East Palestine Train Derailment
After-Action Report and Improvement Plan

Final Report

August 2024

Village of East Palestine, Ohio

MissionCriticalPartners

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Executive Summary

Within the emergency management event life cycle, after-action reviews focus on real-world incidents and outcomes by identifying what happened, why, and the effects, and developing strategies to mitigate future impacts. Recognizing the importance of such a review, the Village of East Palestine, Ohio, (Village) identified the need for an independent trusted advisor to assist in the review of the February 3, 2023, train derailment from a local perspective, engaging Mission Critical Partners, LLC (MCP) to serve in this role.

MCP has incorporated our subject-matter experts' (SME) analysis of the incident into this After-Action Report and Improvement Plan (AAR/IP), including actionable recommendations that the Village can implement to improve future operations and emergency response outcomes if, unfortunately, another hazardous incident occurs.

This AAR/IP includes six specific areas of focus, shown, below as they relate to incident preparedness, response, recovery, and mitigation.

The incident analysis spanned five months. During that time, MCP collected both quantitative and qualitative data by conducting in-person and remote interviews with stakeholders and staff—each of whom had subject-matter-specific responsibilities.

The derailment caused a significant environmental, safety, and hazardous materials threat to the community and the responders who protect it. The incident gained national attention and initiated a massive response that included thousands of personnel from local, state, federal, and private-sector agencies.

The incident response efforts demonstrated effective teamwork, commitment from staff working extended hours, and support from local and regional partners. However, challenges arose due to limited staffing, leading telecommunicators to make real-time, unplanned decisions. The lack of planning and training in managing large-scale events like train derailments, although offered as recently as October 2023, and issues with radio communications (poor quality, inaudibility, and channel over-saturation) posed additional obstacles. Interagency coordination suffered due to inadequate interoperability across the county.

Given the incident's public health impact, timely and accurate public information was crucial. Columbiana County Emergency Management Agency (CCEMA) utilized digital channels such as the Wireless Emergency

Notification System (WENS), the Integrated Public Alert and Warning System (IPAWS), and social media for the rapid dissemination of information.

However, the response faced delays in establishing a unified command structure, impacting coordination among responders. Infrequent updates impeded situational awareness and fragmented mutual-aid requests, and the absence of a box-alarm system further complicated matters. Firefighter safety accountability remained unclear, and insufficient training on incidents and incident command affected overall effectiveness.

Given the geographical location of East Palestine and limited access to resources, it is essential that stakeholders and staff work together to prepare, respond, recover, and mitigate future incidents. Recommendations for improvement include additional joint planning, training and exercises, and enhancements to coordinated messaging across jurisdictions and with state and federal agencies. Leveraging environmental protection expertise for handling major spills, air and water monitoring during chemical incidents, and responding beyond local capabilities is crucial for responder and resident safety.

It is relatively easy to suggest alternative courses of action after a tragic event when in a controlled environment and as more information is brought to light. However, MCP has made several actionable recommendations that the Village and its partners can implement to improve future operations and emergency response outcomes overall. Admittedly, some of the recommendations are more complex and costly and require detailed planning and execution. Stakeholders are encouraged to continue to work collaboratively to build a stronger emergency response system.

1 Introduction and Incident Overview

The Village of East Palestine (Village) is a community in eastern Ohio with 4,671 residents according to the 2020 census. The Village is in Columbiana County (county geographically) and closely situated on Ohio's border with Pennsylvania.

As described in the National Transportation Safety Board (NTSB) hearings:

> *On February 3, 2023, about 8:54 p.m. local time, eastbound Norfolk Southern Railway, general merchandise freight train 32N of the 1st (Train 32N), derailed on main track 1 of the NS Fort Wayne Line of the Keystone Division in East Palestine, Ohio. 38 rail cars derailed and a fire ensued which damaged an additional 12 cars. There were no reported fatalities or injuries. A 1-mile evacuation zone surrounding the derailment was implemented by first responders due to the release of hazardous materials. The evacuation affected approximately up to two thousand residents. The weather at the time of the accident was nighttime, 10° and clear with no precipitation* [sic][1]

Figure 1: East Palestine Train Derailment

The derailment caused a significant environmental, safety, and hazardous materials threat to the community and the responders who protect it. The incident gained national attention and initiated a massive response that included thousands of personnel from local, state, federal, and private-sector agencies.

[1] Group B - Exhibit 3 - Accident Synopsis-Rel.pdf

Within the emergency management event life cycle, after-action reviews focus on real-world incidents and outcomes by identifying what happened, why, and the effects, and developing strategies to mitigate future impacts. Recognizing the importance of such a review, the Village identified the need for an independent trusted advisor to assist in the review of the train derailment from a local perspective, engaging Mission Critical Partners, LLC (MCP) to serve in this role.

MCP has incorporated its SMEs' analysis of the incident into this After-Action Report and Improvement Plan (AAR/IP), including actionable recommendations that the Village can implement to improve future operations and emergency response outcomes if, unfortunately, another hazardous incident occurs.

MCP shares the Village's and Columbiana County's passion for public safety and dedication to fulfilling their missions, and respects their commitment to identifying strengths, weaknesses, and potential areas of improvement that can only emerge with an independent review of the incident.

The scope of this review focuses on the phases of emergency management shown above. Although this AAR/IP does not address specific tactical-response-level issues pertaining to hazardous materials, it focuses on:

The incident analysis spanned five months. During that time, to gain an in-depth understanding of incident details ,MCP collected both quantitative and qualitative data by conducting in-person and remote interviews with stakeholders and staff, identified below, each of whom has subject-matter-specific responsibilities.

Individual Interviews and Focus-Group Sessions with Stakeholders

During a four-day site visit, MCP held virtual and onsite individual interviews and focus-group sessions targeting those directly and indirectly involved in incident response. The focus groups involved a cross-section of staff and stakeholders including elected and appointed officials; field responders; county, state, and federal officials; and community members:

- Community group
- Communications personnel
- Emergency management personnel
- Law enforcement personnel
- Fire and emergency medical services (EMS) personnel
- Commissioner and drone pilot
- Public information officers
- City administrator (former finance director)
- Ohio Environmental Protection Agency (EPA) and United States (U.S.) EPA

MCP guided participants through introductions and a project overview, followed by a series of structured questions. These questions were designed to identify themes and trends that could be balanced against the statistical data and used to uncover practical and realistic recommendations. The sessions were structured around preparedness, response, recovery, and mitigation as they related to the following:

- Communications
- Incident command
- Liaison efforts
- Interstate mutual aid
- Interactions with federal, state, regional, and private-sector agencies
- Interpersonal skills and personal performance

Data Collection and Analysis

At MCP's request, CCEMA provided incident data relevant to the study. The requested data included but was not limited to pictures, timelines, communications records, joint information center (JIC) coordination call notes, media briefings, incident action plans (IAPs), incident status summaries, community newsletters, briefing documentation, telephone and radio audio recordings, and NTSB data and news articles. No confidential data was requested or provided.

2 Findings, Analysis, and Recommendations

The Key Findings sections summarize the major findings, which are then supported by the Overview and Analysis areas, which contain information garnered through data collection and research as well as the analytical portions of the study that measure findings to national standards, best practices, and MCP's industry experience and knowledge.

- Standard—something established by authority, custom, or general consent as a model or example[2]
- Best Practice—a procedure that has been shown by research and experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption[3]
- Industry Experience—typically requires a minimum of ten years of combined education, work experience, and specialization in a respective industry or market segment

The information acquired by MCP during this assessment fell into two categories: hard numbers (quantitative data) and opinions and anecdotal input (qualitative data). Where the information was quantitative, MCP relied on established public safety industry metrics to assess and evaluate the incident response. Where the data was qualitative—or where metrics had not been established—MCP drew upon our collective industry experience and awareness of best practices to create those metrics and assess the incident response. Throughout this report, MCP endeavors to make clear where analysis and findings are based on measurable, quantitative data and where our findings are drawn from inherently more subjective evaluations.

The Recommendations sections throughout the report are designed to significantly improve operations during a similar or other large-scale event. Some recommendations are improvements that have very little financial impact, such as the development of joint planning, operational procedures, and training. Other recommendations have financial implications, such as technology, infrastructure, and consolidation.

The goal is to provide findings and recommendations that will improve the Village's ability to handle similar incidents in the future, and, at the same time, better prepare the East Palestine Communications Division, the public safety answering point (PSAP) for the Village[4], and regional partners for the more common, smaller incidents that are handled every day.

2.1 Public Safety Communications and Public Safety Answering Point Operations

2.1.1 Key Findings Summary

Key Findings

- The operational strengths include the teamwork, willingness of staff to work extended hours, and aid from local and regional partners.
- Telecommunicators[5] made real-time unplanned and unscripted decisions to support communications operations during the incident response.

[2] "Standard," Merriam-Webster, 2020. https://www.merriam-webster.com/dictionary/standard
[3] "Best Practice," Merriam-Webster, 2020. https://www.merriam-webster.com/dictionary/best%20practice
[4] The PSAP is responsible for receiving and dispatching calls for police, fire, and EMS agencies for three jurisdictions and eight departments.
[5] East Palestine dispatchers are certified as public safety telecommunicators (PSTs) and emergency medical dispatchers.

- One telecommunicator was on duty at the time of the incident, with limited capacity to manage the influx of calls and multiple primary radio frequencies, as well as monitoring tactical radio channels, which are not recorded.
- The telecommunicators had no specific training in how to manage a large-scale event such as a train derailment (other than basic NIMS/ICS training, which addresses all incidents but not large incidents specifically).
- Operations within East Palestine Communications were severely hampered by radio communications including poor quality, unintelligibility, the lack of control, and over-saturation on the primary radio channels during the incident.
- There is a lack of interoperable radio communications in the county, including within the jurisdictions served by East Palestine Communications.
- The lack of planning impacted safe and efficient PSAP operations during the incident.

2.1.2 Overview and Analysis

The train derailment taxed East Palestine PSAP operations due to the sheer magnitude of the incident. With one telecommunicator on duty at the time and limited capacity to handle the workload, the influx of simultaneous priority emergency calls and radio traffic far exceeded the PSAP's capacity. Radio traffic was chaotic, uncontrolled, and of low quality during the initial vital hours of the incident. With no pre-planned responses, Communications relied heavily on command direction for extended mutual aid (outside of Columbiana County); however, that quickly became a request for regional agencies "to send everything they have," complicating PSAP operations and testing the strength of Communications staff. According to the initial dispatcher, dispatch staff relied heavily on personal cellular phones to contact off-duty officers, and notifications and requests for help were unautomated, unrecorded in some cases, and cumbersome.

Outside of the significant communications and operational hurdles in the PSAP, the telecommunicators did the best they could and pulled together to get the right resources to the right location in a timely fashion. Communications also worked with fire department staff to ensure that there was coverage for the routine calls outside of the train derailment.

The Village is fortunate that there were no injuries or loss of life due to the derailment; according to the initial dispatcher, it would have been difficult to dispatch additional first responders to the scene in a timely fashion or handle other major emergencies in the village, given the saturated and often inaudible communications that were occurring on the primary and secondary fire radio frequencies.

East Palestine Communications is one of five primary PSAPs operating in the county. East Palestine Communications is responsible for providing 911 call-handling and primary dispatch services for the following agencies:

- East Palestine Police Department (EPPD)
- East Palestine Fire/EMS Department
- New Waterford Police Department
- New Waterford Fire Department/EMS
- Middleton Township Fire/EMS Department

Communications is a division of the East Palestine Police Department, with the chief of police having direct oversight. There is generally one telecommunicator on duty 24/7.

The center has two workstations—both fully equipped with computer-aided dispatch (CAD), 911 call-handling equipment (CHE), and radio. Telecommunicators are responsible for one primary law enforcement frequency and one primary fire/EMS frequency. During peak periods, Communications has responsibility for two to three law enforcement units.

Communications operates in a vertical configuration, with the telecommunicators performing call-taking and dispatching functions simultaneously.

The annual incoming call volume[6] is approximately 13,000 (an average of 1.5 calls per hour) and the annual combined law enforcement, fire, and EMS incident volume is approximately 10,500 (one per hour).

In addition to answering 911 lines and dispatching field responders, telecommunicators are responsible for answering all incoming police department administrative calls (including after-hours calls for the Village), greeting the public in the lobby, and monitoring security cameras for village locations (e.g., schools and the interior and exterior of the police department facility). The telecommunicators also have jailer responsibilities.

The 911 calls coming into the PSAP during the incident were handled appropriately given the technology and staffing that was in place at the time. At the time of the incident, Communications had only one telecommunicator—with seven months of dispatch experience—on duty. A second off-duty telecommunicator immediately responded to the PSAP after seeing emergency vehicles responding to the incident. Additional staff were called in to support as well.

The telecommunicator on duty at the time of the incident, who was working a double shift, reported a rapid escalation of inbound calls and radio traffic—simultaneously handling both—and little control of fire scene communications at the onset of the incident. Initial 911 callers reported an explosion, including some reports that the gas station had exploded.

Operational Strengths

From a PSAP operational perspective, the operational strengths were the teamwork, willingness of staff to work extended hours, and aid from local and regional partners. Telecommunicators acted as a cohesive team and were decisive in managing issues within the dispatch system. Telecommunicators made a concerted effort to receive and record pertinent information from callers and get off the phone quickly to answer more incoming calls. Telecommunicators benefitted from the extra staff that came in to support the incident; once that occurred, job tasks were divided into more dedicated positions—911 call-taker, administrative call-taker, and dispatcher—which aided in a more organized and manageable workflow. This willingness to support each other expanded outside of the village as staff reported that numerous agencies contacted Communications and volunteered their support and various services to East Palestine. Although chaotic at the onset of the incident, from fire scene support to handling calls outside of the incident, to security, traffic control, and other support, the region came together.

