Commonwealth of Pennsylvania
Office of Administration
Office of Public Safety Radio Services
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PA-STARNet Interoperability

Standard Operating Procedures

pennsylvania
STATEWIDE RADIO NETWORK

PA-STARNET

Record of Changes

Ver.Rel	Date	Who	Status	Description
1.0	9/3/2010	J Seefeldt	Downlevel	Original issue
1.1	9/29/2010	J Seefeldt	Published	Include UHF coverage maps; move overlay coverage maps to separate documents.

Executive Summary

The *PA-STARNet Interoperability Standard Operating Procedures (SOP)* document is a consolidated reference for state, county, and municipal agencies and emergency responders who need to communicate with other agencies or emergency responders using the Pennsylvania Statewide Radio Network (PA-STARNet). The SOP helps standardize radio voice interoperability procedures for use of PA-STARNet and state interoperability resources.

PA-STARNet is the statewide Land Mobile Radio (LMR) system based on an OpenSky® trunked digital radio network with microwave backbone. Its technology includes not only the core native OpenSky® voice and data services, but also a number of subsystems and extensions for interoperable communications. Originally designed to consolidate and improve LMR resources for agencies of commonwealth government, PA-STARNet today also serves as the statewide backbone network for interoperable communications among emergency response agencies at every level of government across the range of disciplines.

This SOP focuses on interoperable use of PA-STARNet in support of emergency communications and incident response, and provides a summary reference for effective use of its communications resources. Its audience includes state agency users as well as emergency management personnel and county and local emergency responders. The SOP includes the following guidance:

- Presents situations that might require interoperability
- Discusses the organizations (state, county, municipal, and so on) that might be involved in events or incidents
- Outlines how to request access to PA-STARNet
- Sets forth common call signs, hailing, and radio conventions
- Outlines PA-STARNet interoperability profiles and talk groups
- Describes operations for state interoperability resources including PA-STARNet
- Describes responsibilities for use of the system
- Identifies how to request training
- Summarizes after-action reporting requirements

Key factors to ensure the successful application of interoperability resources using this SOP include the following:

- Broad distribution to both agency administration and state and county emergency management
- Ready availability to potential users and emergency responders
- Use in practical training exercises
- Regular use, along with the resources themselves, as part of day-to-day operations
- Content that is clear, concise, easily understood, practical, and applicable to the public safety and emergency response community

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1. Introduction

1.1. Background

The Pennsylvania Statewide Radio Network (PA-STARNet) began with Pennsylvania Legislative Act 148 (1996), which provided funding for a "[c]ommunication and information infrastructure, including approximately 200 sites located throughout the state for transmission of voice and data communication connected by a digital microwave system to form a statewide mobile radio network…"

The initial purpose for developing the network was to replace multiple incompatible, aging mobile radio systems with a single highly flexible, centrally managed statewide system using the most full-featured, reliable, and effective wireless communications technology available. Communications service to state agencies remains the primary mission. However, the events of September 11, 2001 brought focus to communications interoperability as a second major role for the network. Today, PA-STARNet serves as the backbone for interoperable communications across the state.

The Office of Public Safety Radio Services (OPRS), part of the Governor's Office of Administration, has the lead role in promoting interoperability within the state. OPRS is the primary agent for overseeing the design, development, and operation of PA-STARNet. Carrying out this responsibility entails finding ways to share requirements, understand operations and relationships, transfer knowledge, and arrive at a common vision of interoperable public safety communications.

In 2007, OPRS developed and the U.S. Department of Homeland Security approved a Statewide Communications Interoperability Plan (SCIP) for the Commonwealth of Pennsylvania as a blueprint for the implementation and promotion of interoperable communications among public safety and emergency response agencies at all levels of government. A set of Standard Operating Procedures (SOPs) was one of the objectives set forth in the SCIP as part of the overall interoperable communications strategy.

This SOP outlines standard communications procedures for response beyond jurisdictional boundaries, and also across disciplines including fire, emergency medical services (EMS), law enforcement, and others. It applies to all levels of government. It also includes interoperable communications with non-traditional response agencies that may become involved in emergency response, such as the Pennsylvania Department of Transportation (PennDOT), the Red Cross, and utility companies.

1.2. Technology

The LMR component of PA-STARNet is a digital trunked radio system providing mobile-based coverage throughout the state for both routine public safety communications and emergency communications for incident response. The network supports both voice and data, and provides interoperable communications through a variety of technologies for intercommunication with external radio systems. In addition to day-to-day and emergency communications, it provides

communications support for special events such as the international G-20 meetings in Pittsburgh in 2009.

The network uses Internet Protocol (IP) addressing and operates in the 800 megahertz (MHz) frequency band. PA-STARNet 800 MHz frequencies are licensed in the Federal Communications Commission's (FCC's) Public Safety Pool. The system comprises base stations at high-profile tower sites and at microcell sites (237 tower sites and 640 microcell sites as of January 2010). The technology for voice and data services and network operations and control is Harris Corporation's OpenSky®.

A Network Operations Center (NOC) provides overall network monitoring and control. The network for the LMR component is segmented into seven regions, each with a Regional Operations Center (ROC) serving as a point of control. There is a fully functional backup NOC that also serves as a secondary point of entry to the network's firewall. As of January 2010, radio frequency (RF) coverage extends over more than 95% of the state's land mass.

While the core of PA-STARNet is the trunked voice and data system comprising both high-profile tower sites and low-profile microcell sites connected by a statewide microwave backbone, the network includes other components to facilitate interoperable communications, such as the VHF and UHF network overlays that provide connectivity throughout the state between PA-STARNet voice groups and standard legacy public safety and mutual aid frequencies.

The system is a statewide wireless transport for mobile, hand-held, and fixed-position radios that supports data applications as well as voice communication. PA-STARNet includes overlays and extensions to integrate other frequency bands and radio technologies into the 800 MHz trunked digital core and statewide microwave network. Together, these technologies create a framework for interoperable communication among agencies at all levels of government, including county 911 Centers and Regional Task Forces (RTFs).

1.3. Administration

Advisory and oversight responsibility for public safety and emergency communications in Pennsylvania belongs to the Public Safety Communications Council (PSCC), whose charter derives from Office of Administration Management Directive 245.15, *Pennsylvania Statewide Radio Network*. The PSCC provides guidance to OPRS in development, operation, regulation, and management of PA-STARNet and in its application to interoperable communications. Responsibilities of OPRS include implementation of interoperability resources and development of SOPs.

It is the responsibility of agency heads to promote understanding of the procedures and guidance in this SOP and to ensure their application to emergency communications using PA-STARNet. All communications personnel are responsible for becoming familiar with this SOP and following its guidance.

Public safety agencies should use the guidelines in this SOP for interoperable incident communications, and for day-to-day interoperable communications as appropriate. These

techniques and strategies are often applicable whether PA-STARNet or local resources are in use.

All applications of state interoperable communications resources to emergency communications should comply with the procedures and guidance in this SOP. The Governor's Proclamation, *Implementing the National Incident Management System* (December 20, 2004), mandates use of the National Incident Management System (NIMS), including the Incident Command System (ICS), for all incident response in Pennsylvania.

The state recommends that Mutual Aid Agreements (MAAs) or Memorandums of Understanding (MOUs) be in place for interoperable communications among county and local agencies. All MAAs or MOUs for interoperable communications should be consistent with the guidance in this SOP.

1.4. Distribution

Following is the SOP's anticipated distribution:

- Communications personnel in state agencies using PA-STARNet
- Department heads of agencies using PA-STARNet
- Dispatch personnel
- County and local public safety agencies
- Emergency management personnel
- PA-STARNet business partners (for example, FirstEnergy, Area Transportation Authority of North Central Pennsylvania)
- All PA-STARNet users

All organizations with PA-STARNet radios should review the internal distribution of this SOP regularly. This document is available as an Adobe Acrobat Portable Document Format (PDF) file on the Public Safety Radio home page (see the *Key Documents* tab).

1.5. Updates and Revisions

OPRS reviews this SOP at least annually in order to make any necessary changes. Upon approval of revisions, OPRS makes the updated SOP available as an Adobe Acrobat PDF file for viewing and download (see **1.4 Distribution** above).

All radio users can submit suggested updates and revisions to OPRS at any time by e-mail at RA-RadioPolicy@state.pa.us.

2. Standards

2.1. Interoperability Methods

The state provides or endorses a number of different technologies to support interoperable communications. This section presents a summary of the interoperability technologies available.

2.1.1. PA-STARNet Voice Connection

The primary interoperability technology provided by the state is PA-STARNet's trunked digital voice subsystem. A key element in providing interoperable communications to county and local agencies is a control station installed at each of the state's Public Safety Answering Points (PSAPs, or 911 Centers). This infrastructure provides four approved methods to connect, described below in ascending order from least to most full-featured.

