



Cybersecurity & Infrastructure Security Agency

Prepared for Western Colorado

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Western Colorado TTX AAR/IP
December 2024

**Western Colorado
Rural Emergency Medical Communications Tabletop Exercise
After Action Report and Improvement Plan**

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This document was prepared for the State of Colorado by the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA), Interoperable Communications Technical Assistance Program (ICTAP) as part of Work Order # WO23-391. Additional information about the program can be found at <https://www.cisa.gov/safecom/ictapscip-resources>.

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EXECUTIVE SUMMARY

The Colorado Statewide Interoperability Coordinator (SWIC), on behalf of the counties of Western Colorado, requested assistance from the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) to conduct a tabletop exercise (TTX) to exercise operable and interoperable communications between public safety agencies and hospitals in Western Colorado and the surrounding area as part of the Rural Emergency Medical Communications Demonstration Project (REMCDP). After completion of the TTX, this After-Action Report/Improvement Plan (AAR/IP) was created to identify gaps and make recommendations for improving Emergency Medical Services communications across the Western Colorado.

Overview

The Western Colorado Rural Emergency Medical Communications TTX took place October 8, 2024. The exercise was conducted in person at the Montrose County Events Center, 1036 North 7th Street, Montrose, CO. 62 participants from 41 agencies attended the TTX.

The suggested actions in this report should be viewed as recommendations only. In some cases, agencies may determine the benefits of implementation are insufficient to outweigh the costs or effort required. In other cases, agencies may identify alternative solutions that are more effective or efficient. Each agency should review the recommendations and determine the most appropriate action and the resources needed (i.e., time, staff, and funding) for implementation.

Key Findings

The Western Colorado Rural Emergency Medical Communications TTX AAR/IP identifies critical gaps and associated recommendations regarding communications inside and in the area surrounding Western Colorado. This report can be used to help the county improve overall communication and will allow agencies to develop priorities and focus their efforts on achieving and improving emergency communications resiliency.

This TTX highlighted several successes:

- Gathering of a diverse group of agencies from various backgrounds and capabilities and the relationship in the area are a great leveraging point.
- Awareness and understanding of COOP is outstanding.
- NIMS/ICS processes were solid.
- Concept of the Pulsara project is very beneficial, however, additional training and exposure is needed.
- Backup plan and technologies for dispatch is excellent.
- Immediate notification methods by some hospitals should be a regional standard if possible.
- PSAP-to-PASAP talkgroup is a best practice allowing for direct communications between communications centers statewide.

This TTX also highlighted several challenges, listed below are some of the higher priority recommendations:

- Develop or update existing SOPs, SOGs, MCI, or COOP Plans to ensure they meet the current agency and personnel needs and threat protections given today's ever-changing environment.
- Identify the strategic and tactical information needed to create or update a PACE plan.
- Look for alternatives to dispatcher tasking so that in major incidents responders are not reliant on dispatchers for every aspect of support.
- Ensure that regional public safety agencies and support entities receive a copy of all communications plans and policies that may outline what is available in the region.
- Consider creating a long-term migration plan for all Western Colorado agencies to come to a common CAD platform.
- Ensure redundancies are identified and trained for those that rely heavily on voice and data cellular services.

Conclusion

The Western Colorado REMCDP TTX is an essential step toward increasing and improving interoperable communications in and around Western Colorado and the State of Colorado as a whole. By preparing for large-scale, multi-jurisdictional responses, making improvements, and continually assessing progress, public safety entities in the Western Colorado will continue to excel in their dedication to disaster preparedness and their mission to achieve an optimal level of secure operable, interoperable, and resilient communications.

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1 INTRODUCTION

The mission of the Department of Homeland Security (DHS), Cybersecurity and Infrastructure Security Agency (CISA) is to unify and lead the nationwide effort to improve cybersecurity and emergency communications capabilities across all levels of government. More information about CISA and other CISA work products related to interoperable and redundant communications can be found at <https://www.cisa.gov/safecom>.

In its efforts to advance interoperability, CISA developed the National Emergency Communications Plan (NECP), which is the nation's strategic plan that establishes goals, objectives, and actions to enhance and improve interoperable and operable emergency communications. The NECP recommends improved planning and coordination across the emergency communications ecosystem, including emergency medical personnel. To aid in NECP implementation, Congress authorized CISA to establish the Rural Emergency Medical Communications Demonstration Project (REMCDP) that leverages existing technologies and engages non-medical professionals to help establish or sustain statewide medical communications systems and use existing infrastructure to improve the delivery of rural medical care.

The Colorado Statewide Interoperability Coordinator (SWIC), on behalf of the Western Colorado, requested assistance from CISA/ICTAP to conduct a tabletop exercise (TTX) to discuss redundant communications between public safety agencies and hospitals in Western Colorado and the surrounding area, in the event of communications infrastructure failure. After completion of the TTX, this After-Action Report/Improvement Plan (AAR/IP) was created to identify gaps and make recommendations for improving EMS communications across Western Colorado.

1.1 Exercise Overview

The Western Colorado Rural Emergency Medical Communications TTX took place October 8, 2024. The exercise was conducted in person at the Montrose County Events Center; 1036 North 7th Street, Montrose, CO. 62 participants from 41 agencies attended the TTX.

