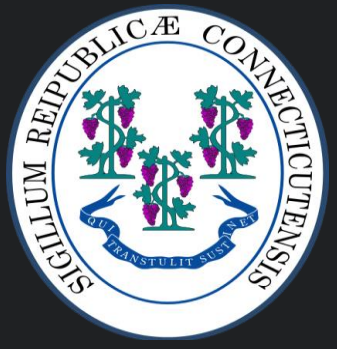
CONNECTICUT EMERGENCY COMMUNICATIONS ANNEX

A Profile of the State of Connecticut's Emergency Communications Architecture and Support Mechanisms



January 2015

KEY INFORMATION

SEOC Address:

- Connecticut Division of Emergency Management and Homeland Security
  360 Broad Street
  Hartford, CT 06106

SEOC Main Contact Numbers:

- Phone: 860-708-0821
- Fax:

State ESF-2 Lead:

- Name: John Gustafson
- Email: john.g.gustafson@ct.gov
- Office: 860-256-0899
- Cell: 860-538-9432

State SWIC:

- Name: Mike Varney
- Email: michael.varney@ct.gov
- Office: 860-685-8146
- Cell: 860-209-1301

Table of Contents

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

1. INTRODUCTION

As the lead integrator of Federal emergency communications resources, the Federal Emergency Management Agency (FEMA) Disaster Emergency Communications (DEC) Division and Regional DEC Branches provide communications support to responders during an incident or planned event when existing public and commercial communications infrastructure is insufficient. To prepare for this critical mission, State Emergency Communications Annexes are developed and maintained by the Regional DEC Branch. These Annexes assist Federal responders in meeting emergency communications mission requirements by providing a snapshot into State emergency communications architecture and support mechanisms.

2. DOCUMENT ORGANIZATION

This document contains the following planning components:

- **Geography, Population and Hazard Overview**: Briefly describes the geography, population and hazards of the State.
- **Operational Support Snapshot**: Describes the operational structure for emergency response and recovery in Connecticut, as well as how communications requirements are supported.
- **Communications Networks, Systems and Supporting Infrastructure**: Details the major communications systems and infrastructure to prepare FEMA for responding to the State of Connecticut with the best solutions available.

3. GEOGRAPHY, POPULATION AND HAZARD OVERVIEW

Connecticut comprises 5,500 square miles and 3.5 million people with major population centers (more than 100,000 people) in Bridgeport, New Haven, Hartford, Stamford, and Waterbury. Hartford also serves as the State capital. Connecticut shares a border with New York, Massachusetts, and Rhode Island. The State of Connecticut is vulnerable to extreme weather such as severe storms, flooding, hurricanes, tornadoes and severe winter storms. Since 1979, there have been 17 major disaster declarations within the State of Connecticut.

4. CONNECTICUT OPERATIONAL SUPPORT SNAPSHOT

This section gives an overview of Connecticut's emergency response and emergency management operations once an incident has occurred. It also discusses how emergency communications requirements are handled by the within the State and how Federal emergency communications support mechanisms can integrate into the overall emergency communications support effort.

State Emergency Operations Profile

Primary responsibility for incident response rests with local governments. Each local governmental entity maintains a Local Emergency Operations Plan (LEOP) that includes procedures for the management of emergencies. As each locality's resources are overwhelmed and their capabilities exceeded, they can request mutual aid from neighboring communities. If mutual aid is not available, or is subsequently depleted, assistance from the State can be requested through the Division of Emergency Management and

Homeland Security (DEMHS). DEMHS has the responsibility for statewide coordination of operations and resource requests within the State. Other state agencies, non-governmental organizations, and private sector entities may be requested to provide liaison officers to the SEOC depending on the incident requirements.

Connecticut is divided into five emergency management regions. In order to facilitate a more organized response effort, Connecticut DEMHS staffs five regional offices, one within each of the emergency management regions. (**See Figure 1**). These offices work with the municipalities with their designated area of responsibility to ensure that requirements are being effectively supported. The Division of Emergency Management and Homeland Security (DEMHS) Regional Offices are responsible for providing administrative support and planning assistance to local governments in their jurisdictions. During emergencies, Regional Offices serve as mutual aid coordination and communications links between towns and the State Emergency Operations Center (SEOC).

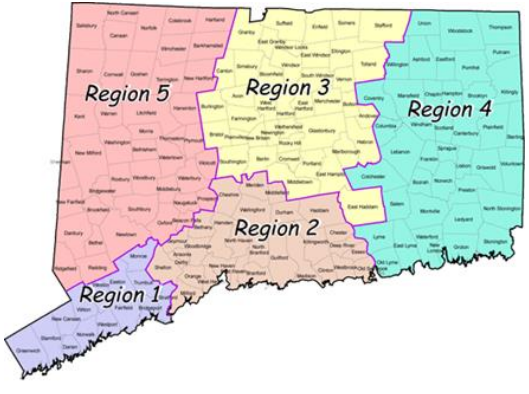


Figure 1: DEMHS Regions

The five DEMHS Regional Offices are located in Bridgeport, Middletown, Hartford, Colchester, and Waterbury. Under most circumstances, response operations are initiated at the local level with local resources committed first. The use and coordination of resources and the initial management of the situation is a local public safety responsibility. Each of the State's 169 local political subdivisions has an emergency management director appointed by the local chief executive of the town. During emergencies, local officials maintain communications with the DEMHS Regional Office serving their region. If a locality becomes overwhelmed and has exhausted

mutual aid resources, DEMHS is responsible for coordinating statewide operations as well as additional resource requests from within Connecticut.

4.1.1 Command and Control

C2 focuses on providing capabilities to support dispatch and C2 functions. Public safety answering points (PSAP) are responsible for answering the initial 9-1-1 service calls for police, fire, and emergency medical services (EMS). PSAPs may provide direct dispatch services or may route or transfer 9-1-1 calls to other dispatch centers. Emergency Operation Centers (EOCs) at the city, county, and State levels are used to coordinate C2 requirements during an incident, which include (1) the direction and control of units engaged in emergency operations; (2) the exchange of information between units of government, as well as private sector and public sector partners; and (3) the prioritization and provision of resources as needed to support response and recovery efforts.