Option 1–Standalone Control Station

The state has placed a control station in each 911 Center for use with PA-STARNet. Using the radio as a standalone device, the dispatch center can contact any state agency that has the county's talk group in its fleet map. Agencies whose fleet maps allow this type of communication include Pennsylvania State Police (PSP) and neighboring counties. 911 Centers can use standalone control stations to request assistance or coordinate activities. Without a connection to the dispatch console, there is no connection to local radio channels and all information must be relayed by dispatch personnel.

Option 2–Integrated Control Station with Console System

The next step toward integration of the control station is connection to the dispatch center's console system. This allows dispatch operators to patch a local radio channel to the control station's selected talk group. OPRS assigns the talk group to be used and announces it to all agencies involved in the patch. Operators should be careful in setting up the patch since all traffic on the local radio resource is routed to all other connected local resources.

OPRS has designed a standard structure for the talk group profiles in integrated control stations to ensure usability and clear lines of communication among the agencies connected. **Appendix A** shows a sample profile for a PA-STARNet control station in a county 911 Center.

It is important to note that only one talk group can be used by a single county control station at a time.

Option 3–Interoperability Gateway

A further step toward integrated interoperability is implementation of a gateway connecting the 911 Center's radio system directly to a PA-STARNet talk group. To accomplish this, the state installs an interoperability card capable of tone remote control or E&M signaling. The gateway is then connected to the PA-STARNet system at the network level through leased connectivity (a T-1 line, for example). The locality is responsible for recurring connectivity costs.

Option 4–Internetworking of Radio Systems

The most complete implementation of PA-STARNet interoperability is interconnection of like systems (Harris Corporation OpenSky®). This option provides access to the full network capabilities of the PA-STARNet system. In this method, IP-based network connections tie compatible radio systems directly to PA-STARNet. Local agencies connecting to PA-STARNet in this way are responsible for providing a means of connectivity (a T-1 line, for example). Multiple talk groups can be connected with this option.

2.1.2. Frequency Overlays

As part of the strategy for connecting radios using different technologies and frequency bands to PA-STARNet for interoperable communications, the state has created overlays for standard UHF and VHF channels.

UHF Overlay

The UHF subsystem consists of two repeaters at each of 52 tower sites and includes multiple frequencies with sub-audible tones. These towers provide mobile radio coverage throughout the state. Each tower site connects to a talk group for the region in which it is located, using one of the following methods:

The tower can operate as a standalone site, providing a wide-area footprint for UHF coverage; **or**

The tower can be connected to PA-STARNet through a gateway.

The UHF overlay is narrowband operating at 12.5 kilohertz (KHz).

Use of the PA-STARNet UHF overlay does not require any permissions or approval. The UHF overlay uses federally-designated *UTAC* mutual aid channels. The state recommends that all local public safety agencies using UHF frequencies include the *UTAC* mutual aid channels in their radios.

This subsystem will become available for use upon completion of acceptance testing. The target for completion of the UHF overlay is September 2010.

Appendix C presents detailed information for use of the UHF overlay, including call signs, tower locations, and codes.

VHF Overlay

The VHF subsystem consists of 50 radio tower sites, each with a base station tuned to the National Emergency Police Frequency (NEPF), 155.475 MHz. These towers provide mobile radio coverage throughout the state. Each site is mapped through an interoperability gateway to a PA-STARNet talk group for the region in which the tower is located. This resource is available to all public safety and emergency response agencies in the state in accordance with the eligibility criteria and requirements for use defined in the PSP State NEPF plan, included as **Appendix B**.

To use the VHF overlay, agencies using VHF frequencies for their operations have NEPF programmed into their radios. NEPF is a simplex channel that supports both transmitting and receiving communications. After the FCC-mandated deadline for narrowbanding on January 1,

2013, the state intends to migrate from NEPF to one of the standard VHF mutual aid channels for the VHF overlay. The state also recommends including both the *VTAC* and *VCALL* mutual aid channels in all VHF radios.

Appendix D presents detailed information for use of the VHF overlay, including call signs, aliases, tower sites, and codes.

2.1.3. 800 MHz Mutual Aid Channels

The PA-STARNet system includes the 800 MHz National Public Safety Planning Advisory Committee (NPSPAC) mutual aid channels. They are located at PA-STARNet sites YORK01, CENT16, and WEST03. These sites are configured identically in that each includes one calling channel (*ICALL*) and two tactical channels (*ITAC-3* and *ITAC-4*).

The sites were deployed prior to the naming convention recommendations by the National Public Safety Telecommunications Council (NPSTC) for standard public safety channel nomenclature. OPRS will rename the channels upon completion of frequency rebanding to comply with the NPSTC recommendations.

2.1.4. Other Interoperability Methods

While it does not support them directly, the state recognizes the interoperability methods described below for use when appropriate.

Shared Radio Channels
Use of shared channels is applicable primarily at the local and county levels. Agencies should have formal agreements governing their use.

Tactical Interoperability Devices
Communications interoperability equipment in this category includes both fixed and mobile devices, such as the Raytheon's ACU-1000, Link Communications' Tactical Communication Bridge®, Harris Corporation's NetworkFirst® Gateway, and SyTech's Radio Interoperability System (RIOS). These devices interconnect radio channels and talk groups either directly through radios or through network connections. Such devices should not be connected to state-provided resources without notifying OPRS for approval and support (see **Appendix K** for contact information).

Radio Caches
While OPRS does not provide caches of radios for use with PA-STARNet, all RTFs in the state have invested in radios that can be used with PA-STARNet in emergencies.

Because PA-STARNet is a mobile-based system, users cannot expect portable radios to operate reliably outside those few areas specifically rated for portable coverage. Cached radios should not be used without contacting OPRS for approval and support.

RTFs and others with cached radios for use with PA-STARNet have a significant responsibility to maintain and test these radios regularly, at least semi-annually, to ensure that they will operate when needed. This responsibility includes, at a minimum, routinely charging the

batteries, checking software revisions, and practicing with the radios. To be useful in an emergency, cached radios must be fully operational and correctly programmed.

Mobile Communications Units
Many localities have developed mobile communications units to support interoperability for incident response. These units typically use some type of tactical interoperability device to interconnect various radio channels or systems. Users should follow the guidance above under *Tactical Interoperability Devices* before connecting this type of equipment to PA-STARNet.

2.1.5. PA-STARNet Voice Group Profiles

The OpenSky® voice component of PA-STARNet designates a set of voice groups called a *personality* for each user, loaded dynamically to the radio from PA-STARNet's administrative system on login. Personalities are further subdivided into *profiles*. A profile is a named, ordered set of 16 selectable voice groups. A personality in turn is a named, ordered set of 16 selectable profiles.

In most contexts, *voice group* and *talk group* refer to the same thing: a software-defined virtual radio channel delineating a set of radio users who can communicate when that same voice group is selected on their radios.

OPRS has included three common voice group profiles for interagency communication in the last three positions of radio personalities, reserved for this purpose in every production-level personality. The Statewide Interoperability Coordinator (SWIC) in OPRS coordinates the use of these resources (see **Appendix K** for contact information):

Profile 14, **INTEROP**: Interagency Communication Voice Groups (see **Appendix E**)
Profile 15, **GLOBAL2**: Emergency Voice Groups, Second Set (see **Appendix F**)
Profile 16, **GLOBAL1**: Emergency Voice Groups, First Set (see **Appendix F**)

The global emergency profiles (15 and 16) contain two sets of talk groups for use in incident response in accordance with NIMS and ICS. Incident Command can make use of these talk groups for communication in incidents with multiple agencies or disciplines responding. The *COMMON* talk group appearing in the last position of these profiles is the only talk group common to both. It allows users of the **GLOBAL1** and **GLOBAL2** profiles to communicate with each another without leaving their assigned profiles. Each incident using these profiles can assign the various talk groups as necessary to respond most effectively.

2.2. Operations Standards

2.2.1. Rules of Use

Effective communication requires clear, concise messages. NIMS and ICS prescribe that all communications should be conducted in plain language, free of codes, acronyms, abbreviations, and unnecessary technical terms. In addition, common statewide naming conventions and operational protocols facilitate clarity.

Also essential to effective communication in incident response, especially for large incidents, is hierarchical communication, the ICS principle of "talking one up and one down" in the chain of

command. Interoperability does not require that all responders be able to talk to any other responder. Rather, it requires that responders be able to "talk one up and one down": up the chain of command for direction from a supervisor or commander, and down the chain to issue information and instructions to those supervised.

The following guidelines apply to incidents requiring response by multiple agencies or disciplines using state resources.

Communications Structure

Communication can be classified in various ways such as the following:

Command or Strategic Communications: Communication of high-level directions, including resource priorities, roles and responsibilities, and courses of action.

