NENA Virtual PSAP Management Standard

Abstract: This document covers the technological, operational, human resources, and evolutionary requirements for expanding resources to meet the needs expected by the public for operating in a virtual environment.

ANS Candidate

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NENA-STA-046.3-2025
DSC Approval: February 4, 2025
PRC Approval: April 14, 2025
NENA Board of Directors Approval: May 27, 2025
Next Scheduled Review Date: May 27, 2028

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1 Executive Overview

A variety of options for alternate call processing models will expand in the Next Generation 9-1-1 (NG9-1-1) environment. While technological and operational MUST be addressed, the number of agencies implementing some form of virtual Public Safety Answering Point (PSAP) operations will continue to expand. PSAP management MUST weigh the benefits of these options on how they positively impact the delivery of emergency service to the public they serve.

The theoretical notion of virtual PSAP operations evolved into a pandemic-borne reality in 2020. The benefits of allowing call taking and radio operations from alternate sites, including employee residences, quickly proved beneficial on multiple levels.

Geo-diversity offers an additional level of reliability for PSAP management. Continuously operating from your primary and backup centers prevents equipment from falling into disuse and ensures needed updates to software occur. Moreover, any connectivity problems will be rapidly identified and remedied.

The ability to ramp up staffing to address unpredictable call surges can be more efficiently performed when key staff can utilize assigned equipment from home to help process calls. Additionally, for severe weather events, telecommunicators could help quickly increase staffing without having to place themselves on the road in hazardous conditions.

The staffing challenges that existed pre-pandemic and surged post-pandemic may be exasperated by the evolving challenges of NG9-1-1 technology. Allowing staff the option of working some shifts from home will create an incentive for continued employment in public safety communications. The flexibility of virtual work and the decreased living expenses of commuting to a traditional PSAP MAY alleviate some of these staffing challenges.

There have been valid objections to virtual work including concerns on IT issues, Critical Incident Stress Management (CISM) and Health Insurance Portability and Accountability Act (HIPAA) concerns, and teamwork issues. However, as we have seen agencies work through these issues the cost-benefit balance easily tips in favor of virtual operations that each PSAP MUST carefully evaluated.

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These definitions are based on IETF RFC 2119 [2].

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2.3 Reason for Issue/Reissue

NENA reserves the right to modify this document. Upon revision, the reason(s) will be provided in the table below.

Document Number	Approval Date	Reason For Issue/Reissue
NENA 53-507	May 26, 2009	Initial Document
NENA-INF-025.2-2017	December 21, 2017	This document was updated and reissued by NENA to ensure content was current with industry changes and advancements made since the original issue date.
NENA-STA-046.3-202Y	May 27, 2025	Initially an information document this is a revision to an ANSI standard.

3 Reasons to Implement

Today's PSAP environment primarily consists of two main core functions: call handling and radio communications.

The Working Group discussion identified a number of challenges to current PSAP operations that might benefit from addressing issues in new ways in the future PSAP environment. Challenges such as:

- PSAPs increasingly have difficulty finding enough qualified people.
- PSAPs are costly to set up and run.
- PSAP space, structure, and resources are not easily scalable.
- PSAPs cannot always easily accommodate unpredictable demand.
- PSAPs do not reflect the employee's desires for a flexible work environment.
- PSAPs have difficulty retaining qualified people.

Finding successful and efficient ways to solve some of these challenges using virtual workers in the PSAP presents significant opportunities for management. Research in the private sector has demonstrated saving on physical space, potential cost savings, effective response to erratic call volume, and overcoming the employee retention problems that plague PSAPs today.

One of the initial questions discussed by the Working Group was why consider a "virtual" option for the PSAP environment? What might be the advantages or challenges to such an implementation?

Modern information technology has made effective and efficient virtual work possible, and today's employees expect virtual work as an option. But are those sufficient reasons to implement it? If virtual work is going to become part of a successful public safety strategy, there needs to be significant planning and adjustments to operational policies in order to accommodate the changing work environment.

What benefits can be expected from moving to a virtual work program and what resources will be required? It is important for decision-makers to have a full understanding of the drivers, benefits, challenges, opportunities, and the relationship between and among these factors, including potential liability, regulatory requirements, security, network connectivity, and privacy issues. Otherwise, well--intentioned action can result in confusion and unachievable expectations for the organization and stakeholders, as well as errors in planning, program promotion, and other implementation activities.

4 Virtual PSAP

What is a virtual PSAP? The concept of a virtual PSAP ranges from having employees working off-site, standing up multiple traditional physical PSAP locations, or sharing remote and/or centralized resources. With today's environment and technological advances, the need for a virtual PSAP could range from employees handling tasks off-site to managing

and overseeing selected PSAP operations outside of the traditional PSAP. When preparing continuity of operations plans, virtualization could enable the PSAP to continue to function in alternative locations.

4.1 Assessment of PSAP Task Virtualization

PSAP management SHOULD conduct a needs assessment to evaluate the different operational tasks that are currently being performed or will be performed in the future within their emergency communications center to determine if they are mission-critical tasks and SHOULD be performed internally, or if the task could be virtualized. PSAP management will need to weigh the risks, benefits, privacy, and liability of having that task(s) virtualized.

The needs assessment SHOULD identify the applications, tools, security, technological and human resource elements including skills that would be required to perform the task(s), and the supporting supervisory methods and skills necessary to manage virtual workers' performance. Remote workers will have access to sensitive or protected data outside of a controlled environment that is otherwise covered under statutes or policies (e.g., HIPAA and CJIS).

Additional considerations and/or policies will need to be undertaken regarding how to address the legal issues that can arise with remote workers. This could require periodic on-site inspections of remote work environments, as well as remote monitoring tools to track employee activity and data that they access. Regionally, PSAP management can evaluate consolidating or virtualizing mission-critical tasks such as 9-1-1 call processing. When virtualizing mission-critical tasks in a region, the need to have local knowledge of the region should be a consideration.

4.2 Architecture

Virtual infrastructure will need to be common and shared. Hosted applications will need to be replicated at the virtual sites for consistency of operations and redundancy. PSAPs will need to continue to evolve with NG9-1-1 technologies that will support their operations. Virtual workers will need to be able to securely access the emergency services network(s), software applications, and critical functions hosted at the main PSAP.

IT networks for the virtual environment SHOULD NOT rely on the physical PSAP infrastructure. The architecture SHOULD be cloud-based with geo-redundant data storage facilities. PSAPs SHOULD consider a physical backup server in addition to geo-redundant cloud storage. Accessibility to the systems SHOULD be secure and accessible from approved locations. Access SHOULD be within approved role-based access control.

4.3 Virtual Environment

Virtual PSAP operations will need to run in an IP environment. PSAP management needs to be aware of the legislative or governmental mandates when designing a virtual PSAP such as restrictions in regard to hosting data off-site, proof of chain of custody, and CJIS compliance.