DEMHS is the lead State agency for coordinating C2 operations in Connecticut during major emergencies and disaster events. DEMHS works closely with Connecticut State Police, the National Guard and other agencies within the Department Emergency Services and Public Protection (DESPP) to execute its functional activities, which include planning, resource prioritization, communications, logistics, and public information. DESPP supports and maintains the statewide 700/800 MHz LMR network, which is the primary method of communications supporting statewide tactical emergency response in the State. Connecticut also uses resources such as telephone over the Public Switched Telephone Network (PSTN), cellular telephones, Internet, and satellite voice and data communications to execute its mission.

4.1.2 Communications Support (ESF-2)

This section describes how the state of Connecticut is organized with respect to the provision of emergency communications support following a disaster event. Federal emergency communications assistance that is mobilized in support of the State will be expected to seamlessly integrate into the state communications operations described in this section.

4.1.2.1 Tactical Communications Support

DESPP serves as the lead state agency for ESF-2 Emergency Communications. Tactical communications requirements are supported by the CT Communications Unit, which is made up of Communications Unit Leaders (COML) and Communications Technicians (COMT). This team is comprised of local and state employees and is activated by DESPP when needed. These team members provide technical communications support in the form of expertise and equipment needed to effectively support post-disaster response operations. Cache radios, communication trailers and portable towers are some of the assets this team can bring to bear in support an emergency or disaster.

Mike Varney 860-685-8146
michael.varney@ct.gov

The State maintains the Connecticut Interoperability Field Operations Guide (CTFOG), which contains all necessary frequency information that may be required to support tactical communications. A copy of this document can be requested through the Region 1 Emergency Communications Coordinator or through the State SWIC. It is also located at the following link:
https://casmnextgen.com/pslib/index.php/webview?docid=52

4.1.2.2 Commercial Communications Support

Mike Varney 860-685-8146
michael.varney@ct.gov

When CT DEMHS activates ESF-2, private industry communications providers, both wireline and wireless, may be requested to provide liaison personnel to the SEOC. These liaisons play a critical role in identifying communications outages, impacts and estimated time for restoration. DEMHS may also request the provisioning of new circuits required to support disaster operations and the prioritization of restoration for critical facilities through these liaisons. The Massachusetts Department of Telecommunications and Cable may elect to send a liaison to the SEOC to support ESF-2. As the regulatory lead for telecommunications, they play a critical role in advancing commercial support and restoration operations.

4.1.2.3 Access Control and Credentials

Connecticut does not currently have structured access control procedures for private vendors and workers to gain access to an incident area to perform restoration activities such as infrastructure repair or refueling. Supporting Federal and private sector resources should contact the Watch Officer at the SEOC for instructions on where to report for check-in and what credentials may be required to gain access to the incident and/or staging areas.

5. COMMUNICATIONS NETWORKS, SYSTEMS AND SUPPORTING INFRASTRUCTURE

This section focuses on the communications networks and systems within Connecticut, the Alert and Warning capabilities in the State, and the dispatch and operations centers that leverage those networks and systems to support command, control and coordination operations. Also discussed in this section are aspects of critical infrastructure that support the state's communications architecture.

5.1 Communications Networks and Systems

Connecticut uses LMR systems in all public safety bands, as well as VoIP, PSTN, and data service to conduct emergency operations. Cellular telephones and commercial aircards provide supplementary communications capabilities. Satellite voice and data, as well as high frequency (HF) and amateur radio, are available backup communications technologies.

5.1.1 Major LMR Systems

Existing radio communications systems throughout the State vary widely from conventional to more sophisticated trunked digital systems. DESPP operates a trunked P25 core 700/800 MHz system that supports statewide 8CALL and 8TAC channels, as well as systems operating on multiple bands using national interoperability channels (VTAC, VCALL, UTAC, and UCALL). The system has 256 talk groups and supports all State agencies. DEMHS uses a VHF high-band radio to communicate with its Regional Offices. Law enforcement agencies use CS-PERN, which is a conventional 800 MHz analog simulcast system. DEMHS also uses STOCS for in-field response. This system is a deployable gateway network that is primarily used by State and local emergency responders to support tactical interoperablity. It has been designed to provide an interoperability solution by enabling responders to communicate while

working at the scene of an incident, using portable radios with a maximum output power of 3 watts. The system operates as a multiband gateway that cross-bands VHF, UHF, and 800 MHz radios in a tactical environment. There are 100 of these systems strategically located throughout the State.

DPH uses two systems, CMED and MEDNET. The CMED radio system consists of fourteen 450 MHz channels channelized into more than 255 channels through the use of multiple Continuous Tone-Coded Squelch System (CTCSS) tones and managed through an architecture of base stations located throughout the State. Through this system, all ambulances have interoperability with one another and with the hospitals in the State. MEDNET is a statewide point-to-point VHF system that is used for communications among the 13 CMED Centers and includes DPH, the SEOC, and the Life Star.

