

NENA PSAP Task Overload Management Information Document

Abstract: This document is provided to assist Public Safety Answering Points with identifying indicators of employee task overload and provide recommendations to minimize overload.



NENA PSAP Task Overload Management Information Document

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1 Executive Overview

The challenge of 9-1-1 personnel managing the many tasks associated with successful operations in the PSAP environment is one of the most significant in the 9-1-1 industry. This challenge will only become more significant as we continue the migration to NG9-1-1, integrate new systems and technologies, and face issues associated with staffing, retention, training, and quality assurance. This information document provides guidance on these issues, how to plan for and manage them, as well as considerations to help ensure 9-1-1 operations do not suffer impacts due to performance and task overload. Recommendations within this document are based on industry best practices, research, and experience and are a starting point for what should be a continuing process for any PSAP or 9-1-1 organization. Those stakeholders and managers who are responsible for the management and operation of 9-1-1 systems, authorities, and organizations have an obligation to be aware of the issues identified in this document and the overall concept of task overload in the 9-1-1 environment as it is a foundational element of effective 9-1-1 service delivery.

Dispatchers are routinely tasked to simultaneously monitor numerous phone lines, including radio channels or talk groups; access multiple computer applications; and monitor information systems such as video and alarms. These tasks may be compounded by non-traditional dispatch tasks such as warrant handling, inmate processing, providing service to the public via public service windows, and clerical duties. These operational conditions already exist in today's dispatch centers where NG9-1-1 technology has yet to be implemented. While handling both 9-1-1 and non-emergency calls for service, dispatchers must perform multiple tasks on each individual incident. The complexity of the incident (i.e. active shooter, multi-vehicle accident or multi-alarm fire incident) can substantially increase the number of tasks required. The growth of available technology and increased expectations from citizens and responders have resulted in additional modes of communication to report and provide additional information to 9-1-1 Public Safety Answering Points (PSAPs). While this enhanced information provides the opportunity to improve services delivered to the community, it also has the potential impact of overloading 9-1-1 dispatchers. Roberta Troxell (2008) identified that telecommunicators exert a high degree of "emotional labor", being the degree of emotional and mental drain related to a specific task. We must systematically measure, and plan to address current levels of emotional labor and future predictive increases.

The ability to handle the multitude of tasks performed by a 9-1-1 dispatcher is called "human multitasking". While the term "multitasking" was originally coined to refer to a computer's microprocessor to process several transactions simultaneously, "human multitasking" or rather "context switching" occurs when an individual is tasked with handling more than one task at the same time. An example of context switching in a 9-1-1 PSAP would be speaking to a 9-1-1 caller while inputting the information into a computer-aided dispatch (CAD) system. A key performance evaluation point for trainees and

potential employees is their ability to context switch in the fast-paced 9-1-1 environment, all while handling calls that may be emotionally taxing.

Information overload is receiving more information that an individual can effectively process in the time given subsequently creating task overload, inhibiting their context switching response. For the purposes of this document, the term "overload" is used interchangeably when discussing information or tasks in the PSAP. Few 911 professionals have any alternative other than to "try and do more things faster". One of the challenges we will face as these tasks and challenges increase is a degradation in telecommunicators' performance, which means lower overall performance and measurable consequences to a worker's health.

Understanding how information overload occurs and what we plan to do about it is vitally important to ensuring that 9-1-1 continues to meet the challenges of the future. It is equally important to recognize, acknowledge, and act on the physical and psychological effects of information overload and context switching.

Some of our biggest challenges will be how we overcome the opportunity for greater error and decreased job satisfaction. It is reasonable to assume that telecommunicators will report lower job satisfaction as demands increase, and telecommunicators experience an inability to make the best or right decision because they have too much information to process in an abbreviated time. Ultimately, overload and context switching will affect the accuracy and speed of dissemination of the call.

