1.1 Scope.

1.1.1 These standards shall cover the installation, performance, operation, and maintenance of Public Safety Answering Points and the associated emergency communication systems.

1.1.2 These standards shall not be used as a design specification manual or an instruction manual.

1.1.3 Unless specified otherwise herein compliance with these standards is required by July 1, 2012.

1.2 Purpose.

The purpose of these standards shall be as follows:

1.2.1 To specify operations, facilities, and communications systems that receive emergency calls from the public.

1.2.2 To provide requirements for the retransmission of such emergency calls to the appropriate emergency response agencies.

1.2.3 To provide requirements for dispatching of appropriate emergency response personnel.

1.2.4 To establish the required levels of performance and quality of installations of emergency services communications systems.

1.3 Application.

These standards shall apply to emergency 911 systems that include, but are not limited to, dispatching systems, telephone systems, and public reporting systems that provide the following functions:

1.3.1 Communication between the public and emergency response agencies.

1.3.2 Communication within the emergency response agency under emergency and non-emergency conditions.

1.3.3 Communication among emergency response agencies.

1.4 Equivalency.

Nothing in these standards is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by these standards.

1.4.1 Technical documentation shall be submitted to the local authority having jurisdiction to demonstrate equivalency.

1.4.2 The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.
Section 2 Definitions

2.1 General.

The definitions contained in this Section shall apply to the terms used in these standards. Where a term is not defined in this Section or another Section within these standards, it shall have the definition provided in the N.C. 911 Board Statutes. Where a term is also not defined by the N.C. 911 Board Statutes, it shall be defined using its’ ordinarily accepted meaning within the context in which it is used. Merriam-Webster’s Collegiate Dictionary, 11th edition, shall be the source for the ordinarily accepted meaning.

2.2 Official Definitions.

2.2.1 Public Safety Answering Point (PSAP). As defined in GS 62A-40(18): The Public Safety Agency that receives an incoming 911 call and dispatches appropriate Public Safety Agencies to respond to the call. See 47 CFR 20.18(b) for basic 911 services, defined as:

Basic 911 Service. CMRS providers subject to this section must transmit all wireless 911 calls without respect to their call validation process to a Public Safety Answering Point, or, where no Public Safety Answering Point has been designated, to a designated statewide default answering point or appropriate local emergency authority pursuant to § 64.3001 of this chapter, provided that "all wireless 911 calls" is defined as "any call initiated by a wireless user dialing 911 on a phone using a compliant radio frequency protocol of the serving carrier."

See GS 62A-40(9), Enhanced 911 Service, defined as:

Directing a 911 call to an appropriate Public Safety Answering Point by selective routing or other means based on the geographical location from which the call originated and providing information defining the approximate geographic location and the telephone number of a 911 caller, in accordance with the FCC Order.

2.3 General Definitions.

2.3.1 Backup Public Safety Answering Point. A structure used to house a part of the control equipment of an emergency reporting system or communications system; also, a normally unattended facility that is remote from the Public Safety Answering Point and is used to house equipment necessary for the functioning of an emergency communications system.

2.3.2 Circuit. The conductor or radio channel and associated equipment that are used to perform a specific function in connection with an emergency call system.

2.3.4 Communications System. A combination of links or networks that serves a general function such as a system made up of command, tactical, logistical, and administrative networks supporting the operations of an individual PSAP.

2.3.5 Comprehensive Emergency Management Plan (CEMP). A disaster recovery plan that conforms to guidelines established by the Public Safety Answering Point and is designed to address natural, technological, and man-made disasters.
2.3.6 Computer-Aided Dispatch (CAD). A combination of hardware and software that provides data entry, makes resource recommendations, and notifies and tracks those resources before, during, and after emergency calls, preserving records of those emergency calls and status changes for later analysis.

2.3.7 Computer Aided Dispatch (CAD) Terminal. An electronic device that combines a keyboard and a display/screen to allow exchange of information between a Telecommunicator and one or more computers in the system/network.

2.3.8 Control Console. A wall-mounted or desktop panel or cabinet containing controls to operate communications equipment.

2.3.9 Coordinated Universal Time. A coordinated time scale, maintained by the Bureau International des Poids et Mesures (BIPM), which forms the basis of a coordinated dissemination of standard frequencies and time signals.

2.3.10 Dispatch Circuit. A circuit over which a signal is transmitted from the Public Safety Answering Point to an emergency response facility (ERF) or emergency response unit (ERU) to notify the emergency response unit to respond to an emergency.

2.3.11 Emergency Call Processing/Dispatching. A process by which an emergency call answered at the Public Safety Answering Point is transmitted to emergency response facilities (ERFs) or to emergency response units (ERUs) in the field.

2.3.12 Emergency Response Unit (ERU). A first responder to include but not limited to a police vehicle, a fire truck, and an ambulance.

2.3.13 Logging Voice Recorder. A device that records voice conversations and automatically logs the time and date of such conversations; normally, a multichannel device that keeps a semi-permanent record of operations.

2.3.14 Notification. The time at which an emergency call is received and acknowledged at a Public Safety Answering Point.

