



# Metropolitan Emergency Services Board

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2022-2024 Interoperable Emergency Communications Strategic Plan (IECSP)

Approved: July 14, 2021

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## Section 1: IECSP Team Members

The Metropolitan Emergency Communications Board (MESB) is one of seven regional Emergency Communications Boards (ECBs) and Emergency Services Boards (ESBs) in the state of Minnesota which have been established to provide local governance on matters related to emergency communications. The MESB's membership includes representatives from the following entities:

- Anoka County
- Carver County
- Chisago County
- Dakota County
- Hennepin County
- Isanti County
- Ramsey County
- Scott County
- Sherburne County
- Washington County
- City of Minneapolis (Hennepin County)

The following representatives from the region and the Minnesota Department of Public safety division of Emergency Communication Networks (DPS-ECN) served as members of the Integrated Preparedness Planning Team (planning team) and contributed to the content of this plan:

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## Section 2: Purpose

The purpose of this Interoperable Emergency Communications Strategic Plan (IECSP) is to assist the Metropolitan Emergency Services Board and regional stakeholders to identify preparedness priorities and the associated Planning, Organizational, Equipment, Training, and Exercise (POETE) activities that are necessary to achieve them.

The IECSP is a key component of the Integrated Preparedness Cycle (Figure 1), which provides an effective mechanism to support decision making, prioritize funding allocation, and measure progress toward building, sustaining, and delivering capabilities based on a jurisdiction's/organization's threats, hazards, and risks. Using this process, stakeholders gain a better understanding of the full breadth of preparedness activities that impact their jurisdiction/organization and allows for a more deliberate approach to multi-year preparedness activity planning.

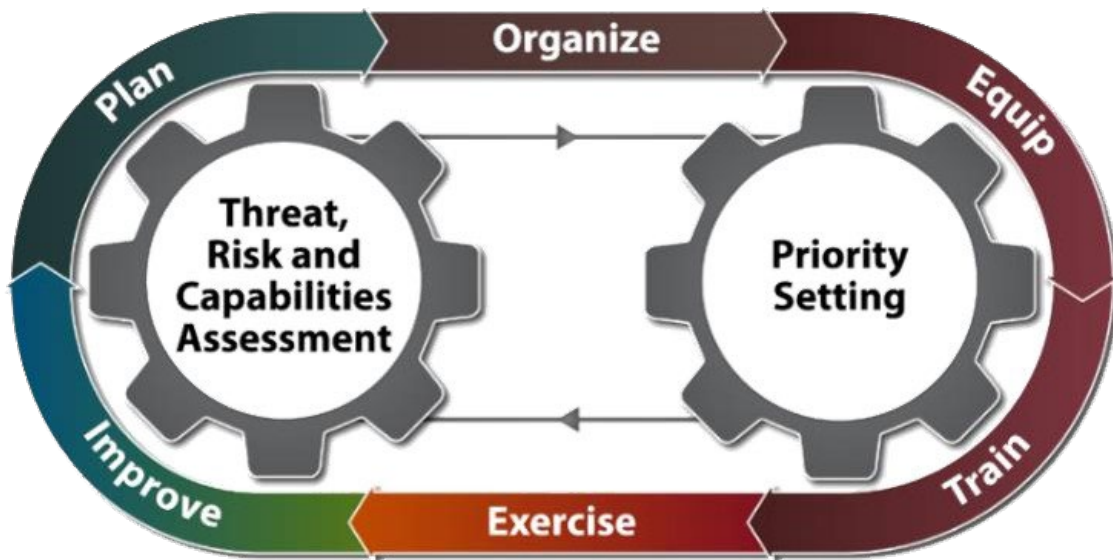


Figure 1: The Integrated Preparedness Cycle

## Section 3: Scope

The scope of this plan is limited to the POETE activities necessary to improve interoperable emergency communication capabilities (9-1-1, Land Mobile Radio, Public Alert and Warning, and Wireless Broadband) within the region.

The Integrated Preparedness Cycle for this plan includes the three-year period beginning January 1, 2022 and ending December 31, 2024.