Physical health challenges brought on by these changes are yet to be understood. Right now, we know Telecommunicators (TCs) are at risk of suffering PTSD when they handle catastrophic incidents. Lilly and Allen (2015) reported that the PTSD rate among telecommunicators is estimated at between 17% using military cut-off scores, and 24% using civilian cut-off scores. Further, these researchers found that approximately 25% of telecommunicators report moderate to severe depressive symptoms, and nearly 10% report alcohol dependence. In a manuscript under scientific peer review, Lilly, London, and Mercer report that approximately 53% of telecommunicators are obese, in comparison to approximately 35% in the U.S. general population, and an additional 29% are overweight. Many factors related to the 9-1-1 work environment are likely responsible, including shift work schedules, mandatory overtime, long hours at the console due to staff shortages, and the emotional labor involved in handling hysterical and distress callers.

We must set standards to train staff to process the information overload inherent in this occupation, and to train supervisors to prevent overload and spot overload breakdowns early in the process. Solution vendors should become familiar with and understand the operational environment of the PSAP to thoughtfully integrate their solutions into the PSAP and assist PSAP managers with mitigating the stressors and additional demands on Telecommunicators. Each new task added to the workload of 9-1-1 telecommunicators should include a feasibility assessment to avoid or at least minimize overload.

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Reason for Issue/Reissue

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2 Operational Description

Task Overload occurs when an individual attempting to perform one or more tasks becomes overwhelmed by the number of or the volume of the task(s), thus creating an adverse effect on the individual, physically and/or psychologically, which ultimately may create a negative impact on the quality of and/or on the successful completion of the task(s) being performed. In the 9-1-1 center environment, this negative impact may be compounded by one's "multi-tasking" and "split-ear" abilities and skill level. Deficiencies in these areas may result in information being missed or not relayed.

Task Overload may also be attributable to the demand on a PSAP's services, either internally or externally as well as PSAP management effectively managing distribution of workload. Inadequate staffing to meet demand can be further exacerbated when the PSAP is experiencing a short staffing event. Short Staffing occurs when a PSAP has fewer employees on hand than a PSAP's minimum staffing requirements due to human resource constraints such as illness, training or insufficient authorized positions. In a survey of 512 PSAPs, 76% reported utilizing overtime to fill the gap, potentially increasing the risk for task overload. In addition to increased workloads, 22% of PSAPs are anticipating budgetary cuts that may reduce staffing thus contributing to the trend of PSAP consolidation.

23.5% of those PSAPs surveyed currently do not measure workload in any form, i.e. basic call counts or call center metrics. While PSAP personnel may be aware that they are not operating under efficient conditions, quantifying workload may provide PSAP supervisors/managers with valuable intelligence to better plan for the future. Call center metrics will help identify current task overload risks.

Dangers of not measuring or utilizing metrics may include:

- Liability
 - Mistakes made on calls/dispatches
 - Lack of information gathering
 - Shortcuts or deviations in following agency policy or call taking techniques.
 - Employee safety
- PSAP Performance
 - Increase in hold times/ring times
 - Citizen complaints
- Employee Relations
 - Employee/Union complaints
 - Lower Quality Assurance Scores

- Increased absenteeism/illness
- Increased employee turnover

Isolated conditions may not indicate task overload, e.g. additional training needed; however, they should be investigated for potential overload, particularly if a PSAP is experiencing several of the examples provided above.

Recommendations within this information document focus on the following key areas that impact task overload within a PSAP:

- Training
- Stress Management
- Human Resources
- Ergonomics
- Forecasting & Metrics

2.1 Training

The concept of multi-tasking in a PSAP is that Telecommunicators are performing more than one task at once. The use of the term 'multi-tasking' is a misnomer. The human brain performs "context switching", in actuality, not performing tasks simultaneously but rather performing tasks one at a time. Telecommunicators may be more successful at context switching because their brains are able to switch quickly between tasks giving the appearance of multi-tasking.