2.3.15 Operations Room. The room in the Public Safety Answering Point where emergency calls are received and processed and communications with emergency response personnel are conducted.

2.3.16 Public Safety Agency. An organization that provides law enforcement, emergency medical, fire, rescue, communications, or related support services.

2.3.17 Security Vestibule. A compartment provided with two or more doors where the intended purpose is to prevent continuous and unobstructed passage by allowing the release of only one door at a time.

2.3.18 Standard Operating Procedures (SOPs). Written organizational directives that establish or prescribe specific operational or administrative methods that are to be followed routinely for the performance of designated operations or actions.

2.3.19 Stored Emergency Power Supply System (SEPSS). A system consisting of a UPS, or a motor generator, powered by a stored electrical energy source, together with a transfer switch designed to
monitor preferred and alternate load power source and provide desired switching of the load, and all
necessary control equipment to make the system functional.

2.3.20 TDD/TTY. A device that is used in conjunction with a telephone to communicate with persons
who are deaf, who are hard of hearing, or who have speech impairments, by typing and reading text.

2.3.21 Telecommunicator. A Telecommunicator shall mean any person engaged in or employed as a full
time or part time 911 communications center call taker (emergency communications specialist,
emergency dispatcher, etc.) and is engaged in the act of processing a 911 call for emergency assistance by
a Primary PUBLIC SAFETY ANSWERING POINT, including the use of 911 system equipment, call
classification, location of a caller, determination of the appropriate response level for emergency
responders, and dispatching 911 call information to the appropriate responder and 911 System.

2.3.22 Uninterruptible Power Supply (UPS). A system designed to provide power, without delay or
transients, during any period when the primary power source is incapable of performing.

2.3.23 Voice Communication Channel. A single path for communication by spoken word that is distinct
from other parallel paths.

Section 3 Public Safety Answering Point (PSAP)

3.1 General.

3.1.1 Any Primary Public Safety Answering Point, Backup Public Safety Answering Point, or
Secondary Public Safety Answering Point that receives funding from the NC 911 Board is required to
comply with all NC 911 Board Standards.

3.1.2 All equipment, software, and services used in the daily operation of the Public Safety Answering
Point shall be kept in working order at all times.

3.1.3 The Public Safety Answering Point shall be provided with an alternate means of communication
that is compatible with the alternate means of communication provided at the Emergency Response
Facilities (ERFs).

3.1.3.1 The alternate means shall be readily available to the Telecommunicators in the event of failure of
the primary communications system.

3.1.3.2 The Telecommunicators shall be trained and capable of using the alternate means in the event of
failure of the primary communications system.

3.1.4 Each Public Safety Answering Point shall maintain a Backup Public Safety Answering Point or
have an arrangement for backup provided by another Public Safety Answering Point. Agencies are
encouraged to pool resources and create regional backup centers.

3.1.4.1 The Backup Public Safety Answering Point shall be capable, when staffed, of performing the
emergency functions performed at the primary Public Safety Answering Point.

3.1.4.2 The Backup Public Safety Answering Point shall be separated geographically from the primary
Public Safety Answering Point at a distance that ensures the survivability of the alternate center.
3.1.4.3 Each Public Safety Answering Point shall develop a formal plan to maintain and operate the Backup Public Safety Answering Point or if backup is provided by another Public Safety Answering Point a formal plan that defines the duties and responsibilities of the alternate Public Safety Answering Point.

3.1.4.3.1 The plan shall include the ability to reroute incoming emergency call traffic to the backup center and to process and dispatch emergency calls at that backup center.

3.1.4.3.2 The plan shall be included in the Comprehensive Emergency Management Plan (CEMP).

3.1.5 The Public Safety Answering Point shall be capable of continuous operation long enough to enable the transfer of operations to the Backup Public Safety Answering Point in the event of an emergency in the Public Safety Answering Point or in the building that houses the Public Safety Answering Point.

3.1.6 Systems that are essential to the operation of the Public Safety Answering Point shall be designed to accommodate peak workloads.

3.1.7 Public Safety Answering Points shall be designed to accommodate the staffing level necessary to operate the center as required by the Standards set herein.

3.1.8 The design of the Public Safety Answering Point shall be based on the number of personnel needed to handle peak workloads as required by the Standards set herein.

3.1.9 Each Public Safety Answering Point shall have a written Comprehensive Emergency Management Plan (CEMP).

3.1.9.1 Emergency Fire Plan. There shall be a local management approved, written, dated, and annually tested emergency fire plan that is part of the CEMP.

3.1.9.2 Damage Control Plan. There shall be a local management approved, written, dated, and annually tested damage control plan that is part of the CEMP.

3.1.9.3 Backup Plan. There shall be a local management approved, written, dated, and annually tested backup Public Safety Answering Point plan that is part of the CEMP and approved by the NC 911 Board.

3.1.10 Penetrations into the Public Safety Answering Point shall be limited to those necessary for the operation of the center.

Section 4 Power

4.5.1 At least two independent and reliable power sources shall be provided, one primary and one secondary, each of which shall be of adequate capacity for operation of the Public Safety Answering Point.