Table 1: LMR Systems in Connecticut

System Name/Agency Owner	Infrastructure Details	Coverage	Supported Agencies
DESPP	▪ DEMHS Area VHF High-Band	Statewide / Regional	▪ DEMHS
DESPP CTS	▪ Trunked ▪ Run by P25 Core ▪ 700/822 MHz ▪ Supports Statewide 8CALL and 8TAC channels ▪ VCALL, VTAC, UCALL, UTAC ▪ 256 Talk Groups	Statewide	▪ All State agencies ▪ Some Federal agencies

Table 1: LMR Systems in Connecticut			
System Name/Agency Owner	**Infrastructure Details**	**Coverage**	**Supported Agencies**
DEMHS	▪ 4 UHF frequencies ▪ 4 VHF frequencies ▪ 5 (VTAC/UTAC) 800 MHz frequencies combined into 5 interoperable channel groups, one for each region. ▪ Cross-band Repeater	Statewide	▪ DEMHS ▪ State and local emergency responders
DPH CMED	▪ Fourteen 450 MHz UHF frequencies for EMS operations	Statewide	▪ CMEDs ▪ EMS agencies ▪ Hospitals
DPH MEDNET – 155.340	▪ Provides communications among 13 CMED centers in CT	Statewide	▪ CMEDs ▪ SEOC ▪ CT-DPH ▪ LifeStar
DESPP CS-PERN	▪ Conventional ▪ 800 MHz ▪ Analog simulcast ▪ Repeated	Statewide	▪ Law enforcement agencies
CT Fire Chiefs Association Connecticut State Fire Coordinator System	▪ Conventional ▪ 46.16 MHz channel (base to base) ▪ 33.78 MHz channel (mobile for fire ground)	Statewide	▪ Regional fire communications centers (46MHz) ▪ Local fire services (33 MHz)

5.1.2 Interoperable Communications Networks

Connecticut uses a number of different systems throughout the State to achieve interoperability between agencies. The Connecticut Department of Emergency Services and Public Protection (DESPP) operates a trunked Project 25 (P25) core 700/800 megahertz (MHz) system that supports statewide 8CALL and 8TAC channels, as well as systems operating on multiple bands using national interoperability channels (VTAC, VCALL, UTAC, and UCALL). The system has 256 talk groups and supports all State agencies. DEMHS uses a VHF high-band radio to communicate with its Regional Offices. Law enforcement agencies use the Connecticut State Police Emergency Radio Network (CS-PERN), which is a conventional 800 MHz analog simulcast system. The State Tactical On-Scene Channel System (STOCS) is used for in-field response. . This system is a deployable gateway network that is primarily used by State and local emergency responders to support tactical interoperablity.

The Department of Public Health (DPH) uses two systems, Connecticut Medical (CMED) and MEDNET. The CMED radio system consists of fourteen 450 MHz frequencies channelized into more than 255 channels through the use of multiple Continuous Tone-Coded Squelch System (CTCSS) tones. Through this system, all ambulances have interoperability with one another and with the hospitals in the State. MEDNET is a statewide point-to-point VHF system that is used for communications among the 13 CMED Centers and includes DPH, the SEOC, and Life Star.

5.1.3 Enhanced 9-1-1

The DESPP Division of Statewide Emergency Telecommunications (DSET) is charged with the coordination, administration, and implementation of Enhanced 9-1-1 services throughout the State of Connecticut.

Public Safety Answering Points (PSAPs) according to the National Emergency Number Association (NENA), are facilities equipped and staffed to receive 9-1-1 calls. PSAPs are responsible for answering the initial 9-1-1 service calls for police, fire, and EMS, and are critical to the delivery of emergency services. The service area of a PSAP is the geographic area within which a 9-1-1 call placed using a landline is answered by that PSAP. These are commonly municipal boundaries in Connecticut, although some regional PSAPs do exist within the state and the state is moving towards additional consolidations in the future.

DSET provides E911 equipment, database, network and technical support services to any PSAP that serves as a first point of reception of a 9-1-1 call. Although there are 95 PSAPs in the state, only certain PSAPs in Connecticut handle calls from cellular telephone users, which comprise a majority of incoming 9-1-1 calls. These PSAPs receive and answer wireless calls and transfer the information to the proper dispatch center for a response to the request for service.

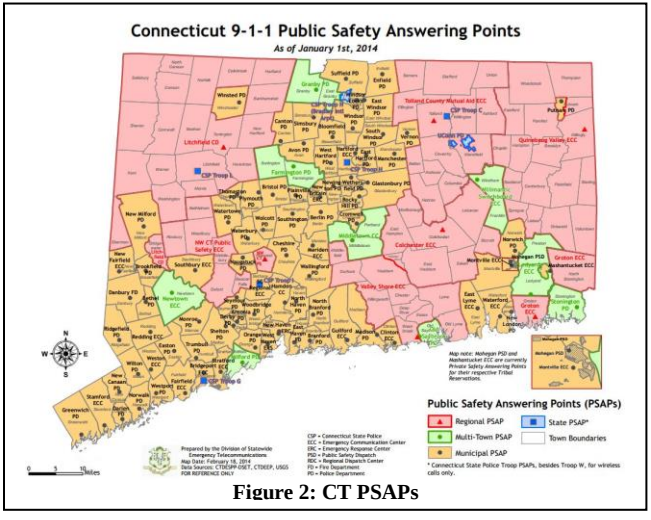


Figure 2: CT PSAPs

Seven significant PSAPs were identified based on emergency services supported and population areas served. These seven PSAPs each support an average of 33 emergency services and provide service to an average population of more than 124,000 individuals. These PSAPs are listed in Table 2 and mapped in Figure 3.

Table 2: Key PSAPs in Connecticut

PSAP Name	PSAP Facility Location	Population/Region Served
New Haven Emergency Response Center (ERC)	1 Union Avenue New Haven, CT	121,994
CSP Troop H	100 Washington St. Hartford, CT	118,195
CSP Troop G	149 Prospect St. Bridgeport, CT	135,454
Hartford Emergency Communications Center (ECC)	253 High Street Hartford, CT	118,195
Waterbury PD	255 East Main St. Waterbury, CT	99,958
Bridgeport PSCC	581 North Washington Avenue Bridgeport, CT	135,454
CSP Troop I	638 Amity Rd. Bethany, CT	4,496