Training should target areas that will help an employee improve upon their ability to multi-task:

- Speed
 - Call scenario re-enactments in real-time will help the Telecommunicator practice a real-world scenario and identify tasks that could be improved. If using the recorded audio, redacting the Telecommunicator's responses to the original incident allows them to respond to the scenario as if it was a live call.
 - Tutorials are available to practice speed of typing and data entry; however, may not always be effective because it focuses only on the single task of typing.
 - Repetitive split-ear activities that require listening to more than one thing at a time, help the Telecommunicator practice focusing on specific tasks, learn to filter and capture the information and increase speed over time.
- Reaction

- Create situational scenarios that require multiple actions from the employee
- Scenario scripts and audio can be created by PSAP personnel, provided by PSAPs sharing training materials with the 9-1-1 community or purchased from training vendors
- Comprehension
 - Split-ear techniques, listening to more than one thing at a time and filtering information as needed
- Memory retention
 - Brain fitness exercises such as Sudoku and crossword puzzles using PSAP terminology
 - Challenge personnel to create games around training topics, such as call signs, dispatch codes, etc., that will engage employees to learn and increase memory retention
 - Repetitive action techniques
 - Practicing data entry or queries in PSAP computer applications will increase speed and memory retention as well as increase overall familiarity and comfort level with these repetitive tasks

Repetitive reinforcement by reviewing training concepts to reinforce memory retention. "People forget 90% of what they have learned within 30 days if your message is not repeatedly reinforced." Tasks taught during training should be reviewed periodically with a trainee to ensure that have been learned. ¹

2.2 Stress Management

Telecommunicators are required to multi-task daily. During the course of a shift, they may need to switch back and forth between multiple applications, i.e. telephones, camera monitors, NLETS, alarm systems, radios as well as different computer applications. The level of multi-tasking is directly impacted by the volume of 9-1-1 calls and non-emergency requests for service. Busy shifts with increased multi-tasking demands may increase the amount of stress for a telecommunicator. It is important for PSAP managers to identify situations where telecommunicators are overloaded with tasks that could potentially increase their stress and impact their overall health.

¹ Mehrabian, Albert, *Repetitive Reinforcement*,
<http://www.relevantchildrensministry.com/2010/01/repetitive-reinforcement.html> (UCLA, 2011)

2.2.1 Key Stress Indicators

Key stress indicators for identifying employees that may be overloaded include, but are not limited to:

- Calling in sick or taking unscheduled days off to get time off from work
- Does not show up for work when scheduled and does not call in prior to the no-show
- Observed changes in employee behavior:
 - Withdrawn or apathetic behavior such as withdrawing from co-workers or not seeming to care
 - Personality changes, i.e. more irritable, angry, sad
 - Decreased decision making abilities
 - Decreased performance levels
 - Increased disciplinary issues
 - Increase in citizen complaints received concerning the employee
 - Personal issues affecting job performance, i.e. relationships, financial, family, etc.
 - Venting frustrations on social media accounts.

Supervisors and PSAP Managers observing these changes in an employee should try to help the employee minimize and resolve the problem. Early intervention is key to helping the employee overcome problems. If it appears that the issues are not work related (i.e. family), employees should be made aware of what resources are available to the employee such as peer support, counseling services, and chaplains.

2.2.2 Stress Management Programs

Stress management programs are excellent tools to assist PSAP managers and supervisors provide healthy PSAP environments and combat the stress of a 9-1-1 telecommunicator's daily workload. In addition to this information document, NENA-STA.002.1-2013, "9-1-1 Acute/Traumatic and Chronic Stress Management Standard" provides ways to identify stress among employees and references resources on helping PSAP managers to minimize stress for PSAP staff.