Call answering can occur locally, regionally, or off-site from an individual's home. Call routing in this environment can be redirected to the telecommunicator's location. Different call routing protocols could be set based on the continuity of operations. The virtual environment provides countless opportunities and challenges.

Beyond the individual PSAP operating in their own virtual environment, NG9-1-1 creates the opportunity to regionalize 9-1-1 call taking. PSAPs can work together utilizing virtual workers to assist in overflow call situations such as PSAP A can find itself in an overflow condition where virtual workers in the region could be able to absorb the overflow.

For shared staff situations, challenges can be present, and consideration SHOULD be given to the technology used, Standard Operating Procedures (SOPs), and call-handling duties. Specific examples include, but are not limited to:

- Recording and logging of calls
- Call routing
- Geographic Information System (GIS) routing
- Local knowledge in a regional setting
- Shared funding and governance in a cooperative virtual environment
- CAD-to-CAD infrastructure

5 Technology

The integration of a virtual PSAP component as a functional element in the 9-1-1 emergency response environment will not occur as easily as flipping a switch. This integration will occur incrementally, based on best practices from other disciplines and industries, to guide the development of procedures and applications, and to ensure consistency of technological applications.

The identification of the underlying technological requirements is a critical step in advancing the concept of a virtual PSAP and making it a reality. Technology is a broad concept, and it is important to consider the architecture of the systemic infrastructure and related processes and applications that will provide the tangible structure for the concept of a virtual PSAP. Fundamentally, this means an open-architecture, application-based system, utilizing an IP network or backbone, which is often described by the 9-1-1 community as an Emergency Services IP Network (ESInet). At a minimum, the technological requirements of a virtual PSAP will mandate easy access to information, providing a secure and fluid transfer between alternate locations and on-site PSAP operations.

Although technology is an enabling tool, it also has inherent limitations. Establishing a virtual PSAP in a geographically diverse landscape can present connectivity challenges related to broadband availability and bandwidth limitations. Furthermore, as the 9-1-1 community develops a greater understanding and a clearer picture of the concept of a virtual PSAP, the technological requirements will evolve. Technology changes and evolves rapidly, so it MUST be thoroughly tested and trialed to ensure quality and redundancy before any new virtual PSAP technology is widely deployed. The testing SHOULD include, but not be limited to, call processing, how ANI/ALI spills into Computer Aided Dispatch (CAD) and mapping products, consideration of dropped or disconnected calls for service, audio recording, and screen capture.

This technology SHOULD also complement Next Generation 9-1-1, as well as co-exist in a legacy 9-1-1 environment. And finally, virtual PSAP technology SHOULD guarantee interoperability and allow for resource sharing that provides procurement economies of scale and regional equity from a cost-benefit standpoint.

6 Security

Just as security is a major concern for the traditional PSAP, it is equally important to consider security when implementing a virtual PSAP. In the virtual PSAP, security breaches could now have consequences for multiple locations or networks, including the overall health of the ESInet on a regional or global scale. It is essential for PSAP managers to develop policies and procedures that address both physical and network security in the virtual environment.

When considering a virtual PSAP, and thus an "Answer from Anywhere" situation, it becomes even more important to ensure there are documented policies for physical and network security. As the business or entity can no longer control parts of this security, it is necessary to place some of this burden on the telecommunicator.

6.1 Physical Security

Even though a PSAP MAY be established in a virtual environment, there are still likely to be physical elements that need to be secured:

- PSAP managers MUST make policies to ensure confidential information is not released, accidentally or otherwise, by the nature of the telecommunicator's location. This would include not allowing call taking in a public location (no internet cafes, libraries, etc.), ensuring any computer system or documents are outside of public visibility (i.e., information SHOULD not be in view of a public-facing window), and that physical media is kept secure when not actively in use (lock boxes, locked file cabinets, etc.).
- Access to equipment and server rooms within traditional PSAPs MUST be limited to personnel on an as-needed basis only.

- Third-party vendors and contractors MUST be escorted at all times.
- Servers or network components housed at off-site locations MUST be secured and monitored with the same limited accessibility as the traditional PSAP.
- Access to Cloud-based infrastructure SHOULD be limited to personnel on an as-needed basis only.
- If utilized, alternate sites SHOULD be placed in secure locations with access control and video monitoring systems in place when practical.
- Personnel operating virtually in a private residence MUST take steps to safeguard computers, radios, and other equipment from unauthorized access and use. These safeguards MUST be regularly audited.

6.2 Network Security

Network security presents the same challenges but with different resolutions. Policy MUST ensure that telecommunicators are not utilizing public or unsecured networks like free Wi-Fi access points, unsecured personal Wi-Fi, or shared internet that the telecommunicator is not in control of (e.g., multi-tenant situations) for work purposes. Additionally, telecommunicators SHALL NOT utilize public safety networks for personal use.

PSAPs operating in a virtual environment SHOULD assess any risks, vulnerabilities, and the likelihood of an occurrence leading to a threat. The FCC's Task Force on Optimal Public Safety Answering Point Architecture (TFOPA) or Task Force report, available at https://www.fcc.gov/document//fcc-releases-tfopa-final-report, identifies four use cases that provide public safety entities with better situational awareness, creates a focus on cybersecurity, and encourages immediate action on the part of 9-1-1 Authorities, PSAPs, and public safety entities in both educating their personnel and protecting their networks and systems. PSAP managers are encouraged to consult this document and other available resources when creating secure network environments.

PSAP management accessing law enforcement databases will need to consult their state and local administrators to comply with regulations specific to their state.

7 Communications

PSAP Managers need to consider how internal and virtual environment communications will be conducted, acknowledged, and tracked for compliance. Measures SHOULD be taken to ensure comprehension of rules and expectations by all staff.

7.1 Internal Communications

Tools used for internal communications SHOULD be designed to include those working remotely. Examples include incident sharing, broadcast messages, pass-on logs, and daily briefing information, etc. Virtual workers need to have a direct line of communication to supervisors for support, questions, clarification, etc. Secure chat rooms MAY also be beneficial so staff can bond while discussing issues. Multiple virtual rooms may be assigned

for specific tasks as well as larger ones for the entire team. Non-secure chat rooms MAY be utilized for internal communications of a non-sensitive nature. All chat rooms SHOULD be monitored, and expectations of professionalism and respect in the content heavily enforced.

7.2 External Communications

When communicating with surrounding agencies or the public, plain language and standardized definitions SHOULD be utilized to ensure a common understanding.

7.3 Dedicated Talk Groups

When available, talk groups SHOULD be created for PSAP communications both internally and externally. Talk groups SHOULD be created for particular tasks within a PSAP and for communicating with neighboring PSAPs.

8 Human Resources

PSAP managers will need to revise policy manuals to address changes in expanding to a virtual work environment. Moreover, all documents related to job descriptions, quality assurance, KPIs, employee performance evaluations, collective bargaining agreements, onboarding, and separations will need to be thoroughly reviewed. Recruitment and testing procedures will need to include potential new hires being assigned remote work. Just as employers need to perform due diligence with proper background investigations for recruits, some adjustments will need to be made in consideration of the different potential liability issues associated with remote work.