Tactical Communications: Communication between command and support elements or cooperating agencies and organizations.

Support Communications: Coordination in support of strategic and tactical communications, for example, communication among hospitals concerning resource ordering, dispatching, and tracking from logistics centers, or traffic and public works communications.

These broad types correspond to the conceptual networks described in NIMS (*National Incident Management System,* December 2008, Incident Command System, Tab 4—Logistics Section, d. Communications Unit, p. 110):

Command Net: The Command Net links Incident Command, Command Staff, Section Chiefs, Branch Directors, and Division and Group Supervisors. The Command Net can use the command talk group (*CMD_1* or *CMD_2*) in one of the PA-STARNet global reserved interoperability talk group profiles. See ***Figure 1***—*Command Net* below for a graphic presentation of this element of the incident communications organization.

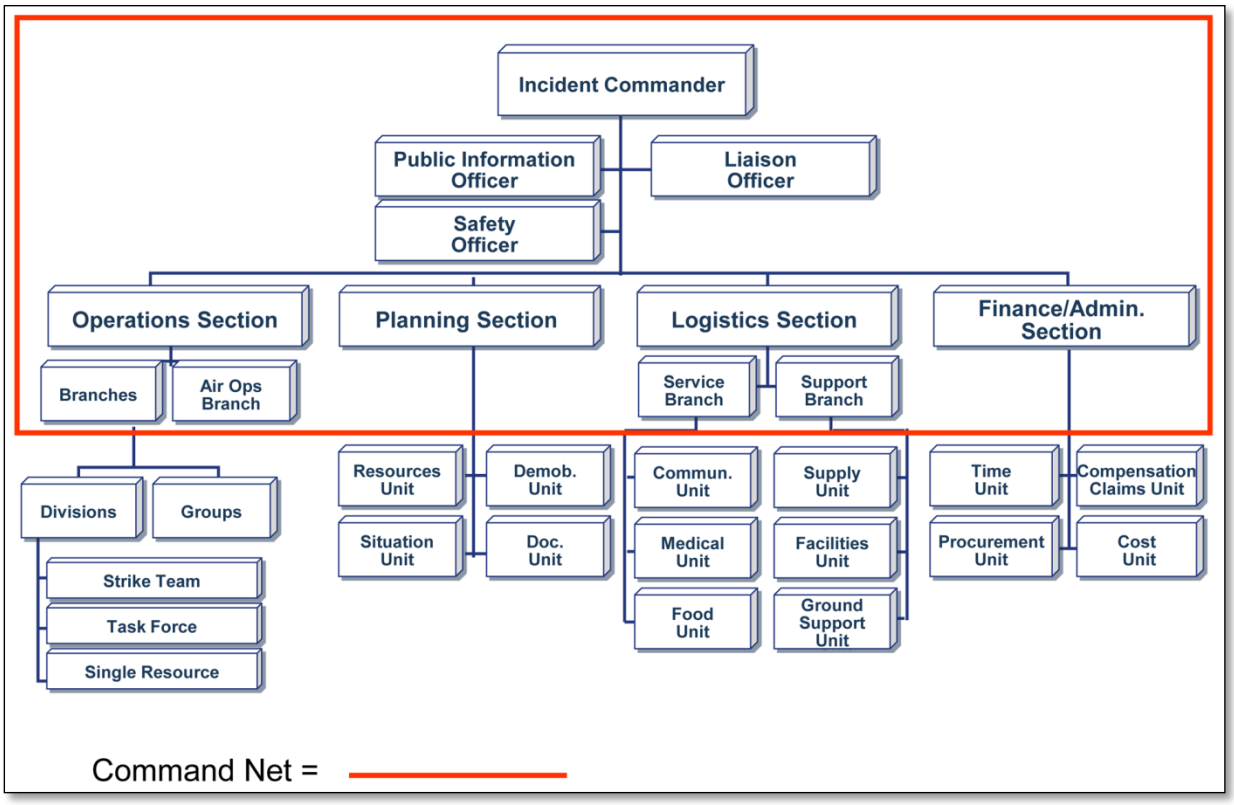

Figure 1—Command Net

Tactical Nets: Several Tactical Nets can be established to connect departments, agencies, geographical areas, or specific functional units. How these nets are set up should be a matter of joint design by Planning, Operations, and Logistics. ***Figure 2***—*Tactical Net* below shows a few examples.

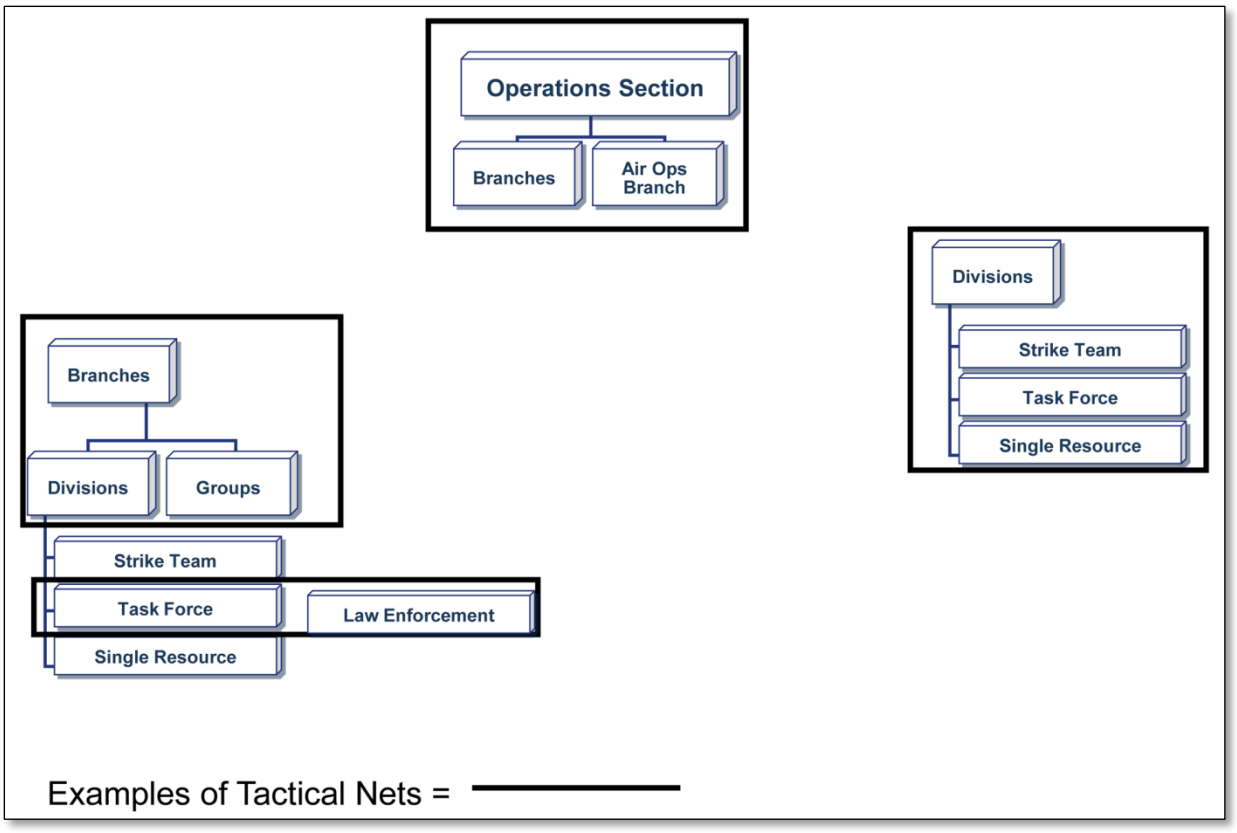

Figure 2—Tactical Net

Generally, the size and scope of an incident determines the extent of Tactical Nets. For some incidents, Tactical Nets can use the tactical talk groups in the PA-STARNet global reserved interoperability profiles, or they can use other interoperability resources. Tactical Nets can also use agency-specific frequencies or shared interoperability resources. Usually methods for implementing Tactical Nets have already been established through local policies or agreements with other tactical operations entities.

Support Net: A Support Net is established primarily to handle changes in resource status, but also to handle logistical requests and other non-tactical functions. Support Nets accommodate communications that are at levels other than operational. ***Figure 3***—*Support Net* below shows some examples.