Stress management programs should include:

- A written policy on how to handle stressful and/or significant events in the PSAP with escalation procedures
- Stress Management Training
 - Free or low-cost training resources in either a classroom or on-line format easily accessible to employees
 - Training for supervisors and PSAPs

- Employee Self Help References. These can be posted in the PSAP or agency's break room and include small tips that will have a positive effect on staff or distributed via email to PSAP personnel.
 - Emotional Survival for Law Enforcement, Dr. Kevin Gilmartin
 - 9-1-1 Wellness Organizations that offer free sources such as videos and e-books
 - Personal checklists and tips such as take a break from the PSAP environment, if possible
 - Relaxation techniques
 - List of health professional resources available via the agency's Employee Assistance Program or on a voluntary basis
- PSAP Peer Support Program
 - A program can be implemented within a PSAP with minimal resources
 - Encourages employees to recognize the signs of problems and embrace the idea of preventive measure to help themselves and their fellow employees
- Critical Incident Stress Management (CISM)
 - CISM programs should help employees identify for themselves when they need help
 - CISM employee participation should always be voluntary
 - Critical incident stress debriefs for traumatic events should be made available to employees if it is requested by the employee. Debriefs should never require attendance.
- Available Community Resources
 - If a PSAP does not have the resources for CISM certification or training, the PSAP should reach out and network with other agencies who have had traumatic events and/or responder related injuries or deaths to learn how to help employees cope with stress and events. A neighboring agency may be able to provide training and/or debriefing services to the PSAP.
 - Churches or other faith-based groups in your community may be able to volunteer counseling services to the PSAP staff.
- Resiliency programs that educate PSAP personnel to proactively recognize and cope with stress, and, reflexively respond to challenges. This will help minimize stress-related reactions to the overall workload in a PSAP, not just traumatic events. Building resiliency – preventing stress, a whole wellness approach, fitness programs
 - Focus on mental fitness as well, happy people handle stress better

- Morale boosters, games, birthday cards

2.3 Hiring/Pre-Employment

The ability to manage task overload from an individual employee performance begins with selecting the ideal applicant when hiring Telecommunicators. PSAPs should consider the following during hiring and pre-employment processes.

2.3.1 Minimum Criteria

Public safety pre-employment testing is not a one-size fits all solution to screening applicants that would be successful as a Telecommunicator. The applicant process will vary depending on state and local agency policies. It is recommended that application processes include, at a minimum,

- Overview of the tasks to be performed
- Check of references and criminal background
- Physical exams, such as:
 - Auditory – Depending on the source, audio may be in different decibel ranges. If the Telecommunicator is required to monitor audio of varying decibels, testing an applicant’s hearing range becomes import.
 - Physical abilities such as the ability sitting for extended periods of time
 - Drug and Alcohol Testing
- Psychological Exams
- Skills and Abilities
 - Problem solving
 - Attention to detail
 - Ability to multi-task
 - Split-ear concentration/comprehension
 - Data Entry/Keyboarding

Agencies should assess the available solutions from the market and determine those that are most applicable to their agency’s operations.

Known products:

- Public Safety Testing (www.publicsafetytesting.com)
- Test Prep Online (www.testprep-online.com)
- Behavior Personnel Assessment Device (BPAD)

- Criticall (www.criticall911.com)
- International Public Management Association for Human Resources (IPMA) (<http://ipma-hr.org/>)
- Stanard & Associates, Inc. (www.stanard.com/public-safety/police-test/the-national-dispatcher-selection-test)

Pre-employment testing should test applicants for skills and abilities that are applicable to the role of Telecommunicator. It is recommended that testing include the following:

2.3.2 Personal Traits

The ideal Telecommunicator would exhibit the following personal character traits; some of these traits may be identifiable through various pre-employment testing such as psychological exams, one-on-one interviews, written exams. These character traits provide a good foundation for learning the tasks of the Telecommunicator position.

Ideal personal character traits:

- Good conflict resolution skills
- Good problem-solving skills that strike a balance between indecisiveness and timid behavior
- Good at taking initiative
- Good verbal/written communication skills
- Good interpersonal relationship skills
- Willingness to learn
- Willingness to adapt
- Good emotional intelligence

Poor personal character traits:

- Lack of personal support system to help handle stressors of shift work
- Dishonesty
- Negative attitude toward public safety
- Weak personality, e.g. timid
- Poor conflict resolutions skills
- Inflexibility to changes, e.g. spikes in call volume, schedule changes such as short notices and reduced staffing