4.5.2 Power sources shall be monitored for integrity, with annunciation provided in the operations room.

4.5.3 Primary Power Source. One of the following shall supply primary power:
4.5.3.1 A feed from a commercial utility distribution system
4.5.3.2 An engine-driven generator installation or equivalent designed for continuous operation, where a person specifically trained in its operation is on duty at all times
4.5.3.3 An engine-driven generator installation or equivalent arranged for cogeneration with commercial light and power, where a person specifically trained in its operation is on duty or available at all times.
4.5.4 Secondary Power Source.
4.5.4.1 The secondary power source shall consist of one or more standby engine-driven generators.
4.5.4.2 Upon failure of primary power, transfer to the standby source shall be automatic.
4.5.5 Stored Emergency Power Supply System (SEPSS) shall be provided for telecommunications equipment, two-way radio systems, computer systems, and other electronic equipment determined to be essential to the operation of the Public Safety Answering Point.
4.5.5.1 The SEPSS shall be of a class that is able to maintain essential operations long enough to implement the formal Comprehensive Emergency Management Plan.
4.5.5.2 The instrumentation required to monitor power shall be remotely annunciated in the operations room.
4.5.6 Power circuits shall include their associated motors, generators, rectifiers, transformers, fuses, and controlling devices.
4.5.6.1 The power circuit disconnecting means shall be installed so that it is accessible only to authorized personnel.
4.5.6.2 Surge Arresters otherwise known as Transient Voltage Surge Suppression (TVSS) shall be provided for protection of telecommunications equipment, two-way radio systems, computers, and other electronic equipment determined to be essential to the operation of the Public Safety Answering Point.
4.5.7 Isolated Grounding System. Telecommunications equipment, two-way radio systems, computers, and other electronic equipment determined to be essential to the operation of the Public Safety Answering Point shall be connected to an isolated grounding system.
4.5.8 Engine-driven generators shall be sized to supply power for the operation of all functions of the Public Safety Answering Point.
4.5.8.1 When installed indoors, engine-driven generators shall be located in a ventilated and secured area that is separated from the Public Safety Answering Point by fire barriers having a fire resistance rating of 2 hours or better.
4.5.8.2 When installed outdoors, engine-driven generators shall be located in a secure enclosure.
4.5.8.3 The area that houses an engine-driven generator shall not be used for storage other than spare parts or equipment related to the generator system.
4.5.8.4 Fuel to operate the engine-driven generator for a minimum of 24 hours at full load shall be available on site.

4.5.8.5 Equipment essential to the operation of the generator shall be supplied with standby power from the generator.

4.5.8.6 Generators shall not use the public water supply for engine cooling.

4.5.9 Uninterruptible Power Supply (UPS) and Battery Systems. A UPS and battery system shall be installed and be sufficient to prevent power surges from damaging equipment in the 911 Emergency Center as well as provide power for all essential 911 Emergency Center operations until the backup power source can be fully activated.

4.5.9.1 Each UPS shall be provided with a bypass switch that maintains the power connection during switch over and that is capable of isolating all UPS components while allowing power to flow from the source to the load.

4.5.9.2 The following UPS conditions shall be annunciated in the operations room:

   (1) Source power failure, overvoltage, and under-voltage

   (2) High and low battery voltage

   (3) UPS in bypass mode.

Section 5 Construction

5.1 General

As a condition for receipt of a grant from the North Carolina 9-1-1 Board for any type of new construction or for a renovation of an existing structure and/or facility incorporated into the construction agreement(s) shall be the following requirements.

5.1.1 The requirements in Section 4 Construction, shall apply only to new construction and construction renovations funded by the North Carolina 911 Board. Existing Public Safety Answering Point facilities are encouraged to meet these standards, but are not required to meet these standards.

5.2 HVAC.

5.2.1 HVAC systems shall be designed to maintain temperature and relative humidity within limits specified by the manufacturer of the equipment critical to the operation of the Public Safety Answering Point.

5.2.2 HVAC systems shall be independent systems that serve only the Public Safety Answering Point.

5.2.3 HVAC system intakes for fresh air shall be arranged to minimize smoke intake from a fire inside or outside the building and to resist intentional introduction of irritating, noxious, toxic, or poisonous substances into the HVAC system.
5.2.4 HVAC emergency controls shall be provided in the operations room to permit closing of outside air intakes.

5.2.5 Backup HVAC systems shall be provided for the operations room and other spaces housing electronic equipment essential to the operation of the Public Safety Answering Point.

5.2.6 HVAC systems shall be designed so that the Public Safety Answering Point is capable of uninterrupted operation with the largest single HVAC unit or component out of service.

5.3 Fire Protection.

5.3.1 The Public Safety Answering Point and spaces adjoining the Public Safety Answering Point shall be provided with an automatic fire detection, alarm, and notification system.

5.3.2 The alarm system shall be monitored in the operations room.

5.3.3 Operation of notification appliances shall not interfere with communications operations.

5.3.4 Electronic computer and data processing equipment shall be protected in accordance with the manufacturer’s recommended specifications, and common business practices.