8.1 Recruitment

Finding successful employees is one of the biggest challenges for the traditional PSAP manager. As stated in Section 8.2 Employee Selection below, the consensus is that primary or initial recruitment SHOULD be for the "on-site" PSAP. Individuals placed in the virtual PSAP environment would most likely be experienced or established telecommunicators.

Being chosen to work in the virtual PSAP environment could be seen as an incentive or preferential shift assignment that employees potentially could compete.

The virtual PSAP environment MAY open doors to a new pool of candidates. With the incorporation of virtual workers, the hiring pool can potentially be expanded throughout the United States. Virtual workers can take their job with them when traveling or if they move. This type of employment is ideal for military spouses, retirees, disabled persons, or people who are unwilling or unable to relocate. State laws MUST be consulted for any restrictions on employment and work performed across state lines.

A common practice in emergency communications has traditionally been to employ people from the local community. An emphasis on local community understanding and awareness

is acknowledged to be critically important for effective 9-1-1 operations. However, staffing challenges could dictate the need to expand recruitment efforts outside of the local area.

Virtual work would open the candidate pool to emergency communications retirees and telecommunicators from other jurisdictions looking for competitive work shifts or special assignments that would normally not be targeted in a standard recruitment procedure. Also, the current and upcoming generations are more receptive to off-site work opportunities that involve state-of-the-art technologies.

8.2 Employee Selection

Although the technology that supports virtual workers gets most of the attention on the subject of virtual teams, it is really the changes in the nature of teams—not their use of technology—that create new challenges for managers and PSAP employees. Most "virtual" teams operate in multiple modes including having face-to-face meetings when possible. Managing a virtual team means managing the whole spectrum of communication strategies and project management techniques as well as human and social processes in ways that support the work team.

The traditional elements or traits often considered in hiring a 911 Telecommunicator will probably not change drastically in a virtual environment. In the Working Group discussion, there was general agreement that, first and foremost, the agency SHOULD look to hire individuals who can work in the traditional "brick and mortar" or on-site PSAP. The initial telecommunicator training SHOULD still occur in the traditional setting with hands-on training on the live dispatch floor. It is anticipated that before an individual would be approved to work virtually, they would demonstrate proficiency in the traditional on-site PSAP environment.

Currently, some PSAP employers do not place a priority on the ability to work independently or the ability to self-pace the workday. With that said, job description search profiles MAY need to be slightly expanded to include these skillsets. Daily PSAP operations involve a great deal of teamwork and reliance on direct supervision of shift operational priorities during peak call times and critical incidents.

To work in a virtual environment, it would be very beneficial to have confident, experienced employees with the ability to work independently. These individuals SHOULD also be capable of pacing their workload. Additionally, it will be helpful to have employees who possess a better than "basic" technology skillset. They will be interfacing with streaming video, text to 9-1-1, third-party applications, and monitoring social media while maintaining the operational condition of local computer hardware/software. Awareness of other peripherals will also be necessary. The tools available in the on-site physical PSAP will also need to be available to the virtual PSAP worker.

When selecting employees for a virtual workforce, PSAP management SHOULD consider at a minimum the following requirements:

- Self-motivation
- Self-discipline and initiative
- Strong organizational and time management skills
- Ability to work alone and independently with minimal supervision and feedback
- Success in their current position
- Compliance with the organization's policies and procedures
- An understanding of the effect of their participation in the program on other employees
- Effective communication skills and the ability to be a team player
- Access to a safe, comfortable remote worksite where it is easy to concentrate
- Compliance with a mandatory level of security
- Ability to independently comprehend and implement frequently changing technology

Finally, consideration SHOULD be given to testing virtual PSAP candidates for work ethic and commitment.

8.3 Hiring Practices

PSAPs and their supporting Human Resource departments will need to evaluate existing job descriptions for essential functions impacted by a virtual work environment. Multiple job descriptions MAY be needed to accommodate unique sites (i.e., home, off-site PSAP, or satellite offices) and identify specific job requirements required for independent work.

Some examples to consider are as follows:

- Approving off-site location for virtual assignment
- Specifying equipment requirements, security, and maintenance
- Expanding computer literacy requirements
- Requiring remote work Memorandum of Understanding (MOU) if working from home
- Providing accommodation for Americans with Disabilities Act (ADA) if necessary

When PSAP management is hiring specifically for a virtual position, the questions and scoring criteria for the applicant will need to be tailored for the specific position. Consequently, the skills and demeanor, work ethic, and independence of the applicant MAY all be considered as highly acceptable qualities for the virtual position. As stated earlier in the document, if the ability to work in a virtual environment is going to be considered a promotional aspect or one that an employee earns, perhaps nothing in the hiring or screening process needs to change.

Work rules SHOULD be modified as the situation warrants. When the worker displays essential qualities to the supervisor and/or manager of the PSAP and it has been determined to be in the best interest of everyone to advance the concept of virtual work, other factors MAY need to be considered such as an MOU.

Considerations to include in a remote work MOU MAY consist of the following:

- Site specifications for supporting remote access
- Security and information privacy within the remote work environment
- Random site visits for inspection purposes
- Remote monitoring, which could include video
- Responsibilities of the employer, responsibilities of the employee, expectations, etc.

8.4 Management of Virtual Functions

PSAP management MUST consider a method of managing operational functions in a virtual environment. Considerations include but are not limited to the following:

- Quality Assurance/Quality Improvement (QA/QI) (e.g., random review of calls and dispatching incidents to include call answer time, call processing, customer service, call/data entry, and dispatch performance)
- Adherence to policies and procedures
- Scheduling/Payroll
- Shift management (e.g., review daily observation reports, workflow, and routine and emergency staff notifications)
- Performance Appraisals
- Training
- Investigate reported inquiries and complaints
- Corrective action

9 Collective Bargaining

PSAPs with union employees MAY have special challenges and opportunities with the virtual PSAP concept that would have to be addressed before a virtual PSAP could be implemented. As unions contemplate the effect virtual work can have on their union members, they will likely be concerned about the ability to represent their members and will be seeking a clear definition of the role of the union in implementing alternate work environments.

In the past, union leaders have possibly struggled with employers who attempted unplanned, informal virtual work programs through an essentially arbitrary selection process. It is likely that union leaders will want to know early on how the union will be involved in planning, implementing, and monitoring virtual work programs. They may even desire to be involved in developing the criteria for who is selected or approved to work virtually. Their involvement MAY help assure their members that the criteria have been developed in a fair and equitable way, and that the selection of who is permitted to work virtually is conducted by an agreed upon-process. The federal government requires agencies to develop alternate location work programs in partnership with unions and other stakeholders since such work affects conditions of employment. That same model MAY well be translated to the local level in order for virtual work relationships to succeed.