East Palestine does not have a policy to guide telecommunicators during a train derailment incident. Nonetheless, telecommunicators made real-time decisions to support communications operations during incident response. Staff reported that they were “learning as they went along,” but overall, Communications did the best it could with what it was dealing with, which far exceeded the capacity of the PSAP and the region.

[6] 911 wireline, 911 wireless, Voice over Internet Protocol (VoIP), abandoned, and 10-digit

Areas for Improvement

Staffing

One telecommunicator, working a double shift, was on duty at the time of the train derailment. Although it is not practical to staff for an incident of this nature, one telecommunicator on duty is not an industry-best practice because one person cannot simultaneously handle priority radio traffic and phones without a detrimental impact on another task.

The *Standard for Emergency Services Communications*, published by the National Fire Protection Association (NFPA) as NFPA 1225, states in Section 15.3.1: "There shall be a minimum of two telecommunicators on duty and present in the communications center at all times."

Best-practice models for PSAP operational configurations indicate that a clear configuration with identified separate responsibilities is more efficient, as it reduces the complexity as well as the risks associated with multitasking (more accurately known as task-switching). MCP conducted a consolidation feasibility study in 2021 for Columbiana County and recommended full consolidation of the PSAPs operating within the county, including East Palestine Communications. This staffing issue was a key finding and one of the drivers for MCP's consolidation recommendation—*to eliminate occurrences where only one telecommunicator is on duty at any given time.*

Training

East Palestine telecommunicators have not had training relevant to railway incidents. At 23 minutes into the incident, the telecommunicator was told to contact Norfolk Southern to determine the contents on the train. Norfolk Southern stated that "there are hazardous materials scattered throughout the train" and offered to send the consist[7] via fax or email to the PSAP. At no time did Communications ask for a quick rundown of the hazardous materials on the train. It is not known if the consist was received by Communications and relayed to incident command.

Additionally, telecommunicators (and the police department as a whole) were not aware of the AskRail cellular phone app that provides information about hazardous materials carried on rail cars. According to the AskRail website:

> *The AskRail app, launched in 2014, is a collaborative effort among the emergency response community and all North American Class I railroads. The app provides nearly 2.3 million first responders — from 49 states, the District of Columbia and eight Canadian provinces — with immediate access to accurate, timely data about what type of hazardous materials a railcar is carrying so they can make an informed decision about how to respond to a rail emergency. Thousands more first responders are covered by their local Emergency Communication Center's use of AskRail data. Railroads work with first responders to continually update the app with new features and enhancements.*[8]

[7] A consist describes the composition of the train (i.e., freight, car types, etc.).
[8] https://askrail.us/

Radio Communications

PSAP operations during this incident were severely hampered by radio communications. Initially, most fire radio communications were handled on the single primary fire channel, creating the following challenges for Communications:

- Inability to transmit and receive priority (and non-priority) radio traffic
- Exceeded channel saturation
- Loss of and lack of accountability by Communications and incident command

Radio quality was subpar, with multiple inaudible transmissions, including incident command's use of portable radios instead of a mobile radio. Signals were weak and often difficult to understand, which was exasperated by the volume of radio traffic and the lack of coordinated communications at the onset of the incident. Many transmissions were scratchy, cutting in and out, or totally unintelligible. This hindered communications on scene and in the PSAP. Issues with garbled transmissions and the inability to transmit over radios during the response hampered information sharing.

During the first hour of the incident, communications between the scene and the PSAP were congested, confusing, and chaotic. In addition to a lack of radio discipline, several on-scene industry standards and best practices were lacking or altogether missed, which added to the lack of control and negatively impacted PSAP operations during this incident. Affected PSAP operations include:

- Incident status updates from incident command
- Incident command location to direct mutual-aid companies for assignment
- Staging location for incoming mutual-aid companies prior to assignment

The absence of a staging location resulted in Communications providing the primary location of the incident to mutual-aid companies, leading them to head to a congested and highly dangerous area with no pre-staging. Without an incident command location, companies arrived on scene and had to seek out assignments. The lack of status updates from incident command negatively impacted the telecommunicator's situational awareness and ability to prepare for next steps and requests in the escalating incident.

There were also significant challenges with the Ohio Multi-Agency Radio Communication System (MARCS) radios (which operate on 800 megahertz [MHz] frequencies) that were brought in during the incident. Utilization of MARCS would improve interoperability across the state (currently utilized by the Columbiana County Sheriff's Office). The agencies predominately operate on legacy very high frequency (VHF) and ultra-high frequency (UHF) radio systems. Fire and rescue personnel reported that the coverage provided by the existing MARCS infrastructure[9] in the area of the incident does not enable clear communications. Responders were provided MARCS radios when they evacuated to the New Waterford Police Department, but they were reported to be virtually useless because they did not have adequate coverage and could not hear agencies calling them on MARCS. (See additional findings related to the MARCS infrastructure below).

Interoperability

The lack of interoperability and shared radio frequencies posed a challenge during this incident. Communications and field responders used five radio channels:

- Law Dispatch (primary)

[9] A MARCS tower is located within the village limits.

  - East Palestine law dispatch

- Local Law TAC (tactical)
  - East Palestine local law

- Fire Dispatch (primary)
  - County fire dispatch
  - East fire dispatch

- Local fire ground
  - East Palestine FD Fireground (tactical)

- Ohio State Police (OSP) – Dispatch
  - Lisbon MARCS (statewide)

Most mutual-aid agencies with disparate radio systems had to have a member or command staff at the command post to relay messages on their own radio system, which impacted Communications' ability to relay information effectively and efficiently through radio communications. It is important to highlight that tactical fire radio channels are not recorded.

Currently, there is not a single countywide radio system that supports all field responders throughout Columbiana County. The current configuration of agencies operating across various bands and frequencies limits the ability for responders to communicate when on an incident. Two studies—an interoperability study in June 2021[10] and MCP's consolidation feasibility study—have been conducted in recent years that identified interoperability as a shortcoming in Columbiana County (including East Palestine). Both studies highlighted limited interoperability among field responders in the county, which hampers communications among local, regional, and state agencies. According to the interoperability study, there are at least 20 primary radio channels in use throughout the county, with each PSAP operating on separate channels with limited interoperability.

> *"… a significant effort is needed to reduce the number of individual radio channels/frequencies in use by each PSAP and responding agencies. It may be possible to use some existing base station equipment. Several existing VHF sites provide good coverage throughout the county; however, a more detailed radio study is needed to determine the feasibility of using any of the existing VHF frequencies in a countywide trunked or simulcast radio system. Consideration must be given to the impact on neighboring counties using the same frequency band and the potential for interference. It is difficult to develop a ROM cost for radio until a detailed radio assessment is completed."*
>
> *–Mission Critical Partners, January 2021 Columbiana County Consolidation Feasibility Study*

[10] CCEMA Columbiana County Communications Interoperability Study June 25, 2021

Telephones

Communications relied heavily on a personal cellular phone to communicate with EPPD officers because it was difficult to communicate over the saturated law enforcement channel. The telecommunicator on duty had saved contacts in their personal device, making it easier to reach officers than over the air or via a ten-digit telephone line. These personal devices were not recorded.

Other Communications Challenges

Original reports of the train derailment were reported—incorrectly—as an explosion at Leake Oil Company, a local gas station. This business name was used on multiple calls to request mutual aid from regional agencies; this caused unintentional confusion because the business name was interpreted as "leaked oil." This issue might have been mitigated with a staging area separate from the incident location and the use of an intersection or a street address and not the business name.

There is no internal callback notification system that would have made it easier for the telecommunicator to recall dispatch and law enforcement staff. As noted in this report, Communications relied heavily on personal mobile phone devices and made most notifications individually, which delayed the process and was complicated by high-priority tasks that were occurring simultaneously. According to staff, the CAD system is capable of sending a mass text to each officer—unless that functionality has been removed.

Staff also noted that they were unprepared for the influx of inbound calls on emergency lines when the evacuation notice went public. Residents made inquiries via 911 about whether they should leave their houses, and the number of calls exceeded the PSAP's capacity and tied up emergency lines a second time after the initial incident occurred.

Procedures and Protocols

A procedure exists to "clear the air" for emergency traffic; however, Communications could not gain control of the air to clear it. Clearing the air should have occurred at the onset of the incident and before assigning tactical channels for on-scene operations. This would have allowed Communications and field units to exchange vital information over the radio, which, in many cases, was ultimately missed, skipped entirely, or handled over the phone (personal mobile device or administrative phone line) because of radio congestion.

Pre-planning

The East Palestine Fire Department does not have pre-determined response plans (e.g., pre-planned box card system) that would guide what agencies, equipment, and manpower need to respond to an incident. When the train derailment—a major fire incident—was dispatched, the telecommunicator dropped the tones for the East Palestine Fire Department and provided the location and nature of the incident. With no interoperability across the region, as previously noted, using the radio system to request mutual aid was not an option. The first command officer en route told Communications what additional mutual aid they needed for the incident, which in this case was a non-specific request to "tell them to bring whatever they can." The telecommunicator, in turn, contacted the mutual-aid agencies outside of Columbiana County via phone and requested "whatever they could send." Aside from this being a labor-intensive and time-consuming process, it quickly created a chaotic scene with little organization or resource management. Aside from creating a substantial accountability issue, this unscripted, unguided freelance method of dispatching mutual aid was further complicated when command did not immediately identify a staging location.

While the Ohio Fire Chiefs' Association has a statewide response plan, the telecommunicators were unfamiliar with it and had no training on how to apply or access the plan.

Continuation of Operations Procedures

Communications has a continuation of operations standard operating procedure (SOP)[11] that identifies where the PSAP will be evacuated. The SOP refers to a checklist of items that are housed at each position and will be relocated to the evacuation site. However, this SOP is not exercised regularly, and staff reported that when evacuated, they determined what resources would be needed without consulting a pre-determined checklist. This same procedure requires an after-action review of the evacuation, which did not occur.

According to the evacuation plan for the East Palestine Police Department including Communications, the evacuation location is the Clark Street fire station; however, that location was too close to the incident. When the police department was forced to evacuate, Communications was ultimately relocated to the New Waterford Police Department. While telecommunicators were able to access cloud-based CAD from New Waterford, they had no access to the 911 telephone system and had to use portable radios and a portable mobile radio with an encoder for fire department toning and dispatching. No 911 telephone system means that the dispatchers relied on 10-digit emergency telephone numbers for emergency and non-emergency calls. The only telephone lines that were forwarded to New Waterford were the administrative phone lines because New Waterford does not have the capability to receive 911 calls from East Palestine. With no access to 911 lies, all 911 calls were routed to the Columbiana County Sheriff's Office PSAP.

The CCEMA facility is outfitted to serve as a backup PSAP for any county PSAP; it is also the host data center location for the CHE and CAD systems. This facility has been offered to the county PSAPs as a potential alternative facility should the need arise to evacuate their existing location. Within the emergency operations center (EOC) are two workstations equipped with CHE, CAD, and administrative phones. While the workstations do not have radio consoles, there is access to all dispatch frequencies from the radio communications room. According to staff, it is likely that geography had much to do with the decision, as CCEMA is a 20-minute drive from East Palestine and New Waterford is under five minutes.

Training

Norfolk Southern had conducted a tabletop training exercise on October 27, 2022, for a train derailment with a hazardous materials release. While representatives from the State and Columbiana County emergency services agencies, including members of the East Palestine Fire Department and CCEMA participated in the exercise, Communications did not. Telecommunicators on duty at the time of the incident did not have any specific training on handling a train derailment incident or other high-risk low-frequency event, outside of what is included in the basic PST training they receive.

Challenges and Obstacles to Improvement

Staffing

Given Communications' size, staffing will continue to be a challenge until there is a full consolidation in Columbiana County. At the time of the incident, Communications' authorized strength was three full-time and seven part-time employees. Although it is not practical to staff a PSAP to be able to handle an incident of this magnitude without additional support coming in, achieving a more efficient consolidated operation with a minimum staffing level of more than one telecommunicator on duty at any given time is reasonable.

[11] Revised date 01MAY2018

Staffing levels also impact having the available resources to develop and execute improvements articulated in this report.

Funding

Competing priorities and the lack of available funds are the biggest roadblocks to mitigating some of the challenging areas articulated in this report.

Technology

Creating the ability to effectively communicate with all responders onsite during significant incidents, such as the train derailment, will take a substantial investment. If East Palestine and most of the neighboring communities remain on legacy radio systems and not MARCS, interoperability will continue to be an obstacle. Even operating on MARCS is a challenge because its infrastructure needs to be expanded in the region.

Resources

The East Palestine Police Department has limited staff to support these recommendations. Although some of the recommendations may not incur direct costs, they still require staff resources, time, effort, skills, and knowledge to develop and execute effectively.

2.1.3 Recommendations

The first step in improving the current state is to identify areas of risk and translate them into opportunities. MCP is confident that the public safety leadership in East Palestine can set goals and execute them for measurable results. These goals created should be visited often to ensure progress toward the desired results.

The following prioritized recommendations lend themselves well to improving PSAP operations during a significant event or, simply, a routine incident that occurs every day. An investment into East Palestine Communications should be made to improve emergency response outcomes. Whether mitigating occurrences with one telecommunicator is on duty, increasing training, pre-planning, developing SOPs, or investing in technology and infrastructure, there are lessons to be learned from this incident.