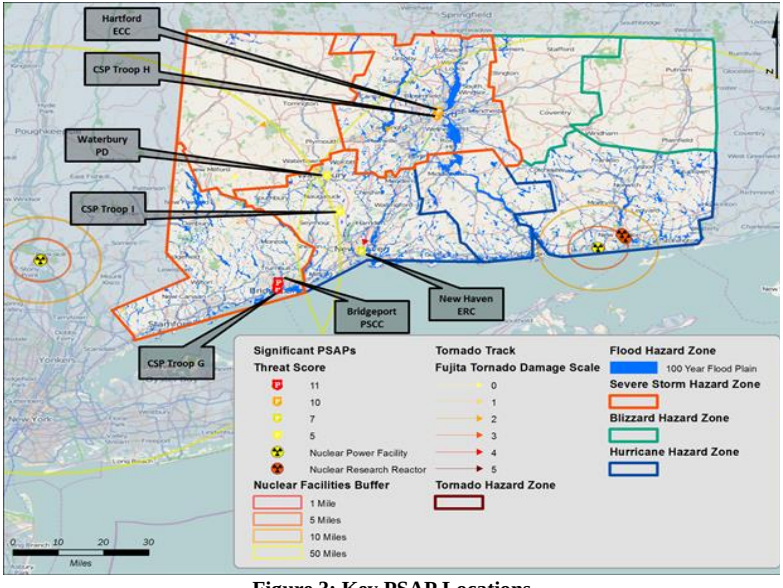


Figure 3: Key PSAP Locations

State 911 Contact

Statewide Emergency Telecommunications
1111 Country Club Road
Middletown, CT 06457
Telephone: 860-685-8080

5.1.4 Cellular Communications

State and local Connecticut government agencies pursue and execute agency-specific contracts with commercial cellular service providers. The five primary service providers in Connecticut are AT&T Mobility and Verizon Wireless, Sprint, T-Mobile, and Metro PCS. Although not a requirement of existing commercial wireless services contracts, any future public-private partnership between the State of Connecticut and a commercial carrier will require a Service Level Agreement (SLA) as a basis of expectation for service quality. In the major Connecticut metropolitan areas, there are 4G long-term evolution (LTE) services; however, the rural parts of the State may be limited to 3G voice and data capabilities. The State has contracts with Sprint (9,000 devices) and AT&T (2,000 devices), and Verizon serves as the backup (40 devices). Contracts include unlimited data, aircards/hotspots, and other standard offerings.

Commercial Carrier Contacts

Jim Coll Verizon Network Manager 207-232-0000 Jim.Coll@verizonwireless.com	Patricia Jacobs President, AT&T—New England 617-406-8378 Pj2376@att.com

5.1.5 State Data Networks

The State's Public Safety Data Network is owned by the Division of Statewide Emergency Telecommunications (DSET); however, it is maintained and managed by DAS/BEST. It is a fixed dark fiber network using Fibertech Networks fiber and Cisco equipment for data transport configured in a multi-ring architecture. The rings are counter-rotating with multiple interconnection points for automatic re-route in case of failure. Additional carrier providers are used to augment services; therefore, there are some redundant connections

into certain locations that have multiple providers. All 95 PSAPs and many education facilities are on the network, as well as several of the larger State facilities located in Middletown (CSP) and Hartford (armory), among others.

5.1.6 Broadband Capabilities

The term broadband refers to the wide bandwidth characteristics of a transmission medium and its ability to transport multiple signals and traffic types simultaneously. The medium can be coaxial cable, optical fiber, twisted pair, DSL local telephone networks or wireless. Broadband refers to a communication bandwidth of at least 256 kbit/s. Each channel is 4 MHz wide and it uses an extensive range of frequencies to effortlessly relay and receive data between networks. In telecommunications, a broadband signaling method is one that handles a wide band of frequencies. Broadband is a relative term, understood according to its context; the wider (or broader) the bandwidth of a channel, the greater the information-carrying capacity, given the same channel quality.

There are 17 wireline broadband carriers operating in the State of Connecticut. The largest service providers are AT&T, Comcast, Cox, Verizon, and XO Communications. There are also six wireless and four satellite broadband providers operating in Connecticut.

Table 3: Wireline Broadband Carriers in Connecticut

Wireline Broadband Carrier	Contact Number	Area Served
AT&T East		All of CT
Cable Vision	866-218-3025	Western CT
Comcast	866-774-3128	Most of CT
Cogent Communications Inc.	877-726-4368	Stamford CT
Cox Communications	855-821-0519	North and Central CT
Fibertech	866-697-5100	All of CT

Table 3: Wireline Broadband Carriers in Connecticut		
Wireline Broadband Carrier	**Contact Number**	**Area Served**
Lightpath	866-611-3434	All of CT
Level 3 Communications	617-229-7549	All of CT
Light Tower Fiber Networks	888-583-4237	All of CT
MegaPath	203-284-6200	All of CT
MetroCast Communications of CT, LLC	888-339-3605	Eastern CT, Waterford / Plainfield Area
Sidera Networks		All of CT
Thames Vally Communications	860-446-4009	Groton, Mystic, Pawcatuck, Stonington
Verizon New York Inc.		Western CT
Cox Communications Services Inc.	860-468-5106	Central CT, Greater Hartford

Table 4: Wireless Broadband Carriers in Connecticut		
Wireless Carrier	**Contact Number**	**Area Served**
AT&T Mobility LLC	800-331-0500	All of CT
Clearwire Corporation	888.888.3113	All of CT (owned by Sprint)
MetroPCS	888-863-8768	Most of CT
Sprint	877-877-8748	All of CT
T-Mobile	877-453-1304	All of CT
Verizon Wireless	508-954-3000	All of CT

Table 5: Satellite Broadband Providers in Connecticut		
Satellite Carrier	**Contact Number**	**Area Served**
HughesNet	877-738-5383	All of CT
StarBand Communications	800-478-2722	All of CT
Skycasters	800-268-8502	All of CT
ViaSat	508-229-6500	All of CT

5.1.7 Satellite Capabilities

Several Connecticut agencies have satellite telephone and/or data capabilities in their main operations facilities or in their deployable vehicles. Each of the five DEMHS Regional Offices and the SEOC is equipped with a satellite telephone. In addition, DEMHS has Regional Mobile Communications Vehicles (MCV) with satellite telephones and connectivity. CSP has 11 G2 mobile satellite units, a G2 base satellite unit (connected to the statewide console system and emergency telephone system), and a G2 transportable satellite unit. CSP also has a Hughes Mobile Satellite Ventures (MSV) satellite telephone system at its headquarters. CSP has a multitude of rapid deployment vehicles and a Mobile Command Post (MCP) each equipped with a satellite telephone. CTNG, DPH, and DEEP also have satellite assets.