For example, unions can sponsor information sessions on virtual work that are open to employees at every level of the PSAP organization. Employers in both public and private sectors who have successfully implemented a virtual work plan can be invited to discuss the benefits and challenges of the programs. If a virtual work program is to succeed, all staff SHOULD be comfortable with the process. The union can facilitate this together with management and supervisory counterparts. Inquiries by unions on specific processes MAY need to be contemplated as part of the planning and evaluation analysis conducted by the PSAP manager.

Some possible considerations to prepare to address include the following:

- Fairness and equity in the selection process for virtual work
- Fairness and equity in supervision, work schedules, and performance evaluations
- Personnel-related aspects of management
- Compensation issues including pay and benefits
- Acceptance of electronic monitoring such as video cameras that are necessary for staffing oversight in a virtual environment

Anything that exists today in a PSAP's employment rules and regulations, including policies and procedures, MAY require re-evaluation by both management and union representatives. Virtual work can be a win-win proposal if done correctly. Both union leadership and management will need to work to alleviate local resident and political concerns regarding perceptions that virtual work hinders supervision, and therefore facilitates ineffectiveness and imbalance of workload. All of those issues can and need to be addressed by the PSAP management in the supervision and monitoring processes and by providing the appropriate technology to achieve performance expectations.

PSAP managers SHOULD consider that virtual working is part of the technological wave of the 21st century and it can be beneficial to residents and workers alike, but it MUST provide seamless coverage in support of the quality services that the public has come to expect from its dedicated public employees.

10 Staffing

Staffing is about how to fulfill the requirements of PSAP operations by having the right number of personnel. To meet these staffing needs and to establish consistent expectations, it is recommended that PSAPs establish a set schedule for virtual workers or assign virtual workers specific shifts.

Table 10-1 identifies some specific areas where the virtual operation differs from the physical presence of an employee located within a physical facility.

563 **Table 10-1 Staffing Differences**

	Physical	Virtual
Attendance	We can visually see an employee arriving late, leaving early, or taking excessive breaks.	Attendance can be tracked virtually by monitoring software and instant messaging that tracks real-time online status and type of device.
Scheduling	Schedules and shift openings SHOULD be posted in the PSAP (either physically or digitally) where all employees can view and sign up for overtime and post requests for vacation coverage and shift swaps.	PSAPs can utilize applications and technology to virtualize staff scheduling, facilitating shift sign-ups and vacation bids. These applications can be used to schedule both on-site and virtual workers. In addition, applications could be used to contact employees to cover last-minute shortages and/or during emergency situations to work virtually or on-site.

564

565 PSAP managers SHOULD continue to assess data such as call answer times, processing
566 times, and overall performance after transitioning to a virtual work environment to analyze
567 scheduling needs. PSAPs utilizing the virtual environment SHOULD ensure they have access
568 to monitoring and analytical software applications that can track and measure call volume,
569 telecommunicator availability, answer, and processing times, etc.

570 Another challenge is staff mobilization. It is not uncommon for a traditional PSAP worker
571 who does not want voluntary or mandated overtime to ignore the request for overtime
572 when it is sent. This issue can remain when trying to fill unexpected open shifts with virtual
573 workers. It is recommended that PSAPs establish a policy for scheduling and issuing
574 overtime that applies to both virtual and traditional PSAPs.

575 PSAP managers SHOULD be aware that a virtual workforce does not necessarily solve all
576 the staffing problems that exist today, and the level of supervision will not be the same in
577 the virtual environment. However, PSAP managers MAY find benefits in allowing the next
578 generation of workers greater flexibility in staffing using a virtual environment in
579 conjunction with traditional PSAPs.

580 ## 11 Shift Operations

581 One of the biggest challenges will be control of and communication with the virtual PSAP
582 employee. In a traditional PSAP environment, the physical presence of an employee can
583 facilitate communications within the agency and aid in the daily control of operations. In

584 the virtual environment, the visual cues that managers and supervisors rely on will not be
585 readily available.

586 There can be simple solutions to the points mentioned above. Utilizing new and existing
587 technologies can assist the manager with many of the virtual staffing oversight issues. For
588 example:

589 • **Hardware –** Webcams at the virtual worker's location could monitor their presence
590 at a workstation and the physical location of where the work is being performed.
591 During long or odd shift hours, being able to see a virtual worker can help the
592 manager monitor for fatigue and distractions.

593 • **Software –** Software solutions that allow for instant text messaging, video, and
594 audio conferencing can facilitate "roll call" meetings or dissemination of vital
595 information that could be needed daily for each shift. Workstation status monitoring
596 software can be used to track workstation status such as call taking availability, call
597 processing time, and to assist management in the assessment of overall
598 performance.

599 # 12 Training

600 Understanding the importance that training plays and a commitment to providing training
601 on how to operate in a virtual PSAP will be essential to the success of implementing a
602 virtual work environment. An initial training program designed around the virtual work
603 environment SHOULD be considered to provide telework information to both managers and
604 employees, focusing on addressing policies and procedures unique to the virtual
605 environment including information security and vulnerability, IT operation and
606 maintenance, maintaining effective communication with managers and co-workers, and any
607 new liability risks. It will be important to demonstrate that both managers and employees
608 are "in it together" and mutually responsible for success.

609 ## 12.1 Training Objectives

610 Training objectives for virtual work SHOULD include, but are not limited to, the following:

611 • Demonstrate a comprehensive understanding of adapted call processing
612 procedures/protocols while operating virtually.
613 • List and explain personnel and operational policies and procedures pertaining to
614 virtual operations, highlighting differences from on-site operations.
615 • Demonstrate the knowledge and ability to operate and potentially troubleshoot
616 specialized equipment, software, and systems that are used to support a virtual
617 PSAP such as portable radios, mobile data terminals, and instant messaging
618 software.
619 • Demonstrate the ability to operate at alternate locations.

- Demonstrate an understanding of the mental health stresses related to working in a PSAP and how this could increase while operating virtually.
- Identify how to recognize the signs of distress in oneself and others, which could present challenges in the remote working environment.
- Identify mental health resources and healthy coping mechanisms suited to support a virtual workforce.

12.2 Training Environments

It is recommended that initial training be conducted on-site in the PSAP; this SHOULD include a combination of both classroom and on-the-floor training. Virtual continuing education can be flexible and scheduled as needed. Using available technology for training is important for the success of training and performance. Time and money MUST be allocated for training. It will be challenging to make sure everyone on-site and virtual stays updated with technology hardware and software changes.

Virtual training can either be instructor led, with other students attending in real time, or can be on demand where students learn at their own pace. Just like a classroom training plan, virtual training sessions SHOULD incorporate training blocks with sufficient breaks. Opportunities for participants to interact with other students and the instructor SHOULD be provided. A virtual worker MAY take the initiative to learn in larger blocks if the virtual PSAP's call volume allows for additional training. On-site training SHOULD be scheduled at regular intervals to provide the opportunity to get everyone together in person. It will be important to document all training on a regular basis.