Table 1: Public Safety Communications and PSAP Operations Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	In alignment with the 2021 feasibility study, Columbiana County stakeholders should revisit and develop a path forward to consolidate the five PSAPs into one cohesive organization to eliminate occurrences where there is one telecommunicator on duty, among numerous other reasons.	• Virtualized operating environment between the five PSAPs in Columbiana County. • Full physical consolidation of all five PSAPs into one facility and consolidated operation.	• Form a joint consolidation team comprised of staff and agency members with clear roles and responsibilities to guide the transition. • Develop a thoughtful and practical transition plan to consolidate all five PSAPs into one facility.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			• Achieve full virtualization or technical consolidation within 18 months. • Achieve full physical consolidation within three years.
2	Coordinate and conduct interagency, scenario-based training that tests and incorporates non-tactical elements, such as dispatch operations.	• A training rhythm for non-tactical training elements. • Performance, safety, and accountability improve. • Alignment with national standards and best practices, including the National Incident Management System (NIMS) and the Incident Command System[12] (ICS).	• Within a year of report acceptance, a suggested implementation timeline is: – Within one month, form a joint interagency workgroup to develop scenario-based training that tests and incorporates non-tactical elements such as dispatch operations. – Within three months, develop a minimum of two scenario-based training courses with learning objectives that test and incorporate non-tactical elements such as dispatch operations. – Within three months, identify the training methodology—simulation, tabletop, workshop, classroom, or various drills (e.g., response drills,

[12] "ICS is a standardized approach to the command, control, and coordination of on-scene incident management that provides a common hierarchy within which personnel from multiple organizations can be effective." National Incident Management System (fema.gov)

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			communications drills, others). – Within six months, identify training dates, times, and participants for interagency non-tactical training. ▪ Include an AAR/IP following each exercise
3	Expand radio infrastructure and mitigate interoperability challenges. In lieu of transitioning to MARCS, consolidate radio channels on a countywide radio system.	• A plan exists to consolidate radio channels with plans for a countywide radio system. • A practical plan exists to use MARCS during a similar incident. • Optimal interoperability and radio coverage. • Expansion of the MARCS infrastructure.	• Complete a study on the impact costs to transition to MARCS. • Develop a plan for a countywide radio system with consolidated radio channels. • Work with elected local, county, and state officials to fund the expansion of MARCS.
4	Develop an internal policy to address radio communications procedures during a significant event, including communications between unified command and dispatch operations.	• Creation of radio communications procedures based on industry standards and best practices and lessons learned from the derailment incident. • Improve field responder safety and accountability with improved radio communications. • Improve and streamline coordinated radio communications.	• Within a year of report acceptance, a suggested implementation timeline is: – Within one month, form a joint interagency workgroup to audit and develop radio communications procedures. – Within three months, identify applicable standards and best practices, including NIMS and ICS. – Within six months, attain sample radio communications

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			procedures from regional partners. – Within 12 months, update existing and develop new radio communications procedures, citing relevant standards and best practices. – Within 12 months, develop a training strategy for local and regional responders (law enforcement, fire/EMS, EMA) and PSAP personnel. – Within 12 months, implement, train, and exercise local and regional first responders and PSAP personnel on the new procedures. – Within 12 months, identify and maintain a rhythm for updating the radio communications procedures.
5	Engage in continuity of operations planning.	• Continuity of operations (COOP) plan that aligns with FEMA[13] Continuity Guidance Circular 1 (CGC 1) and CGC2[14], and FCC[15] Emergency Planning: Public Safety Answering Points.[16]	• Within six months, review the PSAP's continuation of operations policy and identify gaps. • Within nine months develop a COOP plan for Communications that will replace the continuation of operations policy.

[13] Federal Emergency Management Agency
[14] https://www.fema.gov/emergency-managers/national-preparedness/continuity
[15] Federal Communications Commission
[16] https://www.fcc.gov/research-reports/guides/emergency-planning-public-safety-answering-points

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
		• An exercise rhythm of at least twice a year using scenario-based training for dispatch staff and field responders. • COOP plan is exercised regularly and staff are familiar with it.	• Within nine months develop COOP plan training and integrate it into the new hire training and continuing education curriculum. • Within 12 months, develop an exercise schedule to exercise the COOP plan with telecommunicators and field responders at least twice a year. – Include an AAR/IP following each exercise
6	Engage in coordinated cross-agency planning sessions.	• Improved field responder safety and accountability though improved radio communications. • Improved and streamlined coordinated radio communications.	• Within three months, establish an interagency planning group to assist with developing joint procedures and conducting joint training on responses to low-frequency, high-risk events.

2.2 Fire/EMS

2.2.1 Key Findings Summary

Key Findings

- Incident command was unintelligible at times due to portable radio usage.
- A unified command structure was slow to be initiated.
- The Communications Division was rarely updated.
- Requests for mutual aid were piecemealed.
- There is no established box alarm system.
- No task force was established.
- Neither Level I nor Level II staging was established.
- It does not appear that accountability for firefighter safety was established.
- Training on rail or high-hazard incidents and incident command was lacking
- Units responded directly to the scene without an understanding of the incident itself.

2.2.2 Overview and Analysis

Prior to 9:00 p.m. on February 3, 2023, the East Palestine Fire Department was dispatched to a train on fire at the rear of Leake Oil on East Taggert Street. The original dispatch was a solo departmental response. The East Palestine Fire Department responded, as did Deputy Chief Gorby, who was out of town but responded in his personal vehicle. As the units were dispatched to what they believed was a train fire—and not a derailment—the units went directly to the scene and discovered a large fire and an extensive derailment.

Deputy Chief Gorby arrived in his personal vehicle with his wife; he instructed her to take the vehicle and leave, which left the Chief without a mobile radio or command vehicle.

Deputy Chief Gorby oversaw all firefighting efforts from this point forward until the arrival of Chief Drabick who responded from northeast Pennsylvania.

Approximately ten minutes after dispatch, Deputy Chief Gorby requested mutual aid from two neighboring stations, and 12 minutes into the incident requested a hazardous materials team. However, it was understood that the first-in engine asked for mutual aid prior to the 11-minute mark but this request was not heard on the audio recording. During this time, water was being used to cover exposures at Leake Oil along with some effort to extinguish visible fire on the train. Thankfully, winds were light and blowing southwest to northeast.

Deputy Chief Gorby and other personnel tried to locate the train engineer, but efforts were unsuccessful, as the train engines were being manually decoupled and moved east away from the scene.

Communications was requested to contact Norfolk Southern to determine what the train was carrying; this was requested 23 minutes into the incident. Norfolk Southern stated that “there are hazardous materials scattered throughout the train” and offered to send the consist via fax or email to the PSAP. At no time did Communications ask for a quick rundown of the hazardous materials on the train. It is not known if the consist was received by Communications.

Understandably, during the first 30 minutes of the incident, there was confusion between the scene and Communications. At no time during the first hour was incident command’s location or a precise update on the conditions relayed to Communications. This affected mutual-aid response as Communications lacked situational

awareness. While a true command structure was intended, it was not effective, as many transmissions were scratchy, cutting in and out, or totally unintelligible as portable radios were being used. This hampered both communications on scene and in the PSAP.

During the incident, requests for additional resources continued. The requests were piecemeal and created an accountability issue later. Many requests were voiced as “tell them to bring whatever they can,” which created an issue for Communications when it called other PSAPs and asked them to “send whatever.” While this incident would challenge any fire department, a pre-planned box card system for response would have greatly improved resource management. Calling additional alarms or, as an example, a tanker task force would have relieved the burden on command staff to determine who to call.

With the multitude of units responding to East Palestine, at no time were staging or rally points created. All requests for mutual aid were given the original address of the incident on East Taggert Street. Thus, all units responded there unless directed elsewhere for an assignment. Early in the incident, this created an environment of “freelancing” by departments that were not receiving direct orders. Disparate radio systems hindered direct communications; eventually, most mutual-aid agencies with disparate radio systems had to have a member or command staff at the command post to relay messages on their own radio system.

The biggest high-hazard risk in East Palestine is the rail system. Twenty-plus trains travel through the village every day at speeds exceeding 40 miles an hour. Prior to the derailment, training on rail incidents was minimal for the fire department and public safety in general. NIMS, ICS and Hazardous Materials Awareness or Operations training were not required unless an individual wanted to attain Firefighter I status in Ohio. Minimally, the only requirement to be a firefighter in Ohio is a 36-hour certificate program. From that point, the respective fire department chief is responsible for setting the training standards. Today, training in East Palestine is moving forward with NIMS, ICS, and hazardous materials. Chief Drabicks' leadership is evident with this push to train at a higher level than what is required. This is good to see.

EMS personnel were onsite during the incident and mainly assisted with issues during the evacuations such as instances of non-ambulatory or oxygen-supported needs. It was difficult to ascertain how many EMS units were onsite or if they had a role in the unified command structure for the duration of the incident.

The incident itself was free of injury for railroad personnel, the responders and public, which was remarkable given the gravity of the situation.

Operational Strengths

The East Palestine Fire Department’s response was prompt and consisted of approximately 25 members. All members performed to the best of their abilities and some at great risk to themselves. On-scene leadership was open to suggestions and advice. No one had the attitude or mindset that it would be one person’s way or else. Although some things were not done as expeditiously as some may have liked, they were done eventually—namely, getting enough resources on scene, establishing a unified command structure, and moving to a position of safety. Post call, Chief Drabick did do a hotwash with his fire/EMS staff to document operational tasks performed and to begin documenting lessons learned for future training evolutions and discussion.

Areas for Improvement

Incident Command and Incident Updates

Initially establishing incident command, knowing its location, and using a non-portable radio are inherent to the successful outcome of any large-scale incident. The initial size-up and repeated updates to the PSAP are critical

to ensuring that the correct information is relayed to those that need to know. These were all deficiencies in the earliest stages of the incident.

Staging Areas

On events that require mutual aid, establishing a staging area—Level I or Level II—is paramount. Essentially, "… a staging area is where apparatus and personnel report for their respective assignments."[17] "The Level I Staging Area should be on the scene, with immediate availability. For many rural and small career departments, the initial location is the front bumper of the attack engine. This initial location can be relocated as necessary."[18] "Level II staging is the is equivalent of a second alarm response, except that all manpower and apparatus report to the staging area located away from the immediate incident scene. Only the units necessary are transferred to the incident itself."[19]

Level II staging should have been established for the train derailment with a staging sector officer to control access to the scene and specify assignments as ordered by command. This would have allowed a more controlled environment at the scene and reduced the amount of freelancing that admittedly occurred.

Staging would also have permitted documentation of who was on scene and the manpower that each unit brought. This was deficient during the incident, and command officers did not have a true idea who was on scene or the manpower.

Unit Placement

Even without knowing the true extent of the incident from the initial call, this incident had a great risk of being a catastrophic event. While the East Palestine Fire Department was dispatched for a "train fire" and, at first, did not realize it was a derailment, the first due engine and chief officer quickly realized the extent upon arrival. At this point, units should have been advised to "hold short" of the scene while a quick reconnaissance was conducted.

The "moth to flame" mentality must be restrained and a slower rather than faster operational model must be used. The U.S. Department of Transportation's *Emergency Response Guidebook*[20] should have been used, initially for unidentified cargo until more specifics are available (see following figure). This would have provided some basic instruction and information to first arriving responders. Note the Fire Involving Tanks recommendations.

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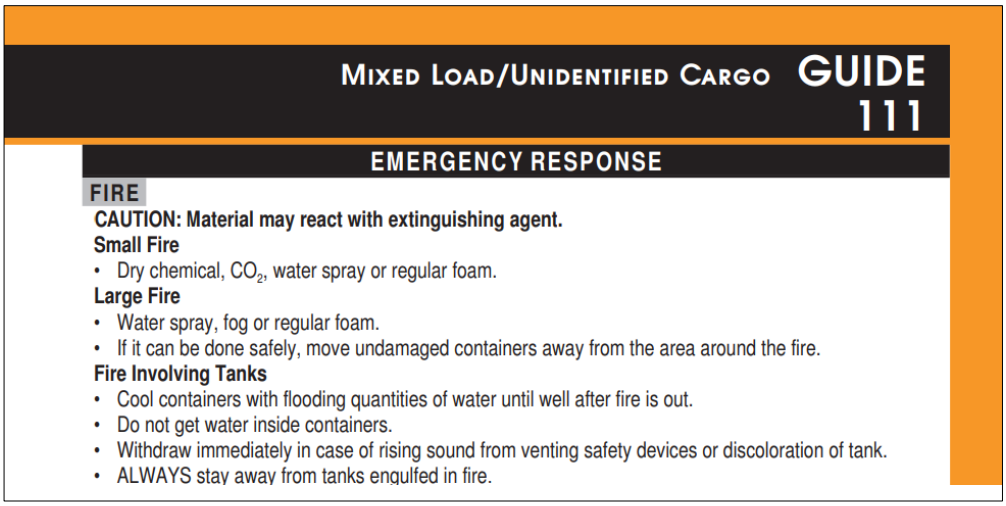
[17] Three-Step Staging on the Fireground - Fire Engineering: Firefighter Training and Fire Service News, Rescue
[18] You Always Have Enough for a Staging Area - Fire Engineering: Firefighter Training and Fire Service News, Rescue
[19] Three-Step Staging on the Fireground - Fire Engineering: Firefighter Training and Fire Service News, Rescue
[20] The "2020 Emergency Response Guidebook provides first responders with a manual intended for use during the initial phase of a transportation incident involving hazardous materials/dangerous goods." Emergency Response Guidebook (ERG) | PHMSA (dot.gov) The 2024 version will be available in Spring 2024.



MIXED LOAD/UNIDENTIFIED CARGO GUIDE 111

EMERGENCY RESPONSE

FIRE

CAUTION: Material may react with extinguishing agent.

Small Fire

- Dry chemical, CO_2, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- If it can be done safely, move undamaged containers away from the area around the fire.

