment and wildlife will be the concern of the Dept of Environmental Health. In this context, "vulnerability" pertains to potential health risks arising from exposure to hazardous substances.

- Health Implications: Evaluating potential health consequences is important. We emphasize on health issues associated with chemical exposure. This includes skin problems, breathing issues, and other urgent medical requirements.
- Shelter and Housing: The evaluation of appropriate shelter for individuals at risk extends beyond weather-related considerations. It involves identifying areas that can shield people from chemical exposure, taking decontamination facilities into account, and having access to healthcare.
- Psychological Support: Evaluating the psychological needs of the impacted people is essential in the aftermath of an emergency. In order to satisfy these needs, mental health therapies as well as trauma and anxiety therapy are necessary.
- Communication Strategies: Priority should be given to developing communication plans to notify susceptible groups about the substance that may leak, how to evacuate, and safety precautions. We have to make sure that information is successfully received by people with different requirements for communication.
- Economic Impact: The focus advances to evaluating the financial effect of the chemical leak and train disaster on transportation, evacuation expenses, and local business damage.
- Resource Allocation: The evaluation determines resource allocation, ensuring that vulnerable groups' needs are prioritized in the provision of medical supplies, protective equipment, psychological assistance products and services, and decontamination facilities.

II. Matching available resources to the needs including how you will address the needs of vulnerable populations:

Tailoring resources to meet the needs during a toxic chemical spill and train derailment response in Ohio is a complex procedure intended to ensure the protection and well-being of all community members, with a particular emphasis on addressing the specific needs of vulnerable populations. Because of the region's complicated infrastructure and diverse population, disaster preparedness calls for an all-encompassing strategy.

A thorough Hazard and Vulnerability Assessment (HVA), which analyzes possible hazards and their potential repercussions, is the initial step in the planning phase. A variety of stakeholders,

such as safety committees, administrative organizations, regional and local emergency planning committees, and public health departments, thoroughly review the assessment's findings. A comprehensive awareness of potential risks and their repercussions is ensured by this coordinated effort.

- Local Jurisdiction Response: Local authorities will manage the crisis by using their resources as the first to respond to the incident. They will follow the lead of the county Emergency Management Agencies (EMAs) in organizing and facilitating their response. The goals of local authorities will be to preserve the environment, protect lives, control the situation, and preserve property.
- State-level Support: State-level help and resources will be allocated to the incident when local resources are almost depleted or are unable to manage the circumstances. This support will align with the primary goals of preserving lives, restoring stability, protecting property, and preserving the environment.
- Resource Coordination: The main centers for exchanging operational data and organizing resources to assist on-scene operations will be EOCs and other multi-agency collaboration coordination facilities. These centers will help prioritize events and distribute resources appropriately. The lowest organizational level at which emergency response resource and policy challenges may be handled shall be done so.
- Adoption of National Response Framework (NRF) and NIMS: Ohio uses the NRF organizational structure and NIMS as normal processes for managing incidents. Effective collaboration and interaction will be ensured by this framework and structure.
- Coordination with Federal-Level Facilities: To effectively manage federal resources and support, coordination will be established with federal institutions such as the Joint Field Office (JFO), Federal Coordinating Officer (FCO), Federal Resource Coordinator (FRC), Senior Federal Law Enforcement Official (SFLEO).
- Federal Response Actions: Federal reaction activities in the event of a disaster will give importance to property protection, conservation of the environment, situation stabilization, and life preservation. Federal agencies are permitted to function as first responders at the Incident Command Post (ICP) and assist the Unified Command structure.

Resources will be distributed effectively, and vulnerable populations' needs will be met during the incident's response, recovery, and mitigation stages attributable to this organized response framework.

III. Evaluating the effectiveness of the disaster response:

In Ohio, assessing the effectiveness of disaster response to situations involving hazardous chemical spills and train derailments is a complex process that calls for specific objectives and measurements. The objectives of the assessment typically focus on limiting deaths, controlling dangerous chemicals, shielding the environment, and getting things back to normal. Data collection and analysis, comprising information from event reports, responders, and impacted populations, are essential during the response and recovery phases. Another important component is to identify “lessons learned”, which emphasizes both achievements and difficulties and involves all pertinent parties. In order to evaluate the efficacy of communication tactics and resource allocation, community feedback is taken into consideration. Response rates and crucial interventions are evaluated, and coordination and cooperation between responding agencies are closely examined. In addition to regulations and processes controlling disaster response, the environmental effect and restoration efforts are taken into consideration. In order to ensure a more effective, efficient, and responsive disaster response in Ohio, the assessment process ends with an action plan for ongoing improvement that incorporates lessons learned into training and exercises and shares outcomes with the public and stakeholders.