The suggested actions in this report should be viewed as recommendations only. In some cases, agencies may determine the benefits of implementation are insufficient to outweigh the costs or effort required. In other cases, agencies may identify alternative solutions that are more effective or efficient. Each agency should review the recommendations and determine the most appropriate action and the resources needed (i.e., time, staff, and funding) for implementation.

CISA/ICTAP uses a first responder-driven approach to obtain candid input from participants. This approach minimizes ambiguity and ensures effective communications solutions are identified and implemented.

The Western Colorado Rural Emergency Medical Communications TTX generated an increased awareness of existing solutions and highlighted the need for future cooperation and coordination across jurisdictions and agencies. Through their continued efforts and by building on the results of the TTX, local agencies and jurisdictions throughout the Western Colorado are encouraged to continue to improve communications systems and processes.

Event Type

Tabletop Exercise

Exercise Name

Western Colorado Rural Emergency Medical Communications Tabletop Exercise

Exercise Date

October 8, 2024

Duration

6 hours

Location

Montrose County Events Center
1036 North 7th Street, Montrose, CO

Sponsor

WRETAC

Scenario Type

Active Shooter Incident at a Local Hospital

1.2 Exercise Planning Team

The Western Colorado Rural Emergency Medical Communications TTX was planned in coordination with local, state, and federal agencies. Local agencies were instrumental in creating a realistic and tailored scenario for the TTX participants, which drove discussion about operable, redundant, and interoperable communications concepts, policies, plans, and capabilities specific to the local area. Included in Appendix B is a list of Exercise Planning Team (EPT) members.

1.3 Participants

1.3.1 Participant Roles

- **Players** – First responders and communication specialists who responded to the situation presented based on their current knowledge of response procedures, plans, cross-jurisdictional agreements, and communication capabilities.
- **Observers** – Agency and subject matter expert personnel who did not play during the exercise but who watched the session and provided their inputs via the Hotwash.
- **Facilitator** – Individual controlling/conducting the TTX who provided situation updates and moderated the conversations.
- **Evaluators** – CISA/ICTAP subject matter experts who documented the exercise and interpreted exercise outcomes for inclusion in the AAR/IP.

Players	49
Observers	7
Facilitator	1
Evaluators	5
Total Participants	62

1.3.2 Participating Agencies & Organizations

Exercise participants (listed in Appendix C) included representatives from the following organizations.

Local Agencies (26 total)

- City of Montrose
- Crawford Fire Protection District #5
- Delta County
- Delta County Ambulance District
- Delta County Emergency Management
- Delta County Health & Human Services
- Delta County Public Health
- Hotchkiss Police Department and Fire District
- Montrose County Public Health
- Montrose County Sheriff's Office
- Montrose Fire Protection District
- Montrose Police Department
- Mountain Village
- North Fork EMS
- Olathe Fire Protection District
- Ouray County EMS
- Ouray County Public Health
- Paonia Fire Department
- San Miguel Sheriff's Office
- Silver Thread Public Health - Hinsdale County
- South Central Region Health Care Coalition
- Telluride Fire Protection District
- Town of Crawford
- WestCO Dispatch
- Western Region Healthcare Coalition of Colorado
- Western Regional EMS and Trauma Advisory Council

State Agencies (3 total)

- Colorado Department of Public Health and Environment
- Colorado Division of Homeland Security & Emergency Management (DHSEM)
- Colorado State Office of Public Safety Communications

Federal Agencies (3 total)

- Bureau of Reclamation

- Cybersecurity and Infrastructure Security Agency
- FirstNet Authority

Other Agencies (9 total)

- Axis Health System
- CareFlight of the Rockies
- Delta Health
- Gunnison Valley Health
- Gunnison Valley Health Paramedics
- Intermountain Health - St. Mary's Regional Hospital
- Montrose Regional Health
- Pulsara
- Telluride Medical Center

2 DESIGN

2.1 Purpose

The Western Colorado Rural Emergency Medical Communications TTX provided an opportunity to evaluate current communications concepts, plans, and capabilities across jurisdictions and disciplines within and in areas surrounding Western Colorado.

2.2 Scope

The TTX focused on discussing and demonstrating key risks, plans, and procedures within and across participating agencies, specifically focusing on situations in which communications pathways are lost or otherwise unavailable.

Outcomes from the TTX included a better understanding of the successes and gaps associated with a large-scale, multi-agency incident that notionally takes place at the same time that a Continuity of Operations (COOP) plan is put into place in a Western Colorado Dispatch Center. Evaluation measures included policies, plans, and capabilities. Consistent with Homeland Security Exercise and Evaluation Program (HSEEP) guidelines, an Improvement Plan is appended to this AAR (see Appendix A).

The TTX was not designed to focus on personnel competency; rather, it was designed to focus on concepts, policies, plans, and procedures for communications redundancy during a large-scale response.