Fire Involving Tanks

- Cool containers with flooding quantities of water until well after fire is out.
- Do not get water inside containers.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

Figure 2: ERG Guide 111[21]

Overall Communications

Communications is a critical element for any emergency scene. The communications challenges for this incident were immense due to the amount of mutual aid coming from far distances, including other states. Although nothing that evening or within the first hours was going to remedy that, the use of staging areas could have limited the confusion and provided better coordination and direction for the incoming units.

Training

As mentioned previously, training to respond to a railway incident was minimal for the fire departments. The only requirement is a 36-hour certificate program, with the respective fire chief setting the remaining training standards. Fire department leadership should be trained in all aspects of NIMS and ICS. NIMS "guides all levels of government, nongovernmental organizations and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents."[22] ICS and NIMS courses include the following:

- ICS-100: Introduction to Incident Command System
- ICS-200: ICS for Single Resources and Initial Action Incidents
- ICS-300: Intermediate ICS for Expanding Incidents
- ICS-400: Advanced ICS for Command and General Staff
- IS-700: National Incident Management System, An Introduction
- IS-703: NIMS Resource Management Course
- IS-706: NIMS Intrastate Mutual Aid – An Introduction
- IS-800: National Response Framework, An Introduction

[21] ERG2020-WEB.pdf (dot.gov)
[22] National Incident Management System | FEMA.gov

Most courses are offered online by the Emergency Management Institute (EMI). ICS-300 and ICS-400 are in-person multiday courses.[23]

Prior to the derailment, Norfolk Southern, in collaboration with CCEMA, conducted a tabletop exercise featuring a train derailment scenario. The exercise was attended by a large number of individuals, including fire department and law enforcement personnel.[24] These types of exercises should be mandatory for any department with a high risk of a train incident. Since the train derailment, East Palestine Fire Department personnel have attended additional classes locally, with some travelling out of state to attend training.

An understanding of the principles of NIMS and ICS is important for all incidents. Applying their principles to all incidents will establish repetition and ensure that NIMS and ICS become second nature.

Challenges and Obstacles to Improvement

As with any small-town volunteer fire department, training requirements can strain recruitment and retention. This is an issue across the country as volunteer firefighter numbers have decreased. Volunteer firefighters, in many instances, must take vacation time (paid or unpaid) from their non-public safety full-time employment to attend training, especially when held during daytime weekday hours. It is understandable that there may be a hesitancy to enforce stricter training guidelines and curriculum. However, the seriousness of firefighting requires that training be a priority, especially for personnel safety, skills development, and meeting the challenges of risk within the community.

Radio communications are critical for all incidents and appear as failures in many after-action reports. Disparate frequencies, coverage issues, unintelligible orders, and the use of language not understood by all personnel hamper on-scene communications. Addressing these deficiencies requires funding, and the costs can be high. While the lack of available funds will be the biggest roadblock to mitigating some communication issues, upgrading tower infrastructure and purchasing new mobile and portable radios should be discussed to improve interoperability.

2.2.3 Recommendations

Table 2: Fire/EMS Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Require all fire and EMS department members take the basic independent study ICS courses. • Chief officers should ensure at least two members of the fire department attend in-person ICS-300 and ICS-400 courses.	• Members understand the principles and basic structure of the ICS. • An understanding of NIMS management characteristics. • Efficient, coordinated, and safe scene management.	• Incorporate requirements for ICS training that may not be in the current training policy. • Develop training completion metrics such as: – Within one month, personnel with a

[23] Emergency Management Institute - National Incident Management System (NIMS) (fema.gov)
[24] Only two law enforcement personnel were signed up to attend the incident and of those only one attended.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
		• Better coordination of any major incident across all public safety disciplines.	membership/hire date more than one year ago take the IS-100.C[25] (ICS-100) and IS-200.C[26] (ICS-200) online courses and receive certification. – Within six months, new personnel take the IS-100.C (ICS-100) and IS-200.C (ICS-200) online courses and receive certification. – Within six months, personnel with a membership/hire date more than one year ago take the IS-700.B[27] (ICS-700) and IS-800.D[28] (ICS-800) online courses and receive certification. – Within one year, new personnel take the IS-700.B (ICS-700) and IS-800.D (ICS-800) online courses and receive certification. • Work with CCEMA to identify the next ICS-300 and ICS-400 course offerings.
2	Improve radio communications.	• Improved coordination with mutual-aid partners	• Contact radio vendors to demonstrate new offerings for upgrading

[25] IS-100.C: Introduction to the Incident Command System, ICS 100
[26] IS-200.C: Basic Incident Command System for Initial Response, ICS-200
[27] IS-700.B: An Introduction to the National Incident Management System
[28] IS-800.D: National Response Framework, An Introduction

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
		and direct communications.	the existing radio system, and mobile and portable radios.
3	Engage in operational pre-planning exercises.	• Improved efficiency for the deployment of assets.	• Within six months, pre-plan scenarios for incidents that could occur along the rail line. • Compile and save those pre-plans in an easily accessible electronic format and in the pre-plan book on the apparatus. • Ensure communications align with the pre-plan.
4	Develop box assignments.	• Efficiently deploys resources without having to request individual stations or individual units.	• Within six months, design a box system that allows for greater alarm assignments. • Implement in the CAD system.
5	Develop and implement task force groups.	• Bulk resources are available for different apparatus.	• Pre-build task force groupings for a particular type of unit. • Implement in the CAD system.
6	Train on the importance of Level I and Level II staging.	• A coordinated approach to the deployment of resources after arrival.	• Utilize this method in the future and during pre-planning to determine staging locations.
7	Routinely establish incident command on every incident.	• Brings clarity to the scene; everyone knows who is in charge and where command is located.	• As an everyday practice, establish command, announce who has command, and utilize a mobile radio when possible.
8	Implement safety metrics for on-scene safety operations.	• Responding personnel, whether on the apparatus	• Continually train on scene safety, personnel

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
		or in a private vehicle, always consider the three main fireground priorities: life safety, incident stabilization, and property conservation. • Personnel accountability reports (PARs) are performed within set parameters on large-scale fire incidents. • SOPs dictate operations if certain conditions are clearly present.	accountability report (PAR) checks, and the task of assigning safety officers on large-scale incidents. • Announce critical milestones that Communications can document (i.e., PARs, primary and secondary searches complete, etc.).
9	Determine safety officers assignments and provide training on the responsibilities.	• Safety officers are detailed as soon as possible to protect the personnel operating in hazardous or unsafe environments.	• Assign a safety officer as soon as possible when events warrant such an assignment
10	Engage the Ohio EPA and U.S. EPA to obtain capability familiarization training and make training available for all county responders.	• Emergency operations during disasters (e.g., a train derailment) including those involving a hazardous materials release will be mitigated more efficiently, quickly, and with low impact to the community.	• Incorporate requirements that do not currently exist in the training policy. • Develop training completion metrics such as: – Within 12 months, train 100% of countywide fire department members, law enforcement officers at the rank of corporal or above, and all PSAP supervisors. – Within 24 months, train 75% of countywide fire department, law enforcement, and communications staff.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			– Require new hires to receive training within six months. – Require refresher training every two years.
11	Require all fire and EMS department members take hazardous materials awareness and operational courses. • Chief officers should ensure all members who have not completed this training do so as soon as possible. • Chief officers should ensure all new members complete hazardous materials awareness as part of their initial onboarding process, prior to receiving clearance to respond to emergencies, and hazardous materials operations in conjunction with basic fire fighter training.	• Members understand the principles of hazardous materials incidents and associated safety concerns.	• Incorporate requirements for hazardous awareness training that do not exist in the current training policy. • Develop training completion metrics such as: – Within six months, personnel with a membership/hire date more than one year ago take the hazardous materials awareness course and receive certification. – Within one-year, new personnel take the hazardous materials awareness course and receive certification as part of their initial onboarding process prior to receiving clearance to respond to emergencies. – Within nine months, personnel with a membership/hire date more than one year ago take the hazardous materials operations course and receive certification.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			– Within one-year, new personnel take the hazardous materials operations course and receive certification in conjunction with basic fire fighter training.
12	Engage the Ohio EPA and U.S. EPA to request additional hazardous materials equipment training for local hazardous materials teams.	• Emergency operations during a hazardous materials incident will be mitigated more efficiently, quickly, and with low impact to the community	• Within 24 months, train 75% of all regional hazardous materials personnel.
13	Identify and apply for grants to offset training costs	• More funding is received to conduct training and exercises, and/or purchase training courses and services from a third party	• Research and identify grants to offset training costs, including volunteer fire fighters taking time off work to attend training. • Apply for identified grants.

2.3 Law Enforcement

2.3.1 Key Findings Summary

Key Findings

- An inadequate public safety radio system led to challenges with interagency communications.
- Law enforcement personnel lacked NIMS knowledge and training.
- Personal protective equipment (PPE) was inadequate.

2.3.2 Overview and Analysis

Detective Danny Haueter began work at 1:00 p.m. on February 3, 2023. After working approximately eight hours, at around 9:00 p.m. Detective Haueter along with patrol officers Elkin, Weingart, Dowd, and Schaffer were dispatched to an incident involving a train derailment and fire near Leake Oil on East Taggert Street. Detective Haueter is an experienced law enforcement officer with over 31 years of service; once he recognized the severity of the incident and how close it was to nearby neighborhoods, he quickly put much of his experience to work to create a plan to begin evacuating nearby residents.

Detective Haueter faced two main challenges—the lack of an adequate public safety radio system to communicate with other first responders (both law and fire) and the lack of an electronically accessible map in his vehicle, common with a mobile data computer (MDC).

Some of the first responding law enforcement officers Detective Haueter requested to come to his aid were EPPD Lieutenant Johnson and Sergeant Moore. The responding deputies from the sheriff's office were using the MARCS radio system (800 MHz), while the East Palestine and Columbiana Police Departments used their normal UHF system.

At the time they were dispatched to the scene, they were not aware hazardous materials were involved and did not have PPE that could have helped them. The responding law enforcement members suspected there might be hazardous materials involved; the way they determined if it was safe for them to proceed into a certain area was to watch a firefighter walk in and if they appeared fine, they would proceed.

All the while, the initial first responders had to close roads and create a perimeter to ensure those evacuated could not return and to keep the public away from the scene. This was challenging given their lack of sufficient road barricades and limited staffing. The sheriff advised he was informed of the incident and responded at approximately 11:00 p.m., immediately going to the command center. When the sheriff realized that the evacuation effort was still in progress, he called in his SRT[29] and personally went directly to the scene to assist with evacuations.

Detective Haueter described that throughout the night more staff showed up to assist, but it was chaotic, and the initial command center, which was a fire bay in a garage, was overrun with too many people. Another concern was identifying the incident commander, as first responders were receiving mixed messaging. Throughout the night, law enforcement personnel were successful in effectively evacuating all homes that were within the perimeter, and they did this with little to no known injuries.

However, several issues continued:

1. They had no PPE.
2. The most reliable forms of communication appeared to be anything but their public safety two-way radios.
3. They had no formal incident management training from which to draw.
4. There was poor messaging from an actual incident commander.
5. As the incident continued, and agencies outside of East Palestine arrived on scene, (e.g., Salem Police Department, Ohio State Highway Patrol, etc.), EPPD officers had no interoperable radio communications with these officers, requiring face-to-face or cellular communication.

The efforts of the initial responding law enforcement officers and firefighters could have been more effective if they could communicate better. It appeared that the initial fire response involved a structured incident command, but the law enforcement component to it came later. Radio communications got better with the State bringing in a radio cache and portable tower site, but, again, this came much later.

With formal NIMS and ICS training and pre-planning involving cross-discipline tabletop exercises, these public safety members could have worked together to ensure a safer, swifter, and more efficient evaluation. Given all that occurred, it is miraculous that there were no injuries.

[29] Special Response Team

Operational Strengths

The following strengths led to quick evacuations and no injuries to public safety personnel or civilians:

- Rapid response and the identification of the incident severity by on-duty law enforcement personnel
- Knowledge of the area and the ability to quickly identify areas needing evacuation by the first responding law enforcement personnel
- Familiarization by initial law enforcement personnel from different agencies with each other and a knowledge of each other's strengths, leading to a quick delegation of duties

Areas for Improvement

Interoperability

Each law enforcement member that was interviewed immediately advised that radio communications was the top area of improvement. Law enforcement field responders reported the inability to communicate between agencies. The first arriving law enforcement personnel on the scene were East Palestine Police Department Detective Dan Haueter and Columbiana County Sheriff's Office Deputy Caleb Wycoff and Chief Deputy Jen Tucker. They described the radio communications as "horrible," as the deputies were unable to communicate with the detective while handling evacuations and continuing to identify areas to evacuate. The only effective forms of communication were cellular and face-to-face.

All law enforcement members described concerns over the lack of radio coverage within the immediate area, even when utilizing MARCS. On February 4, 2023, a request was made for the State to provide a cache of radios from MARCS, which was honored; to ensure they worked properly, a portable tower was also brought to the scene to provide coverage.

Within the county, the East Palestine Police Department used a UHF radio system, the Sheriff's Office uses the 800 MHz MARCS radio system, and the fire agencies use a VHF radio system. The initial responding public safety entities were on disparate radio technologies at the time of the train derailment. During this incident, none had multiband radio technology.

Based on interviews with the first three initial responding law enforcement personnel, they were able to work around this lack of radio communications by meeting face-to-face. This took valuable time from their evacuation efforts.

Radio Communications and Infrastructure

Radio communications need a complete overhaul to provide the following functionality:

- Improved land mobile radio (LMR) coverage, not only within East Palestine, but also within Columbiana County. At a minimum, a Project 25 (P25) public-safety-grade radio system with 95% on-street coverage should be employed.
- Interoperability, primarily among all law enforcement users within the county, with the ability to patch incident command across various public safety disciplines to communicate while managing large-scale and/or multi-discipline events.
- Ability to have direct radio communications with other responding units from the state and other agencies via the national mutual-aid channels commonly programmed in public safety radios.