5.4 Security.

5.4.1 The Public Safety Answering Point and other buildings that house essential operating equipment shall be protected against damage from vandalism, terrorism, and civil disturbances.

5.4.2 Entry to the Public Safety Answering Point shall be restricted to authorized persons.

5.4.3 Entryways to the Public Safety Answering Point that lead directly from the exterior shall be protected by a security vestibule.

5.4.4 Door openings shall be protected by listed, self-closing fire doors that have a fire resistance rating of not less than 1 hour.

5.4.5 Where a Public Safety Answering Point has windows, the following requirements shall apply:

5.4.5.1 Windows shall be a minimum of 4 ft (1.2 m) above floor level.

5.4.5.2 Windows shall be rated for bullet resistance to Level 4 as defined in UL 752, Standard for Safety Bullet-Resistant Equipment.

5.4.5.3 Windows that are not bullet resistant shall be permitted provided that they face an area that cannot be accessed or viewed by the general public.

5.4.5.4 Windows that are required to be bullet resistant shall be configured so that they cannot be opened.

5.4.5.5 Walls with bullet-resistant windows shall be required to provide the same level of protection as the window.
5.4.6 Means shall be provided to prevent unauthorized vehicles from approaching the building housing the Public Safety Answering Point to a distance of no less than 82 ft (25 m).

5.4.7 As an alternative to prevent unauthorized vehicles, unauthorized vehicles shall be permitted to approach closer than 82 ft (25 m) if the building has been designed to be blast resistant.

5.6 Lighting.

5.6.1 Artificial lighting shall be provided to enable personnel to perform their assigned duties.

5.6.2 Emergency Lighting. The Public Safety Answering Point shall be equipped with emergency lighting that shall illuminate automatically immediately upon failure of normal lighting power.

5.6.3 Illumination levels shall be sufficient to allow all essential operations.

5.7 Circuit Construction and Arrangement.

5.7.1 As built drawings shall be provided.

5.7.2 Circuits shall not pass over, pass under, pass through, or be attached to buildings or property that is not owned by, or under the control of, the PSAP or the entity that is responsible for maintaining the system.

5.7.3 Emergency call instruments installed in buildings not under control of the PSAP shall be on separate dedicated circuits.

5.7.4 The combination of public emergency services communication and signaling (C&S) circuits in the same cable with other circuits shall comply with the following:

5.7.4.1 Other municipally controlled C&S circuits shall be permitted.

5.7.4.2 Circuits of private signaling organizations shall be permitted only by permission of the PSAP.

5.8 Underground Cables.

5.8.1 Underground communication and signal cables shall be brought above ground only at points where the PSAP has determined there is no potential for mechanical damage or damage from fires in adjacent buildings.

5.8.2 All cables that are installed in manholes, vaults, and other enclosures intended for personnel entry shall be racked and marked for identification.

5.8.3 Cable splices, taps, and terminal connections shall be located only where accessible for maintenance and inspection and where no potential for damage to the cable due to falling structures or building operations exists.

5.8.4 Cable splices, taps, and terminal connections shall be made to provide and maintain levels of conductivity, insulation, and protection that are at least equivalent to those afforded by the cables that are joined.
5.9 Aerial Cables and Wires.

5.9.1 Protection shall be provided where cables and wires pass through trees, under bridges, and over railroads, and at other locations where damage or deterioration is possible.

5.10 Wiring Inside Buildings.

5.10.1 Conductors at the Public Safety Answering Point shall extend to the operations room in conduits, ducts, shafts, raceways, or overhead racks and troughs of a construction type that protects against fire and mechanical damage.

5.10.2 Cables or wiring exposed to fire hazards shall be protected from the hazard.

5.10.3 At the Public Safety Answering Point, cable terminals and cross connecting facilities shall be located either in or adjacent to the operations room.

5.10.4 All wired dispatch circuit devices and instruments whose failure can adversely affect the operation of the system shall be mounted in accordance with the following:

1. On noncombustible bases, pedestals, switchboards, panels, or cabinets

2. With mounting designed and constructed so that all components are readily accessible

5.11 Circuit Protection.

5.11.1 All surge arresters shall be connected to earth ground.

5.11.2 All protective devices shall be accessible for maintenance and inspection.

5.11.3 Surge arresters shall be designed and listed for the specific application.

5.11.4 Each conductor that enters a Public Safety Answering Point from a partially or entirely aerial line shall be protected by a surge arrester.

5.12 Grounding.

5.12.1 Sensitive electronic equipment determined by the PSAP to be essential to the operation of telecommunications and dispatching systems shall be grounded.

5.12.2 Listed isolated ground receptacles shall be provided for all cord-and-plug-connected essential and sensitive electronic equipment.

5.12.3 Unused wire or cable pairs shall be grounded.

5.12.4 Ground connection for surge suppressors shall be made to the isolated grounding system.

5.13 Access.

5.13.1 All equipment shall be accessible for the purpose of maintenance.
Section 6 Operations

6.1 Management.

6.1.1 All systems shall be under the control of a responsible employee or employees of the PSAP served by the systems.

6.1.2 The Public Safety Answering Point Emergency services dispatching entities shall have trained and qualified technical assistance available for trouble analysis and repair by in-house personnel or by authorized outside contract maintenance services.