13 Retention

Employee retention could perhaps be one of the significant benefits of a virtual PSAP environment. Some of the most common reasons for job dissatisfaction leading to employees leaving their jobs are uncomfortable work environments, work hours, pay, commute times, and stress levels. The virtual PSAP can address some of these issues and thereby aid in staff retention. Working at home or in a more localized satellite location can address the issue of an uncomfortable work environment. The ability to "come to work" in casual clothing instead of a uniform could undoubtedly increase the comfort level of some individuals. Alleviating the need to be in the physical proximity of a co-worker an employee has a conflict with might also negate some workplace concerns and lower stress levels.

Work hours and pay concerns MAY also be accommodated. Shorter commute times, reduced meal expenses, and lack of special clothing expenses could result in higher net pay for these employees, even if the pay rate is identical to or lower than the traditional PSAP telecommunicator.

Finally, employees lost to retirement and life changes (e.g., moving, needing to care for a child/elder, preferring part-time) MAY be able to be retained in a virtual PSAP environment.

Being able to work a more flexible schedule, only during peak hours, or only during special assignments could keep these already trained individuals on the payroll to assist during times when it is difficult to staff with full-time employees.

14 Teamwork

PSAP management is encouraged to consider if the organization is best positioned to implement a comprehensive virtual work program and if it has sufficient organizational maturity, including a culture of teamwork and collaboration that can support it.

For virtual teams to work effectively, consider these axioms:

- Teamwork is fundamentally social, therefore, PSAP managers and teams will need to work to support social networking and seek opportunities to incorporate team-building exercises into regular operations such as team training and briefings.
- Knowledge is integrated into the life of teams and needs to be made explicit.
- It is important to create ways for team members to experience membership.
- Knowledge depends on engagement in practice; people gain and retain knowledge from observation and participation.
- Engagement is inseparable from empowerment.
- "Failure" to perform is often the result of exclusion from the development process.

It is not easy to keep up the motivation levels of team members from different cultures and work environments who lack face-to-face interaction. The camaraderie and spirit that makes such a difference to teamwork is also missing. However, the advances of new technologies and networking capabilities have introduced a new virtual teamwork environment.

Initial training for new employees SHOULD be held at the physical PSAP to gain an understanding of how public safety operates and establish co-worker relationships; this will aid in teamwork down the road. There MAY also be group training sessions where both new and tenured telecommunicators can gain trust in each other to aid in team building. Virtual briefings at the beginning of each shift can be helpful, keeping in mind they would need to be more detailed. A secure virtual meeting space for specific employee groups can also be beneficial to allow for bonding while discussing issues. Secure chat rooms SHOULD be used for professional purposes only and monitored and logged by the PSAP management.

Organizations SHOULD consider the importance of investing in technologies that will help virtual workers feel connected to the agency and their peers. More of an effort might need to be made to help members of the team in a virtual setting.

15 Performance

PSAP management with virtual employees will need to monitor their performance as diligently as those who work on-site. The traditional model, where supervisors are on-site where they can see telecommunicators face-to-face and can coach appropriately, already has limits due to the span of control. A fully virtual environment adds to this challenge as a supervisor's ability to observe calls, assist with questions, and visually manage personnel is restricted. Alternatively, when operating virtually through remote locations and alternative sites, a supervisor's visibility into an on-site worker's performance could be limited to monitoring from a distance within the PSAP floor or listening to calls and radio traffic from a command center.

PSAP managers SHOULD consider additional on-site supervision when operating these remote locations or alternate sites with multiple telecommunicators. This will better support their ability to help with questions, provide coaching, and identify performance issues. For a fully virtual environment or when supervising on-site is not an option, PSAPs SHOULD leverage evolving communication technologies that can assist in facilitating this "on-site presence" such as video monitoring and chat, instant messaging, computer activity monitoring systems, or video conference calling.

Expectations regarding the performance of work SHOULD be the same for on-site employees as well as virtual workers.

Virtual positions SHOULD be assigned based on established skill sets, met expectations, and performance. It is recommended the performance of employees selected to work remotely be reviewed on an established timeline to determine if the employee continues to be suited well for a remote position or SHOULD revert back to the on-site environment.

Supervisors SHOULD meet one-on-one with employees on a regular basis on-site or using a video conference. Employees and supervisors alike SHOULD conduct these meetings in a private setting to provide both privacy and a place free from distraction. During this time, the supervisor can assess how the employee is doing overall as well as recognize conflict or interpersonal communication issues amongst the team and field responders.

All employees SHOULD be acknowledged for their accomplishments. Managers SHOULD be creative in the ways they recognize and reward remote employees and seek out opportunities to provide in-person recognition when possible.

15.1 Employee Appraisal and Review

In a traditional PSAP, managers or supervisors typically use organization-approved systems of performance evaluations to provide feedback on performance, determine pay rates, and encourage employees to perform their best. PSAP management SHOULD develop automated, data-driven performance systems that enable supervisors to objectively

measure and reward performance in real time whereby all employees will be evaluated based on established performance standards.

Ideally, incentive systems SHOULD put workers in the driver's seat by proactively providing them with real-time information about their performance compared to the organization's standards. Employees SHOULD be able to see their scores on individual metrics so they can see exactly where they have to improve. Metrics MAY include call answer times, call duration averages, triage times, QA/QI scores, and more. Systems SHOULD also provide links to e-learning materials so that employees can proactively take action to improve areas of weakness identified through such scores outside of a performance evaluation. These scores SHOULD be updated frequently so that employees can see how improvements in their performance quickly translate into improvements in their scores.

Performance evaluations and appraisals SHOULD measure a telecommunicator's performance against key performance indicators. These indicators SHOULD be the same whether the employee is physically located in the PSAP or is at a remote location operating in a Virtual PSAP capacity.

PSAP managers will need to assess the management tools available to their supervisors to adequately evaluate a telecommunicator's performance. These tools MAY include the following:

- Reviewing recorded audio of an incident
- Real-time monitoring to include audio, screen capture/recording, and entry of an incident into the CAD system
- Protocol quality assurance/quality improvement programs
- Analytics that provide statistical performance data (i.e., average handling time, postprocessing time)

Virtual PSAP managers MAY need to be creative and employ new methods and/or applications that assist in remote monitoring of a virtual worker to ensure that policies and procedures as well as quality of service in the virtual environment is at an equal level to the service and professionalism provided in the on-site PSAP.

During the agency's evaluation period, virtual telecommunicators SHOULD be appraised utilizing the performance review process that on-site employees receive. At a minimum, the virtual worker SHOULD be allotted personal time with their supervisor to discuss progress and recommendations for improvement. Additionally, the virtual worker SHOULD be given the opportunity to provide feedback to the supervisor to help identify any special needs or training that can be necessary to accommodate the virtual worker in performing his/her job tasks.

16 Mental Health, Wellness, and Peer Support

In alignment with existing NENA standards, PSAPs SHOULD establish a Comprehensive Stress Resilience Plan (CSRP). This plan will need to be adapted to accommodate the virtual PSAP environment when supporting off-site and remote employees. For additional information about creating a CSRP at a PSAP, please reference the NENA Standard to Protect the Wellbeing of 9-1-1 Professionals, NENA-STA-002 [3],and the NENA Peer Support Team Development, Implementation, and Oversite information document, NENA-INF-044 [4].