National Incident Management System

Sworn law enforcement personnel lack NIMS training, an understanding of the NIMS structure, and a process for handling such a large-scale incident. In our discussions with the law enforcement agencies that arrived immediately after the derailment (East Palestine Police and Columbiana County Sheriff's Office), personnel advised they used "common sense" from working together in the past, as well as knowledge they gained from previously working together making door-to-door notifications, to have a basic understanding of the evacuation process that was needed. When we inquired about NIMS training, nearly all were unaware of the training sessions provided by CCEMA staff. It should be noted that law enforcement personnel participate in discussions about ICS in the basic academy; however, formal certification is the responsibility of the employing agency.

Law enforcement personnel in the field advised they were receiving conflicting information from incident command; one example provided was confusion around whether they were still doing evacuations. A member of law enforcement on the perimeter allowed a citizen through the perimeter, only for that person to be stopped by another law enforcement member and turned around.

Hazardous Materials Training and Personal Protective Equipment

Proper hazardous materials training and acquiring PPE is another area for improvement. The law enforcement members interviewed informed us that they had various rudimentary PPE such as the N95 cloth face mask; however, others had no PPE. As they did not know what the chemical was or if it was hazardous, some explained that they watched other public safety members go in ahead of them and if the scene looked safe to the previous public safety personnel, they would go in as well.

Other Issues Identified

- Cones, barricades, or other road closure systems (which are not flammable, like flares)—readily available to law enforcement personnel responding in waves after the initial responders—would be helpful to prevent citizen vehicular traffic from traversing unsafe areas, without posting valuable personnel at traffic control points. This would allow public safety personnel to be available for other tasks.
- A pre-plan with a joint operations center (JOC) already selected would allow quick assembly at this location. Having more than one JOC pre-selected in different areas of the county—away from potentially hazardous areas—allows the use of a command center farthest away from an incident. This is specifically addressed as the command post location had to change more than once during this incident, as the first command post was too small and too close to the incident.
- Better communications with Norfolk Southern to be made aware quicker of the type of hazardous materials involved, as well as ongoing throughout the initial days of their response, can assure a unified approach to public safety. First responders attempted to locate the train's conductor, but he was not in the area. His assistance (e.g., knowledge of the hazardous materials involved) would have been important in the early stages of this incident.
- The general perception among law enforcement personnel is that a train derailment is primarily the responsibility of the fire department. While this might be true, better understanding of each public safety discipline's duties and training together prior to an incident can help ensure better communication, a safer response, and, overall, a more effective initial attack on such incidents.
- The East Palestine police chief did not arrive until 6:00 a.m. on February 4, 2023 to assist with response efforts because he was unavailable to respond on February 3. Had the chief been available, his leadership position, knowledge of the village, the PSAP, and the department's

resources would have been very helpful in the crucial early stages of setting up the incident command center.

Challenges and Obstacles to Improvement

Law enforcement budgets are insufficient to allow for the purchase and maintenance of multiband public-safety-grade portable and mobile radios. Funding is an obstacle for most public safety agencies.

Formal training needs to be mandated and completed during paid working hours. Many public safety personnel interviewed either were unaware of the training available to them or did not attend.

Regional and state agreements, training, and planning exercises will help all personnel be better prepared for such events.

2.3.3 Recommendations

Table 3: Law Enforcement Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Conduct an assessment to determine if an upgrade or full replacement of the current radio system or partnership with MARCS would be best.	• Improved radio system coverage. • Better interoperability. • More effective and efficient on-scene communications/	• Hire an independent third party to assess the current radio systems in the county and provide recommendations and a rough order of magnitude cost. • Determine the best approach to improve the radio system. • Seek funding (perhaps through a grant) to implement the recommended changes.
2	Require all law enforcement personnel to take the basic independent study ICS courses. • Ensure at least two members of the agency attend in-person ICS-300 and ICS-400 courses.	• Personnel understand the principles and basic structure of the ICS. • An understanding of NIMS management characteristics. • Efficient, coordinated, and safe scene management. • Better coordination of any major incident across all public safety disciplines.	• Incorporate requirements for ICS training into the current training policy. • Develop training completion metrics such as: – Within one month, personnel hired more than one year ago take the IS-100.C (ICS-100) and IS-200.C (ICS-200)

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			online courses and receive certification. – Within six months, new personnel take the IS-100.C (ICS-100) and IS-200.C (ICS-200) online courses and receive certification. – Within six months, personnel hired more than one year ago take the IS-700.B (ICS-700) and IS-800.D (ICS-800) online courses and receive certification. – Within one-year, new personnel take the IS-700.B (ICS-700) and IS-800.D (ICS-800) online courses and receive certification. • Work with CCEMA to identify the next ICS-300 and ICS-400 course offerings.
3	Require all law enforcement officers take hazardous materials awareness and operational courses. • Police chiefs and the County sheriff should ensure all officers and deputies who have not completed this training do so as soon as possible. • Police chiefs and the County sheriff should ensure all new law enforcement officers complete hazardous materials awareness as part of their initial onboarding process, prior to receiving clearance to respond to emergencies, and hazardous	• Law enforcement officers understand the principles of hazardous materials incidents and associated safety concerns.	• Incorporate requirements into the current training policy. • Develop training completion metrics such as: – Personnel who have not completed hazardous materials awareness do so within two months. – Existing certified law enforcement officers who have not completed hazardous materials operations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
	materials operations in conjunction with basic law enforcement officer training.		do so within six months. – All new law enforcement officers complete hazardous materials awareness as part of their initial onboarding process prior to receiving clearance to respond to emergencies. – Hazardous materials operations training is completed in conjunction with basic law enforcement officer training.
4	Attend local, regional, or state sponsored tabletop exercises at least twice annually.	• Better clarification of roles and responsibilities during critical incidents. • Improved preparedness for future incidents. • Enhanced critical thinking.	• Work with the CCEMA and other state agencies to offer or develop tabletop exercises. • Offer multiple offerings throughout the year so all personnel can attend.

2.4 Unified Command

2.4.1 Key Findings Summary

Key Findings

- Portable radios were used for command operations, rather than mobile radios or base stations.
- Entry points to the command post were not controlled.
- The command post was initially too close to the incident scene.
- Personnel did not know the location of the command post, as it was not communicated.
- A unified command structure was not immediately established.
- The use of an EOC was not fully initiated.
- More intensive documentation for train derailments should be included in the County's all-hazards plan.

2.4.2 Overview and Analysis

An integral part of achieving a successful outcome in any emergency is establishing incident command and subsequently a unified command when multiple disciplines are involved.

> *Incident command is responsible for the overall management of the incident. A single Incident Commander or Unified Command conducts the command function on an incident.*
>
> *The Incident Commander is the individual responsible for on-scene incident activities, including developing incident objectives and ordering and releasing resources. The Incident Commander has overall authority and responsibility for conducting incident operations.*
>
> *When more than one agency has incident jurisdiction, or when incidents cross political jurisdictions, the use of Unified Command enables multiple organizations to perform the functions of the Incident Commander jointly. Each participating partner maintains authority, responsibility, and accountability for its personnel and other resources while jointly managing and directing incident activities through the establishment of a common set of incident objectives, strategies, and a single Incident Action Plan (IAP).*[30]

The train derailment incident required both be established immediately. On-scene command was imperative at first while the incident was manageable. However, the gravity of the situation and the increase in mutual-aid resources along with ancillary agency involvement quickly transformed this event into a unified command structure.

Operational Strengths

Once the command post was moved to a location outside of the one-mile safety zone, unified command was established, and appropriate job duties were assigned. Incident Briefing (ICS-201) forms were used for specific time periods, an IAP was put in place, and public information was forthcoming at prescribed times. This led to a more cohesive and coordinated message and an understanding of what steps would be taken to mitigate the event.

Using WENS for the shelter-in-place order and eventually IPAWS for the evacuation was critical in communicating the messages to the public. Unfortunately, Communications was overrun with the public calling asking for more information.

Although the EOC in Lisbon was not established as a full EOC operation, it was partially manned by CCEMA staff to answer questions from the public. This was a good decision to relieve Communications of this burden.

The request for an incident management team was a sound decision to support the operation, bring in SMEs, and relieve on-scene personnel of functions that were being conducted by suppression personnel or were not being handled at all.

The CCEMA director's insistence on a news briefing for evacuation instructions and where to go was imperative to the success of the evacuation and moving the populous to a facility that could house the evacuees comfortably.

[30] National Incident Management System (fema.gov)

Areas for Improvement

Establishment of Incident Command and Unified Command

Early in the incident, after the arrival of agencies, unified command was slow to be coordinated. Law enforcement was busy conducting evacuations, fire agencies were focused on exposure protection, and ancillary resources like CCEMA were not yet on scene.

While incident command was somewhat established, directions for evacuations and firefighting efforts were delivered by portable radio, often when the person was walking around. This caused some transmissions to be either garbled or unintelligible.

When a building was located for a command post, it was too close to the incident and entry to that command post was open to whoever wanted to walk in. This created a noisy uncontrollable atmosphere and led to fragmented discussions among fire department leadership. Thus, unified command was never truly initiated and broke down at this location.

Relocation of Command

After approximately three hours, the incident command post was relocated to the East Palestine fire/police station with secure access. While this move placed the location almost one mile away from the incident, it was still just within the one-mile blast radius. (This radius was determined by experts at the scene after review of the hazardous materials bill of lading and guidance on protection.) This location afforded more room to develop a core unified command for job assignments.

Figure 3: Pertinent Locations

EOC Use and Associated EOC Assignments

During the transition to the East Palestine Police Department facility, the CCEMA director suggested establishing and staffing the EOC in Lisbon. However, at that time, the fire chief wanted to keep the CCEMA director and any other staff at the scene. Thus, the CCEMA director and staff assumed incident command duties as assigned and remained at the scene.

Training

Training on rail incidents, while offered prior to this incident, was lightly attended by certain disciplines' leadership. The assumption, therefore, is that ICS and EOC interface classes have been lightly attended when offered. A class that should be reviewed and potentially offered is G-191, Emergency Operations Center/Incident Command System Interface. This class trains personnel on an effective interface between the ICS and EOC using NIMS principles. There are prerequisites for the eight-hour course, including:

- ICS-100: Introduction to Incident Command System
- IS-700: National Incident Management System, An Introduction
- IS-800: National Response Framework, An Introduction
- ICS-200: ICS for Single Resources and Initial Action Incidents or IS-2200: Basic Emergency Operations Center Functions

The ICS Resource Center (ICS Resource Center (fema.gov)) provides information on the various training offerings.

One of the most important elements of this event was that the EOC was not fully utilized.

Challenges and Obstacles to Improvement

The greatest challenge with any active scene is to get the incident commander and other necessary leadership to step away from the scene and retreat to a facility designed for long-term event planning and mitigation. This was the case with the East Palestine train derailment. The recommendation by CCEMA director to move to the EOC was sound and personnel assignments should have been initiated and deployed. Lisbon was far enough away from the incident and would have afforded those assigned a facility where they could determine the next steps in a controlled and calmer environment.

The establishment of command was not concise at the beginning of the incident. For a long time, mutual-aid responders did not know who was in command or where the command post was. Although the first command post was admittedly too close to the incident, the lack of falling back and establishing a better facility and location for command added a layer of difficulty in both communications and mitigation efforts. Most decisions made early in this incident were reactionary. Unfortunately, there was no pre-planning for rail incidents to rely on.

Moving forward, the County, municipalities, and local fire departments need to pre-plan for rail incidents. While onsite, it was evident that rail incidents are a high threat to East Palestine and similar communities in Columbiana County.

2.4.3 Recommendations

Table 4: Unified Command Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Collaboratively develop pre-plans for events of this magnitude.	• A logistical plan for an event of this magnitude. • Relieves most line staff from critical decision-making.	• Within one month, identify personnel for a work group; include CCEMA and public safety personnel. • Begin discussions within the group for the pre-plan effort. • Develop a template for large-scale incidents in general.
2	Conduct training and exercises specific to rail incidents.	• Education of all first responders. • Personnel can work together to facilitate unified command. • Confidence to handle future rail incidents. • Coordinated EOC operations for future incidents.	• Work with Norfolk Southern to offer tabletop exercises and training for first responders. • Provide multiple offerings of the training to allow all first responders to attend.
3	Include more robust documentation for rail incidents in the County's all-hazards plan.	• A playbook for rail incidents, allowing for efficient decision-making. • A checklist of potential needs.	• Using the work group developed above, develop a rail incident plan. • Train on the plan through tabletop exercises or a simulated event in the field.
4	Continue to offer in-person ICS-300 and ICS-400 courses regularly—weekends for volunteer and weekdays for career.	• Members understand the principles and basic structure of a unified command.	• Offer additional ICS-300 and ICS-400 courses to increase the rate of completion.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
		• Efficient, coordinated, and safe scene management. • Better coordination of any major incident across all public safety disciplines. • Unified command established quickly and effortlessly on large-scale incidents.	• Offer tabletop exercises to enhance knowledge gained during the courses.
5	Use the EOC as a command center for a coordinated approach to large-scale incidents.	• Familiarization with the facility. • Improved situational awareness. • Provides sufficient space for face-to-face discussions away from the scene. • Efforts are more easily coordinated.	• Conduct tours of the EOC for all public safety personnel to familiarize them with the offerings and benefits of using the EOC. • Offer onsite training to public safety personnel to allow continued use and familiarization of the facility. • Determine additional needs that public safety personnel may require when using the EOC.