## Section 4: Strategic Priorities

Using the information gathered through the activities described in Section 5, the planning team identified the following priorities to help improve the region’s interoperable emergency communication capabilities during this Integrated Preparedness Cycle:

Preparedness Priorities
1. <b>Expanded Interoperability Between PSAPS</b>
2. <b>Emergency Communications Continuity of Operations</b>
3. <b>Continue to Invest, Upgrade, and Expand the ARMER system</b>
4. <b>Secure Funding – Stable, Planned, Predictable, and Sufficient</b>
5. <b>Emergency Communications Staff - Recruitment, Development, and Retention</b>
6. <b>Successfully Transition to NG Core Services</b>
7. <b>Engaging in Industry Research and Standard Development</b>
8. <b>Educating Policy Makers</b>

### Priority #1: Expanded Interoperability Between PSAPS

As recommended in the Civil Unrest (May-June 2020) After Action Review, workload sharing, and regional situational awareness have been established as the highest priority in the metro region strategic planning. The metro area public safety answering points (PSAPs) need to establish CAD-to-CAD interoperability and regional situational awareness to work more efficiently and effectively both day-to-day and during high profile events.

#### Planning Activities

The MESB 9-1-1 Technical Operations Committee (9-1-1 TOC) formed a workgroup and tasked it with developing an implementation plan for CAD-to-CAD interoperability and regional situational awareness. The plan is expected to include recommendations on governance, funding, agency participation, and system capabilities. The draft plan will then be presented to the Board for approval.

#### Organizational Activities

Once the Board approves the plan, the governance agreements can be drafted and distributed to the PSAP governing authorities for signature, establishing a new governing authority and funding mechanism. The new governance authority can then prepare and issue an RFP that includes the system capabilities identified in the implementation plan.

#### Equipment Activities

Implementation of a CAD-to-CAD interoperability and regional situational awareness system will require a regional wide area network (WAN) connecting all the regional PSAPs. The MESB’s intent is to work with the Statewide Emergency Communication Board (SECB) and DPS-ECN to implement a regional NG9-1-1 ESInet WAN that conforms to the NENA INF-016.2 Emergency Services IP Network Design, which can support multiple mission-critical public safety applications including, but not limited to, NG9-1-1, CAD-to-CAD, logging, etc. The regional WAN will be configured specifically to support PSAP utilization of cloud-based public safety applications as well as provide connectivity for geodiverse application servers at regional PSAP datacenters.

#### Training Activities

Once the systems are in place, operational policies and procedures must be developed both within PSAPs as well as with the other partnering PSAPs which utilize the CAD-to-CAD interoperability and regional situational awareness system capabilities. These policies and procedures will be incorporated into each PSAP's training curriculum.

#### Exercise Activities

Once the PSAP personnel are familiar with how to use the CAD-to-CAD interoperability and regional situational awareness system for day-to-day operations, regular quarterly or semi-annual training exercises should be established for how to utilize the system during high-profile, multi-agency events. The training exercises need to be scheduled on a regular basis to help telecommunicators retain proficiency between live events.

## **Priority #2: Increase Continuity of Operations Options and Capabilities**

Each of the ten-county metro area PSAPs have prepared individual continuity of operations plans (COOP). During those planning efforts challenges were identified, especially for the larger PSAPs, when developing strategies for working from an alternate location. The use of the public safety WAN identified in Priority #1 above to enable remote access to mission-critical public safety applications will offer additional COOP options and capabilities.

#### Planning Activities

COOP planning at a regional level which builds on the cooperative PSAP relationships that were identified in the individual PSAP COOPs should focus on access to mission-critical public safety applications from the other cooperative PSAP locations. For example, if Washington, Ramsey, and Dakota County PSAPs have agreed to work cooperatively as part of their COOPs, the regional planning should focus on implementing the technology needed to permit Dakota telecommunicators access to the Dakota ARMER, 9-1-1, and CAD applications from workstations at the Ramsey or Washington County PSAPs, with reciprocal access for Ramsey or Washington County telecommunicators to their mission-critical applications at Dakota Communications Center workstations.

An alternative regional plan could utilize the two back-up PSAP locations currently deployed by Ramsey County and now being implemented by the Minneapolis Emergency Communications Center (MECC) as designated regional COOP facilities. Remote access to mission-critical applications could then be established for a group of PSAPs at each location (e.g., east metro PSAPs utilize the Ramsey County facility and west metro PSAPs utilize the MECC facility). If Hennepin County builds a new back-up facility to replace the aging Golden Valley location, the new facility could also be designed to function as a regional back-up facility.

#### Organizational Activities

Enabling remote access for other PSAPs' applications and utilizing facilities owned by another entity will require funding and governance plans which address the equitable costs associated with the shared technology and facility.

#### Equipment Activities

Remote access to mission-critical applications from alternate PSAP locations will require the public safety WAN described in Priority #1 to provide the IP-connectivity between the sites.

#### Training Activities

All PSAP personnel need to be trained on the processes and procedures needed to utilize remote access capabilities for each of the mission-critical applications.