2.3 Capabilities

The National Planning Scenarios¹ and the establishment of the National Preparedness Guidelines² steered the focus of homeland security toward a capabilities-based planning approach. Capabilities-based planning focuses on planning under uncertainty, as the next danger or disaster can never be forecast with complete accuracy. Therefore, capabilities-based

¹ National Planning Scenarios: https://www.fema.gov/txt/media/factsheets/2009/npd_natl_plan_scenario.txt

² National Preparedness Guidelines: http://www.fema.gov/pdf/emergency/nrf/National_Preparedness_Guidelines.pdf

planning takes an all-hazards approach to planning and preparation, which builds capabilities that can be applied to a wide variety of incidents.

For the past several years, states and urban areas have used capabilities-based planning to perform baseline assessments of their homeland security efforts by comparing their current capabilities against the Target Capabilities List (TCL)³ and the Emergency Support Function (ESF)⁴ annexes. This approach identified gaps in current capabilities and focused efforts on identifying and developing priority capabilities and tasks for the jurisdiction.

In September 2011, DHS released the first edition of the National Preparedness Goal⁵ in response to Presidential Policy Directive 8: National Preparedness (PPD-8). The National Preparedness Goal describes our nation's security and resilience posture through Core Capabilities, which represent an evolution from the TCL. The Core Capabilities address five mission areas (Prevention, Protection, Mitigation, Response, and Recovery). Each Core Capability includes preliminary capability targets.

The EPT selected the capabilities listed below for this exercise.

- Operational Communications
- Operational Coordination
- Public Health, Healthcare, and Emergency Medical Services
- Public Information and Warning

2.4 Goal and Objectives

The goal of the Western Colorado Rural Emergency Medical Communications TTX was to discuss the dispatch center COOP plan, to include roll over and fail over plans for 9-1-1 and redundant communications between and among Emergency Medical Services, dispatch, hospitals, fire, and law enforcement agencies.

The exercise focused on the following objectives:

- Discuss the policies and procedures associated with hospital personnel and first responder communication and coordination during a multi-jurisdictional incident.
- Discuss 9-1-1 COOP plans, procedures, and capabilities in regional emergency communications centers.
- Discuss the policies and procedures associated with a large medical incident.
- Identify and discuss the availability for participants to access redundant communications technologies available in the region.
- Enhance the overall readiness of the participants in the event of an actual emergency involving a multi-jurisdictional incident.

2.5 Hotwash

After completing the TTX, Players, Observers, and support personnel were given an opportunity to discuss the exercise with each other during a facilitated Hotwash session. The Hotwash provided all participants a chance to share their observations, correct misconceptions, and help improve communications. Both exercise play and Hotwash comments were consolidated

³ Target Capabilities List: <http://www.fema.gov/pdf/government/training/tcl.pdf>

⁴ ESF Annexes: <http://www.fema.gov/pdf/emergency/nrf/nrf-esf-all.pdf>

⁵ National Preparedness Goal: <http://www.fema.gov/pdf/prepared/npg.pdf>

through a process that identifies and discusses event findings and methodologies to address challenges faced by participating agencies.

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3 SCENARIO

The exercise scenario was developed locally in collaboration with the EPT and is unique to the area in and around Western Colorado. Exercise planners incorporated critical communication elements into the TTX. The communications focus provided an opportunity to identify and document gaps in current capabilities and processes. The exercise also sparked productive discussions among scenario players that enabled the sharing of different approaches and operating procedures with other jurisdictions.

The scenario used for Western Colorado Rural Emergency Medical Communications TTX is detailed below:

Scenario Introduction:

It is a beautiful and sunny day in Western Colorado. Fall has arrived and the region is recovering from Oktoberfest. For the most part, first responders and citizens alike are getting ready for the onset of winter and the next tourist season.

- Discuss the daily baseline for agencies
 - Police
 - Fire/EMS
 - Hospitals
 - Emergency Management
 - Comm Centers

Phase 1 - Initial Notifications:

At 7:50 AM the first calls hit 9-1-1 that there is someone in the parking lot of the Hospital, shouting and waving a rifle in the air in a threatening way.

At 7:53 AM the first call hits 9-1-1 reporting a shooter in the Hospital Emergency Department. The caller reported that the shooter was screaming about his bill and demanding to see the doctors responsible. At least 2 individuals from the staff were shot as the suspect entered the department.

Phase 2 – PSAP Impacts:

In the middle of the chaos of this incident, some planned maintenance on the PSAP building involving a backhoe started at 8:00 AM. At 8:22 AM all internet and external server access was lost. Upon a quick investigation by supervisors, it was realized that the fiber lines for the communications center were severed.

Phase 3 – Public Alerts and Warning:

Personnel responsible for alerts and warnings to the public arrive at work by 8:30 AM and are ready to send out any notices needed.

Phase 4 – Hospital Coordination:

The last calls received by 9-1-1 shortly after 8:00 AM indicated that the shooter had injured or killed a number of people in the emergency department and was last seen heading into a stairwell. Hospital staff are requesting assistance for 15 severely injured individuals. It is believed that at least 5 individuals have been killed.

At 8:11 AM calls are received from the hospital's HR department reporting a shooter in the hallway outside the administrative offices.

Phase 5 – Communications Challenges

By 8:30 AM, responders from agencies all over the region have shown up to help. State and federal agency representatives are on scene as well. Coordination of personnel has become an issue, and responders are expressing concerns about the ability to communicate with the teams they have been assigned.