2.4 Ergonomics

The word "Ergonomics" comes from two Greek words "ergon," meaning work, and "nomos" meaning "laws." In today's society, the term ergonomics is used to describe the science of designing the work environment to fit the worker, not forcing the worker to fit his/her environment. The nature of the Telecommunicator's daily workload can create physical health stressors such as the repetitive motions of typing or data entry as well as working in awkward positions such as the Telecommunicator holding the telephone to his/her ear with their shoulder. The Telecommunicator's daily workload can also be impacted by the PSAP's environmental stressors such as poor lighting. These stressors should be alleviated or eliminated through the application of ergonomic principles so that they are not a contributing factor to the Telecommunicator's workload. The work environment should be designed so that it enhances the Telecommunicator's ability to perform work tasks, particularly for a job that can be excessively sedentary for extended periods of time with minimum to no periods of significant physical activity.

Changes to hardware and equipment utilized in a PSAP will require agency investment, this includes ergonomic workspace solutions. While it may not be possible to address the ergonomic needs of each PSAP employee, PSAP managers should consider solutions that can immediately improve operations and employee health, e.g. headsets vs. telephone handsets, and will be used by most employees.

Several known physical issues have been identified as common complaints from Telecommunicator personnel:

- Nerve pain, wrist and elbow (orbital tunnel)
- Joint problems
- Back problems
- Neck problems
- Headaches, migraines

PSAPs should encourage Telecommunicators to spend their break time to stand up, stretch, and walk around away from their duty station, e.g. walk around the building or walk around the parking lot. A few small breaks with some physical activity will help lessen the effect of the above listed physical ailments.

Considerations for minimizing physical stressors at a Telecommunicator's duty station:

- Keyboard solutions for reducing carpal tunnel complaints:
 - Keyboards with built in wrist padding
 - Computer mice with wrist padding
- Solutions to manage multiple computer peripheral devices:

- Keyboard/Video/Mouse (KVM) switches
- KVM software
- Monitors
 - The number of monitors that are used in a single duty station may impact the Telecommunicator's ability to focus on multiple critical applications
 - The placement of the monitors; e.g. height, width, distance from face should be considered so that all monitored applications can be easily viewed by the Telecommunicator
 - Screen resolution and the number of application windows may impact the Telecommunicator's ability to view applications sufficiently or accurately
 - LED monitors that emit blue light may increase eye strain and may impact a Telecommunicator's long term physiological health
- Chairs
 - PSAPs should consider dispatch chairs for different body types
 - Chairs should be designed with appropriate back support to endure extended periods of sitting
 - PSAP should consider the benefits of low and high back chairs to determine if they meet the rigors of 24/7/365 duty use.
- Foot Rests
 - Providing foot rests at duty stations can help elevate feet to take pressure off back and knees
- Desktops
 - Providing adjustable height workstations will allow the Telecommunicator to adjust the workstation up/down for standing or sitting, in addition to providing accommodation for employees that may need a non-traditional desk height, a workstation that gives Telecommunicators the flexibility to stand, and not bend over, at the workstation may minimize muscle cramps and circulatory problems
 - The ability to adjust monitor height on desktop will allow the Telecommunicator to adjust it to his/her eye level, accommodating for different employee heights and minimize neck and eye strain.
- Phones

- Phones that requiring the Telecommunicator to cradle the handset between the neck and shoulder can cause neck and shoulder problems;
- Providing wireless headsets will allow personnel freedom to move around more within the PSAP
- Bookshelves and other storage units
 - Resources such as manuals, phone books, should be within easy reach or in a format accessible from the dispatcher's workstation to minimize reaching and potential injuries from falling books or other objects
- Room lighting
 - PSAPs should consider the impact of LED and fluorescent lighting; this could include adding dimmer switches or lighting that provides UV filtering.