### Exercise Activities

To remain viable when needed, regular COOP exercises are required to train new personnel and ensure existing personnel retain the skills needed to operate effectively from the alternate site utilizing remote access to all their mission-critical applications.

## **Priority #3: Continue to Invest In, Upgrade, and Expand the ARMER System**

The ARMER system is the primary emergency responder communication tool throughout the ten-county metro area. A consistent, predictable maintenance and enhancement plan must be established that includes adequate sustainable funding. ARMER expansion capabilities should include a focus on cybersecurity, encryption capabilities, and making plans for Integrated Voice and Data (IV&D) and Key Management Facility (KMF). IV&D adds Project 25 (P25) data to the ARMER system allowing data features such as GPS location, Over the Air Rekeying (OTAR), and Over the Air Programming (OTAP). KMF is a server that manages and deploys encryption keys for subscriber units. The system may need to transition to support P25 Phase 2 Time-Division Multiple Access (TDMA)-based voice and data traffic to increase system capacity as well as Long-Term Evolution (LTE) push-to-talk capabilities if ARMER system loading increases, and additional frequencies are not available for further channel expansion. The metro area should also agree to make considerations to standardize on Advanced Encryption Standard (AES), which would allow system owners and users to plan accordingly to have the equipment necessary in place.

### Planning Activities

The metro region should discuss the use of AES-based encryption and develop plans for its implementation. Interoperability between LTE push-to-talk equipment on ARMER must be defined and any limitations LTE users may experience must be clearly understood. The transition to ARMER P25 Phase 2 TDMA voice and data traffic will require coordination with the system owners and users to ensure backward compatibility while allowing new equipment onto the system. During the time frame of the strategic plan, researching options for IV&D, KMF, and TDMA would need to take precedence, so that the following strategic planning frame could build on that research.

### Organizational Activities

The FCC inquiry and possible rule-making that would prohibit 9-1-1 fee diversion for narrowly defined non-9-1-1 uses may negatively impact the ARMER system funding. Currently, Minnesota Statutes allocate 9-1-1 surcharge fees to support the ARMER system. If the use of 9-1-1 fees for the ARMER system is prohibited by federal action, a new ARMER system funding stream will be needed.

### Equipment Activities

Procure and implement the system software and hardware upgrades necessary to support AES encryption, IV&D, KMF, and/or P25 Phase 2 TDMA capabilities based on the plan described under the Planning Activities section above.

### Training Activities

ARMER system user training will be required as new capabilities and features are introduced. Regular in-service training for all system users should be done on an annual basis but may need to be done more frequently depending on the operational changes associated with any specific upgrade or enhancement.

### Exercise Activities

At least one large scale, multi-agency training exercise should be conducted annually that includes the use of Communications Unit Leader (COML) and Metro Region Communications Response Task Force (CRTF) resources.

## **Priority #4: Secure Funding – Stable, Predictable, and Sufficient**

The emergency response continuum, which starts with a 9-1-1 call for assistance through until the last responding field unit clears the call, requires system upgrades, maintenance, and hardware replacement on an ongoing basis. Lifecycles of system components and software continue to shorten as new technology is introduced. Keeping these mission-critical systems operating 24x7, 365 days per year requires an ongoing stable, predictable, and sufficient source of funding.

### Planning Activities

The emergency communications systems in place today are no longer stand-alone systems but are part of regional and statewide systems that require coordination and interoperability. This complicates how systems are purchased and financed. More agencies are making joint, cooperative purchase of public safety applications that can be shared to control costs and enable greater functionality and capabilities than each agency would be able to afford on their own. State, regional, and local entities are also looking at software-as-a-service (SaaS) procurement models for hosted and cloud-based mission-critical applications to stabilize expenses on a regular monthly basis that includes system procurement, upgrades, security, and maintenance.

The 9-1-1 surcharge has been a reliable source of funding for many years but has never been adequate to fully fund all the 9-1-1 and ARMER system costs. Recent FCC activity has now raised questions about whether the use of 9-1-1 surcharge funding to support the ongoing costs associated with the ARMER system will be allowed if the state or local agencies want to remain eligible to participate in federal grant programs. If the federal authorities determine that the ARMER funding is a diversion of 9-1-1 funding, a new source of ARMER funding must be identified.