Coordination among the regional dispatch centers is delayed due to the overwhelming number of 9-1-1 calls related to the incident or just asking for more information.

Phase 6 – Recovery and Ramifications:

By 9:00 AM it is all over. Officers surrounding the barricaded room, just before a planned entry, heard three shots. Upon entry to the room, they found the suspect had killed the two hostages and turned the weapon on himself.

Responders acted heroically throughout the incident and saved many lives due to their quick thinking and actions. The ramifications of this incident will resonate for many, many years to come, however.

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4 GAP ANALYSIS

The Western Colorado Rural Emergency Medical Communications TTX AAR/IP identifies gaps and provides recommendations to address those gaps. With this knowledge, agencies can develop priorities and focus their efforts on achieving and improving communications throughout the Western Colorado.

The TTX highlighted several successes:

- Gathering of a diverse group of agencies from various backgrounds and capabilities and the relationship in the area are a great leveraging point.
- Awareness and understanding of COOP is outstanding.
- NIMS/ICS processes were solid.
- Concept of the Pulsara project is very beneficial, however, additional training and exposure is needed.
- Backup plan and technologies for dispatch is excellent.
- Immediate notification methods by some hospitals should be a regional standard if possible.
- PSAP-to-PSAP talkgroup is a best practice allowing for direct communications between communications centers statewide.

The exercise also identified several opportunities for improvement. Participant responses revealed gaps in communications capabilities that should be viewed simply as deficiencies in methods, processes, capabilities, and/or systems. The gaps and related recommendations are detailed below.

4.1 Formalized Plans, Policies and Agreements

Description:

The TTX participants discussed various levels of legacy policies and procedures or “handshake” agreements. Some agencies policies were more developed than others. When asked if the agencies maintained a Continuity of Operations (COOP) Plan, Tactical Interoperable Communications Plan, Mass Casualty Incident (MCI) Plan, among others, almost none of the participants did. Participants did discuss in progress versions of some of the desired plans, however, there were several disciplines and jurisdictions that admitted their plans needed to be formalized or updated. Having established written directives, such as policies and procedures, in place provides the public safety community with clear direction regarding what actions need to be taken during an emergency incident. These written directives can serve as a incident response plan and should also contain notification and escalation trigger points.

Additionally, there were many agencies that have informal agreements for mutual aid purposes, which work well. However, there are circumstances where a formal agreement may be necessary, especially as personnel that made the original “handshake” agreement, move on or retire. Overall, there was a tendency for participants to rely heavily of legacy procedures and agreements as a reflex. By formalizing some of these procedures (e.g., notification processes and calling trees), participants will likely make their procedures more efficient and less time consuming.

Recommendations:

1. Develop or update existing SOPs, SOGs, MCI, or COOP Plans to ensure they meet the current agency and personnel needs and threat protections given today's ever-changing environment.
2. Train personnel on SOPs and COOP as part of annual or regular training cycles.
3. Update or create agreements between agencies and jurisdictions where necessary and appropriate.

4.2 PACE Planning

Description:

One of the primary conversations that was had during the TTX revolved around the idea of redundancy planning for failures. It was clear through discussions about redundant communications plans (known as Primary, Alternate, Contingent, and Emergency (PACE) plans) that although many technologies and capabilities were available, formalized procedures for use and transition to were lacking. Specifically, participating agencies should consider documentation of the various methods, activation trigger points, redundancies, and other critical details that would facilitate connectivity when regular talkpaths fail. Agencies need to create a policy and procedure that outlines and properly coordinates at least the following:

- Identification of lost communications.
- Available levels of communication talkpaths.
- Trigger points for transition.
- Activation procedures.
- Additional monitoring components.
- Migration back to the primary mode.

Overall, some participants had a good understanding of the various communications methods available to them, however no formalized plan to implement the use in a standardized way was discussed.

Recommendations:

1. Identify the strategic and tactical information needed to create or update a PACE plan.
2. Ensure that personnel are briefed and trained on the contents of the PACE plan.
3. Train responders on the components of the PACE plan and ensure they can navigate to those resources and understand when those transitions need to take place.
4. Incorporate the PACE plan into future exercises to properly vet the communication methods identified.
5. Update the PACE plan regularly to ensure new technologies or methods are included

4.3 Overreliance on Dispatch Telecommunicators

Description:

Participants in the exercise repeatedly fell back on using the telecommunicators for several duties without fully realizing how overwhelmed the dispatch personnel would be. Dispatchers were tasked with communication relays, resource requests, personnel recalls and activations, and notifications. Combined with their normal duties of taking calls and dispatching public safety personnel, the dispatchers would have quickly found themselves inundated and overwhelmed. Due to the small number of dispatch staff that is at each PSAP, dispatchers would have quickly become backed up and all the needs of the field personnel that were being requested of them would have been delayed.

Recommendation(s):

1. Look for alternatives to dispatcher tasking so that in major incidents responders are not reliant on dispatchers for every aspect of support.
2. Consider assigning tactical dispatchers or an incident-based communication center (ICC), whenever possible, to the incident scene or incident command post.