6.1.3 Where maintenance is provided by an organization or person other than an employee of the PSAP complete written records of all installation, maintenance, test, and extension of the system shall be forwarded to the responsible employee of the PSAP.

6.1.3.1 Maintenance performed by an organization or person other than an employee of the Public Safety Answering Point shall be by written contract that contains a guarantee of performance.

6.1.5 The Public Safety Answering Point shall have a written local management approved access control plan.

6.1.4.1 Maintenance personnel other than an employee of the Public Safety Answering Point shall be approved by the Public Safety Answering Point pursuant to the approved access control plan as offering no threat to the security of the facility or the employees and equipment within it.

6.1.5 All equipment shall be accessible to the PSAP for the purpose of maintenance.

6.1.6 At least one supervisor or lead with Telecommunicator certification shall be available to respond immediately at all times 24 hours per day, 7 days per week, 52 weeks per year.

6.2 Telecommunicator and Supervisor Qualifications and Training.

6.2.1 Telecommunicators and Supervisors shall be certified in the knowledge, skills, and abilities related to their job function.

6.2.2 Telecommunicators and Supervisors shall have knowledge of the function of all communications equipment and systems in the Public Safety Answering Point.

6.2.3 Telecommunicators and Supervisors shall know the rules and regulations that relate to equipment use, including those of the Federal Communications Commission that pertain to emergency service radio use.

6.2.4 Telecommunicators and Supervisors shall be capable of operating and testing the communications equipment they are assigned to operate.

6.2.5 Telecommunicators and Supervisors shall receive training to maintain the skill level appropriate to their position.
6.2.6 Telecommunicators and Supervisors shall be trained in TDD/TTY procedures, with training provided at a minimum of once per year as part of the Annual Training.

6.3 Staffing.

6.3.1 There shall be sufficient Telecommunicators available to affect the prompt receipt and processing of emergency calls needed to meet the requirements as specified herein.

6.3.2 After January 1, 2013 a minimum of two (2) Telecommunicators must be available at all times 24 hours per day, 7 days per week, 52 weeks per year to immediately receive and process emergency calls.

6.3.3 Where communications systems, computer systems, staff, or facilities are used for both emergency and non-emergency functions, the non-emergency use shall not degrade or delay emergency use of those resources.

6.3.3.1 A Public Safety Answering Point shall handle emergency calls for service and dispatching in preference to nonemergency activities.

6.3.4 The PSAP and emergency response agencies shall develop standard operating procedures that identify when a dedicated Telecommunicator is required to be assigned to an emergency incident.

6.3.5 Telecommunicators shall not be assigned any duties prohibiting them from immediately receiving and processing emergency calls for service in accordance with the time frame specified in the Operating Procedures.

6.4 Operating Procedures.

6.4.1 Ninety (90) percent of emergency calls received on emergency lines shall be answered within ten (10) seconds, and ninety-five (95) percent of emergency calls received on emergency lines shall be answered within twenty (20) seconds.

6.4.1.1 Compliance with 5.4.1 shall be evaluated monthly using data from the previous month.

6.4.2 The Public Safety Answering Point is required to provide pre-arrival medical protocols as set forth by the North Carolina Office of Emergency Services, Health and Human Services in the initial call reception or by the responsible EMS provider on behalf of the primary answering point.

6.4.3 For law enforcement purposes, the Public Safety Answering Point shall determine time frames allowed for completion of dispatch.

6.4.4 When emergency calls need to be transferred to another PSAP, the Telecommunicator will transfer the call without delay. The Telecommunicator will advise the caller: “Please do not hang up; I am connecting you with (name of the agency).” The Telecommunicator should stay on the line until the connection is complete and verified.

6.4.4.1 The Public Safety Answering Point shall transfer calls for services as follows:

(1) The call for service shall be transferred directly to the Telecommunicator.
(2) The answering transferring agency shall remain on the line until it is certain that the transfer is
affected.

(3) The transfer procedure shall be used on emergency 9-1-1 calls.

6.4.5 All calls for service, including requests for additional resources, shall be transmitted to the
identified emergency response units over the required dispatch systems.

6.4.6 An indication of the status of all emergency response units shall be available to appropriate
Telecommunicators at all times.

6.4.7 Records of the dispatch of emergency response units to call for services shall be maintained and
shall identify the following:

(1) Unit designation for each emergency response unit dispatched

(2) Time of dispatch acknowledgment by each emergency response unit responding

(3) Enroute time of each emergency response unit

(4) Time of arrival of each emergency response unit at the scene

(5) Time of patient contact, if applicable

(6) Time each emergency response unit is returned to service

6.4.8 All emergency response agencies shall use common terminology and integrated incident
communications.

6.4.9 When the device monitoring the system for integrity indicates that trouble has occurred, the
Telecommunicator shall act as follows:

(1) Take appropriate steps to repair the fault.

(2) Isolate the fault and notify the official responsible for maintenance if repair is not possible.

