



IJIS Institute

# ECCs & Pandemic Planning: Adapting Responses in an Ever-Changing Environment



## Acknowledgements

This document is a product of the IJIS Institute, a nonprofit alliance working to promote and enable technology in the public sector and expand the use of information to maximize safety, efficiency, and productivity.

### IJIS Mission

IJIS Institute advocates for policies, processes, and information sharing standards that impact our safety and security, builds knowledge on behalf of our stakeholder groups, and connects the organizations and leaders within the communities of interest.

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### Comments and Questions

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# The Coronavirus Pandemic (COVID) Has Forced Emergency Communications Centers (ECC) to Adapt Their Response to an Ever-Changing Environment

Emergency Communications Centers (ECC) personnel are concerned about the spread of COVID through center personnel, from contact with surfaces in the facility and from interaction with other staff. While many have remained at home during the pandemic, first responders, including emergency communications staff, generally were unable to do so due to the requirements of their jobs.

In today's era of internet-enabled services, much of today's workforce can work from home using video conferencing, cloud services and remote desktops; however, despite these technologies, few frontline ECC staff can operate remotely. The National Emergency Number Association (NENA) reported in a recent survey that only 7 percent of respondents indicated the ability to work from home. ECCs are having to develop large-scale contingency plans to ensure continued operations of this critical infrastructure should widespread employee absence occur. The IJIS Institute formed a working group made up of public safety practitioners, national practice associations, and technology professionals to research impacts and create awareness for all aspects of emergency communications and response during these challenging times.

During the first months of the pandemic, 80% of calls were for non-emergencies, while call volume was initially significantly less, returning to "normal" after shelter in place orders were lifted and the weather warmed. Call routing, handling, processing policy changes were adapted as response plans changed. Different protocols were enacted to ensure the appropriate resources were dispatched and still other call types were handled by phone for the first time.



## CURRENT REMOTE ECC FUNCTIONS

A recent survey conducted by NENA reports that:

64%

OF ECCs HAD NO CAPABILITY FOR REMOTE ECC OPERATIONS

30%

CAN WORK REMOTELY FROM A SEPARATE PUBLIC-SAFETY OR GOVERNMENT FACILITY

7%

INDICATED THE ABILITY TO DO SO FROM HOME

NENA concludes that the "COVID-19 pandemic will be instructive to ECCs and policymakers across the country and hopes that in the future more of them will investigate capabilities for telecommunicators to work remotely or from home."

## 2 What We Are Hearing From the Field

While ECCs have Continuity of Operations Planning (COOP) for system and facilities failures, many are having to develop new and untested approaches in response to the pandemic. The IJIS working group coined the term “Dynamically Distributed Operations” to describe a “work from anywhere” approach to emergency communications. Not only are ECC staff taking calls and dispatching resources from their homes, but there are examples of personnel deployed to other locations such as hotels to set up temporary operations. A key take-away is that Dynamically Distributed Operations are applicable to a wide set of applications - not only the pandemic response but all potential hazards, such as weather, wildfires, social unrest, etc. To better understand the needs, actions, impacts, and challenges, the working group developed a set of questions that formed the basis for interviews with ECC technical and operational leadership across the US. The resulting goal is to combine industry and government expertise, advice on technologies, policies, and processes to promote safer and healthier communities.

### Sample Questions for Interviews

#### Important Thought Points: Unknown and New Territory

- What are the “trigger points”?
- When take specific actions given evolving events?
- How do you determine what functions you can distribute remotely?
- What are the challenges operational, technical, policy, law, and others?
- What services / capabilities do you relinquish to provide core services remotely?
- What cybersecurity issues need to be considered when remotely operating ECC functions?
- Are partially distributed solutions acceptable? For example, can the ECC perform remote call taking but not dispatch?
- Examples of technical issues with sub-systems? What systems can be sacrificed? Recording for example?
- Do these trade-offs rise to level of problematic? Code violation? Law? CJIS rules and requirements, etc.?
- Who are the stakeholders that should be consulted during these trade-off discussions?
- Often the focus is on large metro areas, need to consider small and medium – not one size fits all.
- What are the best practices to advance capabilities to allow remote access?
- Examples of distributed ECCs solutions fielded today?



## How Can You Determine What Functions You Can Distribute Remotely?

### Technical & Operational Risks vs. Implementation Effort & Functionality

The suite of core services provided by ECCs is quite extensive, including call taking, Text-to-911, location-based services, mapping, Computer Aided Dispatch (CAD), Land Mobile Radio (LMR), recording, query, records management, enterprise applications, and connectivity for access to both public and private networks. The various approaches to distribute services remotely can be described as falling across a “Continuum of Emergency Communications Distributed Models”. There were a range of agency responses from turning on existing standby facilities, to deploying as much of the functionality from the main facility as possible all the way to staff working from remote locations. Jurisdictions with ample resources have in place redundant installations that mirror all functions, using these facilities is low risk, both technically and operationally since they are regularly exercised and tested. On the other hand, there were examples of agencies that attempted to distribute remotely as many of the core services as possible and this became the focus of the research. The goal of distributing services remotely is to build a virtual center so that everyone seems like they are in the same place. Ideally, the remote sites should provide the same capabilities and experience as when staff are in the call center.