4.4 Participation of Key Agencies and Personnel

Description:

Exercise participation is often difficult for agencies due to staffing and other issues, however there are critical personnel that certainly should be included in public safety communications exercises. Telecommunicators, volunteers, and additional operational personnel, among others, would have provided participants an opportunity to discuss communications with personnel in various functions that may be involved in an incident.

Recommendations:

1. Ensure all critical public safety entities, both paid and volunteer, are invited to engage in future exercises.
2. Continue to develop and use regional annual training and exercise plans that allow agencies to plan to engage in more training and exercise when possible

4.5 Regionwide Tactical Interoperable Communications Plan

In a very large-scale incident involving multiple counties, a regionwide Tactical Interoperable Communications Plan (TICP) would be instrumental in facilitating communications response across the region. An up-to-date regional TICP would allow responder agencies in the region to quickly determine the availability of deployable communications resources, which would allow targeted requests for assistance. In addition, the TICP would include information about federally available resources and details as to how requests should be submitted.

Recommendations:

1. Ensure that each county has a TICP that is maintained, shared, and kept up to date.
2. Make each county TICP readily available to all stakeholders (e.g., local emergency management personnel) as appropriate.
3. Develop a regionwide TICP that includes, at a minimum:
 - A detailed list of deployable communication's assets is available for regional request.
 - Contact information for each county and for each deployable asset.
 - Readily available state assets for request
 - A clear and detailed request procedure.
4. Identify a process to ensure that the regionwide TICP is validated and maintained.
5. Disseminate the Regional TICP to all stakeholders as appropriate.
6. Train stakeholders in the TICP once developed.
7. Ensure that non-communications-specific personnel are included in this training as appropriate because there may be policies and procedures in some states that require centralized resource requests

4.6 Awareness of Communications Capabilities and Resources

Description:

Discussion based exercises like the one held in October are a great place to increase participants awareness of resources and personnel that may assist them during an emergency. This is especially true with communications personnel, who often are in the background until there is an issue. Many participants echoed the same sentiment, their participation in the exercise allowed them to have a better understanding and awareness of the available resources within the Western Colorado region and from the State of Colorado as well. Participant responses demonstrated that they had not been exposed to similar communications discussions in past exercises. Due to the limited number of personnel in attendance, it must be assumed that many others from around the region do not know if these resources and need to be exposed through training and exercise.

Recommendations:

1. Ensure that regional public safety agencies and support entities receive a copy of all communications plans and policies that may outline what is available in the region.
2. Train personnel on identifying what is in the region or state and what the request procedures are to use those resources.
3. Exercise personnel on the request and use of any pertinent communications capabilities or equipment that may be needed during an emergency.

4.7 Public Alert and Warning

Description:

During an incident like the one presented during the TTX, getting information out to the public that is accurate and quick is very important. Although active critical incidents are often over quickly, it is still important to plan to get information out to the public during a live incident or while in the recovery phase. Individual agencies all discussed having a Public Information Officer that would handle public facing communications. However, very few of them could describe a plan to come together to form and release a single unified message.

Participants did describe that they would be looking to create hotline or use of traditional 3-digit information lines to get information to the public, however, there was not a clear plan on how to divert the public traffic from the PSAP to these resources.

The Integrated Public Alert and Warning System (IPAWS) was briefly discussed but not understood by most. The use of Wireless Emergency Alerts (WEA) was the term participants used and when asked if IPAWS was in use, only a limited number of jurisdictions had access.

The region would certainly benefit from adopting and practicing the use of a Joint Information Center (JIC) where PIOs from various impacted agencies or jurisdictions can work together to create unified messaging.

Recommendations:

1. Consider updating policies and procedures to encourage the use of a JIC during appropriate incidents.

2. Identify and document the various ways public information can be sent out.
3. Ensure that regional and local personnel are trained to use or activate appropriate public messaging or notifications platforms or software.
4. Investigate the use and integration of IPAWS for public alert and warning systems.

4.8 CAD Interoperability

Description:

Computer Aided Dispatch (CAD) platforms are often a very personal choice for agencies due to the customization and personalization aspects of the platform. Most agencies choose these platforms based on agency responsibilities, cost, and capability. Throughout the exercise and across all three regions of the state, several different CAD types were mentioned. When asked if there was a platform to allow these different CAD applications to communicate, there were none mentioned except the internal messaging mechanism. CAD offers telecommunicators and responders' access to a variety of data about a given incident that could help to save lives of both the public and the first responders. Establishing a consistent CAD platform either regionally or statewide would greatly benefit responders, especially in mutual aid situations.

Understanding that the expense of changing or updating CAD platforms can be too cumbersome, a long-term approach should be used to migrate agencies and organizations to a similar platform over time, as their agencies naturally would have updated software. Costs can be consolidated, and vendors can be leveraged for such a long-term situation allowing the state and local agencies the ability to still receive the customization that each feels necessary for the level of need and complexity that is needed.

Recommendation(s):

1. Consider creating a long-term migration plan for all Western Colorado agencies to come to a common CAD platform.
2. Consider acquiring a web-based CAD platform or bridge that allows CAD data from various agencies and CAD platforms interoperate and share data for incidents that impact large areas or regions.