6.4.10 Standard operating procedures shall include but not be limited to the following:

(1) All standardized procedures that the Telecommunicator is expected to perform without direct
supervision

(2) Implementation plan that meets the requirements of a formal plan to maintain and operate the Backup
Public Safety Answering Point.

(3) Procedures related to the CEMP.

(4) Emergency response personnel emergencies.

(5) Activation of an emergency distress function.

(6) Assignment of incident radio communications plan.
(7) Time limit for acknowledgment by units that have been dispatched.

6.4.11 Every Public Safety Answering Point shall have a comprehensive regional emergency communications plan as part of the CEMP.

6.4.11.1 The emergency communications plan shall provide for real-time communications between organizations responding to the same emergency incident.

6.4.11.2 This emergency communications plan shall be exercised at least once a year.

6.4.12 In the event that an emergency response unit(s) has not acknowledged its dispatch/response within the time limits established by the Public Safety Answering Point, the Telecommunicator shall perform one or more of the following:

(1) Attempt to contact the emergency response unit(s) by radio.

(2) Re-dispatch the emergency response unit(s) using the primary dispatch system.

(3) Dispatch the emergency response unit(s) using the secondary dispatch system.

(4) Initiate two-way communication with the emergency response unit's supervisor.

6.4.13 The Public Safety Answering point shall develop and implement standard operating procedures for responding to and processing TDD /TTY calls.

6.4.14 Calls received as an open-line or "silent call" shall be queried as a TDD/TTY call if no acknowledgment is received by voice.

6.4.15. A Public Safety Answering Point must have a written procedure for handling 911 hang-up calls.

6.5 Time.

6.5.1 The clock for the main recordkeeping device in the Public Safety Answering Point shall be synchronized to Coordinated Universal Time.

6.5.2 All timekeeping devices in the Public Safety Answering Point shall be maintained within ±5 seconds of the main recordkeeping device clock.

6.6 Recording.

6.6.1 Public Safety Answering Points shall have a logging voice recorder with one channel for each of the following:

(1) Each transmitted or received emergency radio channel or talk group.

(2) Each voice dispatch call for service circuit.

(3) Each Telecommunicator telephone that receives emergency calls for service.
6.6.2 Each Telecommunicator position shall have the ability to instantly recall telephone and radio recordings from that position as applicable.

6.6.3 Emergency calls that are transmitted over the required dispatch circuit(s) shall be automatically recorded, including the dates and times of transmission.

6.7 Quality Assurance

6.7.1 Public Safety Answering Points shall establish a quality assurance/improvement program to ensure the consistency and effectiveness of emergency call processing.

6.7.2 Statistical analysis of emergency call and dispatch performance measurements shall be completed monthly and compiled over a one (1) year period.

Section 7 Telephones

7.1 Telephone Receiving Equipment.

The provisions of this Section shall apply to facilities and equipment that receive emergency calls transmitted by public use of commercial telephone systems, cellular or personal communications services systems, and voice over Internet protocol (VoIP).

7.2 Equipment and Operations.

7.2.1 Telephone lines shall be provided as follows:

(1) A minimum of two 911 emergency telephone lines and 911 emergency telephone devices shall be assigned exclusively for receipt of emergency calls. These lines shall appear on at least two telephone devices within the Public Safety Answering Point.

(2) Additional 911 emergency telephone lines and 911 emergency telephone devices shall be provided as required for the volume of calls handled.

(3) Additional telephone lines and telephone devices shall be provided for the normal business (non-emergency) use as needed.

(4) At least one outgoing-only telephone line and telephone device shall be provided.

7.2.2 911 emergency lines and emergency telephone devices will be answered prior to non-emergency telephone lines and non-emergency telephone devices.

7.2.3 When all 911 emergency telephone lines and emergency telephone devices are in use, emergency calls shall hunt to other predetermined telephone lines and telephone devices that are approved by the Public Safety Answering Point.

7.2.4 Calls to the business number shall not hunt to the designated emergency lines.
7.2.5 When a Public Safety Answering Point receives an emergency call for a location or an agency that is not in its jurisdiction, the Public Safety Answering Point shall transfer the call directly to the responsible Public Safety Answering Point. When possible the call data will be transferred with the emergency call. If the call transfer method is not possible, call information shall be relayed by the Telecommunicator.

7.2.5.1 The Telecommunicator shall remain on the line until it is certain that the transfer has been made and the originating Telecommunicator verifies the transfer has been successfully completed by hearing both parties speaking to each other.

7.2.6 All 911 emergency calls shall be recorded.

7.3 Circuits/Trunks.

7.3.1 At least two 911 call delivery paths with diverse routes arranged so that no single incident interrupts both routes shall be provided to each Public Safety Answering Point.

7.3.2 Where multiple Public Safety Answering Points that serve a jurisdiction are not located in a common facility, at least two circuits with diverse routes, arranged so that no singular incident interrupts both routes, shall be provided between Public Safety Answering Points.

7.3.3 The Public Safety Answering Point shall have sufficient 911 emergency trunk capacity to receive 99.9% of all calls during the busiest hour of the average week of the busiest month of the year.