2.5 EMA

2.5.1 Key Findings Summary

Key Findings

- CCEMA staffing is limited.
- The CCEMA director requested EOC activation, but the request was denied.
- Prior training and exercises provided a foundation for responders.
- Mutual aid was not coordinated; there was no emergency management assistance compact [EMAC] request made at the state level.
- Messaging between jurisdictions and state and federal agencies was not coordinated.

2.5.2 Overview and Analysis

Although not initially an emergency management incident, CCEMA played a pivotal role in the response to the train derailment. While fire and rescue crews were busy dealing with the immediate life-safety threat of the derailment and subsequent fires, CCEMA was coordinating the remaining aspects of the emergency response effort.

CCEMA Deputy Director Brian Rutledge arrived on scene in the first engine to respond from East Palestine Fire Department but was acting as the battalion chief rather than the CCEMA deputy director. CCEMA Director Peggy Clark was notified by Deputy Director Rutledge within the first few minutes after realizing the immense nature of the incident. In her official capacity, the CCEMA Director served as a contact point and liaison for multiple mutual-aid entities, political and government leaders, state and federal agencies, and the news media.

Initially, CCEMA director expected to be coordinating resources and handling logistics for the incident. During the early hours of the incident, however, this proved to be only a small fraction of the responsibilities thrust upon her. Additional duties included acting as the public information officer (PIO) until the arrival of the OSP's PIO unit, assisting with public messaging, preparing the village mayor for press briefings, and serving in an advisory capacity to unified command.

Operational Strengths

An area of strength that both the director and deputy director revealed is the recent training courses sponsored by CCEMA. CCEMA hosted a tabletop training/exercise for a train derailment with a hazardous materials release approximately four months before the derailment. The event was well-attended and—as was pointed out by all the fire department officers involved in the derailment response—provided local responders with valuable knowledge that they were able to put to practical use. These events were hosted in 2019 and 2022; however, no Communications personnel attended, resulting in a lack of knowledge or understanding of this type of incident among PSAP staff.

CCEMA hosts multiple hazardous materials awareness and operations courses for fire service personnel each year. These courses are open to any county firefighter. ICS-300 and ICS-400 is offered twice per year, which provides potential incident commanders with a high level of training for managing complex responses and emergencies. These courses are free to area firefighters, thus removing a potential barrier to attendance.

Not only have these training courses provided valuable information and knowledge, which assists with incident response, but they have built business contacts among various agencies and staff. This was noted by the CCEMA director specific to the derailment; she was required to make numerous phone calls to various agencies and jurisdictions, and many of those numbers were already saved in her cell phone. These contacts sped up obtaining much-needed resources during the beginning of hours of the incident. Good working relationships are always a positive factor when providing or receiving mutual aid and working with individuals or agencies not normally involved with daily operations and responses.

The final and possibly most important aspect of the incident from an emergency management perspective was the on-scene working relationships demonstrated by all parties involved in the response. As a small community, working relationships are already very close because of the sense that "*everyone in the community knows everyone*."[31]

[31] This statement cannot be attributed to any one single individual, as it was made by multiple individuals across several interview sessions.

Areas for Improvement

Training

Despite the various training courses sponsored by CCEMA without a fee, it was reported that the courses are not always widely attended. Invitations are widely publicized for the courses, but attendance does not necessarily correspond to the level of publicity for a particular course.

Some of the municipalities in the county have had personnel attend these courses, which allows the fire chiefs to know their role during an incident. However, given the amount of rail traffic passing through East Palestine daily, and the past derailment that has already tested various response procedures and methods, these training courses should receive a high priority among field responders in the county—including law enforcement and EMS personnel because in many cases they may arrive at an incident prior to fire department resources.

Emergency Management Staffing

Another area that was challenging during this incident, as well as challenging during normal the day-to-day activities of CCEMA, is the lack of emergency management staff employed by CCEMA. At present, CCEMA employs only two active field response personnel—the director and deputy director. Two other employees—an administrative assistant and a part-time radio liaison who works with the amateur radio community—work for CCEMA. This lack of staff severely hampered the overall emergency management activities of this incident, especially considering that the deputy director was functioning as a fire department battalion chief on the first arriving engine. This essentially left only the director to attempt to fulfill all the emergency management roles needed during the initial incident period. This is not to say that the director did a poor job of managing her roles and responsibilities. Quite the opposite, in fact—the director should be commended for the role that she played and the numerous responsibilities that she completed during the incident.

With that said, however, the lack of staff was a direct contributing factor to components that were lacking, such as public information, logistical operations, and participation with unified command. One or two people can only be stretched so thin before their job performance begins to wane, and, in this instance, that came to fruition through no fault of the director or deputy director. This could also have the most direct impact on day-to-day operations and future disasters moving forward.

Public Information and Crisis Messaging

During disaster operations—regardless of the locality it has occurred in—public information and crisis messaging is an essential part of emergency response efforts. In this instance, the CCEMA director reported that public information and messaging was problematic during the beginning stages of the incident. Messaging to the public (e.g., evacuation messaging) was initially not as successful as CCEMA would have liked.

CCEMA uses an Inspiron/WENS reverse notification system to make public announcements, such as evacuation notices. The downfall to such a system is that it is an opt-in type service, and if residents have not provided accurate information that is current or have not opted into the system, they will not receive any notifications. In addition to WENS, CCEMA also uses IPAWS to make public notifications during potentially life-threatening situations. In addition to the WENS evacuation message, a message was also sent via IPAWS.

Responders were required to go door-to-door to verify the evacuation notice had been received. This process is labor-intensive for any jurisdiction and is an inefficient but necessary method of spreading emergency messaging. To improve the overall public information process, CCEMA requested assistance from the OSP Public Affairs Group following the notification from Norfolk Southern's contracted SME that the products could not safely be offloaded from the derailed cars and the vent-and-burn process was necessary. Public information

did not begin to be delivered with a consistent and unified message until the Public Affairs Group arrived and began functioning in this role. However, according to local officials, the downfall to this group was that they were willing to help prepare when the governor came into town for a press conference, but reportedly did not help provide as much assistance to local officials as local officials felt was warranted.

Post-incident Hotwash

During a disaster, many responders, localities, and local, state, and federal agencies may be involved. Each individual leaves the incident with their own perception of things that worked well and that did not, and what correction actions could be undertaken in the future. FEMA's Continuous Improvement Program (CIP) recommends the process[32] of discovery, validation, resolution, and evaluation for such situations. The purpose of the discovery phase "is to collect information from an incident that will be later used to identify strengths, areas for improvement, potential best practices, and mission critical issues."[33] One such method of discovery is the use of a hotwash. A hotwash is a "facilitated group discussion after an incident to gather initial thoughts on what worked well, what needs improvement, and potential recommendations."[34] Hotwashes normally occur after an incident's response phase is or has ceased. A hotwash was not completed for the train derailment, thus introducing the potential for an individual to forget an important facet of the incident and losing the opportunity to collect potentially valuable information and lessons learned. MCP experienced this during many of the data collection interviews, as individuals had a hard time recalling some specific details of the incident one year later.

Figure 4: FEMA Continuous Improvement Phases

Response Plans

The final area for potential improvement is that of having pre-existing response plans. It was noted by individuals from different organizations that no response plan exists for dealing with a train derailment. The rail line that traverses the village from east to west is heavily travelled daily. The rail line in question is a major component of Norfolk Southern's transfer of cargo from Chicago to Pittsburgh (see the figure below); East Palestine is indicated by the red dot.

Given the immense volume of rail cargo moving through the village daily, the risk of a train derailment with hazardous materials involvement should be extremely high (as determined through a threat and hazard

[32] Federal Emergency Management Agency (FEMA). (n.d.). Continuous Improvement Technical Assistance Program. https://preptoolkit.fema.gov/web/cip-citap
[33] https://preptoolkit.fema.gov/web/cip-citap/discovery
[34] Federal Emergency Management Agency (FEMA). (n.d.). Continuous Improvement Technical Assistance Program. https://preptoolkit.fema.gov/web/cip-citap/ncig/-/knowledge_base/ncig/2-2-1-2-data-collection

identification and risk assessment [THIRA] process). As such, having a pre-determined response plan for dealing with such an incident would allow the fire department—as well as other local mutual-aid resources—to understand the complexities of such an incident type and the resources required to mitigate this type of situation, and have the appropriate emergency railroad (and other agencies) contact information in advance. If the East Palestine Fire Department had access to an appropriate response plan, the initial response to the incident may have looked drastically different. It is incumbent upon the fire department to create and maintain these response plans; however, CCEMA staff play an integral role in developing these plans by serving as both SMEs and a coordinating body for working with and obtaining information from outside entities (e.g., Norfolk Southern, FEMA, etc.) Additionally, as the organization maintaining the County's emergency operations plan (EOP), CCEMA can include information from the fire department's response plan development process in the EOP as appropriate.

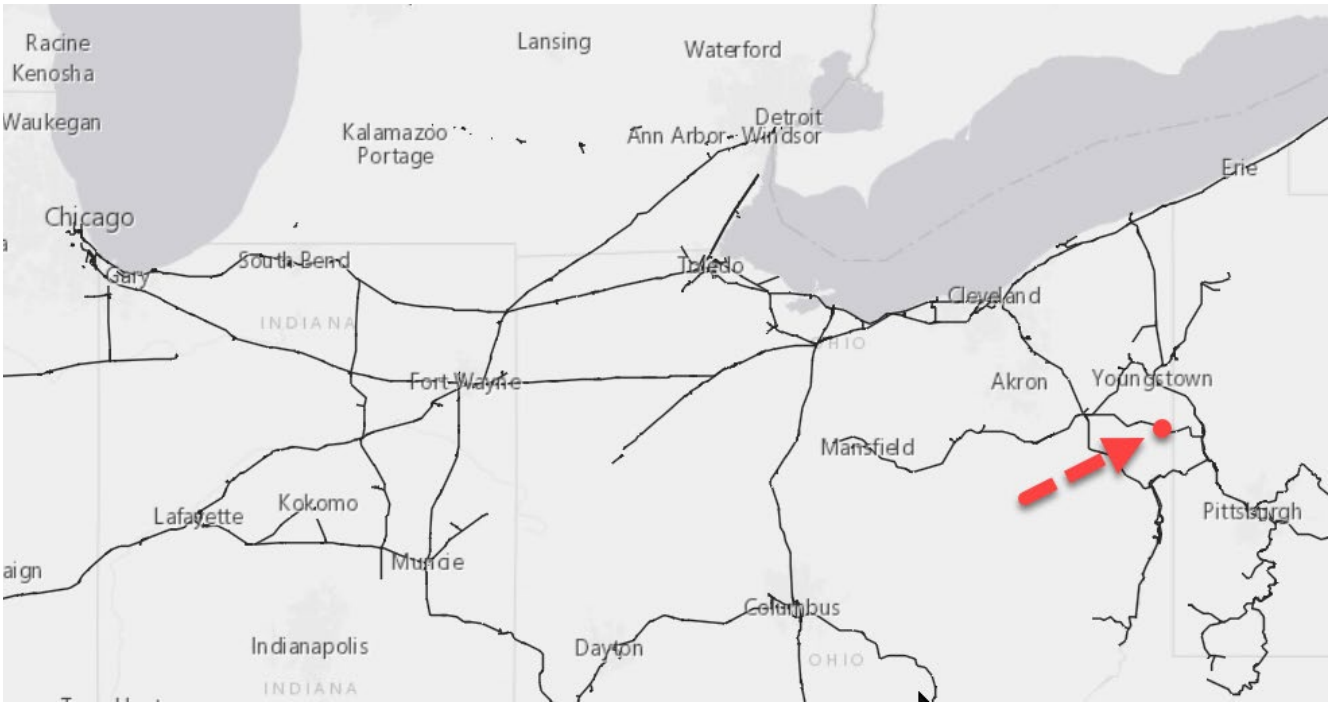


Figure 5: Norfolk Southern Rail Map

Challenges and Obstacles to Improvement

Emergency Management Staffing

The single greatest challenge that CCEMA staff will experience as they attempt to implement recommendations contained herein is their lack of operations and support staff within CCEMA itself. Having an operations staff of only two full-time personnel, all but the simplest of innovations or improvements will be met with lengthy implementation delays due purely to a lack of working hours in a day. CCEMA staff are extremely dedicated to their craft and will undoubtedly attempt to make as many improvements as possible. However, without additional staff to assist, there is only so much that CCEMA's limited staff can accomplish. The director and deputy director function in multiple roles during day-to-day operations and emergency/disaster situations. Adding a full-time emergency planner and a test, training, and exercise (TTE) coordinator position would allow the workload to be

more evenly distributed between the operational staff and provide additional staff to function in an on-call rotation with the current director and deputy director.

Funding

The second greatest challenge will be funding. CCEMA only receives approximately 2.5% of its overall budget funding from County budget funds; the majority of CCEMA funding is provided in the form of grant dollars from the Beaver Valley Nuclear Power Plant and FEMA Emergency Management Performance Grant (EMPG); it is unlikely that every recommendation will be met with positive funding decisions without additional budgetary support. Without the presidential Stafford Act declaration of a disaster, CCEMA's funding is limited to that which is provided by either county funds (taxpayer monies), grant dollars (which may or may not require a county match), or funds collected from Norfolk Southern. At a certain point in the future, the funding sources from Norfolk Southern will cease and CCEMA will again be solely dependent upon its other funding sources. Historically, as has been seen in many other jurisdictions nationally, when emergency management agency funding is limited, many programs or purchases do not make it past the proposal stage. It is entirely feasible that funding for short-term projects or proposals may come in the form of restitution or recovery money from Norfolk Southern; however, long-term funding will most likely come from other limited funding sources.