5.1.8 Amateur Radio Capabilities

Wayne R. Gronlund
ARES CT Sector Emergency Coordinator
CT AREA
860-271-2777 (o)
860-917-6472 (c)
N1CLV@mac.com

Amateur radio offers a contingency communications resource to Connecticut agencies. Connecticut is home to more than 8,000 federally licensed amateur radio operators and nearly 40 amateur radio clubs. Connecticut has an ARES coordinator who receives all requests for amateur assistance in the State. He is primarily contacted by telephone to respond to requests by the Red Cross, SEOC, or one of the Regional DEMHS offices. District Emergency Coordinators within each DEMHS Region work with the Region and the ARES Coordinator to fulfill any amateur need in the State. A seat in the SEOC is shared by ARES and the Civil Air Patrol (CAP). Amateur radios are installed in the SEOC and every Regional Headquarters, with the exception of Region 5, which currently has its in storage. When a request for an amateur user is received by the ARES Coordinator, he can personally call anyone from a master telephone list or send out a mass email to 400 of the 700 ARES in the State, or the Regional Office can send a list to fulfill the need locally.

5.2 Alert and Warning

This section provides information on alert and warning systems that are used in the State of Connecticut. Alert and warning is a critical element of a State's response effort. It is the best opportunity to protect citizens and their property from the harmful effects of disasters.

5.2.1 Integrated Public Alert and Warning System (IPAWS)

During an emergency, alert and warning officials need to provide the public with life-saving information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure and will save time when time matters most, protecting life and property.

Federal, State, territorial, tribal and local alerting authorities use IPAWS by integrating local warning systems that use Common Alerting Protocol standards with the IPAWS infrastructure. IPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), the National Oceanic and Atmospheric Administration (NOAA) Weather Radio, and other public alerting systems from a single interface.

Activation of IPAWS within the State of Connecticut can be made at the request of the Governor, Director of DEMHS, or the Connecticut State Police. Such a request must be made directly to DEMHS who will initiate the alert using Everbridge. The crafted message will then be passed through the IPAWS aggregator and on to the chosen dissemination paths. As previously stated, the primary dissemination paths for IPAWS are as follows:

- EAS: The EAS is a national public warning system that requires broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers, and direct broadcast satellite (DBS) providers to provide the communications capability to the President to address the American public during a national emergency. The system also may be used by state and local authorities to deliver important emergency information, such as AMBER alerts and weather information targeted to specific areas.

- WEA: WEA (formerly known as the Commercial Mobile Alert System (CMAS)) is a public safety system that allows customers who own certain wireless phone models and other enabled mobile devices to receive geographically-targeted, text-like messages alerting them of imminent threats to safety in their area. The technology ensures that emergency alerts will not get stuck in highly congested areas, which can happen with standard mobile voice and texting services.

- NOAA Weather Radio: NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information from the nearest National Weather Service office. NWR broadcasts official warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. NWR requires a special radio receiver or scanner capable of picking up the signal. Broadcasts are made over seven frequencies in the VHF public service band.

5.2.2 Traditional EAS

The EAS is maintained by radio, TV, cable, and satellite broadcasters as part of their licensing agreements with the FCC. Each licensed station or broadcast system is required by the FCC to have equipment and procedures for receiving and relaying emergency alerts from designated government authorities. A State EAS Plan, typically which was developed by the State Emergency Communications Committee (SECC) in partnership with State emergency management officials, describes who is authorized to activate the EAS and defines how particular stations or a network of multiple radio and TV stations will be activated to broadcast emergency alerts and warnings and urgent public safety information.

The EAS automatically relays and broadcasts audio and text emergency alert messages from station to station, ensuring those messages reach the maximum number of citizens in a broad area. In Connecticut, WTIC 1080 AM serves as the State EAS Primary

station and is the origination point of all State Emergency Alerts when using traditional EAS. WTIC is located in Hartford and Jeff Hugabonne is the producer of this station. He can be reached at jeff.hugabonne@cbsradio.com or telephone (860) 508–2621. This station is monitored by local primaries across the State, which act as relays to other broadcast stations in their listening area.

Broadcast of State and local warning as well as weather alert information is a voluntary decision for each station. Coordination with individual stations or via the State broadcast association by the State and local public safety officials is required to ensure continued participation of local broadcast stations in public safety communications plans.

In addition to being the State EAS Primary station, WTIC Radio also serves as a FEMA Primary Entry Point (PEP) station in the national EAS architecture, which supports a nationwide emergency broadcast capability for the President of the United States. As a FEMA PEP station, WTIC is expected to remain operational throughout all-hazard type events, and FEMA supplies the WTIC transmitter site with extended electrical power generation equipment enabling it to operate for up to 60 days without commercial power and providing some protection from electromagnetic pulse events. The power generation and supporting fuel system are maintained by the FEMA IPAWS program, which also has plans to add a backup station transmitter and enhanced communications between FEMA and the PEP station in the near future.

5.2.3 NOAA Weather Radio

Connecticut has four NWR transmitter sites that may be used for public alerts. The NWR system is a nationwide network of radio stations broadcasting continuous weather information directly from a nearby NWS office. NWR is an “all-hazards” radio network, making it a single source for comprehensive weather and emergency information. In conjunction with Federal, State, and local

emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards, including natural, environmental, and public safety (such as Amber alerts or 9-1-1 telephone outages).

5.2.4 EAS and NWR Critical Sites

The Planning Team analyzed all 11 EAS and NWR sites in Connecticut to determine their vulnerabilities to the identified hazards. **Table 6** lists all of the EAS and NWR stations in the State and Figure 4 maps those assets and provides analysis as to their relative vulnerability.