4.9 Overreliance on Cellular

Description:

One of the most telling, however expected, portions of the exercise was the sheer number of agencies and organizations that depend on commercial cellular vendors to provide both voice and data access for their responders and personnel. The vast majority of participants discussed a reliance on cellular technologies for primary communications. Many of the same personnel listed cellular technologies as redundancies as well. Reliance on commercial vendors can become problematic due to a variety of reasons, first and foremost is the necessity to share those networks with the general public. Another primary reason, cellular technologies are often impacted early during an emergency.

Recent events around the country have demonstrated that even the most reliable regional and city networks are overwhelmed and compromised even for routine events and large gatherings of people. As technologies evolve and first responders have become more reliant on cellular technologies for primary voice and data communications, the necessity to share a network with all of commercial cellular provider's customers becomes a liability. Without the ability to have

priority and preemption capabilities, cellular technologies serve as more of a problem than a solution to first responders.

Recommendation(s):

1. Ensure redundancies are identified and trained for those that rely heavily on voice and data cellular services.
2. Formalize policies and procedures that identify redundancies to replace heavily relied on technologies.

4.10 Use of VOIP Phones as a Backup

Description:

During the exercise conversation, Voice Over Internet Protocol (VOIP) phones were discussed as a primary and redundant communications method. There is nothing wrong with this approach as many agencies and organizations are using this type of service for phone communications. The potential for this technology to be impacted by an incident is centered around the access of power. Participants were adamant that they had several levels of redundancy for power in the case of losing the primary power supply. Ensuring that power backups can reliably operate with additional load requirements is essential. Also essential is to ensure that agencies have identified an additional redundancy that does not require external power sources that are integrated into the infrastructure.

Recommendations:

1. Ensure agencies that rely heavily on VOIP for phone communications, identify additional phone resources that do not require external power.

4.11. Frequency of Radio Training and Drills

Description:

As is common during many exercises, participants described that they do not get enough training and exercise on various topics, to include communications. Many of the participants had never received any formal radio or communications training to help them understand how they are supposed to operate during an emergency. Even responders who use the radio on a daily basis may not have ever received formal training during an academy or annual training cycle.

Communications training and exercises can help personnel to be come more familiar with the plans, policies, procedures, and personnel that are required for operability and interoperability. Not all training and exercise iterations need to be large and complex. Daily or weekly drills can be conducted as a new shift arrives. For example, a 5-minute conversation with incoming staff about a single presented scenario to gauge the knowledge and understanding of your personnel on a specific procedure can be invaluable.

Recommendations:

1. Conduct regular communications training for various levels of end users of communications systems.
2. Ensure any trainings conducted are crafted to the appropriate end user level.
3. Consider conducting simple and short drills on a more regular basis.

4.12. After Action Processes

Description:

Participants were asked if there was any formalized process for recording the lessons learned and best practices from any incident or event to which their agencies respond. Although many agencies discussed informal debriefings and discussions, no formal process was identified to document and share lessons learned at the local, regional, or state level. The entire after-action process (AAR, IP, and the Corrective Action Process (CAP)) provides a framework that supports constant improvement of interoperable communications.

Recommendations:

1. Identify a formal process for local, regional, and state agencies to document agency communications performance, lessons learned, and best practices for any incident or event an agency may participate in.
2. Consider the feasibility and desirability of the Western Colorado partner agencies working together to review and learn from region-wide incidents through an after-action process.
3. Consider implementing a regular regional review of local, regional, and state AARs to glean lessons learned.

4.13 In Building Coverage

Description:

Exercise participants from multiple agencies, jurisdictions, and disciplines repeatedly stated throughout the exercise that their radio systems suffer from poor coverage on their portable radios when they enter the region's large buildings (e.g., schools, hospitals, etc.). Participants were concerned that the lack of coverage in some of the hospital areas would be dangerous for responders but there was nothing they currently could do about it. There is a desire to retrofit some kind of technology that would provide better coverage, however, the costs associated are not insignificant and it requires both public safety and private industry to coordinate and agree on a solution.

Recommendations:

1. Document what buildings in the region have in-building coverage issues. Where possible identify specific areas within the buildings that are a concern.
2. Consider pushing for local or state regulations requiring all new build projects of a certain nature to include some kind of radio frequency propagation system that allows public safety responder radios to work.
3. Identify procedures or technologies (i.e., human chain, portable repeater, etc.) that allow responders to mitigate the in-building coverage issues when possible.

4.14 Communications Silos

Description:

Throughout the discussion, many participants described that their communications during this scenario would likely be siloed within their own agency, jurisdiction, or discipline. Although siloing of specific duties within an incident are very important to maintain efficient operations,

when everyone isolates themselves within their desired communications method, often important information is not received in a timely way by those that need it. There are many incidents in the past that demonstrate the need to break down these communications silos where necessary and appropriate, none more obvious than September 11, 2001.

Recommendations:

1. Where possible identify necessary and unnecessary communications silos.
2. Identify mitigating methods and technologies that may allow for the integration of many disciplines or jurisdictions, regardless of communication method.