State Training Attendance Thresholds

The State's minimum attendance threshold requirement of 15 attendees for State-offered training (e.g., ICS, G-191, and hazardous materials courses) is unintentionally slowing the rate of training completion, acquisition of capabilities, and adoption of standards and best practices.

2.5.3 Recommendations

Table 5: EMA Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Continue to assist county fire, EMS, and law enforcement resources with coordinating ICS and hazardous materials awareness training for all public safety personnel (including Communications) and hazardous materials operations training for all public safety field response personnel.	• Emergency operations during disasters (e.g., a train derailment) including those involving a hazardous materials release, will be mitigated more efficiently, quickly, and with low impact to the community.	• Coordinate with local public safety agencies to provide hazardous materials awareness training to fire department, law enforcement, and Communications staff. • Coordinate with local public safety agencies to provide hazardous materials operations training to fire department and law enforcement personnel.

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
2	In collaboration with fire, EMS, law enforcement, and Communications leadership, work with the state course administrators to waive the minimum attendance requirement for course**s** noted in this report, or otherwise implement a strategy, until such time as the training recommendations are met.	• Familiarity with the interfaces between the EOC and ICS by all county public safety leadership. • Unified command is established quickly. • Incident command is more controlled.	• Determine the cost to host the course. • Verify personnel attending the course have completed the independent study prerequisites.
3	Request an increase to CCEMA staffing.	• CCEMA can function more efficiently during day-to-day operations and disasters/emergencies. • Additional operational staff members are available to function in an on-call rotation.	• Request an increase for CCEMA staffing by at least two full-time operational staff (emergency planner and TTE coordinator).
4	Assist volunteers from CCEMA, county fire departments, and local government who wish to function as a county emergency operations public information team, coordinated by CCEMA. Coordinate the provision of PIO training.	• A dedicated team of personnel are available for assignment as an incident PIO or to assist as the public information framework during disasters and high-profile emergencies throughout the county.	• Coordinate a dedicated team of at least 10 PIO-capable individuals to function during disasters and high-profile emergencies. • Coordinate FEMA independent study training course IS-29, Public Information Awareness, for all PIO team members. • Coordinate FEMA three-day training course E0105, Public Information Basics[35], for all PIO team members. • Coordinate FEMA five-day training course

[35] EMI | Public Information Officer Program | Basic PIO (fema.gov)

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			E0388, Advanced Public Information Officer[36], for all PIO team members. • Coordinate logistics to enable at least five PIO team members to complete FEMA's Master Public Information Officer Program training program[37].
5	Coordinate with local emergency officials to request completion of, at a minimum, a hotwash (and preferably an AAR/IP) following every disaster and high-profile emergency in which CCEMA is involved.	• The county and all associated public safety entities can improve future operations following all disasters and high-profile emergencies.	• Develop a CCEMA policy whereby CCEMA will request a hotwash and AAR/IP following a major incident. • Participate in convened AAR/IP processes to determine areas of strength and areas for improvement following all disasters and high-profile emergencies in which CCEMA is involved.
6	Provide appropriate subject-matter expertise (as needed/requested) to county fire departments and law enforcement agencies to assist with the development of emergency response plans.	• Emergency response plans for a variety of disasters and high-profile emergencies are available to follow by county fire departments and law enforcement agencies. • Public safety response agencies can respond more efficiently to disasters and high-profile emergencies.	• Participate in applicable work groups of public safety professionals to provide appropriate subject-matter expertise during the development of emergency response plans. • Seek feedback from public safety agencies following disasters and high-profile emergencies in which CCEMA is involved in to enable

[36] EMI | Public Information Officer Program | Advanced PIO (fema.gov)
[37] EMI | Public Information Officer Program | Master PIO (fema.gov)

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			updates to applicable CCEMA policies and procedures. • Offer/coordinate training on applicable CCEMA plans to the appropriate parties.
7	Develop appropriate public information and crisis messaging policies.	• Public affairs activities can be undertaken quicker and more efficiently.	• Develop public information policies for use during disasters and emergencies. • Develop crisis messaging policies for use during disasters and emergencies. – Include pre-defined messages for specific situations.
8	Coordinate with local emergency response and elected officials to develop appropriate public information and crisis messaging policies.	• Public affairs activities can be undertaken quicker and more efficiently. • Community members can receive crisis messaging and public safety instructions in a timely manner, especially during life-safety situations. • The public and visitors to the county receive critical information in a timely enough manner to prevent misinformation from propagating through social media. • Life-safety decisions are informed sooner (such as evacuations).	• Coordinate the development of public information policies for use during disasters and emergencies. • Coordinate the development of crisis messaging policies for use during disasters and emergencies. – Include pre-defined messages for specific situations. – Include pre-determined instructions for situations such as shelter-in-place and mandatory evacuations. • Participate annually in a review of pre-defined

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			crisis messages for relevancy and updates with local emergency response and elected officials.
9	Assist the fire department with the identification of potential grant sources to offset training costs.	• Fire department receives more funding to conduct training and exercises, and/or purchase training courses and services from a third party.	• Provide guidance and suggestions to the fire department as it researches and applies for grant funds.

2.6 Public Information Officers

2.6.1 Key Findings Summary

Key Findings

- Due to the nature of the incident and the public health impact, the provision of public information was of the utmost importance.
- The continuous release of honest and accurate information was crucial to the other objectives.
- Digital delivery methods (e.g., social media) have become the quickest way to provide information to the public, including media outlets.

2.6.2 Overview and Analysis

A PIO is an important position utilized on disaster and emergency scenes large and small. According to FEMA, "[p]ublic information is a vital function in disaster operations that contributes greatly to saving lives and protecting property. Public information entails the processes and systems that enable effective communications with various target audiences."[38]

During the initial stages of the train derailment, CCEMA and East Palestine Fire Department personnel were otherwise committed to performing life-safety functions and trying to understand exactly what had occurred. As reported by personnel from both agencies, there quite simply were not enough personnel to staff every needed position.

The OSP was initially requested to assist with traffic control in the area and the evacuation of residents. Due to the nature of the incident and the degree of personnel needed, the OSP duty officer responded to the scene.

[38] Federal Emergency Management Agency (FEMA). (n.d.). *Public Information Officer (PIO) Program*. https://training.fema.gov/programs/empp/pio/

When the OSP duty officer realized the magnitude of the incident, normal protocol was followed.[39] Captain Greene was notified, who in turn notified Major Hendrix, both part of the OSP's Public Affairs Group.

Upon arrival, the Public Affairs Group noted that CCEMA personnel had crafted and deployed the initial public message, sent within approximately eight minutes of the initial arrival on scene of the CCEMA director; the Public Affairs Group became directly involved when the decision was made to increase the size of the evacuation zone (due to the decision to proceed with the vent-and-burn scenario). This included helping to develop the grid pattern for the evacuation message and monitoring social media to mine data for the next media briefing.

Evacuation messaging was delivered to the public electronically. Annex C (Notification and Warning) of the Columbiana County EOP states: "The Columbiana County EMA utilizes an Electronic Notification System (ENS) to alert residents of emergency situations throughout the County. The ENS has the ability to call, text and email messages to users that are registered in the system. Additionally, the ENS is connected to the FEMA Integrated Public Alert and Warning System (IPAWS) which is utilized to send an alert message to cell phones in the designated warning area utilizing Wireless Emergency Alerts (WEA)."[40]

The Public Affairs Group's involvement with direct PIO functions ended when the joint information center (JIC) was initiated. The JIC was coordinated and led by the U.S. EPA. The Public Affairs Group's operations were officially terminated on Thursday, February 9, 2023. The group did return to the scene the following week (day shift only) to assist with coordinating media relations.

Operational Strengths

One of the foremost operational strengths noted by the Public Affairs Group was the accessibility and availability of the local media was given to local executives. Frequent press briefings were held that kept the media informed and prevented media professionals from creating rogue information in lieu of not receiving information. Despite not having the available staff to handle public information duties directly, public information was given a priority from the onset of the incident. This included providing operational briefings to responders every few hours, thus keeping the responders as informed as possible.

With the assistance of the Public Affairs Group, two public information teams maintained a 24-hour presence onsite. Two teams worked 12-hour shifts each, ensuring a continuous public information campaign.

From the outside, it was not detectable that neither CCEMA nor the fire department had an actual PIO assigned and in place, further adding to the success of the public information function (after the Public Affairs Group arrived on scene).

Areas for Improvement

Social Media

The use of social media by the public is growing exponentially every day, spreading information quicker than ever before. For this incident, social media propagated a great deal of misinformation, creating a challenge for the JIC to address and to correct.

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[39] OSP standard practice requires the Public Affairs Group to be looped in at the beginning of any high-profile incident whereby OSP resources have been deployed to support the possibility of the governor making a statement or a site visit.
[40] Columbiana County Emergency Management Agency (CCEMA). (2019) . Columbian County Emergency Management Agency Emergency Operations Plan. https://ccoema.org/images/pdf/EOP%202019%20-scanned.pdf

Unified command and the EOC needed additional staffing to address this area, which was not possible without assistance from the Public Affairs Group. Even though the locality did not have the resources to dedicate to the public information function, the Public Affairs Group noted that assistance was requested. Despite being considered an area for improvement, requesting help was viewed as a win by the Public Affairs Group.

Media Staging

During the early hours of the incident, a media staging area was not established, causing some confusion for the media. This was noted as a minor area for improvement, because once the Public Affairs Group arrived, it assisted in establishing a media staging area. This helped media members from various organizations to remain corralled in a centralized location where they could obtain information for their own reporting.

Challenges and Obstacles to Improvement

Staffing

Overall, improving the local public information function depends largely on the availability of staff for training and the allocation of dedicated personnel to manage public information during a disaster or emergency. While this issue is not insurmountable, it is important to remain aware of it.

2.6.3 Recommendations

Table 6: Public Information Officers Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Coordinate training for personnel within county emergency services to function in the public information role during disasters and emergencies.	• Adequate staff throughout the county can serve in the role of PIO during disasters or emergencies.	• Coordinate a dedicated team of at least 10 PIO-capable individuals to function during disasters and high-profile emergencies. • Coordinate FEMA independent study training course IS-29, Public Information Awareness, for all PIO team members. • Coordinate FEMA three-day training course E0105, Public Information Basics, for all PIO team members. • Coordinate FEMA five-day training course E0388, Advanced Public

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
			Information Officer, for all PIO team members. • Coordinate logistics to enable at least five PIO team members to complete FEMA's Master Public Information Officer Program training program.
2	Participate in the creation of a memorandum of understanding (MOU) that creates a local/regional public information strike team, with assistance and input from all Columbiana County emergency services, for use during disasters and emergencies.	• A strike team of trained staff is available to respond to disasters or emergencies within the region (possibly the state) to augment local responders.	• Actively participate with other county emergency service agencies in the creation of an MOU that creates and outlines the use of a local/regional public information strike team. • Coordinate FEMA five-day training course E0388, Advanced Public Information Officer, for all PIO team members.

2.7 EPA

2.7.1 Key Findings Summary

Key Findings

- The U.S. and Ohio EPAs have a high level of expertise in handling major spills and releases.
- The EPAs have capabilities for air and water monitoring during chemical releasees and hazardous materials incidents.
- The EPAs can respond to requests for assistance on incidents that exceed the capabilities of local responders.
- The efforts of both agencies were squarely grounded in safety—responders and residents alike.

2.7.2 Overview and Analysis

Due to the extent of the hazardous materials released and the potential for air and water contamination, both the Ohio EPA and the U.S. EPA were requested during the early stages of the incident. Through the course of a typical train derailment incident, it is the responsibility of the railroad to notify the national response center (NRC), which in turn is responsible for notifying the appropriate state-level EPA organization. During the early hours of the incident, Norfolk Southern was questioned by the CCEMA director as to whether this notification had or had not been made. Throughout this conversation, it became apparent that Norfolk Southern had not yet done so, as is its responsibility. Upon this realization, at approximately 11:15 p.m., approximately two hours after the derailment, the initial notification was made directly by the CCEMA director to Kurt Kollar (who represents the 15 northern and eastern Ohio counties). The Ohio EPA arrived onsite at approximately 1:45 a.m.

The initial threat assessment was conducted with Norfolk Southern, which included its two environmental contractors (one assigned on the east end and one on the west end of the derailment). The Ohio EPA's mission was to coordinate the environmental impacts and provide technical assistance on issues such as soil, water, and air contamination from the burning hazardous materials. The initial and most imminent threat was the containment and control of hazardous materials, followed by providing support during remediation and restoration efforts. Due to the still-unknown nature of the exact circumstances, the Ohio EPA's initial efforts focused on assessing the water runoff from firefighting efforts and observing the evacuation efforts.

The following morning, Danny Wiltse relieved Mr. Kollar; both men functioned as the on-scene coordinators (OSC) for the first few months during recovery efforts after the initial incident. The Ohio EPA was assisted by U.S. EPA representatives Stephen Wolfe and James Justice. The Ohio and U.S. EPAs worked side-by-side throughout the response and recovery periods—the Ohio EPA handled water monitoring while the U.S. EPA handled air-monitoring efforts. The air-monitoring efforts were especially important considering the burning chemicals and the several residents who refused to evacuate. The U.S. EPA placed several portable air-quality-monitoring stations in the areas where these residents were located to continuously verify that it was safe for these residents to remain in place.

Operational Strengths

Operationally speaking, both EPAs are highly trained, well-equipped, and experienced in handling major spills and/or releases of hazardous materials and chemicals. Both agencies made their resources available from the onset. Upon arriving on scene, both agencies were able to provide expert advice and guidance to unified command and answer questions regarding next steps. The air- and water-monitoring activities of both agencies were crucial to understanding the size and distance of the release, which ultimately informed unified command of the extent of evacuations necessary (including the relocation of the incident command post and Communications).