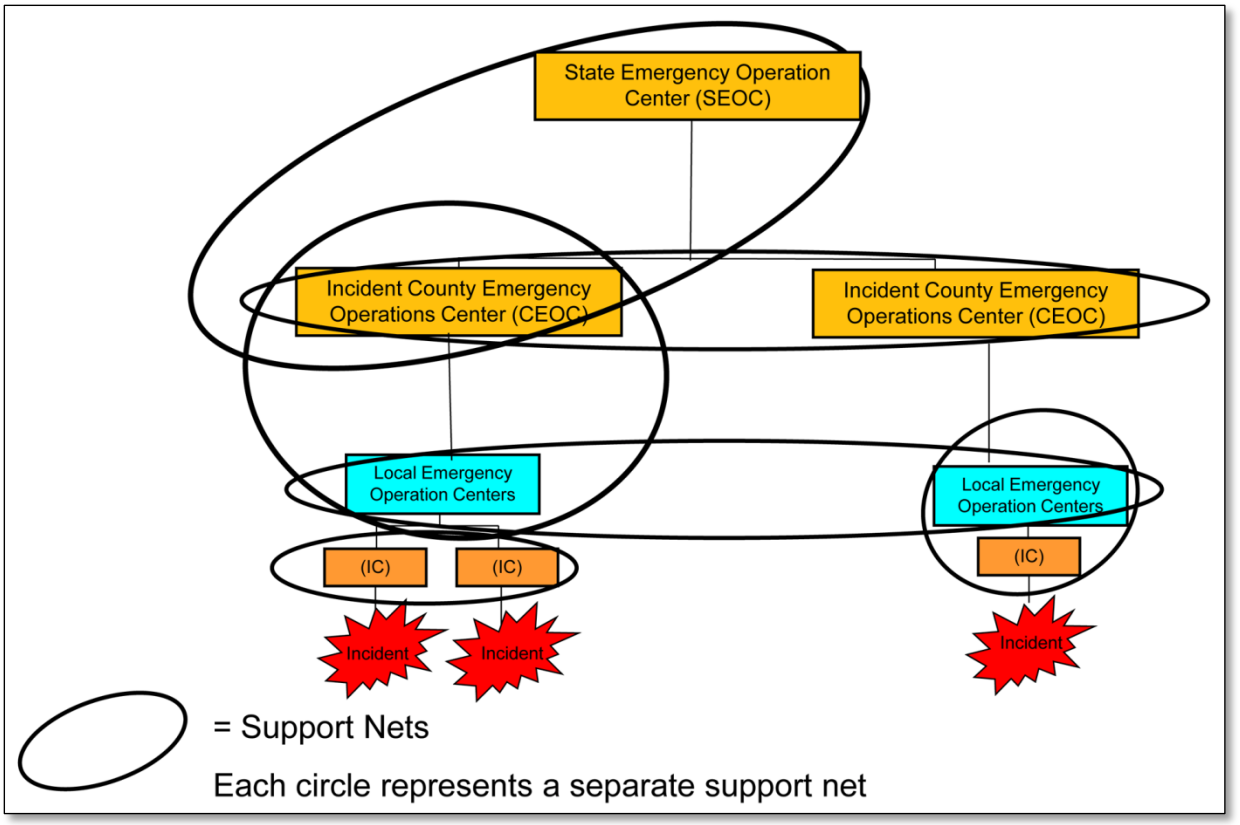

Figure 3—Support Net

The size and scope of an incident generally determines the extent of Support Nets. Support Nets can use PA-STARNet for local, county, or regional resource support, or for local, county, and regional communications with state agencies.

Hailing Conventions

Hailing is the process of calling another user to initiate a conversation. In all cases, the calling party should include the following elements when hailing another user:

The party being hailed
The party initiating the call
The resource used to initiate the call (talk group or channel)

Specifically, the format for hailing should use the following form:

<*Called party*> from <*Caller*> on <*Talk group*>

"Hey you, it's me" is a helpful phrase for remembering the prescribed hailing format.

Callers should identify themselves clearly, using jurisdiction, agency, public safety discipline, unit, and role as applicable. Once the caller has hailed another party and established a conversation, identification of the talk group can be omitted from the calling format.

Following are some examples of hailing using the format described above:

"South Central Task Force Communications Officer from PEMA Central Area EOC on *PEMA Central Area*"

"PEMA State EOC from Beaver Valley Security on *PEMA Statewide*"

"PSP Trooper Smith from Dauphin County 911 on *Dauphin*"

"Bedford County 911 from Somerset County 911 on *Somerset*"

"PEMA Western Area Director from Indiana County EMA Director on *PEMA Western Area*"

"OA Secretary from PennDOT Secretary on *Cabinet*"

Language Conventions

In addition to the NIMS and ICS requirement of the use of plain language for emergency communications, other standard conventions help ensure clear and concise communication. Such conventions include the phonetic alphabet and military time.

All communication should be concise. The goal of radio use is to convey a message promptly and accurately, freeing communication resources quickly for other use, such as command and control.

Communications Priorities

In the event of any conflict in the use of PA-STARNet resources, the following hierarchy determines priority for use, in descending order from highest priority to lowest:

1. Voice communications for large-scale emergency response involving multiple agencies and disciplines
2. Voice communications for smaller-scale mutual aid or multiple agency incident response
3. Video or data communications in support of emergency or incident response
4. Voice communications for security and public safety operations at planned special events
5. Public safety voice communications for routine commonwealth agency operations
6. Voice communications for emergency response exercises
7. All other voice communications
8. All other data communications

Secure Communications

Users should assume that radio channels are open networks subject to monitoring. Radio transmissions should not include confidential information.

2.2.2. Access to State Resources

The Incident Commander (IC) or the county Emergency Management Agency (EMA) Coordinator can request a state resource when all of the following conditions exist:

The event requires response by multiple agencies, beyond the scope of normal mutual aid agreements.

One or more agencies are conducting operations beyond their normal geographic jurisdiction.

All local resources have been exhausted.

Either planned events (for example, fairs and races) or unplanned incidents (for example, pursuits, fires, and rescue operations) can require interoperable communications, and thus can be eligible for use of PA-STARNet communications resources.

Resource requests use PEMA's *Emergency Resource Request Form* and procedure. PEMA accepts resource requests using any of the following means of communication:

- Pennsylvania Emergency Incident Reporting System (PEIRS)
- E-mail to SEOC (stateeoc@state.pa.us)
- Fax to 717.651.2021 (primary number) or 717.651.2024 (secondary number)
- Telephone to 717.651.2001 or 800.424.7362

Although PEMA accepts an initial request without the completed *Emergency Resource Request Form*, every request requires a signed, completed form transmitted by fax to the SEOC.

Once the SEOC has approved and processed the request, it is transmitted to OPRS for action. OPRS contacts the requestor to designate an OPRS Point of Contact (POC) for administrative and technical support and to advise what profiles and talk groups are to be used.

Agencies requiring state resources for a planned event should submit a request to the SEOC as much in advance of the event as practical.

Because incident response typically requires that interoperable communications be put in place immediately, emergency use of state resources does not require approval. However, the IC or county EMA coordinator should notify the SEOC as soon as practical concerning the nature of communications resource use and the anticipated duration.

2.2.3. Monitoring Protocols

Each Pennsylvania Emergency Management Agency (PEMA) region has a PA-STARNet talk group designated for hailing. Each 911 Center is responsible for monitoring its PEMA regional hailing talk group for requests for assistance. ***Figure 4****—PEMA Regions* below shows the counties included in each of the three PEMA regions.