4.15 Radio Programming

Description:

Radio programming for multi-jurisdictional regions can be incredibly difficult. The interoperation of multiple disciplines across multiple jurisdictions creates a need for radios to be programmed with a large variety of agency talk paths. Navigating through a radio to unfamiliar location can be difficult even for seasoned responders that do not practice often. During the Western Colorado TTX, there were a large number of participants that were not daily users of the radio system or the associated handheld (portable) radios. The unfamiliarity with the radios led to a request from a participant to only program the radios with useful items for the specific end user. Although the request is understood, this level of scrutiny in the programming would lead to no standardization of a programming template which causes difficulties for radio programmers. There is a possible balance between these two ideologies which exists in selective programming of an entire programming template to only include the zones/banks of talk paths that may be pertinent to the end users.

Recommendations:

1. Encourage agencies to periodically check the programming of their radio equipment to ensure it is programmed correctly and familiarity is maintained.
2. Ensure each agency develops radio programming guides (fleetmaps) to train their personnel on the programming of their radios.
3. Ensure personnel have regular radio navigation training to familiarize themselves with the programming of their radio.
4. Consider standardizing the radio type and model in future equipment purchases to assist the radio programmers and trainers by adding consistency across the county.
5. Consider expanding zone programming to the pertinent agency potential redundancies to reduce the amount of navigation needed.
6. Consider removing repeated zone programming to eliminate confusion, especially where multiple naming conventions are used

4.16 Priority Telecommunications Services

Priority in communications is crucial to the continuity of operations when facing adverse conditions such as weather events, mass gatherings, cyber-attacks, or events arising from human error. CISA offers three Priority Telecommunications Services (PTS) that enable essential personnel to communicate when networks are degraded or congested.

These services include:

- GETS for wireline voice communications.
- WPS for wireless voice communications.
- Telecommunications Service Priority (TSP) for repair and installation of organizations' critical voice and data circuits.

4.16.1 GETS/WPS Awareness

Description:

GETS is used for landline priority access and WPS is for cellular priority. However, not all responders are aware of these services. While not ensuring communications should landline or cellular technologies totally fail, these systems could provide priority access to functioning systems for public safety personnel should the systems be operational but heavily loaded with high call volumes.

CISA has created an application that completes the necessary dialing procedure for you. The PTS Dialer App is available for both Android and iOS operating systems. They can be found at <https://www.gwids.cisa.gov/sso/loginoptions>.

Note for Private Branch Exchange (PBX) users: The 710-area code is not included in the standard area code tables programmed into PBX systems. GETS calls to this area code will not go through unless this area code is manually added to the PBX.

Note for Wi-Fi calling: Many cellular carriers incorporate Wi-Fi connectivity into mobile phones to increase the coverage and capacity of their networks. Wi-Fi connectivity is utilized for both data and voice (i.e., Voice over Wi-Fi) communications. Currently, there is no priority on the Wi-Fi network segment of GETS and WPS calls. If your GETS or WPS calls on a Wi-Fi network do not go through, try completing your call on your mobile service provider network by disabling Wi-Fi on the mobile phone, disabling Wi-Fi calling on the device or physically moving beyond the range of the Wi-Fi network.⁶

Recommendations:

1. Disseminate DHS quick reference information for the use of GETS and WPS.
2. Ensure that necessary personnel understand the various uses and applications where these resources can be applied.
3. Ensure that the capabilities and limitations of these resources are a part of any information or training provided.
4. Acquire and test GETS/WPS services. Review information at <http://www.dhs.gov/publication/getswps-documents> for guidance on properly testing these services.
5. Incorporate GETS/WPS into future training and exercises.
6. Ensure all permanent critical facilities (i.e., 9-1-1 Centers, Emergency Operations Centers (EOCs), medical facilities, etc.) have GETS for all landline phones.
7. Ensure critical personnel cell phones are equipped with WPS access.
8. Ensure all necessary critical facility personnel regularly test the use of GETS cards on facility landline phones.

⁶ <https://www.cisa.gov/sites/default/files/publications/Helpful%20Tips%20for%20Users%20of%20WPS%20and%20GETS.pdf>

4.16.2 Telecommunications Service Priority

Description:

Restoration of voice and data pathways can sometimes be expedited by enrollment in the TSP program⁷. TSP is a program that authorizes national security and emergency preparedness organizations to receive priority treatment for vital voice and data circuits or other telecommunications services. TSP service user organizations may be in the federal, state, local, or tribal governments; critical infrastructure sectors in industry; or non-profit organizations that perform critical National Security or Emergency Preparedness functions.

There are two primary uses for TSP; one for installing new service and one for restoring existing service. When circumstances require the installation of a new telecommunications service faster than a service vendor's normal processes allow, an organization may request provisioning priority. This can be an immediate installation following an emergency or an installation by a specific date, also known as essential provisioning. Restoration priority is for new or existing telecommunication services and requires that service vendors restore them before non-TSP services. Restoration priority helps minimize service interruptions that may have an adverse effect on the supported National Security or Emergency Preparedness functions. Organizations must request TSP restoration priority on their circuits before a service outage occurs.

Recommendations:

1. Determine whether eligible lines of communication are currently enrolled in the TSP program.
2. Enroll all eligible lines of communication that are not currently enrolled in the TSP program.