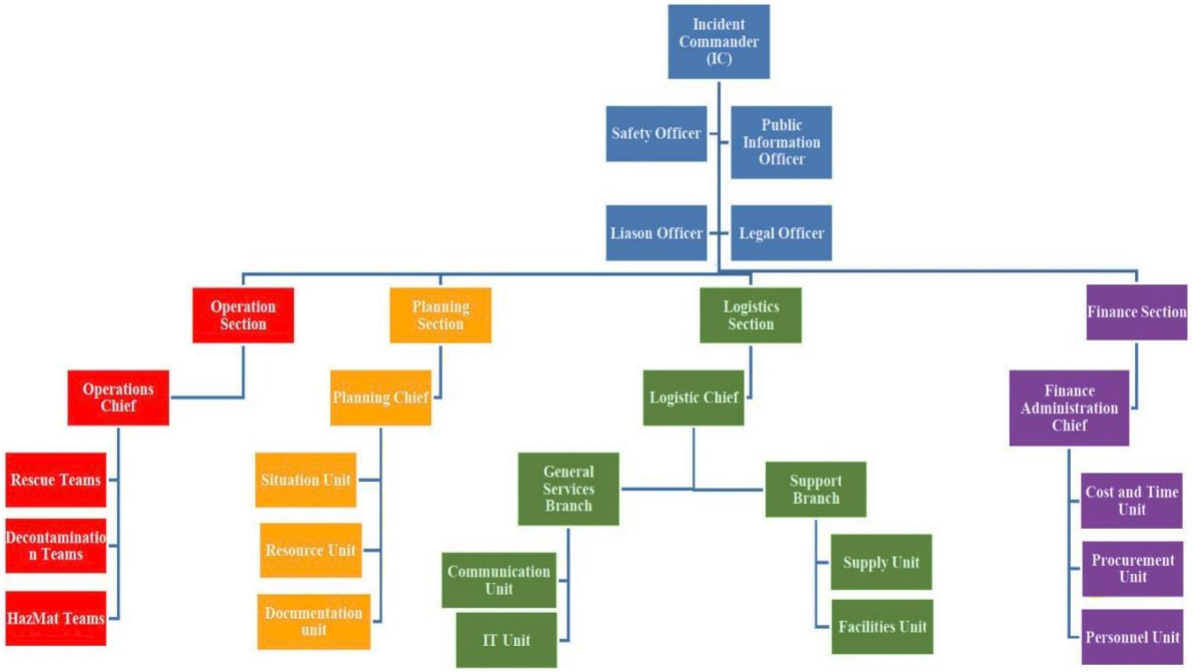
In conclusion, assessing Ohio's disaster response to chemical spills and train derailments is a thorough process that includes establishing specific objectives and criteria, gathering, and analyzing data, taking lessons from both achievements and obstacles, and incorporating input from the community. It evaluates policies and procedures in addition to resource allocation, communication, teamwork, reaction time, and environmental effect. The ultimate objective is to consistently improve response protocols, resource distribution, and coordination mechanisms in order to increase accountability and readiness, especially for the state's most vulnerable individuals.

Annex - 1 THIRA (Threat and Hazard Identification and Risk Assessment)

Natural	Technological	Human-caused
Resulting from acts of nature	Involves accidents or the failures of systems and structures	Caused by the intentional actions of an adversary
Winter storms: Ohio encounters harsh winter weather, which is marked by significant amounts of snowfall, ice conditions, and extremely low temperatures. The Great Blizzard of 1978 and Winter Storm Linus in 2015, both of which delivered significant amounts of snow, ice, and freezing rain, are two instances of the state's previous experience with disastrous winter storms. Since 1950, the National Weather Service has identified more than 500 winter storms in Ohio. With their tremendous destruction and disruption, the storms of 1913, 1940, 1950, 1977, 1978, 1994, 1996, and 2004/2005 among them left an especially long-lasting impression. **Flood/Flash Flood:** Ohio is susceptible to flooding, particularly in low-lying areas and those near rivers. Ohio has a history of flooding due to its geography, rivers, and weather patterns. For instance, the Great Flood of 1913, the Flood of the Ohio River in 1937, the Flood caused by Hurricane Camille in 1969, and the Flash Flood of 2021. Within a 16-month period in the late 1990s, the state was hit by two devastating floods. In February 1997, the first one occurred, resulting in flash and riverine flooding in 18 southern counties. A complex weather pattern in June 1998 that included tornadoes, strong storms, and flash floods hit 23 counties on a northwest to southeast axis. Floods can	**Train derailment involving hazardous materials:** Ohio is a prominent transportation center with considerable train activity. Hazardous items, such as chemicals or combustible substances, can derail trains, posing risks to the environment, such as chemical spills and fires. A train derailment in East Palestine, Ohio. On July 8, 1986, a train derailment in Miamisburg, Ohio, caused a tank car carrying 12,000 gallons of white phosphorous to burst. A phosphoric acid cloud was produced when the phosphorous caught fire. Approximately 30,000 people were evacuated because of this event, and 569 people received medical attention for a variety of symptoms. It was the biggest emergency evacuation in Ohio history as well as the biggest hazardous materials train disaster evacuation in the history of the United States. **Hazardous materials release Water /land Contamination:** Ohio includes regions where uranium contamination from mining and natural sources makes water supplies unfit for use by humans, animals, and agriculture. Risks to human health and the environment can result from this pollution of animals, crops, and drinking water supplies.	**Mass casualty due to transportation accidents:** With a substantial amount of rail activity, Ohio is a vital transportation center. Ohio often sees HAZMAT vehicle traffic because of its transportation infrastructure, increasing the possibility of chemical leaks. Ohio has a substantial road and highway system. Accidents, including injuries to auto-pedestrians, are frequent, especially in bad weather. The frequent railway traffic through Ohio raises the possibility of derailments, which might result in several fatalities. **Mass casualty severely overwhelms resources:** Ohio's healthcare facilities could not be equipped to manage a mass casualty incident, especially in rural areas that are isolated from other areas. A sudden increase of patients can strain the state's underdeveloped healthcare system, which is made worse by poverty levels.