Table 6: EAS and NWR Infrastructure

Location	Call Sign/ Frequency	Type
Bridgeport	WEZN FM 99.9	EAS Local Primary
Fairfield	WSHU FM 91.1	EAS Local Primary
Hartford	WDRC AM 1360	EAS Local Primary
Hartford	WTIC AM 1080	PEP and EAS State Primary
Hartford	WTIC FM 96.5	EAS State Primary
Cornwall	WWH33	NWR
Hartford	WDRC FM 102.9	EAS Local Primary
Hartford	WXJ41	NWR
Meriden	WXJ42	NWR
Norwich	WCTY FM 97.7	EAS Local Primary
New London	KHB47	NWR

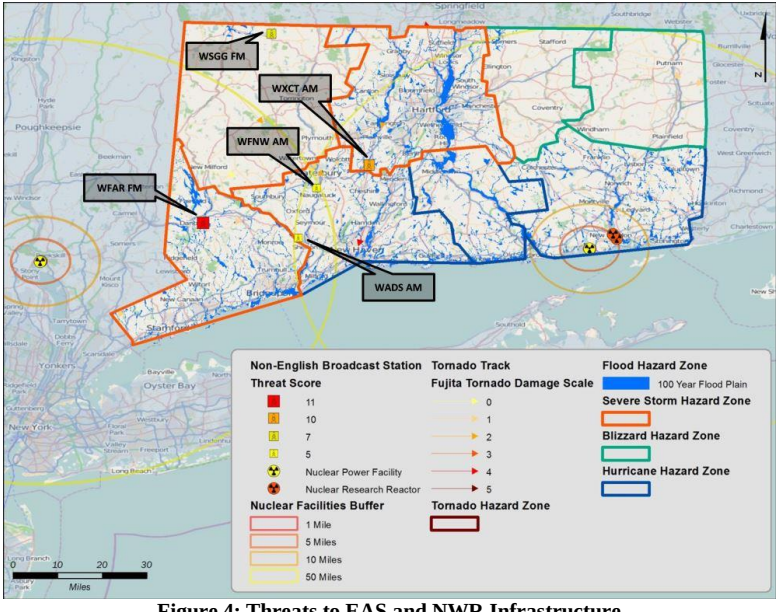


Figure 4: Threats to EAS and NWR Infrastructure

5.2.5 Non-English Broadcast Stations

The identification of non-English speaking broadcast stations helps local, State, and Federal public safety organizations accomplish their mission of saving lives and protecting property by ensuring all citizens have access to timely alert and warning information. The State of Connecticut has five non-English broadcast stations licensed by the FCC.

Table 7: Non-English Broadcast Stations

Call Sign	Format	Frequency	Location Contact Information
WFAR	Portuguese	93.3 FM	27 Chestnut Street, Danbury CT Tel: 203-748-0001
WXCT	Spanish	990 AM	Hartford-New Britain-Middletown, CT Tel: 860-621-1750
WSGG	Spanish	89.3 FM	Norfolk, CT Tel: 860-967-0718
WFNW	Spanish	1380 AM	Naugatuck, CT Tel: 203-395-0803
WADS	Spanish	690 AM	Bridgeport, CT Tel: 203-777-7690

5.2.6 Other Warning Systems

CT Alerts is the emergency notification and mass communication system powered by Everbridge that is used across the State of Connecticut. There are more than 100,000 opt-ins, along with those included via the white pages and the 911 directory. In addition, several State agencies, such as DHESM, CDOT, and DEEP are also using CT Alerts through Everbridge. United Way 2-1-1 is an information line that provides information dissemination/collection and rumor control. WebEOC is used across the State by most State agencies and organizations involved in emergency response and recovery. Within the SEOC, WebEOC is primarily used as a documentation tool. DEMHS serves as the primary agency responsible for access to Connecticut WebEOC and assigns user accounts.

5.3 Dispatch and Operations Centers

The following subsections focus on the key facilities public safety officials rely on to execute their missions during an incident. Analysis is provided in each section to determine which of these facilities are vulnerable to hazards in Connecticut.

5.3.1 State Facilities

When an incident exceeds local capabilities, local agencies must turn to the State to supplement their response efforts. In addition to Connecticut's SEOC, several other operation centers may be activated such as those listed in **Table 8.**

Table 8: State Command Infrastructure

Facility	Address
SEOC -DEMHS	360 Broad Street, Hartford CT 06105
CSP	111 Country Club Road, Middletown, CT 06457
DEEP	79 Elm Street, Hartford, CT 06106
CDOT	2800 Berlin Turnpike Newington, CT 06111

5.3.1.1 State Emergency Operations Center (SEOC)

The SEOC is equipped with the 700/800 MHz statewide LMR system, UHF, VHF, and VHF low band, and has access to all statewide radio systems. In addition, the SEOC has numerous amateur radio capabilities as well as the FEMA National Radio System (FNARS). The SEOC also has a VHF link to the FEMA RRCC using a remote control station located on the Tolland tower, which communicates directly with the FEMA Regional Repeater on Mount Wachusett. Each Regional Office has a satellite telephone for additional interoperability. The SEOC can also use a VHF high-band radio to communicate with the Regions. The SEOC is the alternate State Warning Point and is staffed whenever the EOC is activated.