4.17 General Training Recommendations

Training can offer a substantial improvement to the knowledge responders possess and their ability to apply that knowledge to the incident at hand. Many performance or knowledge deficiencies can be rectified by an increase in applicable training.

Develop a training protocol that includes the whole spectrum of emergency responders from the local to the state and federal levels. Although by no means exhaustive, some additional examples of recommended training opportunities the region could pursue include:

1. Discipline-specific communications training. Training of this type is available through groups such as the Association of Public Safety Communications Officials (APCO), the National Emergency Number Association (NENA), etc.
2. Communications Unit position-specific training courses available through CISA/ICTAP.
 - a. Communications Unit Leader (COML)
 - b. Communications Technician (COMT)
 - c. Incident Communications Center Manager (INCM)
 - d. Incident Tactical Dispatcher (INTD)
 - e. Radio Operator (RADO)
 - f. Information Technology Service Unit Leader (ITSL)

⁷ <https://www.cisa.gov/about-tsp>

- g. Auxiliary Communications (AUXCOMM)
3. Regional subject matter experts who can become instructors in applicable training topics through train-the-trainer courses.
4. Routine training opportunities such as weekly radio-net tests, etc.

The following are some online training resources:

CISA provides emergency communications tools and resources at the Safecom website (cisa.gov/safecom). This website provides:

- Communications Unit training resources (cisa.gov/safecom/communications-unit). These include the annual Communications Unit master training calendar and how to request these courses and other training through ICTAP.
- Communication Assets Survey and Mapping (CASM) (cisa.gov/safecom/casm-tool) provides a secure, free, nationwide tool for agencies to inventory, share, and plan the usage of public safety emergency communications assets.

The **FEMA Emergency Management Institute (EMI) Virtual Campus** at training.fema.gov/EMI.aspx has numerous online courses of interest, including several courses offered under the FEMA Independent Study Program such as:

- IS-100 Introduction to the Incident Command System (ICS)
- IS-700 An Introduction to the National Incident Management System (NIMS)

The **FEMA National Preparedness Directorate National Training and Education Division (NTED)** at firstrespondertraining.gov offers more than 150 courses to help build critical skills that responders need to function effectively in mass consequence events.

APCO International (apcointl.org/training-and-certification) offers telecommunicator and dispatch training.

NENA (nena.org/page/education) offers courses that span the breadth and depth of 9-1-1 technology and Public Safety Answering Point (PSAP) operations topics.

5 CONCLUSION

The Western Colorado REMCDP TTX is an essential step toward increasing and improving interoperable communications in and around Western Colorado and the State of Colorado as a whole. By preparing for large-scale, multi-jurisdictional responses, making improvements, and continually assessing progress, public safety entities in the Western Colorado will continue to excel in their dedication to disaster preparedness and their mission to achieve an optimal level of secure operable, interoperable, and resilient communications.

APPENDIX A IMPROVEMENT PLAN

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date

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APPENDIX B EXERCISE PLANNING TEAM

Table B-1: Exercise Planning Team Contact List

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APPENDIX C EXERCISE PARTICIPANTS

Table C-1: Exercise Participants Contact List

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APPENDIX D GLOSSARY

AAR	After Action Report
APCO	Association of Public Safety Communications Officials
AUXCOMM	Auxiliary Communications
CAD	Computer Aided Dispatch
CASM	Communication Assets Survey and Mapping
CISA	Cybersecurity and Infrastructure Security Agency
COML	Communications Unit Leader
COMT	Communications Technician
COOP	Continuity of Operations
DHS	Department of Homeland Security
ECC	Emergency Communications Center
ECD	Emergency Communications Division
ED	Emergency Department
EMI	Emergency Management Institute
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPT	Exercise Planning Team
ESF	Emergency Support Function
FOUO	For Official Use Only
GETS	Government Emergency Telecommunications Service
HFPD	Hoehne Fire Protection District
HSEEP	Homeland Security Exercise Evaluation Program
ICS	Incident Command System
ICTAP	Interoperable Communications Technical Assistance Program
INCM	Incident Communications Center Manager
INTD	Incident Tactical Dispatcher
IOD	Integrated Operations Division
IP	Improvement Plan
ITSL	Information Technology Service Unit Leader
MAA	Mutual Aid Agreements
MHz	Megahertz
MOU	Memorandum of Understanding
NECP	National Emergency Communications Plan
NENA	National Emergency Number Association
NIFOG	National Interoperability Field Operations Guide
NIMS	National Incident Management System
NTED	National Training and Education Division
PACE	Primary, Alternate, Contingent, Emergency
PBX	Private Branch Exchange
PPD	Presidential Policy Directive

PSAP	Public Safety Answering Point
PTT	Push to Talk
RADO	Radio Operator
REMCDP	Rural Emergency Medical Communications Demonstration Project
SWIC	Statewide Interoperability Coordinator
TA	Technical Assistance
TAD	Trinidad Ambulance District
TCL	Target Capability List
TERT	Telecommunicator Emergency Response Taskforce
TFD	Trinidad Fire Department
TPD	Trinidad Police Department
TSP	Telecommunications Service Priority
TTX	Tabletop Exercise
VOIP	Voice Over Internet Protocol
WPS	Wireless Priority Service

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