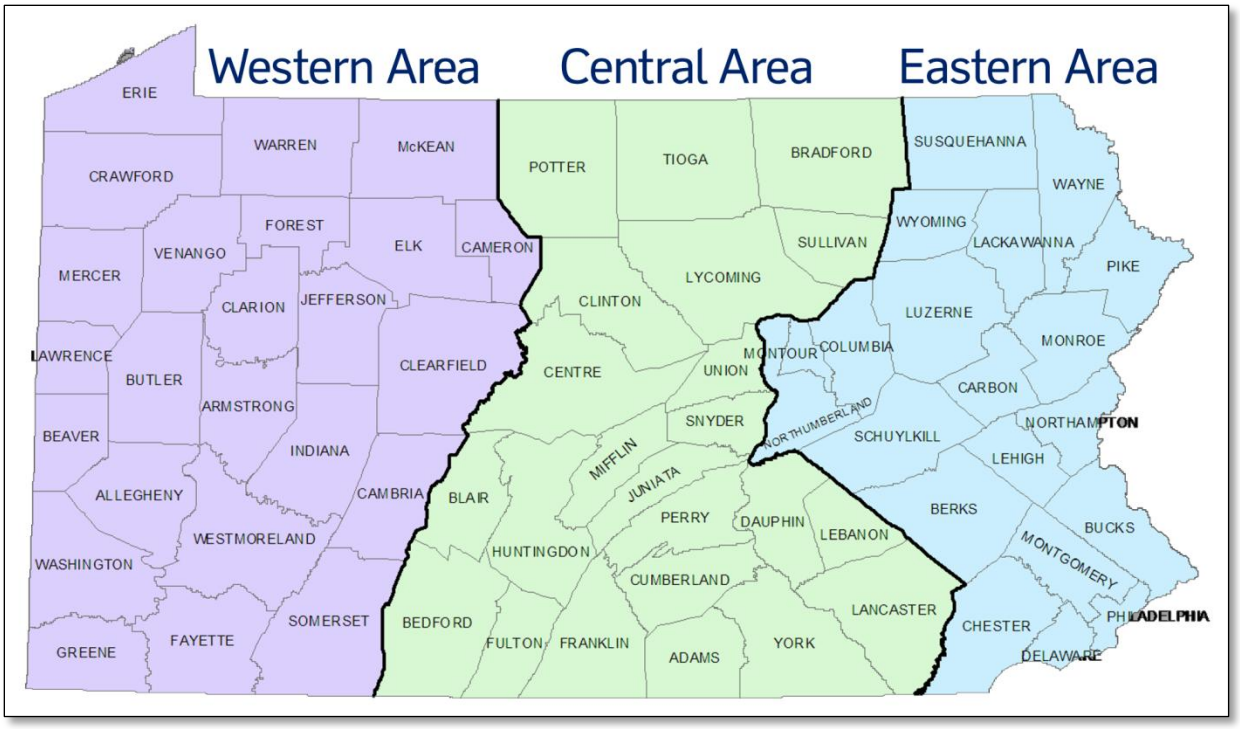

Figure 4—PEMA Regions

Following are the regional hailing talk groups designated for each PEMA region:

Western Region: *PEMA_WR*
Central Region: *PEMA_CR*
Eastern Region: *PEMA_ER*

Each county has a talk group designated for use in interoperable communications.

2.2.4. Incident Protocols

PA-STARNet Communications Setup

When an incident requires state-supported interoperability resources, the requesting agency or county should use the PEMA regional hailing talk group to contact the agencies it needs to communicate with (see ***Figure 4***—*PEMA Regions*).

Use of PA-STARNet control stations installed in county 911 Centers can facilitate interoperable communications. OPRS assigns talk groups in the global reserved profiles (Profiles 14, 15, and 16) upon request. The reserved talk groups with a description of their general uses appear **in Appendix E** (Profile 14) and **Appendix F** (Profiles 15 and 16). The responders involved patch the assigned talk group to their local channel and proceed with communications.

At the conclusion of the incident, the agency originally requesting state resources announces termination of the incident both on the talk group used for incident communications and on the regional hailing talk group. All connections are terminated and units return to their normal radio systems and channels.

Overlay Communications Setup

The VHF and UHF overlays are available for any public safety emergency incident. Use of NEPF with the VHF overlay must be in accordance with PSP's guidelines and procedures in the PSP NEPF Plan (see **Appendix B**).

The county requesting use of a PA-STARNet frequency overlay is responsible for using the regional hailing talk group to contact the counties or agencies it needs to communicate with in order to explain the nature of the request. If these parties do not respond, the requesting county can try to contact them by telephone.

The counties or agencies involved in incident response use the overlay system for communications as needed. As other agencies need to communicate, the original requesting county is responsible for notifying them concerning the profiles and talk groups OPRS has assigned for use.

At the conclusion of the incident, the agency originally requesting state resources announces termination of the incident both on the overlay frequency and on the regional hailing talk group. All connections are terminated and units return to their normal radio systems and channels.

2.2.5. Interoperability Types

Situations call for various methods of communication. State resources can help with communications interoperability for any of the following requirements:

Intra-county
Inter-county
County to state
County or state to partner agencies
State agencies

Incidents and events requiring interoperable communications include the following:

Day-to-day operations
Mutual aid operations
Major incident (disaster) response
RTF and other regional emergency response team operations
Planned special events

Intra-County Communications

This category includes any requirement for communication among agencies in a single county in which there is no use of state-provided interoperability methods. This type of communication can use shared radio channels, common mutual aid frequencies, or swapped radios. Previously established procedures and guidelines that specify use of talk groups or frequencies are helpful in these cases.

The state recommends formal mutual aid agreements for this purpose, and urges all local jurisdictions in a county to participate. These agreements should be consistent with the interoperable communications methods and procedures in this SOP, in addition to any local requirements.

Inter-County Communications
This category includes any requirement for communication among public safety agencies of two or more counties responding to an incident. This type of interoperability can use a variety of methods, including shared radio channels, common mutual aid frequencies, swapped radios, as well as state-provided methods such as PA-STARNet and its overlay networks.

County 911 Centers can use PA-STARNet to communicate with external agencies as necessary to support interagency incident operations. In addition, dispatch console operators can patch the county PA-STARNet control station to other console resources.

County to State Communications
This category includes any requirement for communication among county and state agencies. This type of interoperability should use PA-STARNet. For example, planned special events might require this type of communication.

County or State to Partner Agency Communications
This category includes communication among agencies at the local or state level and response agencies of the federal government or authorized nontraditional response agencies such as PennDOT, utility companies, and the Red Cross.

A list of agencies and other organizations using PA-STARNet is included below as **Appendix G**.

County 911 Centers can use PA-STARNet to communicate with external agencies as necessary to support interagency incident operations. In addition, dispatch console operators can patch the county PA-STARNet control station to other console resources.

2.2.6. Reporting

Reporting is an important part of using state communications resources. The communications plan is a necessary part of the overall incident action plan, providing a structure to help ensure that use of available resources leads to effective communications in support of incident response. Problem reporting helps the users of communications resources get the assistance needed for reliable and effective communications. And after-action reporting helps OPRS address any problems encountered during use of state resources and improve the administration of those resources for more efficient and effective delivery, operation, and support.

Communications Plan
An Incident Radio Communications Plan (ICS-205-OS) documents radio activities for emergency-related incident using state-provided interoperable communications resources. If there is a Communications Unit Leader (COML) for a given incident, that person files the completed ICS-205-OS form. If there is no COML, the Incident Commander files the completed form. The form becomes part of the overall Incident Action Plan. This form appears below as **Appendix H**.

Problem Reporting
For planned event communications, OPRS designates a POC to handle administrative and technical support. Requestors of state resources for this type of event should contact the POC using the contact information provided (or see **Appendix K** for OPRS contact information).

For incident response communications, requestors should contact the SWIC in OPRS's Customer Support section (see **Appendix K** for contact information).

After-Action Reporting

Within 90 days after using state communications resources for a planned event, for incident response, or for an exercise, the agency requesting the resource should file an after-action report with OPRS. One of the following forms is used to document any problems with the system or with use of the procedures and guidelines in this SOP, according to the type of event:

Planned events: *Radio Resource System Use Report Form for Planned Events,* included below as **Appendix I**

Unplanned incidents: *Radio Resource Use After-Action Report Form,* included below as **Appendix J**

Resource requestors should submit the completed form to OPRS by e-mail at the following address: radio@state.pa.us.

2.3. Training

OPRS provides training to help ensure effective use of state-supported interoperability resources. Training methods include instructor-led classroom sessions, printed materials, compact discs (CDs), policy documentation, and Web-based courses.

Among the courses available is a CD-based electronic learning program for 911 dispatch operators covering the following topics:

PA-STARNet basic concepts and architecture

PA-STARNet control stations and the dispatch console

OpenSky® profiles and talk groups

Talk group scanning

Those interested in obtaining a copy of this CD should contact the OPRS Training Manager (see **Appendix K** below for contact information).

Each agency should review this SOP periodically and determine the appropriate level of training for its personnel. Requests for training can be forwarded to OPRS, Customer Support, either by telephone (717.772.8005) or by e-mail at radio@state.pa.us.

Appendix A—Control Station Talk Groups

Following is an example for a PA-STARNet control station in Tioga County; other counties follow the same structure using talk groups appropriate for their locations.

	Radio	Console Description	Actual Console Alias	Function Tone
1	TIOGA	Tx: TIOGA Scan: PEMA_CR	TIOGA / SCN CR	1950
2	PEMA_SW	Tx: PEMA_CR Scan: TIOGA	PEMA_CR / SCN TIO	1850
3	PEMA_CR	Tx: TIOGA Scan: OFF	TIOGA PATCH	1750
4	CR_TAC1	Tx: PEMA_SW Scan: ON	PEMA_SW	1650
5	CR_TAC2	Tx: CR_TAC1 Scan: ON	CR_TAC1	1550
6	CR_TAC3	Tx: CR_TAC2 Scan: ON	CR_TAC2	1450
7	PEMA_ER	Tx: CR_TAC3 Scan: ON	CR_TAC3	1350
8	PEMA_WR	Tx: PEMA_ER Scan: ON	PEMA_ER	1250
9	LYCOM	Tx: PEMA_WR Scan: ON	PEMA_WR	1150
10	POTTER	Tx: LYCOM Scan: ON	LYCOM	1050
11	BRADFRD	Tx: POTTER Scan: ON	POTTER	950
12	NC_CMD	Tx: BRADFRD Scan: ON	BRADFRD	850
13	T_TIOGA	Tx: NC_CMD Scan: ON	NC_CMD	750
14		Tx: T_TIOGA Scan: ON	T_TIOGA	650
15		Follows local channels on the radio	DESKTOP	Control Station's PRESET16 UNASSIGNED to Console's function tone 550

All talk groups locked out of scan list except TIOGA and PEMA_CR.