PSAPS should also consider the effects of lighting for different hours of the day; available light within the PSAP will have more of an impact on night shift employees; therefore, it may be beneficial to allow personnel to either turn off overhead lighting or dim the lighting as to reduce glare

2.5 Forecasting

There are many call center management tools available on the market. These tools are generally targeted to commercial call centers. While commercial call centers may analyze similar key performance indicators (KPIs) such as service level and speed of answer, 9-1-1 PSAPs must meet a greater standard of availability. It may be acceptable for a caller to wait 5 to 10 minutes for an agent in a commercial call center such as a utility company or personal credit card services. However, it is not acceptable that a 9-1-1 caller wait 5 to 10 minutes to speak to a Telecommunicator about his/her emergency. The public's expectation of a PSAP's ability to not only answer an emergency call, but to answer that call within ten (10) seconds is high. Therefore, decision making must place emphasis on the availability of services to handle all potential calls.

2.5.1 Seasonal

A PSAP's workload volume does not maintain a constant level throughout the year. By analyzing volume over two or more years may help identify days and/or months where workload might be higher than other days/months.

- Seasonal weather cycles impact each region differently but have the potential to greatly increase volume
- Holidays

- Significant/Large Events:
 - Athletic Events
 - Parades/Festivals
 - Political/Dignitary Visits
 - Concerts or community events
 - Collateral workload due to events in adjacent communities

2.5.2 Daily/Hourly

Over the course of a single week, a PSAP's workload volume will vary from day to day. Monitoring volume trends may identify those specific hours and days where the allocation of staff may be higher than other hours and days within the week.

PSAP Managers should consider the following elements in PSAP workload management to allocate staff appropriately and minimize task overload on PSAP personnel:

- What are the tasks that need to be covered by the PSAP?
 - Fixed Tasks –Fixed tasks are those PSAP functions that are always staffed regardless of volume, e.g. radio consoles. It should be noted that these types of functions may become inefficient if the volume is too high such as a high volume of radio traffic daily. This may warrant implementing additional positions/work stations to support which results in additional staffing needed in the PSAP.
 - Variable Tasks – Variable tasks are those PSAP functions influenced by factors outside of the PSAP's control, e.g. all incoming call volume and/or duties outside the traditional scope of a PSAP, such as inmate searches. Measuring and forecasting volume of variable tasks will be the most crucial aspect to workload management.
 - Special Operations Tasks – Special operations tasks are limited in their scope of work and will impact PSAP staffing for a defined amount of time. Examples are task force initiatives that may include higher level of staffing of field responders, such as warrant runs and traffic saturations. This may warrant staffing additional positions in the PSAP to support these operations but are not intended to be staffed on an on-going basis. Special operations tasks may potentially not be scheduled far enough in advance to allow for the allocation of additional personnel thus incurring additional workload to on-duty personnel.

- What is the PSAP's average hold time? Those hours with higher hold times may need additional staffing to make sure Telecommunicators are available to answer calls from the public.
- What is the PSAP's average speed of answer time? PSAPS should strive to achieve the minimum standard speed of answer as defined in NENA STA-56-006 Emergency Call Processing Protocol Standard. Available staffing and average call handling time will greatly impact a PSAP's ability to achieve this standard.
- How many employees does the PSAP have that are working at any given time? Many call handling management information systems (MIS) can provide statistics that may assist PSAP Managers with determining PSAP efficiency. While the duty roster may list a specific number of employees assigned to be on-duty, they are not all physically handling PSAP tasks for the entirety of a shift due to a variety of reasons such as:
 - Break Schedules – employee breaks could be defined by local policy and/or union contracts. Minimum staffing for PSAP tasks should be maintained during employee breaks. If a PSAP Manager recognizes that the current volumes are at an overload capacity, PSAP Managers should have the discretion to suspend employee breaks until such time that workload volume can allow for employee breaks. This may require re-scheduling them to be later in the shift
 - Meetings/Training – mandatory meetings and/or training may require backfilling of PSAP positions to maintain minimum staffing. PSAPS should have a written policy that defines backfilling and how positions are backfilled, e.g. by seniority.

3 Operations Impacts

3.1 Operations Impacts Summary

The purpose of this NENA Information Document is to provide recommendations to PSAPs to assist in identifying and minimizing workload impacts. Overload has the potential to decrease efficiency and cause employee physiological problems as well as increase the risk of errors in handling 9-1-1 calls for service. This document will provide PSAP managers with recommendations on how to identify risks and manage them appropriately.