Virtual PSAP leaders MUST create a strategic plan that supports the mental health and wellness of their staff and is adapted to accommodate the virtual environment the PSAP operates under. Leaders SHOULD look at how they could implement these plans and programs with remote personnel. For example:

- How will remote employees access this support in an effective way?
- How will the need for support be identified?
- How will effective, comprehensive, and ongoing training be provided on this important topic considering what is appropriate to do remotely vs. in person?
- How will a peer support program be managed with remote workers?
- Does the Employee Assistance Program (EAP) provided have a network of clinicians in all the areas remote employees reside?
- How will remote employees participate in Critical Incident Stress Management (CISM) debriefs?
- How will PSAP Management monitor remote employees with regard to a CSRP?

There are many options for providing a Comprehensive Stress Resilience Plan (CSRP) that adapts to the type of virtual PSAP. Some solutions include, but are not limited to, the following:

- Provide in-person training and support.
- Provide 24/7 access to an EAP which allows employees to work within their schedules and local resources.
- Provide a list of therapists specializing in the treatment of stress and traumatic stress disorders and who utilize evidence-based therapies in the treatment of Post-Traumatic Stress Disorder (PTSD) that is local to each employee.
- Provide personnel education and access to on-site and online information about stress-related risks.
- Provide access to a workout facility and nutritional programs to adopt a healthy lifestyle while working remotely.
- Implement a quick mental health check-in during roll call before a shift starts.
- Encourage a routine to mentally prepare for the start and end of each shift.
    - Create a workspace feeling by adjusting lighting and organizing the at-home "workstation."

    - Set aside time to think about the upcoming shift and reflect on the end of a shift. Consider the way on-site employees do this during their commute in and out of the workplace.
- Facilitate some type of team building or staff meetings to ensure a sense of team environment.
- Enforce a break schedule that allows the remote employee to "unplug" from their job duties as if they were leaving the dispatch floor to visit a break room or go out to get lunch.
- Ensure remote employees are able to participate, either in-person or virtually, in CISM debrief.
- Provide remote employees with access to Peer Support resources, either in-person or virtually.

Mental health and wellness issues are likely to be different for every remote employee depending on their schedule, position, and location relative to the actual PSAP. A remote telecommunicator, for example, could miss the teamwork aspect of the job or could work odd hours and not have easy access to mental health resources. PSAP Managers SHOULD identify the pros and cons for each position working remotely and adjust as necessary.

17 Continuity of Operations Planning

An agency's Continuity of Operations Plan (COOP) MAY include a virtual PSAP element due to a need to relocate from the main facility. Remote operations MAY provide the support needed during the relocation from a primary site to an alternate location without relying on outside agencies. A strong operational plan removes single points of failure.

When approving alternate sites, including staff residences, selection criteria SHOULD mirror those used for traditional PSAPs.

A COO for virtual operations SHOULD include considerations such as these:

- Access to FirstNet and additional wireless networks including access to Government Emergency Communications Service (GETS) and Wireless Priority Service (WPS)
- Reliable utilities and adequate UPS devices for all needed equipment
- Multiple paths for Session Initiation Protocol (SIP) packets to be delivered to call-taking positions with the ability to return interrupted calls to the queue. A "make-busy" circuit for legacy equipment to route callers to another network might be needed.
- An alternate call processing system due to the loss of CAD or call processing protocol software
- Alternate access to radio networks for virtual dispatching
- A plan for supplementing virtual staff when those operations are diminished or cease due to loss of connectivity to operational networks
- An evacuation and/or rescue plan for remote staff when possible

- A relocation plan for virtual staff to an established alternate site for significant system failures with a predetermined timeframe
- A process for returning to normal operations when the event has been stabilized and it is safe to do so
- A process to document events including timestamps if alternate documentation was utilized

18 Supervisory Management

Managing remote telecommunicators MAY require some additional or even different skill sets from those needed to be successful in an on-site PSAP environment. Even though the ability to successfully communicate with staff is critical for any manager, there are additional challenges for those who MUST manage staff that they might not know on a personal basis and/or are in multiple remote locations. Some specific management roles MAY include the following responsibilities:

- Develop selection processes that will project the success of a remote applicant.
- Develop real-time quality control processes that include surveying the users of the system (in-person and remote), remote monitoring, instant messaging, or other means of communicating.
- Develop and implement an effective training and awareness program that emphasizes the critical services provided.
- Develop official virtual work agreements to provide clear expectations and guidelines to PSAP employees working remotely.
- Develop performance assessments, including self-evaluations, to adapt to the needs of a virtual PSAP work structure and incorporate elements related to working virtually as well as general performance.
- Schedule remote personnel both for a normal shift and those needed during an emergency.
- Oversee the operation from the macro level and delegate and empower key staff members to carry out the quality control program.
- Oversee compliance with cyber security procedures.
- Monitor mental health by having an awareness of key indicators showing employees who could need assistance.
- Develop a program for wellness (e.g., use of wearable devices to manage stress, easy access to wellness services such as peer support, and use of a post critical incident debriefing model, including monitoring to identify incidents requiring additional follow-up).
- Coach or discipline employees as needed. It is recommended that any disciplinary processes follow the same procedure as the on-site PSAP.

There is no doubt that the next-generation system will provide the flexibility to allow multiple staffing models both on-site and remote. It is incumbent that public safety

organizations at the highest level consider the staffing problems that currently exist and evaluate the potential of a culture shift toward utilizing remote emergency communication personnel.

Managers of virtual teams (individuals or groups of individuals at remote sites) will have to learn how to support a virtual team, which includes:

- Recognizing them and their importance
- Encouraging members to explore questions about how they are working together as a team
- Supporting the creation of some kind of shared space (the feeling that there is an infrastructure where people are working together)
- Facilitating the coordination of the technology, work processes, and the formal organization
- Recognizing that remote employees can need additional time to mentally process strenuous calls and be available for additional support if needed
- Supporting activities that make the informal network visible

19 Management Skills

PSAP administrators SHOULD provide recommendations and seek support and guidance from any applicable governing 9-1-1 Authorities. These individuals are expected to ensure their facilities, staff, and resources meet the requirements and expectations necessary for implementing and managing a virtual PSAP.

Many of the position requirements for the director level of the virtual PSAP will remain the same as those required to lead an on-site, traditional PSAP. The director will be responsible for performing complex contract development and administration work, along with the responsibility for the coordination and implementation of service agreements across the communication network. They will also be required to provide vision, solid leadership, coaching, direction, and resources to build a team capable of providing efficient and effective service to the public and field responders the organization serves.