Table 9: SEOC Capabilities

Name/Location	Commercial Service Provider/ Contracts	Communications Capabilities and Facility Details	Power Requirements
DEMHS SEOC 360 Broad Street Hartford CT, 06105	Telephone: Primary: AT&T Backup: Verizon Internet: State of CT (DAS) Backup: Comcast	▪ 700/800 MHz statewide LMR (CSP system) ▪ (70) UHF portable radios ▪ (150) 800 MHz portables ▪ HF/UHF/VHF radio (amateur) ▪ FNARS ▪ CS-PERN ▪ (10) satellite telephones (each Regional Office also has 1) ▪ Public Switched Network (PSTN) – (132) analog lines Verizon/AT&T ▪ Direct Internet Protocol (IP) line to PEP ▪ Regional Emergency Management Network (single VHF channel, base station at each Regional Office)	▪ Large Diesel Generator (whole building) ▪ UPS

Table 9: SEOC Capabilities			
Name/Location	**Commercial Service Provider/ Contracts**	**Communications Capabilities and Facility Details**	**Power Requirements**
		▪ EAS ▪ NWS ▪ National Warning System (NAWAS) ▪ Direct line to WPIC radio ▪ Closed circuit television (CCT) network, CT-N (Connecticut Television Network) ▪ Everbridge (IPAWS)	

5.3.1.2 State Police Headquarters

The CSP Headquarters is located in Middletown. CSP has a number of radio systems at this location, including its statewide 700/800 MHz CTS system, along with interoperable radio assets, including 8TAC/8CALL, CS-PERN, interagency low-band VHF, high frequency (HF), air-to-ground VHF, marine channels for SAR and amateur radio. The facility also has satellite capabilities, including a Hughes MSV telephone system and a G2 base satellite unit that is connected to the statewide console system and emergency telephone system.

CSP headquarters has complete interoperability with field responders, the SEOC, as well as any State agency with radio capabilities and a number of Federal agencies, including the Federal Bureau of Investigation (FBI) and USSS. The building has a generator that provides backup power to the entire building as well as an 8-hour UPS for the Network Operations Center (NOC).

Table 10: State Police Headquarters Capabilities			
Name/Location	**Commercial Service Provider/ Contracts**	**Communications Capabilities and Facility Details**	**Power Requirements**
State Police Headquarters 111 Country Club Road Middletown CT, 06457	Telephone: VoIP Internet: State of CT (DAS)	▪ Statewide (44 site) Digital 700/800 MHz Motorola Type II SmartZone Omnilink controlled by P25 phase II switch ▪ 19-site P-25 overlaid, tied together with microwave system ▪ 60 microwave/remote sites ▪ 12 regionalized troop dispatch centers and HQ dispatch ▪ 8,000 subscriber units—60 percent mobile and 40 percent portable ▪ Three-ring "hot standby" microwave backhaul ▪ Ballistic concrete communication shelters with tower infrastructure rated for 90 mph winds and 0.5 inches of ice ▪ 6-site, single-channel VHF system (backup State system) also used as interoperability for State and local VHF users—national VHF channels ▪ Statewide VHF frequency simulcast and statewide UHF that is being built ▪ 3 Micom HF base stations (one connected to statewide console system) ▪ 9 Micom HF mobile units ▪ (11) G2 mobile satellite units ▪ (1) G2 base satellite unit (connected to statewide console system and emergency telephone system) ▪ (1) G2 transportable satellite unit ▪ Hughes/MSV satellite telephone system ▪ Interoperable communications (console patching) ▪ Air-to-ground VHF and trunked radios ▪ Marine channels for SAR ▪ Amateur radio ▪ Full redundant data and TDM compatible Ku-Band Earth station (at UCONN)	▪ Building generator ▪ 8 hour UPS for NOC

5.3.1.3 Department of Energy and Environmental Protection (DEEP)

DEEP has a State facility located in Hartford. This building has four channels supported on the CSP microwave backbone (44 MHz). It also has 6 marine frequencies and 40 base radio locations throughout the State. DEEP has radio links to several power plants in the State. It also has direct access into the 700/800 MHz DESPP system. This location also has a number of hazardous materials (HAZMAT), radiation and Environmental Conservation (EnCon) police vehicles, all equipped with 44 MHz mobile radios with repeaters, and the law enforcement vehicles have 800 MHz mobile radios with CSP frequencies. A number of DEEP employees use WPS, and the department uses WebEOC as well as Everbridge. The building has three UPSs and a backup generator that powers the data center and portions of the building.

Table 11: DEEP Facility Capabilities

Name/Location	Commercial Service Provider/ Contracts	Communications Capabilities and Facility Details	Power Requirements
Connecticut Department of Energy and Environmental Protection (DEEP) 79 Elm St Hartford, CT 06106	Telephone: State provided Internet: State provided network	▪ 4 channels supported on the CSP microwave backbone (44 MHz) ▪ CSP-provided control circuits on CSP microwave backbone ▪ 40 base radio locations ▪ 350 mobile subscriber units ▪ 6 marine frequencies ▪ Radio link to Millstone (Dominion Power) and Connecticut Yankee Nuclear Power Plants (shut down) ▪ 40+ mobile data terminals (MDT) in EnCon Police vehicles ▪ EnCon Police, HAZMAT, and radiation vehicles ▪ 44 MHz mobile radios with repeaters ▪ 800 MHz mobile radios with CSP frequencies	▪ 3 UPSs ▪ Backup generator, powers data center and select portions of the building

5.3.1.4 Connecticut Department of Transportation (CDOT)

Additional State operations facilities in Connecticut include CDOT's two traffic operations centers (TOC), located in Newington and Bridgeport. The Newington location is the main TOC, and it has a low-band 47 MHz radio system with four channels for the respective districts and two for service personnel. It also has the Highway Advisory Radio (HAR), WebEOC, and a connection to the State Fiber Optic Network. The Bridgeport location includes the same communications assets.

Table 12: TOC Capabilities

Name/Location	Commercial Service Provider/ Contracts	Communications Capabilities and Facility Details	Power Requirements
Connecticut Department of Transportation (CDOT) 2800 Berlin Turnpike Newington, CT 06111	Telephone: AT&T Internet: State provided network	▪ Low-band 47 MHz radio system ▪ 1,200 mobile radios/portable radios ▪ 4 channels for districts and 2 channels for service people ▪ Towers owned by CSP ▪ 2 TOCs (Newington and Bridgeport) ▪ State Fiber Optic Network Connection—Middletown to HQ ▪ Highway Message Boards (variable message signs) ▪ 300–400 highway cameras via CDOT fiber optics—closed-circuit television ▪ HAR	▪ Backup generator that supports 40% of the building

5.3.2 Local and Tribal EOCs

The collective function of all EOCs is to support the Incident Commander by gathering and analyzing data to make decisions that protect life and property and disseminate those decisions to all affected agencies and individuals. Typically, EOCs are established and operated at the county level, although larger metropolitan cities can operate and maintain their own facilities in addition to a county-based EOC.