Next Generation 9-1-1 (NG9-1-1) systems rely on point-in-polygon 9-1-1 call routing. This requires highly accurate geographic information system (GIS) data that define PSAP and emergency response agency service area boundaries. This GIS data must be updated and maintained on an ongoing basis with error corrections completed within 24-48 hours of detection. The metro area county GIS departments will need to create and prioritize new workflow processes to support accurate 9-1-1 call routing and may need to increase staffing in some cases. The costs associated with the ongoing maintenance of these mission-critical datasets needs to be included as part of the 9-1-1 system costs and the associated funding streams, just as master street address guide (MSAG) creation, maintenance, and location validation have been part of the ongoing 9-1-1 expenses associated with E9-1-1 systems that are paid to the 9-1-1 service providers. This responsibility for accurate 9-1-1 call routing is shifting from the 9-1-1 service providers to GIS data creators as part of the transition from E9-1-1 to NG9-1-1 and the costs associated must be included in the overall NG9-1-1 system costs and funding.

### Organizational Activities

Cooperative planning is needed to identify the total costs involved in procuring and operating the emergency communications continuum applications. Once these costs are known, a shared funding formula should be established that identifies what system costs will be the responsibility of each state, regional, and local entity involved, as well as the funding stream and source sufficient to meet those ongoing responsibilities. It should be recognized that grant funding cannot be relied on as a source of on-going funding and should only be utilized to enhance or enable the procurement of system components while the regular funding stream is established and implemented to take over the system funding responsibilities when grant funds are exhausted or are no longer available. Establishing these



funding streams and sources may require legislative action to ensure that the funding stream is adequate, stable, and predictable regardless of which political party is in the majority at any given time. Maintaining the emergency communications systems should be done with dedicated funding and remain a non-partisan issue to the greatest extent possible.

#### Equipment Activities

All equipment components of the emergency communications systems must be on a lifecycle replacement plan with total cost of ownership and replacement for these components calculated and included in the emergency communications system funding plan.

#### Training Activities

(None identified)

#### Exercise Activities

(None identified)

## **Priority #5: Staff Recruitment, Development, and Retention**

Finding, training, and retaining highly skilled telecommunicators is an ongoing challenge for many metro area PSAPs. This is a complicated issue with many factors, but it is recognized that retaining highly skilled telecommunicators is key to ensuring PSAPs effectively answer, analyze, prioritize, assign, and manage emergency responses utilizing the resources available through the law enforcement, fire, and emergency medical services (EMS) agencies within their service areas.

#### Planning Activities

Staff retention and recruitment needs to be integrated into each PSAP's strategic planning. There is general acceptance that it is more economical to retain existing staff than to recruit and train new telecommunicators, even though existing staff are in a higher salary band than new hires. Many PSAPs are chronically short-staffed. This leads to higher stress on the existing staff, increased hours, and high overtime pay rates, which is not sustainable long term.

#### Organizational Activities

PSAP management and policy makers need to recognize telecommunicators as equal partners in the emergency response continuum. Traditionally, pay scales, career advancement opportunities, and emergency services funding have not recognized the value of the responsibility and decision-making telecommunicators are expected to provide in determining what type of emergency is being reported, what the appropriate response should be, and the coordination of that emergency response. There are four equal partners involved in the emergency response continuum that are all vital to a successful emergency response: PSAPs, law enforcement, fire, and EMS.

#### Equipment Activities

Equipping alternate work locations may enable telecommunicators to work safely during times when PSAPs are overwhelmed with calls from a high visibility, multi-jurisdiction event or natural disaster. The ability to access all mission-critical applications needed by a telecommunicator to effectively answer and manage emergency calls for their jurisdiction from an alternate location can add capacity to the staffing available to better manage call volume, as well as provide better COOP options.

#### Training Activities

Minimum training standards and curriculum for new telecommunicators provide a foundation for career development. On-going training for veteran telecommunicators ensures consistent, effective emergency response initiation and coordination. Training curriculum at each PSAP must include

resiliency training, peer support, and professional counseling resources to enable telecommunicators to withstand the stress and emotional damage that can occur from repetitive exposure to traumatic events.

#### Exercise Activities

(None identified)

## **Priority #6: Successful Transition to NG9-1-1 Core Services**

The current E9-1-1 system utilizes tools and processes designed to support receiving 9-1-1 calls from fixed-location telecommunications systems with caller location determined by where the end of the service provider's wire was terminated. Wireless and VoIP mobile and nomadic telecommunications service has been jury-rigged to provide approximate caller location in the E9-1-1 environment.

NG9-1-1 Core Services are designed specifically to support mobile and nomadic telecommunications service by utilizing the location of the calling device at the time of the emergency call as the basis for routing to the PSAP responsible for serving the caller's location. In addition, NG9-1-1 Core Services support multimedia communications that will enable 9-1-1 callers to make voice, text, or streaming video calls, as well as being able to send images or video to the 9-1-1 system.