Some of the specific position requirements for top-level management of a virtual PSAP that could present unique challenges from the traditional PSAP may include the following:

- The knowledge and ability to ensure that the management operating a virtual PSAP or hybrid PSAP is in compliance with Federal, State, and Local regulations, statutes, and ordinances (Some of these can vary from the traditional PSAP due to security, privacy, and confidential issues.)
- The knowledge and ability to understand the underlying network and technology available and ensure that systems are in place that will monitor both technology and personnel on the system along with providing real-time alerts and metrics

- The ability to establish and implement a Continuity of Operations (COOP) plan that incorporates virtual PSAP technology and staffing needs to ensure that essential functions continue to be performed during a disruption of normal operations
- The ability to manage contract services if staffing for a virtual PSAP expands to include independent contractors serving as Telecommunicators
- The ability to lead, guide, and direct the strategic planning, operation, and integration administratively throughout the system by identifying effective strategies regarding issues that affect the success of the virtual organization
- The ability to utilize industry subject matter experts and adapt to dynamic changes in the business model
- The ability to facilitate face-to-face communication in a virtual environment to help create a sense of connection with co-workers and the overall mission of the organization, such as video conference or in-person team meetings

In addition to these specific position requirements for consideration, there are several essential competencies that an effective top-level manager could need to possess to better perform in the new environment. PSAP managers today need to maintain high standards of personal integrity in order to transmit those same expectations to all employees of the organization. The expectations for the staff who will be working virtually will require a high degree of credibility and consistency on the part of all staff including supervision and upper-level management, which will set the tone and establish the culture for the organization.

The manager of a virtual PSAP with both on-site workers and virtual workers will need to be a manager who is comfortable with new challenges and learning opportunities. The successful virtual PSAP manager will likely gain insight from experiences and will be personally committed to self-improvement and the continual improvement of the operation they manage.

As with any top-level management position, effective communication is critical. A successful manager will facilitate the free flow of information and communication throughout the organization and encourage open expression of ideas and opinions. The manager's position will require the ability to communicate frequently and inspire others to contribute ideas on their own.

Other essential competencies that would be beneficial for both traditional and virtual PSAP managers include the following:

- Results oriented and drives execution
- Passion for service
- Builds organizational relationships
- Leads/Manages change and innovation
- Develops and inspires people
- Vision/Strategy/Judgment

- Influences others and manages differences
- Resource management
- Leverages technology
- Embraces diversity

20 Conclusion

This informative document offers recommendations on handling the numerous duties necessary for effective operations in the virtual PSAP environment and considerations for mitigating service impacts.

Every PSAP MUST determine if and when a virtual PSAP concept suits their environment or circumstance. The actual work within the structure of the PSAP could remain the same; however, the means to provide the service to the public will change and evolve as new technology emerges.

Not all PSAP managers may seek virtual work within the 9-1-1 architecture, nor COULD it be feasible in all settings. PSAP managers can have a chance to improve their operations due to the changes in the workforce that we are seeing today. Change is constant within the PSAP environment, and as the nation moves into a Next Generation 9-1-1 structure, a virtual work environment could become more common.

Telecommunicators MAY be tasked to perform additional duties within the NG9-1-1 environment. The movement into a virtual PSAP will bring a higher level of skilled personnel with a multitude of skills ranging from decision-making to the ability to problem-solve within a self-supervised environment.

As PSAPs contemplate a virtual work environment, this document contains topics of consideration from physical and network security to the staff selection process, training objectives, teamwork, managerial processes, policymakers, telecommunicator performance, continuity of operations, and technology.

21 Impacts and Considerations

21.1 Operations Impacts Summary

The operational impact of implementing a virtual work environment SHOULD ultimately make PSAPs more efficient and as such be a value to public safety. This document SHOULD serve as a transitional resource for initiating a virtual option and letting it develop into an everyday part of daily operations. Ultimately, the development of virtual public safety communications will have multiple benefits in addition to call processing efficiency, such as expanding the potential workforce, retaining seasoned staff, and offering a quickly scalable staffing model.

21.2 Technical Impacts Summary

The technical impacts will vary based on the equipment currently used and the scope of the virtual environment being added. As the implementation of virtual operations increases vendors will begin to expand solutions for the common technological roadblocks experienced.

21.3 Security Impacts Summary

Security threats whether within a traditional PSAP or with remote work will continue to be an evolving threat. Due diligence on the part of security SHOULD involve rigorous testing and training on physical, network, and cybersecurity. Security concerns need not be a deterrent to the expansion into the virtual environment.

21.4 Recommendation for Additional Development Work

It is well established within this standard that virtual PSAP environments will be an evolutionary process and not a "one size fits all process." While this standard establishes a process for this evolution, a working committee SHOULD be established to share results with others as implementation matures. Within this committee, work groups SHOULD be based on PSAP size with work groups dedicated to the security process and another for state-level administrators to discuss the impact of the NG9-1-1 network of networks including the inter-PSAP data exchanges that will rapidly develop and how remote and alternate PSAP models interact with this data flow.

21.5 Anticipated Timeline

Currently, most higher-tier CAD systems SHOULD offer a Virtual Private Network (VPN) option. Moreover, both legacy and NG networks SHOULD allow for VPN access to local emergency networks. This VPN access makes some level of virtual operations quickly implementable. P25 radio systems offer both laptop radio consoles and applications to access radio networks that are cost-effective, scalable, and easy to implement. The cost savings made by implementing regional partnerships SHOULD be explored. It is believed that virtual environments are possible today and SHOULD continue to evolve as new technology and security measures develop.

21.6 Cost Factors

Initial costs for setting up a virtual environment could add to the PSAP budget. However, over time, the PSAP could see cost savings when implementing a virtual environment over traditional PSAP expansion.

22 Abbreviations, Terms, and Definitions

See the NENA Knowledge Base (NENAkb) [1] for a Glossary of terms and abbreviations used in NENA documents. Abbreviations and terms used in this document are listed below with their definitions.

Term or Abbreviation (Expansion)	Definition / Description
ADA (Americans with Disabilities Act)	Federal Legislation passed into law July 26, 1990, that prohibits discrimination on the basis of disabilities. This landmark civil rights law both identifies and prohibits discrimination on the basis of disability in employment, state and local government, public accommodations, commercial facilities, transportation, and telecommunications. This Act requires all Public Safety Answering Points (PSAPs) to provide direct and equal access to emergency telephone services for people with disabilities who use teletypewriters (TTY/TDDs), which are also known as telecommunications devices for the deaf. This means that the personnel answering calls at the PSAP level must be able to directly receive TTY/TDD calls and must be able to engage in TTY/TDD conversation.
CAD (Computer Aided Dispatch)	A computer-based system which aids PSAP Telecommunicators by automating selected dispatching and record keeping activities.
CISM (Critical Incident Stress Management)	A team comprised of peers and mental health professionals who train and work together to help personnel through traumatic and/or critical incidents. These teams play a crucial role following a critical incident by providing group defusing and debriefing meetings and coordinated conversations to mitigate stress reactions and provide guidance on coping. CISM Teams may be local, regional, or from different parts of the US, as it is strongly discouraged for peers to debrief their own personnel.
CJIS (Criminal Justice Information Services)	The focal point and central repository for criminal justice information services in the FBI. Programs initially consolidated under the CJIS Division included the NCIC (National Crime Information Center), UCR (Uniform Crime Reporting), and Fingerprint Identification. In addition, responsibility for several ongoing technological initiatives was transferred to the CJIS Division, including the IAFIA (Integrated Automated Fingerprint Identification System), NCIC 2000, and the NIBRS (National Incident-Based Reporting System).