be triggered by persistent rain, quick snowmelt, or overflowing rivers and streams. Flash floods are a serious risk to public safety because they may occur suddenly. **Drought:** Ohio might suffer drought conditions, which would affect agriculture and cause water shortages. Long-lasting droughts may put a burden on water supplies, hurting irrigation, agricultural, and drinking water supplies. In 13 southern Ohio counties in July 1995, serious drought conditions result from above-average temperatures and two weeks of dry weather. Lawns, gardens, and other urban environments suffer harm, as do agriculture. **Earthquakes:** Ohio has had earthquakes since more than 200 years ago, many of which were of "minor" size and typically centered in the Anna Seismic Zone. Northeastern Ohio, east of Cleveland, has recently experienced a lot of activity. In the event of a large-scale catastrophe, the New Madrid, Missouri fault may have a significant impact on some areas in southwest Ohio.		**Mass casualty due to intentional:** Communities in Ohio may experience gang-related violence, active shooter situations, or other types of purposeful interpersonal violence, which can cause casualties and strain local law enforcement and medical facilities. Even though there haven't been any recent instances, Ohio's government buildings and tourist destinations make it susceptible to bioterrorism and other prospective terrorist attacks. **Radiological Incidents:** The second most dangerous event in the Ohia is a radiological incident, which is the worst human-caused disaster risk. Some locations downwind from plants that absorb fallout may become permanently contaminated because of environmental effects of a nuclear accident. For many years, these places would not be suitable for farming or for human habitation.

Annex - 2 ICS Chart



Annex - 3 Community Training Plan

Training Seminar: Toxic Chemical Spill and Train Derailment, Ohio	
Objectives of your Training Seminar (What mitigation strategy are you advocating?)	Raise awareness of potential hazards, educate on preventive measures, provide information on safer housing practices, emphasize the importance of community advocacy, and encourage involvement in advocating for the up-to-date maintenance of trains and tracks. Additionally, develop community-wide emergency response plans for chemical spills and train derailments in Ohio.
Estimate Length of Training	Approximately two hours in duration
Target Audience and max size of audience.	The target audience for this training seminar includes community members, homeowners, renters, local business owners, and community leaders. The maximum size of the audience would be approximately 200 participants per session.
Who would be a good candidate (e.g., structural engineer, health dept. official, first responder?) as Facilitator of this session? Why?	An ideal candidate to facilitate this seminar would be a local emergency management expert or a public health official with expertise in disaster preparedness. Their knowledge of local risks, resources, and strategies would make them effective communicators.
What do you want community members to do as a result of their attending this session?	Implement preventative measures at their homes and businesses to reduce vulnerabilities to chemical spills and train derailments. Actively participate in the development and regular practice of community-wide emergency response plans. Advocate for and implement structural improvements to their homes to increase resilience to potential disasters. Promote awareness and preparedness strategies among their neighbors and colleagues.
Strategies to increase community uptake of your mitigation (We have lots of useful links for checklists on the Course Home page under the Important Links page.)	1. Free Home Safety Assessments: Provide free home safety assessments to interested community members, identifying potential hazards, and recommending low-cost remedies.

List the ones you think might be useful (in the appropriate language) or provide a title or two of a list or handout that you think would be good to give out to attendees.	2. Community Workshops: Organize workshops on building safer rooms or installing safety features at home, offering step-by-step guidance. 3. Distribution of Preparedness Kits: Distribute preparedness kits to participants, containing essential items and information to use in case of an emergency. 4. Interactive Exercises: Conduct interactive drills and exercises that simulate the response to chemical spills and train derailments, enhancing practical understanding. 5. Advocacy Handout: Supply a handout underscoring the community's role in ensuring resident safety. Detail ways attendees can actively advocate for current train and track maintenance, enhancing community safety.

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