Appendix B— Pennsylvania State Police NEPF Plan (October 20, 2006)

Objective:
The objective of this plan is to provide guidelines for the use of the radio resource authorized by the Federal Communications Commission through Part 90.19 (e)(14).

Purpose:
The National Emergency Police Frequency (NEPF) is available nationwide for use in police emergency situations. Specific use of the frequency in the Commonwealth of Pennsylvania is controlled by the Pennsylvania State Police through this plan. The plan authorizes dispatching on NEPF by a local government organization. Authority to dispatch will be granted through a Memorandum of Understanding between the local government and the Pennsylvania State Police. The Pennsylvania State Police will retain control as licensee at these locations.

Frequency:
The VHF frequency used is 155.475 MHz and is referred to in the Commonwealth of Pennsylvania as the National Emergency Police Frequency (NEPF).

Eligibility:
Any state, county, or local agency with full public safety authority which has received authorization from the Pennsylvania State Police is eligible to operate on this frequency.

Licensing:

A. The Commonwealth of Pennsylvania, Pennsylvania State Police, will license all base stations.

B. As soon as practical after approval to use the frequency, eligible agencies will license the NEPF frequency under their respective mobile station license.

Allowable Communications:

A. Primary:
EMERGENCY COMMUNICATIONS TAKES PRIORITY OVER OTHER ALLOWABLE FORMS OF COMMUNICATIONS.
Interagency communications for any public safety purpose.

B. Itinerant:
Those communications which provide service to members of public safety operations traveling out of their jurisdiction.

C. Flash Message:
Information pertaining to criminal acts or other emergencies when such information is timely or is of mutual aid to the law enforcement community.

D. Test:
Test may be performed on a non-interfering basis.

Prohibited Communications:
Agencies may not use the NEPF to supplement normal communications except in emergency situations.

Transmissions:
All transmissions will be broadcast using the English language. ALL Transmissions will be composed of plain-language text.

Mobile Units:

A. Agencies using NEPF will identify their user's jurisdictional name, followed by the user's assigned designator (Example: Chester County 54 to ….).
B. When under dispatch control, the mobile unit will direct its initial call to the specific control point.
C. Emergency calls will be initiated by using the distress signal "emergency," a unit identifier, and the location of the unit.

Agency Dispatching Responsibilities:

A. Monitoring:
The agency must have executed a Memorandum of Understanding with the Pennsylvania State Police in order to dispatch a base station on the NEPF, and must agree to provide 24 hour dispatch.
B. The agency will agree to operate under the terms and conditions of the Memorandum of Understanding.
C. In addition to station call letters, agency name will also be used when identifying base stations.
D. A dispatching agency must agree to respond to all emergency requests for assistance made using the NEPF frequency.
E. Base stations shall operate at only the power required to cover the area of responsibility assigned. No station shall exceed 350 watts output power. Users will incorporate standard squelch receivers, i.e., receivers will be normally un-muted and must not require special or unique signal presentation to un-mute them.

Reports:
Users will report incidents of abuse or operational problems to the Pennsylvania State Police Technical Support Division.

Notices of Violations:

A. Violations of this plan will result in a written warning from the Pennsylvania State Police within 30 days of the violation. The violating agency will receive the warning via registered mail.
B. Upon the recommendation of the Director, Technical Support Division , the Commissioner of the Pennsylvania State Police shall take any and all appropriate measures necessary to revoke the assignment of any authorized user of the Pennsylvania NEPF frequency for any violation or improper use of this system.

This plan supersedes all previous Pennsylvania National Emergency Police Frequency plans.

Appendix C—Using the UHF Overlay

By overlaying the commonwealth's 800 MHz system with a network of UHF repeaters and mapping each repeater to an OpenSky® talk group, the state allows users of UHF radio systems to communicate directly with state agencies.

Typically at selected radio tower sites, two UHF repeaters are installed and mapped to OpenSky® talk groups. Taking full advantage of this capability requires knowing all of the following:

The location in which use of the overlay is to occur
The coverage footprint of the tower site for that location
The frequency and tone information for the tower site

This information appears in **Table 1** below and in the UHF overlay coverage maps.

For example, suppose a local responder with a UHF radio is assigned to an event at the State Farm Show Building that requires communication with state agencies. The first step is to determine if an overlay site is available with coverage at the Farm Show Building. The coverage footprint maps show that the DAUP17 site should provide the required coverage.

The next step is to program the UHF radio to operate with the repeaters installed at DAUP17. The chart below shows that *UTAC41* is available at DAUP17 as well as at nearly every UHF overlay site in the state. *UTAC42* is the second repeater available at DAUP17. It is important to ensure that these channels are programmed for **narrowband** operation.

Each repeater in the state encodes a Continuous Tone-Coded Squelch System (CTCSS) tone of 156.7 and nothing else. Each repeater decodes 156.7 and a second tone specified in the chart. It is preferable to use the secondary repeater decode tone specified rather than 156.7 to prevent hitting multiple repeaters in areas of overlapping coverage.

In the Farm Show Building example, following is the programming for the UHF radio that results from the steps above:

Alias	Transmit Freq/Tone	Receive Freq/Tone
UTAC41	458.4625 / 118.8	453.4625 / 156.7
UTAC42	458.7125 / 146.2	453.7125 / 156.7

The final step in ensuring the ability to communicate with state agencies when using the UHF radio is to make sure those agencies have the talk groups corresponding to the selected UHF channels available in their OpenSky® radios. In this case, the appropriate talk groups are *41_DA17* and *42_DA17*.

The talk group naming convention uses *41, 42,* or *43* according to whether *UTAC41, UTAC42,* or *UTAC43* is used. *DA17* refers to the tower site location. For instance, the name *41_DA17* means that the corresponding UHF channel is *UTAC41* located at the DAUP17 site.

OPRS recommends that local agencies program the overlay channels in their areas of operation into their radios in advance. Agencies might consider doing this when purchasing new radios or when reprogramming radios.

UHF Overlay Coverage and Connectivity

The document *PA-STARNet UHF overlay coverage maps* (Adobe PDF, 2.8 MB) shows coverage footprint maps for each serving site to help plan communications support using the UHF overlay. **Table 1** below shows key information for each site. Note that UHF repeaters are **narrowband** operating at 12.5 KHz. Mobile's transmit is + 5MHz. All repeaters encode 156.7 **only**.

Table 1—UHF Overlay Site Inventory

Site Code	Lat	Long	Call Sign	UTAC41	UTAC41 CTCSS Decode	UTAC42	UTAC43	CTCSS Decode for second station
				Freq.: 453.4625		Freq.: 453.7125	Freq.: 453.8625	
ARMS01	40.908625	-79.444744	WQJF541	X	79.7	X		94.8
BEAV02	40.496444	-80.420333	WQIE490	X	110.9		X	127.3
BEDF02	39.829944	-78.543500	WQIE496	X	97.4	X		103.5
BERK02	40.201472	-75.812972	WQIE497	X	136.5		X	179.9
BERK04	40.604250	-75.991333	WQIE494	X	97.4	X		103.5
BLAI02	40.293000	-78.260556	WQIE496	X	91.5		X	85.4
BRAD41	41.652853	-76.410917	WQIE491	X	167.9		X	79.7
BUCK40	40.446222	-75.251000	WQIE497	X	118.8	X		146.2
BUTL01	41.089889	-79.853861	WQJF541	X	97.4		X	103.5
CAMB02	40.370778	-78.983083	WQIE490	X	127.3		X	136.5
CAME05	41.459222	-78.367944	WQIE495	X	74.4		X	85.4
CENT04	40.732000	-78.325306	WQIE496	X	136.5	X		179.9
CENT08	40.753111	-77.755694	WQIE496	X	203.5		X	74.4
CLIN02	41.397417	-77.854306	WQIE491	X	146.2	X		167.9
CLIN41	41.050842	-77.379400	WQIE494	X	186.2	X		77
COLU01	40.939253	-76.424391	WQIE494	X	179.9		X	203.5
COLU02	41.147030	-76.597732	WQIE494	X	203.5		X	74.4
CRAW01	41.667447	-79.839136	WQJF541	X	127.3		X	136.5
CUMB04	39.988694	-77.404278	WQIE500	X	146.2	X		167.9
DAUP01	40.420361	-76.812194	WQIE500	X	186.2		X	77