Table 13: Local EOC's Serving the Highest Populations

Name	Location
Bridgeport Emergency Management Operations Center	581 North Washington Ave Bridgeport, CT 06604
DEMHS Region 1	149 Prospect Street Bridgeport, CT 06601
Stamford Emergency Operations Center	888 Washington Boulevard Stamford, CT, 06901
Hartford Emergency Operations Center	550 Main Street, Hartford, CT 06103
Mohegan Tribal Nation Emergency Operations Center	49 Sandy Desert Rd Uncasville, CT 09011
DEMHS Region 3	360 Broad Street Hartford, CT 06105
Waterbury Emergency Operations Center	236 Grand St Waterbury, CT 06702
DEMHS Region 5	55 West Main St Waterbury, CT 06702
New Haven Emergency Operations Center	200 Orange St New Haven, CT, 06510
Mashantucket Pequot Tribal Nation Emergency Operations Center	101 Pequot Trail Ledyard, CT 09011
DEMHS Region 2	1111 Country Club Rd Middletown, CT 06457
DEMHS Region 4	15-B Old Hartford Rd Colchester, CT 06415

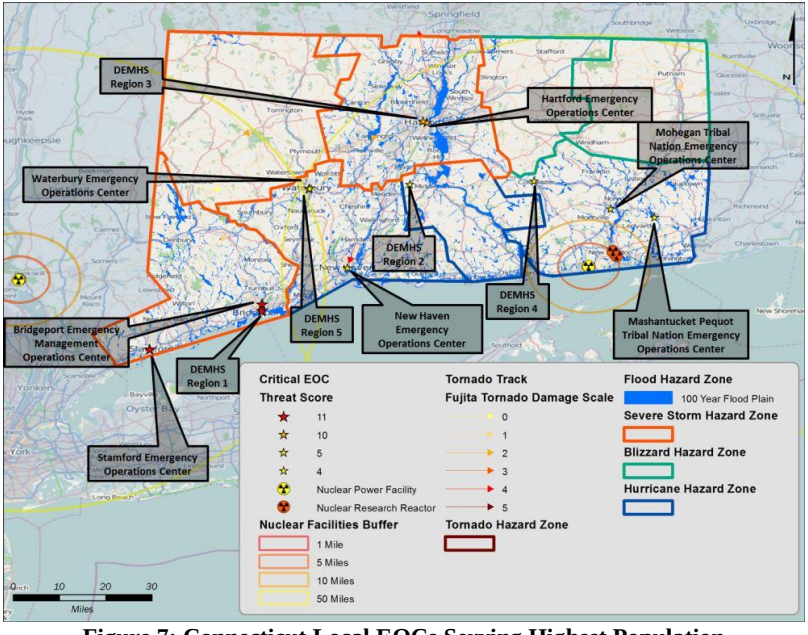


Figure 7: Connecticut Local EOCs Serving Highest Population

5.4 Supporting Infrastructure

This section of the document focuses on critical infrastructure that supports the Connecticut's communications architecture. It is vital that the interdependencies between communications and other critical infrastructure be understood thoroughly and considered during a disaster as a critical element in our emergency communications response and recovery efforts.

5.4.1 Electric Power

Communications facilities of all types rely on electric power to operate. In the event of electric power outages, most communications infrastructure has generators that provide electric power for 24 to 48 hours or longer. During disasters, running longer than 24 hours on generators backup will typically require fuel resupply to maintain operations. The ability to obtain fuel and access to sites running on backup generator will determine how many communications sites remain active. **Figure 8** shows all of the Connecticut electrical providers and their coverage areas.

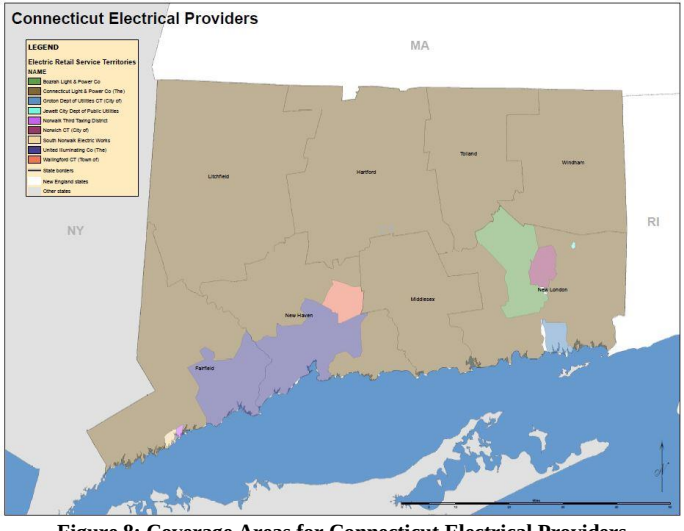


Figure 8: Coverage Areas for Connecticut Electrical Providers

6. Document Maintenance

This document is maintained by the Region 1 DEC Branch. All questions and concerns regarding content in the document should be directed to the FEMA Region 1 Regional Emergency Communications Coordinator, Jarrett Devine at 978-461-5357 or Jarrett.Devine@fema.dhs.gov.

7. Conclusion

FEMA is responsible for coordinating support to assist States in dealing with identified communications impacts and post-event requirements following a presidentially declared emergency or disaster. The intent of this document is to provide insight into the current communications architecture, capability and support mechanisms in Connecticut in order to be better prepared to support post-disaster communications requirement in the state. Nothing in this document should be considered a State request for the provision of actual communications support. This document does not negate, in any way, the need for an actual State request for specific communications support to be delivered to FEMA on a Resource Request Form (RRF), complete with the signature of a State Approving Official.