#### Planning Activities

NG9-1-1 systems offer many options for 9-1-1 callers which require more complexity within the system itself and in the management of the system. The transition from the current E9-1-1 system to NG9-1-1 Core Services will be made in multiple steps over an extended timeframe, all done while continuing to take emergency calls 24x7, 365 days per year. Each step requires advance planning, testing, and implementation.

NG9-1-1 Core Services will involve coordination with multiple 9-1-1 service providers including ESInet, system security, ingress aggregation and conversion, call routing, as well as ongoing system monitoring and management services.

#### Organizational Activities

The transition from E9-1-1 will require a cooperative effort from individual PSAPs, the regional emergency services boards, DPS-ECN, and the SECB. The transition plans and processes will not be a one-size-fits-all solution. Some components of the NG9-1-1 Core Services may be implemented in stages at the regional level as the underlying GIS data and answering applications become able to support NG9-1-1 call delivery and routing. NG9-1-1 GIS data creation, maintenance, and error correction processes need to be developed and tested, which will reduce the risk of depending on end-of-life legacy infrastructure.

#### Equipment Activities

The transition to NG9-1-1 Core Services will require originating service providers to migrate their call delivery from SS7 Time Division Multiplexing (TDM) network technology to end-to-end session-initiated protocol (SIP) call delivery or contract for the translation of their TDM 9-1-1 call traffic to SIP before the call is delivered to the NG9-1-1 Core Services.

PSAP answering applications must support 9-1-1 call delivery from NG9-1-1 Core Services utilizing SIP with caller location information delivered at the time of the call using the Presence Information Data Format-Location Object (PIDF-LO) protocol. PSAP logging equipment must be able to support call metric and content capture in an NG9-1-1 standard compliant environment.

#### Training Activities

Telecommunicators must be trained as each stage in the transition is implemented. This will include training on the answering application used to answer the calls. It will also include training in the interpretation and use of the additional information data that will become available to telecommunicators in the NG9-1-1 environment.

#### Exercise Activities

(None identified)

## **Priority #7: Support and Participation in Cutting-Edge Emergency Communications Research and Standard Development**

Minnesota, and the metro region specifically, has been at the forefront of embracing new 9-1-1 service technology, capabilities, and 9-1-1 industry standard development. Continued involvement by PSAP management, telecommunicators, and MESB staff at the state and national level in the development of operational and technical standards for 9-1-1 service is instrumental in maintaining the high level of emergency services metro area residents and visitors enjoy.

#### Planning Activities

(None identified)

#### Organizational Activities

Policy maker and organizational management support for participation in industry standard development processes should continue to be a priority. Staff should be encouraged and given time to share their knowledge, skills, and abilities with the standard development and training organizations that serve the 9-1-1 and emergency communications industry.

#### Equipment Activities

(None identified)

#### Training Activities

(None identified)

#### Exercise Activities

(None identified)

## **Priority #8: Increase Policy Maker Understanding and Support for Emergency Communications**

Telecommunicators and their role in the emergency response continuum go largely unnoticed unless something goes wrong with an emergency response. Flashing lights, fire trucks, ambulances, squad cars, and uniformed personnel are all very visible to the people involved in an emergency. The voice that answered the 9-1-1 call, identified the emergency, decided what the appropriate emergency response should be, assessed the available emergency responder resources available at that moment, initiated the emergency response, and coordinated that emergency response is invisible and often taken for granted. 9-1-1 and emergency communications personnel are equal partners in the effective delivery of emergency services along with law enforcement, fire, and EMS personnel.

#### Planning Activities

Emergency communications management and policy makers need to intentionally develop a communications strategy designed to educate other emergency response partners and policy makers

about what life and death decisions and responsibilities telecommunicators are trained for and expected to make on multiple calls per day. Telecommunicators cannot control their workload or take time to mentally prepare for what they encounter in answering the calls they answer. Management must advocate with policy makers to help them understand the stress level that telecommunicators routinely work under so that policy makers can provide adequate resources to support the emergency communications mission and the people who provide that service.

#### Organizational Activities

Policy makers who are responsible to ensure effective emergency responses within their jurisdiction must be given sufficient information to understand the resources needed to adequately support the people who provide the emergency responses.

#### Equipment Activities

(None identified)

#### Training Activities

PSAP managers and training personnel must develop public education material that accurately portrays the role and responsibilities telecommunicators provide as part of the emergency response continuum so that they can build support with their policy makers and the general public.

#### Exercise Activities

(None identified)