Term or Abbreviation (Expansion)	Definition / Description
COOP (Continuity of Operations Plan)	A plan to ensure that Primary Mission Essential Functions continue to be performed during a wide range of emergencies, including localized acts of nature, accidents, and technological or attack-related emergencies.
CSRP (Comprehensive Stress Resilience Plan)	A plan developed by PSAP leaders in accordance with expert guidance and resources provided by NENA addressing stress and all major factors impacting the well-being and performance of 9-1-1 Professionals to optimize their resilience and well-being. (NENA-STA-002.2-2022)
EAP (Employee Assistance Program)	An employee benefit program that assists employees with personal problems and/or work-related problems that may impact their job performance, health, mental and emotional well-being.
ESInet (Emergency Services IP Network)	A managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core services can be deployed, including, but not restricted to, those necessary for providing NG9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form an IP-based internetwork (network of networks). The term ESInet designates the network, not the services that ride on the network. See NGCS (Next Generation 9-1-1 Core Services).
GETS (Government Emergency Telecommunications Service)	Supports national leadership; federal, state, local, tribal, and territorial governments; first responders; and other authorized national security and emergency preparedness (NS/EP) users. It is intended to be used in an emergency or crisis situation when the landline network is congested and the probability of completing a normal call is reduced.
GIS (Geographic Information System)	A system for capturing, storing, displaying, analyzing, and managing data and associated attributes which are spatially referenced.

Term or Abbreviation (Expansion)	Definition / Description
HIPAA (Health Insurance Portability and Accountability Act)	A federal law that amended the Internal Revenue Code of 1986 to improve portability and continuity of health insurance coverage in group and individual markets, to combat waste, fraud, and abuse in health insurance and health care delivery, to promote the use of medical savings accounts, to improve access to long-term care services and coverage, to simplify the administration of health insurance, and for other purposes.
MOU (Memorandum of Understanding)	A document written between parties to cooperatively work together on an agreed-upon project or meet an agreed-upon objective.
NG9-1-1 (Next Generation 9-1-1)	An IP-based system comprised of hardware, software, data, and operational policies and procedures that: (A) provides standardized interfaces from emergency call and message services to support emergency communications; (B) processes all types of emergency calls, including voice, data, and multimedia information; (C) acquires and integrates additional emergency call data useful to call routing and handling; (D) delivers the emergency calls, messages, and data to the appropriate public safety answering point and other appropriate emergency entities; (E) supports data or video communications needs for coordinated incident response and management.
PSAP (Public Safety Answering Point)	A physical or virtual entity where 9-1-1 calls are delivered by the 9-1-1 Service Provider.

Term or Abbreviation (Expansion)	Definition / Description
PTSD (Post-Traumatic Stress Disorder)	An official clinical diagnosis of the American Psychiatric Association widely used by mental health professionals to describe and treat the condition of a person who meets the following criteria: • Has been exposed to a traumatic event (see definition of Traumatic Event) • Experiences several symptoms enduring for at least 1 month after the traumatic event(s) from each of three symptom clusters: o Intrusive recollections Avoidance/numbing symptoms Hyper-arousal symptoms The above symptoms occur for more than one month following exposure to the event. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
QA/QI (Quality Assurance/Quality Improvement)	All actions taken to ensure that standards and procedures are adhered to and that delivered products or services meet performance requirements. An organized system that assesses and evaluates the process to improve the quality of services provided.
SIP (Session Initiation Protocol)	A protocol specified by the IETF (RFC 3261) that defines a method for establishing multimedia sessions over the Internet. Used as the call signaling protocol in VoIP, NENA i2, and NENA i3.
SOP (Standard Operating Procedure)	A written directive that provides a guideline for carrying out an activity. The guideline may be made mandatory by including terms such as "shall" rather than "should" or "must" rather than "may."

Term or Abbreviation (Expansion)	Definition / Description
Virtual PSAP	An operational model directly enabled through NG9-1-1 features and/or network hosted PSAP equipment in which telecommunicators are geographically dispersed, rather than working from the same physical location. Remote access to the PSAP applications by the dispersed telecommunicators requires the appropriate network connections, security, and work station equipment at the remote location. The virtual work place may be a logical combination of physical PSAPs, or an alternate work environment such as a satellite facility, or any combination of the above. Workers are connected and interoperate via IP connectivity.
VPN (Virtual Private Network)	A network implemented on top of another network, and private from it, providing transparent services between networks or devices and networks. VPNs often use some form of cryptographic security to provide this separation.
WPS (Wireless Priority Service)	A Federal program that authorizes cellular communications service providers to prioritize calls over wireless networks.

23 References

[1] National Emergency Number Association. "NENA Knowledge Base Glossary." Updated August 30, 2023. https://kb.nena.org/wiki/Category:Glossary.

[2] Internet Engineering Task Force. *Key words for use in RFCs to Indicate Requirement Levels*. S. Bradner. RFC 2119, March 1997.

[3] National Emergency Number Association. *NENA Standard to Protect the Wellbeing of 9-1-1 Professionals*. NENA-STA-002.2-2022. Arlington, VA: NENA, approved March 4, 2022.

[4] National Emergency Number Association. *Peer Support Team Development, Implementation, and Oversight*. NENA-INF-044.1-2021. Arlington, VA: NENA, approved April 21, 2021.

ACKNOWLEDGEMENTS

The National Emergency Number Association (NENA) Logistics Committee, Virtual PSAP Management Working Group developed this document.

NENA recognizes the following industry experts and their employers for their contributions to the development of this document.

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Amy McDowell, Logistics Committee Co-Chair	Greenville County, SC
Lisa Dodson, Logistics Committee Co-Chair	Motorola Solutions, Inc.
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Loren Hebert, ENP	Central Square Technologies
Jonathan Hopson, ENP, RPL	Williamson County DoEC
Brian Jensen, ENP	San Diego Fire Rescue, CA
Kathleen Litchfield	Town of Hilton Head, SC
Suzanne Lowe	Broward County, FL
Kevin McNallan	Anoka County, MN
Karen Moore, ENP	Wilson County Emergency Communications District, TN
Sheila Ragan	Retired
Casey Rives	Verint
Brady Stokes, ENP	Live Oak Consulting, LLC
Tasha Todd, ENP, RPL	AT&T

Special Acknowledgements:

Delaine Arnold, ENP (dec.), and Sandy Dyre, ENP, Committee Resource Managers, facilitated the production of this document through the prescribed approval process.

The Virtual PSAP Management Working Group is part of the NENA Development Group that is led by:

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- Brandon Abley, ENP, Chief Technology Officer
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