One of the biggest operational strengths of the incident, as noted by both agencies, was the absence of reported injuries. The derailed rail cars were far enough back (approximately 45 cars behind the locomotives) that none of the Norfolk Southern personnel in the locomotives were injured. Because of the time of day and the location where the incident occurred, there was not a large public presence, further lessening the risk of citizen injuries. The overarching thought from both agencies was that life-safety issues trumped all else throughout the incident.

In consideration of life safety, a drone was flown over the site to provide each agency with an accurate vision of the extent of the incident. This not only provided a graphical representation of the derailment, but also information about the number of derailed cars, the number of cars on fire, and the overall length of the derailment. Before this action, neither agency had a clear understanding of the situation. The images and videos provided much-needed information for formulating their action plans. CCEMA was able to obtain and provide a

manifest to emergency officials within approximately an hour of the initial derailment (approximately 10:00 p.m.). This informed the agencies of the potential chemicals involved.

Areas for Improvement

Hazardous Materials Situational Awareness

While the information provided by the drone was helpful, information was still a problem. It was reported that even though CCEMA had received the manifest, it was initially unknown which cars had derailed and which had caught fire; although the manifest provided a list of what materials had potentially been released (e.g., vinyl chloride and lube oil), The Ohio EPA reported that it took approximately two to three days for each agency to identify how much of each chemical was released. The amount of chemicals released directly impacts what actions the agencies would or would not have undertaken, not to mention the extent of monitoring (air and water) that would need to be completed.

Unprepared Responders

As the first of the two agencies on the scene, the Ohio EPA noted that several of the on-scene hazardous materials teams were not familiar with using their own equipment. Specifically, several crews had air-monitoring equipment, but the Ohio EPA and U.S. EPA had to step in to provide basic instruction on this equipment and conduct extensive air-monitoring operations.

The agencies had difficulties integrating with the unified command system. During the beginning stages of the incident, after they arrived on scene, they reported that the initial unified command structure was difficult to use. As more individuals arrived that were experienced utilizing NIMS concepts, and the concepts were followed, unified command improved and worked well. The operations during the first 24 hours were very fluid due to the nature of the incident, and not all concepts were followed or were not in writing, which hampered the agencies' integration into the command structure.

Additionally, responders did not appear to be fully aware of the capabilities of the agencies. Although this may not have necessarily hampered operations in the beginning stages of the incident, it could potentially hamper future response efforts if not rectified. For example, the U.S. EPA conducts training sessions throughout each region to educate responders on the capabilities the agency has and what actions they can take for a specific type of incident. Had this knowledge been more prevalent during the initial response to the derailment, it is possible additional capabilities could have been requested to make mitigating the incident easier and/or faster.

Communication and Coordination

Communication and coordination have been noted as issues throughout all phases of the incident. From the perspective of the Ohio EPA and U.S. EPA, it was difficult to integrate into the various meetings that were being held throughout the initial days. Meeting notifications were made to the main players, but the agencies were not included and found out about them either at the start time of the meeting or not at all. It was noted that the planning meetings that they were involved in were great for keeping forward momentum going.

An example of the impacts of these challenges surrounds the decision to conduct the vent and burn of the vinyl chloride tank cars. From the perspective of Mr. Kollar of the Ohio EPA, vent and burn was the only option presented to incident command. Mr. Kollar, as well as representation from the U.S. EPA, were present during these discussions; Mr. Kollar stated that the EPA was not consulted to determine the possibility of other alternatives to the vent and burn. This is in contrast to the recollections, at the time, of incident commander Chief Drabick and the CCEMA director, who both recall that Ohio EPA representatives Ms. Vogel and Mr. Kollar

and U.S. EPA representative Mr. Justice all had knowledge of the vent and burn and the opportunity to provide input. In addition to the Ohio EPA and U.S. EPA representatives, images demonstrate that Ohio EPA and U.S. EPA representatives and many others were in attendance, during a meeting prior to the vent and burn being conducted, including Ohio Governor DeWine and the National Guard Civil Support Team. Subsequently, Chief Drabik was only given a limited window in which to make a decision. Norfolk Southern's contracted experts advised command that they only had "13 minutes to make a decision or risk a tank car BLEVE." During the NTSB hearings in the months following the incident, it was revealed by the chemical manufacturer OxyVinyls, LP that the temperatures were not approaching the boiling liquid expanding vapor explosion (BLEVE) point and in fact were falling (negating the need for the vent and burn strategy).

Public Information/Crisis Messaging

As was noted by CCEMA, public information and crisis messaging were issues for the Ohio EPA and U.S. EPA also. Social media can be a great asset to a locality during a disaster and is used by many local and state government entities across the nation when disasters occur.

In this case, however, due to how long it took to coordinate the public crisis information messaging, individuals across the internet begin publishing misinformation that spread like a wildfire. Many such examples can be found through simple searches on sites such as Google or Facebook, including misinformation that still circulates today. The location of the derailment and subsequent chemical release were located several miles downstream of East Palestine's water system intake. As such, the water was completely safe to drink. As this fact was not widely publicized up front, many untruths went viral on the internet. To emphasize the fact that the water was safe, even Ohio Governor DeWine and several of his officials were shown by the media drinking tap water to prove the point afterwards.

Challenges and Obstacles to Improvement

No direct challenges or obstacles to improvement exist, as the Ohio EPA is a state agency and U.S. EPA is a federal agency. However, actions and/or recommendations to address the areas for improvement above, except where directly funded by Norfolk Southern, must be presented by the Village in the form of a request to either the state or federal agency.

Time and Funding

Requests made to either agency could be met with two primary obstacles—time and funding. Many state and federal government agencies are understaffed for the workload that they have been assigned. With too few people to handle existing taskings, new taskings may take longer to implement (if implemented at all). The same can be said about funding—funding for existing projects is limited to what has been proposed in the current (and future) federal omnibus bills. Without additional funding, additional taskings may be neglected.

2.7.3 Recommendations

Table 7: EPA Recommendations

#	Strategies	Anticipated Outcomes and Benefits	Actions (Steps)
1	Coordinate with local emergency response and elected officials to develop appropriate public information and crisis messaging policies.	• Public affairs activities can be undertaken quicker and more efficiently. • Community members can receive crisis messaging and public safety instructions in a timely manner, especially during life-safety situations. • The public and visitors to the county receive critical information in a timely enough manner to prevent misinformation from propagating through social media. • Life-safety decisions are informed sooner (such as evacuations).	• Coordinate the development of public information policies for use during disasters and emergencies. • Coordinate the development of crisis messaging policies for use during disasters and emergencies. – Include pre-defined messages for specific situations. – Include pre-determined instructions for situations such as shelter-in-place and mandatory evacuations. • Participate annually in a review of pre-defined crisis messages for relevancy and updates with local emergency response and elected officials.

3 Summary

At approximately 8:54 p.m. local time, on February 3, 2023, an eastbound Norfolk Southern Railway general merchandise freight train 32N of the 1st (Train 32N), derailed on main track 1 of the Norfolk Southern Fort Wayne Line of the Keystone Division in East Palestine, Ohio. Thirty-eight rail cars derailed, resulting in a hazardous materials leak and ensuing fire, which damaged an additional 12 cars. There were no reported fatalities or injuries. A one-mile evacuation zone surrounding the derailment was implemented by first responders due to the release of hazardous materials.

Operationally, the incident response benefited from effective teamwork, staff willingness to work extended hours, and support from local and regional partners. However, telecommunicators were challenged facing real-time, unplanned decisions due to limited staffing. Telecommunicators also lacked training for managing large-scale events like train derailments, and radio communications suffered from poor quality, inaudibility, and over-saturation on the primary channels. Interoperability was found to be lacking across the county, hindering interagency coordination. Inadequate public safety radio systems and the reliance on portable radios for command operations also posed challenges.

Given the incident's public health impact, CCEMA's provision of accurate and timely public information was crucial, with digital delivery methods such as WENS, IPAWS, and social media being the quickest way to disseminate information.

A unified command structure was slow to be initiated, impacting coordination among responders. Updates were infrequent, mutual-aid requests were fragmented, and no box alarm system was established. Neither Level I nor Level II staging was established, and accountability for firefighter safety appears unclear. The lack of training on rail incidents and incident command affected response effectiveness.

Additional considerations for areas of improvement include the CCEMA director's denied request for EOC activation, the importance of prior training and exercises, and the need for coordinated messaging between jurisdictions and state and federal agencies. The expertise of both the Ohio EPA and U.S. EPA in handling major spills and releases, air and water monitoring during chemical incidents, and their ability to respond beyond local capabilities underscored safety priorities for both responders and residents.

It is relatively easy to suggest alternative courses of action after a tragic event when in a controlled environment and as more information is brought to light. However, MCP has made several actionable recommendations that the Village and their partners can implement to improve future operations and emergency response outcomes overall, including if another hazardous incident occurs.

Appendix A: Improvement Plan

This improvement plan has been developed specifically for Columbiana County, Ohio, and its associated fire, emergency management, EMS, law enforcement, and PSAP agencies as a result of the train derailment that occurred on February 8, 2023. These recommendations draw on the findings contained within this AAR and are divided into four corrective action types—Coordination, Planning, Systems and Equipment, and Training.

Improvement Plan						
#	**Area of Improvement**	**Corrective Action**	**Corresponding Recommendation**	**Responsible Party**	**Status**	**Estimated Completion Date**
	Coordination					
1	Radio use policies	Create radio communications procedures based on industry standards	Section 2.1 Recommendation 4	All	Open	
2	Incident command	Utilize incident command on incidents	Section 2.2 Recommendation 7	EPFD	Open	
3	Safety program	Implement safety program and metrics	Section 2.2 Recommendation 8 Section 2.2 Recommendation 9	EPFD	Open	
4	Event pre-plans/response plans	Develop event pre-plans/response plans	Section 2.4 Recommendation 1 Section 2.5 Recommendation 6	All	Open	
5	County all-hazards plan	Include more robust documentation in all-hazards plan	Section 2.4 Recommendation 3	CCEMA	Open	

Improvement Plan						
#	Area of Improvement	Corrective Action	Corresponding Recommendation	Responsible Party	Status	Estimated Completion Date
6	ICS-300/400 courses	Continue offering training	Section 2.4 Recommendation 4 Section 2.5 Recommendation 1	CCEMA	Open	
7	CCEMA EOC	Use CCEMA EOC for large-scale incidents	Section 2.4 Recommendation 5	All	Open	
8	Disaster/emergency hotwash	Request hotwash following all disasters/high-profile emergencies	Section 2.5 Recommendation 5	CCEMA	Open	
9	PIO team	Create regional PIO team	Section 2.6 Recommendation 2	All	Open	
	Planning					
10	PSAP consolidation	Develop PSAP consolidation plan	Section 2.1 Recommendation 1	All	Open	
11	Continuity of operations planning	Improve continuity plans/practices	Section 2.1 Recommendation 5	PSAP	Open	
12	Cross-agency planning	Engage in coordinated cross-agency planning sessions	Section 2.1 Recommendation 6	All	Open	
13	Fire department responses	Develop fire department box (response) assignments	Section 2.2 Recommendation 4	EPFD	Open	

Improvement Plan						
#	**Area of Improvement**	**Corrective Action**	**Corresponding Recommendation**	**Responsible Party**	**Status**	**Estimated Completion Date**
14	Fire task forces	Develop task force groups	Section 2.2 Recommendation 5	EPFD PSAP	Open	
15	Fire staging	Implement fire staging policy	Section 2.2 Recommendation 6	EPFD	Open	
16	Grants	Apply for training grants	Section 2.2 Recommendation 13 Section 2.5 Recommendation 9	EPFD CCEMA (assist)	Open	
17	Rail incident training	Conduct rail incident training	Section 2.4 Recommendation 2	All	Open	
18	CCEMA staffing	Request staffing increase	Section 2.5 Recommendation 3	CCEMA	Open	
19	Public information/crisis messaging	Develop appropriate public information and crisis messaging	Section 2.5 Recommendation 7 Section 2.7 Recommendation 1	All (include elected officials)	Open	
	Systems and Equipment					
20	Radio system and interoperability	Consolidate multiple radio systems into a county system	Section 2.1 Recommendation 3 Section 2.2 Recommendation 2	All	Open	

Improvement Plan						
#	**Area of Improvement**	**Corrective Action**	**Corresponding Recommendation**	**Responsible Party**	**Status**	**Estimated Completion Date**
			Section 2.3 Recommendation 1			
	Training					
21	Interagency training	Conduct scenario-based training	Section 2.1 Recommendation 2 Section 2.2 Recommendation 3 Section 2.3 Recommendation 4	All	Open	
22	ICS training	Require ICS training for all staff	Section 2.2 Recommendation 1 Section 2.3 Recommendation 2	All	Open	
23	EPA training	Engage U.S. EPA and Ohio EPA to obtain capability training	Section 2.2 Recommendation 10	EPFD CCEMA	Open	
24	Hazardous materials training	Require hazardous materials training	Section 2.2 Recommendation 11 Section 2.2 Recommendation 12 Section 2.3 Recommendation 3	EPFD EPPD CCEMA (coordination)	Open	

Improvement Plan						
#	**Area of Improvement**	**Corrective Action**	**Corresponding Recommendation**	**Responsible Party**	**Status**	**Estimated Completion Date**
			Section 2.5 Recommendation 1			
25	Training course minimums	Work to reduce training course minimums	Section 2.5 Recommendation 2	CCEMA	Open	
26	PIO training	Coordinate PIO training	Section 2.5 Recommendation 4 Section 2.6 Recommendation 1	CCEMA	Open	