7.4 911 Emergency Number Alternative Routing.

7.4.1 Public Safety Answering Points shall maintain a written plan as part of the Comprehensive Emergency Management Plan (CEMP) for rerouting incoming calls on 911 emergency lines when the center is unable to accept such calls.

7.4.1.1 The Public Safety Answering Point shall practice this plan at least once annually.

7.4.2 Where overflow calls to 911 emergency telephone lines and emergency telephone devices are routed to alternative telephone lines and alternative telephone devices within the Public Safety Answering Point, the alternative telephone lines and alternative telephone devices shall be monitored for integrity and recorded as required by these standards.

Section 8 Dispatching Systems

8.1 Fundamental Requirements of Emergency Call Dispatching Systems.

8.1.1 An emergency call dispatching system shall be designed, installed, operated, and maintained to provide for the receipt and retransmission of calls.

8.2 Telecommunicators that receive emergency calls shall have redundant means within the PSAP premises to dispatch calls.
(1) The failure of any component of one dispatching means shall not affect the operation of the alternative dispatching means and vice versa.

8.3 Primary dispatch paths and devices upon which transmission and receipt of emergency calls depend shall be monitored constantly for integrity to provide prompt warning of trouble that impacts operation.

8.3.1 Trouble signals shall actuate an audible device and a visual signal located at a constantly attended location.

8.3.2 The audible alert trouble signals from the fault and failure monitoring mechanism shall be distinct from the audible alert emergency alarm signals.

8.3.3 The audible trouble signal shall be permitted to be common to several monitored circuits and devices.

8.3.4 A switch for silencing the audible trouble signal shall be permitted if the visual signal continues to operate until the silencing switch is restored to the designated normal position.

8.3.5 Where dispatch systems use computer diagnostic software, monitoring of the primary dispatch circuit components shall be routed to a dedicated terminal(s) that meets the following requirements:

(2) It shall be located within the communications center.

(3) It shall not be used for routine dispatch activities.

8.4 The radio communications system shall be monitored in the following ways:

(1) Monitoring for integrity shall detect faults and failures in the radio communications system.

(2) Detected faults and failures in the radio communications system shall cause audible or visual indications to be provided within the Public Safety Answering Point.

Section 9 Computer-Aided Dispatching (CAD) Systems

9.1 General.

9.1.1 PSAPs shall use Computer-Aided Dispatch (CAD) systems. These systems shall conform to the items outlined in this Section.

9.1.2 The CAD system shall contain all hardware and software components necessary for interface with the 9-1-1 system.

9.2 Secondary Method.

9.2.1 A secondary method shall be provided and shall be available for use in the event of a failure of the CAD system.
9.3 Security.

9.3.1 CAD systems shall utilize different levels of security to restrict unauthorized access to sensitive and critical information, programs, and operating system functions.

9.3.2 The PSAP shall have the ability to control user and supervisor access to the various security levels.

9.3.3 Physical access to the CAD system hardware shall be limited to authorized personnel as determined by the PSAP.

9.3.4 Operation of the CAD system software shall be limited to authorized personnel by login/password control, workstation limitations, or other means as required by the PSAP.

9.3.5 The CAD system shall provide network isolation necessary to preserve bandwidth for the efficient operation of the system and processing of emergency calls.

9.3.5.1 The CAD system shall provide measures to prevent denial-of-service attacks and any other undesired access to the CAD portion of the network.

9.3.5.2 The CAD system shall employ antivirus software where necessary to protect the system from infection.

9.4 Emergency Call Data Exchange.

9.4.1 The CAD system should have the capability to allow emergency call data exchange between the CAD system and other CAD systems.

9.4.2 The CAD system should have the capability to allow data exchange between the CAD system and other systems.

9.5 CAD Capabilities.

9.5.1 The installation of a CAD system in emergency service dispatching shall not negate the requirements for a secondary dispatch circuit.

9.5.2 Software that is a part of the CAD system shall provide data entry; provide resource recommendations, notification, and tracking; store records relating to all emergency calls and all other calls for service and status changes; and track those resources before, during, and after emergency calls, preserving records of those emergency calls and status changes for later analysis.

9.5.2.1 The Public Safety Answering Point shall put in place safeguards to preserve the operation, sustainability, and maintainability of all elements of the CAD system in the event of the demise or default of the CAD supplier.

9.5.2.2 The system applications shall function under the overall control of a standard operating system that includes support functions and features as required by the Public Safety Answering Point.

9.6 Computer Aided Dispatch (CAD) Performance.
9.6.2 The Computer Aided Dispatch system shall recommend units for assignment to calls.

9.6.2.1 The Computer Aided Dispatch system shall ensure that the optimum response units are selected.

9.6.2.2 The Computer Aided Dispatch system shall allow the Telecommunicator to override the CAD recommendation for unit assignment.

9.6.2.3 The Computer Aided Dispatch system shall have the ability to prioritize all system processes so that emergency operations take precedence.

9.6.3 The Computer Aided Dispatch system shall detect errors and/or faults and failures.

9.6.3.1 The Computer Aided Dispatch system shall automatically perform all required reconfiguration as a result of the faults or failures.