Site Code	Lat	Long	Call Sign	UTAC41	UTAC41 CTCSS Decode	UTAC42	UTAC43	CTCSS Decode for second station
DAUP17	40.287167	-76.878583	WQIE500	X	118.8	X		146.2
ELKC04	41.275333	-78.414472	*Pending*	X	110.9	X		127.3
ERIE92	41.882667	-80.190072	WQJF541	X	85.4			91.5
FAYE01	39.782583	-79.701722	WQIE490	X	85.4		X	91.5
FORE07	41.465061	-79.283066	WQIE495	X	167.9	X		79.7
FULT40	39.948694	-77.936944	WQIE496	X	74.4		X	85.4
GREE08	39.798000	-80.381333	WQIE490	X	103.5		X	110.9
HUNT01	40.496682	-78.131649	WQIE496	X	167.9	X		79.7
INDI01	40.667278	-78.996833	WQIE490	X	186.2		X	77
JEFF02	41.317284	-78.994757	WQIE495	X	179.9		X	203.5
JUNI05	40.476958	-77.386624	WQIE500	X	118.8	X		146.2
LAWR06	40.911730	-80.196729	WQJF541	X	91.5		X	85.4
LUZE04	41.158695	-76.169098	WQIE493	X	110.9	X		127.3
LYCO02	41.310561	-77.346064	WQIE491	X	79.7		X	94.8
MCKE01	41.808944	-78.368500	WQIE495	X	118.8	X		146.2
MERC92	41.393528	-80.171861	WQJF541	X	118.8	X		146.2
MONR03	41.163978	-75.318240	WQIE493	X	79.7	X		94.8
MONT01	40.959808	-76.708294	WQIE494	X	91.5	X		85.4
PERR01	40.358000	-77.547917	*Pending*	X	79.7			94.8
PHIL02	39.997056	-75.217389	WQIE497	X	85.4	X		91.5
PIKE01	41.299811	-75.124622	WQIE493	X	127.3		X	136.5
POTT12	41.759778	-77.876111	WQIE495	X	97.4		X	103.5
SNYD02	40.722444	-77.121361	WQIE494	X	127.3		X	136.5

Site Code	Lat	Long	Call Sign	UTAC41	UTAC41 CTCSS Decode	UTAC42	UTAC43	CTCSS Decode for second station
SOME06	39.806111	-79.173056	WQIE490	X	118.8		X	146.2
SULL03	41.520356	-76.731067	WQIE491	X	85.4	X		91.5
SUSQ06	41.906333	-75.693667	WQIE493	X	91.5	X		85.4
TIOG06	41.847583	-77.156361	WQIE491	X	136.5	X		179.9
WARR34	41.832867	-79.001006	WQIE495	X	103.5	X		110.9
WAYN31	41.572306	-75.191556	WQIE493	X	186.2		X	77
WAYN33	41.785639	-75.459083	WQIE493	X	146.2		X	167.9
YORK16	40.075500	-76.804833	WQIE500	X	103.5	X		110.9
YORK94	39.754825	-76.662383	WQIE500	X	110.9		X	127.3

Appendix D—Using the VHF Overlay

By overlaying the commonwealth's 800 MHz system with a network of VHF base stations and mapping each one to an OpenSky® talk group, the state allows users of VHF radio systems to communicate directly with state agencies.

Use of the VHF overlay is similar to use of the UHF overlay, except that it is simpler in that there are no repeaters or tones. The VHF overlay uses the National Emergency Police Frequency (NEPF) in **wideband** operational mode. Although every VHF overlay site encodes a specific tone, this is only for maintenance use as a means of identifying which VHF overlay site is transmitting.

Following is the VHF radio programming required to use the VHF overlay:

Alias	Transmit Freq/Tone	Receive Freq/Tone
NEPF	155.475 / none (CSQ)	155.475 / none (CSQ)

To ensure the ability to communicate with state agencies when using the VHF radio, it is essential that those agencies have the talk groups corresponding to NEPF available in their OpenSky® radios. The naming convention for VHF uses *NP* for "National Police" in place of the *41, 42,* or *43* used in the UHF naming convention (see **Appendix C** above).

OPRS recommends that local agencies program the overlay channels in their areas of operation into their radios in advance. Agencies might consider doing this when purchasing new radios or when reprogramming radios.

VHF Overlay Coverage and Connectivity

The document *PA-STARNet VHF overlay coverage maps* (Adobe PDF, 2.6 MB) shows coverage footprint maps for each serving site to help plan communications support using the VHF overlay. **Table 2** below shows key information for each site. Note that NEPF is 155.475 **wideband**. CTCSS encode tone is for maintenance use only.

Table 2—VHF Overlay Site Inventory

RG	Site ID	Site Name	TG Name	Call Sign	CTCSS Encode
1	BUTL01	PGC: Hilliards	NP_BT01	WQGN636	94.8
1	CRAW01	Townville	NP_CW01	KXH388	123
1	ERIE92	Washington Stockpile	NP_ER92	WQGN636	82.5
1	FORE07	Tylersburg	NP_FO07	WQGN636	162.2
1	JEFF02	Hays Lookout	NP_JF02	KXH361	173.8
1	LAWR06	Grindstone	NP_LW06	WQGN636	88.5
1	MERC92	New Vernon Stockpile	NP_MC92	WQGN636	114.8
1	WARR34	Kinzua Dam	NP_WR34	WQGN636	100
2	ALLE76	State Office Building	NP_AL76	WQGL632	173.8
2	BEAV02	Raccoon Creek	NP_BV02	WQGL632	107.2
2	CAMB02	Lower Yoder	NP_CB02	WQGL628	123
2	FAYE01	Pondfield	NP_FY01	KXH381	82.5
2	GREE08	Waynesburg PDOT	NP_GR08	WQGL632	100
2	INDI01	Clymer Fire Tower	NP_IN01	KXH377	151.4
2	SOME06	Negro Mountain	NP_SM06	WQGL629	114.8
2	WEST03	Beacon	NP_WS03	WQGL632	141.3
3	CAME05	Truman	NP_CM05	WQGL632	71.9
3	CLIN02	Tamarack	NP_CL02	WQGL632	141.3
3	CLIN41	Rainsares III	NP_CL41	WQGL629	151.4
3	LYCO02	Waterville	NP_LY02	KXO915	77
3	MCKE01	Port Allegheny	NP_MK01	WQGL628	114.8
3	POTT12	Denton Hill	NP_PO12	WQGL628	94.8
3	TIOG06	Pat Jr. Fire Tower	NP_TI06	WQGL628	131.8
4	BEDF02	Martin Hill	NP_BD02	WQGL628	94.8
4	BLAI02	Martinsburg	NP_BL02	WQGL628	88.5
4	CENT04	Rush	NP_CT04	WQGL628	131.8
4	CENT08	Little Flat	NP_CT08	WQGL634	192.8
4	CLEA51	SCIBootcamp	NP_CF51	WQGL634	107.2
4	HUNT01	Loop Lookout	NP_HT01	WQGL634	162.2
4	JUNI05	Ickesburg PGC	NP_JU05	WQGL634	114.8
4	SNYD02	Richfield	NP_SN02	WQGL634	123
5	BRAD41	Robwood III	NP_BR41	WQGL635	162.2

RG	Site ID	Site Name	TG Name	Call Sign	CTCSS Encode
5	COLU01	Catawissa	NP_CO01	KXH332	173.8
5	COLU02	Vandine	NP_CO02	WQGL635	192.8
5	LUZE01	Wyoming Mtn	NP_LZ01	WQGL635	107.2
5	MONR03	Coolbaugh	NP_MR03	WQGL635	77
5	MONT01	Montour	NP_MT01	WQGL635	88.5
5	PIKE01	High Knob	NP_PI01	WQGL638	123
5	SULL03	Bear Wallow	NP_SL03	WQGL635	82.5
5	SUSQ06	Great Bend	NP_SQ06	WQGL636	88.5
5	WAYN31	Beach Lake	NP_WN31	WQGL636	151.4
5	WAYN33	Mount Ararat	NP_WN33	KXH345	141.3
6	BERK02	Hopewell	NP_BE02	WQGL636	131.8
6	BERK04	Port Clinton	NP_BE04	WQGL638	94.8
6	BUCK40	Nockamixon State Park	NP_BU40	WQGL636	114.8
6	PHIL02	PSP Phila. HQ. Troop K.	NP_PH02	WQGL636	82.5
7	CUMB04	Big Flat Heliport	NP_CU04	WQGL638	141.3
7	DAUP01	Ellendale	NP_DA01	WQGL638	151.4
7	LANC01	Cornwall	NP_LN01	WQGL638	100
7	YORK94	I-83 Rest	NP_Y094	WQGL638	107.2