3.2 Technical Impacts Summary

PSAPs may utilize new methods to communicate with the public and emergency responders, i.e. live camera feeds, Text to 9-1-1, telematics, and social media, which utilize different delivery methods. These may cause the telecommunicator to experience overload when having to manage multiple incidents, switching back and forth between multiple

applications. There may be opportunity for new vendor solutions that help the PSAP manager identify task overload and help the telecommunicator manage the workload.

3.3 Security Impacts Summary

Any new tools implemented by the PSAP to manage telecommunicator workload will need to be reviewed to determine risk to PSAP security. These may entail, but are not limited to, password management, network security, and hosting solutions.

PSAPs should have local policies and agreements on data security, including the sharing of received data (i.e. video feeds, pictures) with emergency responders as well as with other public safety agencies. Telecommunicators should be aware of agency policy on associated data with a request for service.

3.4 Recommendation for Additional Development Work

There currently has been no new operational or technical requirements identified that would necessitate additional development work on this topic.

3.5 Anticipated Timeline

No anticipated timeline is known. Deployment or implementation of recommendations within this INF may take place when needed as determined by the PSAP.

3.6 Cost Factors

There are potentially additional cost factors that may be realized with implementation of any recommendations within this INF. Examples include but are not limited to:

- Implementing new pre-employment testing processes, e.g. medical/psychological screening, skills/aptitude testing
- Implementing a Quality Assurance (QA) program
- Additional training webinars/workshops
- Purchasing ergonomic office equipment or chairs

3.7 Cost Recovery Considerations

Normal business practices are assumed to be the agency's cost recovery mechanism. PSAPs are encouraged to research alternative funding mechanisms, e.g. grants, as needed.

3.8 Additional Impacts (non-cost related)

The information or requirements contained in this NENA document are expected to have 9-1-1 Center operational and technical impacts, based on the analysis of the authoring group. At the date of publication of this document, no new development work has been identified; however, potential non-cost impacts may include, but not limited to:

0. Additional workload for supervisors/managers involved in monitoring and measuring employee workload.
1. Additional processes implemented and maintained by Human Resources for employee hiring.
2. Researching opportunities for new training and/or stress management resources for employees

3.9 Abbreviations, Terms, and Definitions

See NENA Master Glossary of 9-1-1 Terminology, NENA-ADM-000 [1], for a complete listing of terms used in NENA documents. All abbreviations used in this document are listed below, along with any new or updated terms and definitions.

| Term or Abbreviation (Expansion) | Definition / Description |
|---|---|
| Short Staffing | A staffing condition where a PSAP has fewer employees on hand than a PSAP's minimum staffing requirements due to human resource constraints such as illness, training or insufficient authorized positions. |
| Context Switching | The process of storing the system state for one task, so that that task can be paused, and another task resumed. Sometimes used in reference to 'multitasking', it is the ability for an employee to switch quickly back and forth between tasks thus producing the appearance of 'multitasking'. |

4 Recommended Reading and References

- [1] NENA Master Glossary of 9-1-1 Terminology, [NENA-ADM-000](#)
- [2] Troxell R. "Indirect Exposure to the Trauma of Others: The experience of 9-1-1 telecommunicators." ProQuest Dissertations and Theses. 2009; May.
<http://pqdtopen.proquest.com/doc/304351154.html?FMT=ABS>
- [3] Lilly MM, Allen CE. "Psychological inflexibility and psychopathology in 9-1-1 telecommunicators." Journal of Traumatic Stress. 2015; June 28.
<http://www.ncbi.nlm.nih.gov/pubmed/25964163>
- [4] Lilly, Michelle & London, Melissa & Mercer, Mary. (2015). Predictors of Obesity and Physical Health Complaints Among 911 Telecommunicators. Safety and Health at Work. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4792921/>

5 Exhibits

Not applicable.

6 Appendix

Not applicable.

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