9.6.3.2 The Computer Aided Dispatch system should queue a notification message to the supervisor and any designated Telecommunicator positions.

9.6.4 Under all conditions, the Computer Aided Dispatch system response time should not exceed 2 seconds, measured from the time a Telecommunicator completes a keyboard entry to the time of full display of the system response at any position where a response is required.

9.6.5 The Computer Aided Dispatch system shall be available and fully functional 99.95 percent of the time, excluding planned maintenance.

9.6.6 The Computer Aided Dispatch system shall include automatic power-fail recovery capability.

9.7 Backup.

9.7.1 The Computer Aided Dispatch system shall include a data backup system, utilizing either removable media or independent disk storage arrays dedicated to the backup task.

9.8 Redundancy.

9.8.1 The failure of any single component shall not disable the entire system.

9.8.1.1 The Computer Aided Dispatch system shall provide switchover in case of failure of the required system component(s).

9.8.1.2 Manual intervention by Telecommunicators or others shall not be required.

9.8.1.3 Notwithstanding automatic switchover, the Computer Aided Dispatch system shall provide the capability to manually initiate switchover.

9.8.1.4 Computer Aided Dispatch Systems that utilize server and workstation configuration shall accomplish automatic switch over by having a duplicate server available with access to all the data necessary and required to restart at the point where the primary server stopped.

9.8.1.5 Computer Aided Dispatch Systems that utilize distributed processing, with workstations in the operations room also providing the call processing functions, shall be considered to meet the requirements
of automatic switchover, as long as all such workstations are continually sharing data and all data
necessary to pick up at the point where the failed workstation stopped are available to all other designated
dispatch workstations.

9.8.2 Monitoring for Integrity.

9.8.2.1 The system shall continuously monitor the Computer Aided Dispatch interfaces for equipment
failures, device exceptions, and time-outs.

9.8.2.2 The system shall, upon detection of faults or failures, send an appropriate message consisting of
visual and audible indications.

9.8.3 The system shall provide a log of system messages and transactions.

9.8.4 At least one spare display screen, pointing device, and keyboard shall be available in the Public
Safety Answering Point for immediate change-out.

Section 10 Testing

10.1 General.

10.1.1 Tests and inspections of all systems shall be made at the regular intervals.

10.1.2 All equipment shall be restored to operating condition after each test or emergency call for which
the equipment functioned.

10.1.3 Where tests indicate that trouble has occurred anywhere on the system, one of the following shall
be required:

(1) The Telecommunicator shall take appropriate steps within their scope of training to repair the fault.

(2) If repair is not possible, action shall be taken to isolate the fault and to notify the official responsible
for maintenance.

10.1.4 Procedures that are required by other parties and that exceed the requirements of these standards
shall be permitted.

10.1.5 The requirements of this Section shall apply to both new and existing systems.

10.2 Acceptance Testing.

10.2.1 New equipment shall be provided with operation manuals that cover all operations and testing
procedures.

10.2.2 All functions of new equipment shall be tested in accordance with the manufacturers'
specifications and accepted Public Safety Answering Point practices before being placed in service.

10.3 Power.
10.3.1 Emergency and standby power systems shall be tested in accordance with the manufacturer’s specifications and accepted business practices.

Section 11 Records

11.1 General.

11.1.1 Complete records to ensure operational capability of all 911 system functions shall be maintained for a minimum of three years.

11.1.2 Compliance with the requirements in this section shall begin with the purchase or lease of all equipment and services after June 30, 2011.

11.2 Acceptance Test Records and As-Built Drawings.

After completion of acceptance tests, the following shall be provided:

(1) A set of reproducible, as-built installation drawings.

(2) Operation and maintenance manuals.

(3) Written sequence of operation.

(4) Results of all operational tests and values at the time of installation.

11.3 Electronic Records

11.3.1 For software-based systems, access to site-specific software shall be provided to the PSAP.

11.3.2 The PSAP shall be responsible for maintaining the records for the life of the system.

11.3.3 Paper or electronic media shall be permitted.

11.4 Training Records.

11.4.1 Training records shall be maintained for each employee as required by the PSAP.

11.5 Operational Records.

11.5.1 Call and dispatch performance statistics shall be compiled and maintained.

11.5.2 Statistical analysis of emergency call and dispatch performance measurements shall be done monthly and compiled over a one (1) year period.

11.5.2.1 A management information system (MIS) program shall track incoming emergency calls and dispatched emergency calls and provide real-time information and strategic management reports.

11.5.3 Records of the following, including the corresponding dates and times, shall be kept:
1 (1) Test, emergency call, and dispatch signals
2 (2) Circuit interruptions and observations or reports of equipment failures
3 (3) Abnormal or defective circuit conditions indicated by test or inspection

4 **11.6 Maintenance Records.**

5 11.6.1 Records of maintenance, both routine and emergency, shall be kept for all emergency call
6 receiving equipment and emergency call dispatching equipment.

7 11.6.2 All maintenance records shall include the date, time, nature of maintenance, and repairer's name
8 and affiliation.