**Working from Home - Arlington County  
Emergency Communications Center**

**It is striking to say that many echoed the thought that  
“we may never go back to the way things used to be”**

## Leading Considerations for Dynamically Distributed Operations

When contemplating dynamically distributed operations core service connectivity for call taking, Computer Aided Dispatch (CAD), Land Mobile Radio (LMR), queries of databases, and audio recording are the base technical challenges. Systems that are Internet Protocol (IP)-based enable solutions, but in many cases present new and potentially untested concerns. While access to agency enterprise applications can typically be made available for work from home, other parts of the ECC ecosystem require careful consideration.

### Call Taking

The reliability of incoming 9-1-1 call traffic is of paramount importance. Internet service class and bandwidth at remote locations directly impact Quality of Service (QoS) for Voice over Internet Protocol (VoIP) 9-1-1. Home internet services are provided by carriers as “best effort”. No guarantees are offered for speed, bandwidth, or availability. Resources are shared with others, members of a household, and even within a neighborhood. Public internet offerings, such as Wi-Fi in a hotel is also a shared resource and poses significant information security risks.

Call-takers and dispatchers must operate on secure business class circuits or on dedicated public safety mobile network devices such as First-Net hot spots. When mobile devices are employed, additional issues may still arise. Is coverage available in areas contemplated for distributed operations? Even if coverage exists in the area, will the structure of the building impact signal quality? Does sufficient dedicated bandwidth exist to meet an ECC’s QoS requirements for all call takers?



**Working from Home –  
Department of  
Emergency Communications  
City of Alexandria Virginia**

## Leading Considerations for Dynamically Distributed Operations - Continued

### Land Mobile Radio (LMR)

Dispatching typically requires the use of LMR to operate safely and efficiently. Agencies endeavor to ensure complete jurisdictional coverage for their LMR systems. In normal operating environments LMR is extremely reliable. In the case of dynamically distributed operations, care must be taken to ensure remote locations are within the defined coverage area. If dispatchers are working from home, do they live within the jurisdiction? **If not, do they live within the coverage of the LMR system?**

### Privacy and Security

ECC's deal with sensitive and confidential information every day. Data protection and privacy may be governed by a variety of laws and regulations including the Federal Bureau of Investigation (FBI) Criminal Justice Information Services (CJIS) Security Policy, U.S. Department of Health and Human Services ("HHS") Health Insurance Portability and Accountability Act of 1996 ("HIPAA") Privacy and Security Rules, and many others. Unless specifically relieved of an obligation due to the nature of an emergency, agencies must still meet all their regulatory requirements for physical and logical security of structures and data.

### Employee Wellbeing

The wellbeing of the employee is more important than any other technical or operational challenge. In a standard operating environment, a supervisor or coworker is usually within earshot or line of site of front-line workers. They can see or hear when someone may be distressed and offer emotional support or peer counseling. They are also able to ensure everyone gets breaks when needed and can quickly lend a hand when help is needed. In a dynamically distributed environment how do we ensure the wellbeing of our team? One option is to have web cameras always running so team members can continue working closely together. If work from home is an option, is the employee comfortable bringing the stresses of an ECC there? Are there others in the home that might overhear something that could upset them? If cameras are being employed to support the employee, does the employee have any personal privacy concerns?

**"Relationships are the key; success is built over the long term through great partnerships"**



## 5 Building a Virtual Center of the Future

Through the Emergency Communications & Response Advisory Committee, the IJIS Institute seeks your help to improve the level of understanding surrounding technology and raise awareness on the challenges affecting all areas and phases of emergency communications and response. By offering your expertise and advice on technologies, policies and processes, this committee will continue the IJIS Institute's mission to unite industry and government leaders to promote safer and healthier communities. Clearly, innovative solutions are needed for an ECC of the future to implement these new capabilities. Next steps for the research include:

- **Request candidate agencies to participate in a *Remote Call Taking User Survey***
- **Industry feedback needed to help identify *Innovative Solutions to Create an ECC of the Future***
- **"Playbook" to be developed for a *Comprehensive Project Plan and Timeline for Implementing Distributed Solutions***

The IJIS Institute seeks your participation in these efforts, your knowledge and advice will help immensely.

**"We need to build a virtual center so that everyone seems like they are in the same place"**