Appendix E—Interagency Communications Profile

	Voice Group	Attributes	Description
1.	INTR_OP	Supervisory privileges	Hailing channel
2.	ICC_1		Tactical voice groups for interagency communication assignment
3.	ICC_2		
4.	ICC_3		
5.	ICC_4		
6.	ICC_5		
7.	ICC_6		
8.	ICC_7		
9.	ICC_8		
10.	ICC_9		
11.	ICC_10		
12.	ICC_11		
13.	ICC_12		
14.	ICC_13		
15.	ICC_14		
16.	ICC_15		

Appendix F—Global Emergency Profiles

GLOBAL2	GLOBAL1	Purpose
CMD_2	CMD_1	The Incident Commander (IC), the Command Staff including Information Officer, Safety Officer, and Liaison Officer, as well as all Section Chiefs, monitor this voice group at all times. For Unified Command, all participating ICs use this voice group.
TAC_13	TAC_1	Assignment at the discretion of Operations Chief.
TAC_14	TAC_2	Assignment at the discretion of Operations Chief.
TAC_15	TAC_3	Assignment at the discretion of Operations Chief.
TAC_16	TAC_4	Assignment at the discretion of Operations Chief.
TAC_17	TAC_5	Assignment at the discretion of Operations Chief.
TAC_18	TAC_6	Assignment at the discretion of Operations Chief.
TAC_19	TAC_7	For use by the law enforcement agency with primary jurisdiction at the scene of an emergency, or as determined by the IC.
TAC_20	TAC_8	For use by the EMS agency with primary jurisdiction at the scene of an emergency, or as determined by the IC.
TAC_21	TAC_9	For use by the Fire agency with primary jurisdiction at the scene of an emergency, or as determined by the IC.
TAC_22	TAC_10	For use by Pennsylvania Emergency Management Agency (PEMA) or any county or state emergency management agency or 911 Center participating in an emergency.
TAC_23	TAC_11	For use by the Staging Area Manager and all external resources responding to an emergency. When a resource is assigned by the IC, the Staging Area Manager instructs that resource to switch to the designated voice group.
PLAN_2	PLAN_1	For use by the Planning Chief and all reporting subgroups.
LOGSTC_2	LOGSTC_1	For use by the Logistics Chief and all reporting subgroups.
ADMIN_2	ADMIN_1	For use by all Finance and Administrative personnel not assigned to any other voice group.
COMMON	COMMON	For communication between the Global Emergency Profiles.

Appendix G—PA-STARNet Users

State Agencies
Department of Agriculture (PDA)
Office of Attorney General (OAG)
Capitol Police Department
House of Representatives Security
Senate Security
Office of Administrative Services (OAS)
Treasury Department
Department of General Services (DGS)
Department of Military and Veteran Affairs (DMVA)
Department of Conservation and Natural Resources (DCNR)
Department of Corrections (DOC)
Department of Environmental Protection (DEP)
Department of Health (DOH)
Office of Public Safety Radio Services (OPRS)
Pennsylvania Board of Probation and Parole (PBPP)
Public Utility Commission (PUC)
Pennsylvania State Police (PSP)
Pennsylvania Department of Transportation (PennDOT)
Pennsylvania Turnpike Commission (PTC)
Pennsylvania Emergency Management Agency (PEMA)

Sponsored Agencies
Civil Air Patrol (CAP)
Beaver Valley Nuclear
Exelon Nuclear Power
204 Hospitals
16 EMS Councils
9 Regional Task Forces

Business Partners
Area Transportation Authority NC (ATA)
FirstEnergy Corporation

Interoperating Agencies
67 Counties
3 Cities (Allentown, Bethlehem, DuBois)

Other Participating Organizations
Huntingdon County Sheriff

Appendix H—Incident Radio Communications Plan (ICS-205-OS)

INCIDENT RADIO COMMUNICATIONS PLAN	Incident Name	Date/Time Prepared	Operational Period Date/Time

Ch #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D or M	Remarks
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Prepared By (Communications Unit)	Incident Location
	County State Latitude N Longitude W

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band. Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS 205 Excel 3/2007

Appendix I—After-Action Report Form, Planned Events

RADIO RESOURCE SYSTEM USE REPORT FORM FOR PLANNED EVENTS							
1. Event Name				2. Event Date(s)		3. Event Start Time	
4. Reporting Person		5. Agency		6. Location of Event		7. Duration of Event	
Law Enforcement		Fire/EMS		Emergency Management		Transportation	
Lead Agency		Lead Agency		Lead Agency		Lead Agency	
Participating Agencies	Radio Resources Used	Participating Agencies	Radio Resources Used	Participating Agencies	Radio Resources Used	Participating Agencies	Radio Resources Used
Page _____ of _____		10. Prepared by (Name and Position)					

Appendix J—After-Action Report Form, Incidents

RADIO RESOURCE USE AFTER-ACTION REPORT FORM			
1. Event Name		2. Event Date(s)	3. Event Start Time
4. Incident Commander	5. Agency	6. Location of Event	7. Duration of Event
8. SUMMARY OF EVENT			
9. Law Enforcement	Fire/EMS	Emergency Management	Transportation
Lead Agency	Lead Agency	Lead Agency	Lead Agency
Participating Agencies	Participating Agencies	Participating Agencies	Participating Agencies
ANALYSIS OF EVENT OUTCOMES/LESSONS LEARNED/FOLLOW-UP ITEMS			
Page _____ of _____	10. Prepared by (Name and Position)		

Appendix K—Contact Information

Office of Administration
Office of Public Safety Radio Services
2605 Interstate Drive, Suite 140
Harrisburg, PA 17110
Telephone: 717.772.8005
E-mail, General Communications: radio@state.pa.us
E-mail, Policy Inquiries: RA-RadioPolicy@state.pa.us
Web: www.radio.state.pa.us

Executive Director
Charles Brennan, Deputy Secretary for Public Safety Radio, 717.772.8006

Customer Support
Teresa Nelson, Director, 717.346.0036

Statewide Interoperability Coordinator
J. Mark Wrightstone, Interoperability Systems Manager, 717.214.6664
Robert Barnham, Interoperability Engineering Manager, 717.346.8048

Training
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Appendix L—Glossary

Term	Definition
ATA	Area Transportation Authority
CAP	Civil Air Patrol
COML	Communications Unit Leader
DCNR	Department of Conservation and Natural Resources
DEP	Department of Environmental Protection
DGS	Department of General Services
DHS	Department of Homeland Security
DMVA	Department of Military and Veteran Affairs
DOC	Department of Corrections
DOH	Department of Health
DOT	Department of Transportation
EMA	Emergency Management Agency
EMS	Emergency Medical Services
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
IC	Incident Commander
ICS	Incident Command System
ICS-205	Incident Radio Communications Plan
IP	Internet Protocol
LMR	Land Mobile Radio
MAA	Mutual Aid Agreement
MHz	Megahertz
MOU	Memorandum of Understanding
NEPF	National Emergency Police Frequency
NIMS	National Incident Management System
NPSTC	National Public Safety Telecommunications Council
NPSPAC	National Public Safety Planning Advisory Committee
OA	Office of Administration
OAG	Office of Attorney General
OAS	Office of Administrative Services
OPRS	Office of Public Safety Radio Services

Term	Definition
PA-STARNet	Pennsylvania Statewide Radio Network: Statewide radio network comprising a communication and information infrastructure connected by a digital microwave system for transmission of voice and data, including all frequency band overlays and other system extensions connected to the core digital trunked radio network.
PBPP	PA Board of Probation and Parole
PDA	Pennsylvania Department of Agriculture
PDF	Portable Document Format (Adobe Acrobat file format)
PDOT	PA Department of Transportation
PEMA	Pennsylvania Emergency Management Agency
PEMA EOC	Pennsylvania Emergency Management Agency Emergency Operations Center
PEMA_ER	Pennsylvania Emergency Management Agency Eastern Region hailing talk group
PEMA_CR	Pennsylvania Emergency Management Agency Central Region hailing talk group
PEMA_WR	Pennsylvania Emergency Management Agency Western Region hailing talk group
PennDOT	Pennsylvania Department of Transportation
PSCC	Public Safety Communications Council
PSAP	Public Safety Answering Point
PSP	Pennsylvania State Police
PTC	PA Turnpike Commission
PUC	Public Utility Commission
RF	Radio Frequency
RTF	Regional Task Force: The Commonwealth of Pennsylvania created nine task forces in 1997 to coordinate local and regional response to acts of terrorism. In 2002, the *Counterterrorism Planning, Preparedness and Response Act 227-2002* granted further responsibilities.
SCIP	Statewide Communications Interoperability Plan
SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
SWIC	Statewide Interoperability Coordinator
UHF	Ultra High Frequency
VHF	Very High Frequency