

COMMUNICATIONS

Capability Definition

Communications is the fundamental capability within disciplines and jurisdictions that practitioners need to perform the most routine and basic elements of their job functions. Agencies must be operable, meaning they must have sufficient wireless communications to meet their everyday internal and emergency communication requirements before they place value on being interoperable, i.e., able to work with other agencies.

Communications interoperability is the ability of public safety agencies (police, fire, EMS) and service agencies (public works, transportation, hospitals, etc.) to talk within and across agencies and jurisdictions via radio and associated communications systems, exchanging voice, data and/or video with one another on demand, in real time, when needed, and when authorized. It is essential that public safety has the intra-agency operability it needs, and that it builds its systems toward interoperability.

Outcome

A continuous flow of critical information is maintained as needed among multi-jurisdictional and multi-disciplinary emergency responders, command posts, agencies, and the governmental officials for the duration of the emergency response operation in compliance with National Incident Management System (NIMS). In order to accomplish that, the jurisdiction has a continuity of operations plan for public safety communications including the consideration of critical components, networks, support systems, personnel, and an appropriate level of redundant communications systems in the event of an emergency.

Relationship to National Response Plan Emergency Support Function (ESF)/Annex

This capability supports the following Emergency Support Functions (ESFs):

Primary: ESF#2: Communications

Communications supports all ESFs at the Federal, State, local, and tribal levels.

Preparedness Tasks and Measures/Metrics

Activity: <i>Develop and Maintain Plans, Procedures, Programs, and Systems</i>	
Critical Tasks	
ComC 1	Develop communication plans, policies, procedures, and systems that support required communications with all Federal, regional, State, local, and tribal governments and agencies as well as voluntary agencies
ComC 1.2.1	Develop procedures for the exchange of voice and data with Federal, regional, State, local, and tribal agencies, as well as voluntary agencies
ComC 1.6	Develop supplemental and back-up communications and information technology plans, procedures, and systems
ComC 1.6.2	Identify emergency communications and data requirements for each stakeholder
ComC 1.1.1	Develop a continuous improvement plan that enriches interoperable communications to provide advanced customer service, reliability, and operational effectiveness

ComC 1.6.5	Complete an assessment of standard communication capabilities for the Public Safety Answering Points (PSAPs) and Public Safety Communication Centers to ensure an appropriate Continuity of Operations Plan (COOP) is in place for public safety and service agencies' communications
ComC 1.7.3	Develop plans to provide telecommunication and information technology support to Federal, regional, State, tribal and local officials and the private sector
ComC 1.4	Design reliable, redundant, and robust communications systems for daily operations capable of quickly reconstituting normal operations in the event of disruption or destruction
ComC 1.7.2	Coordinate procurement and placement of technology communication systems based on a gap analysis of requirements versus existing capabilities
ComC 1.5	Develop information systems protection procedures
ComC 1.5.1	Develop and maintain automated credential verification systems to ensure proper credentialing for controlled access areas
ComC 1.3	Establish and maintain information systems across response entities
ComC 1.3.1	Develop interoperable telecommunication and Information Technology systems across governmental departments and agencies
Preparedness Measures	
	Metrics
Operable communications systems that are supported by redundancy and diversity, that provide service across jurisdictions, and that meet everyday internal agency requirements, are in place	Yes/No
Communication systems support on-demand, real-time interoperable voice and data communication	Yes/No
Plans and procedures are in place to ensure appropriate levels of planning and building public safety communication systems prior to an incident	Yes/No
Plans and procedures are in place to ensure appropriate levels of upgrading/enhancing public safety communication systems and equipment prior to an incident	Yes/No
Plans and procedures are in place to ensure appropriate levels of replacing public safety communication systems and equipment prior to an incident	Yes/No
Plans and procedures are in place to ensure appropriate levels of maintaining public safety communication systems and equipment prior to an incident	Yes/No
Plans and procedures are in place to ensure appropriate levels of managing public safety communication projects prior to an incident	Yes/No
Assessment of standard communication capabilities for Public Safety Answering Points (PSAP)/Public Safety Communication Centers and Emergency Operations Centers (EOC) to ensure appropriate Continuity of Operations Plan (COOP) for public safety and service agencies' communications has been completed	Yes/No
Communications Continuity of Operations Plan (COOP) that outlines back-up systems available at State and local levels, including protocols for use of systems, is in place	Yes/No
Communications standard operating procedures (SOPs) that conform to NIMS are in place and are used in routine multiple jurisdictional responses	Yes/No
A multi-agency and multi-jurisdictional governance structure to improve communications interoperability planning and coordination has been established	Yes/No
Formal interoperable communications agreements have been established through the governance structure	Yes/No

Interoperability communications plans have been developed through governance structure and include all relevant agencies for data and voice communications.	Yes/No
Interoperability policies and procedures to allow information sharing between levels of government and Federal installations involved in incident, as necessary and as possible, are in place	Yes/No
Redundant and diverse interoperable communication systems are available	Yes/No
Plans to coordinate the procurement of communications assets to ensure interoperability are in place	Yes/No
Plans to acquire and influence sustained interoperability and systems maintenance funding have been developed	Yes/No
Plans include a procedure to return communications back to normal operations after each significant incident	Yes/No

Activity: <i>Develop and Maintain Training and Exercise Programs</i>	
Critical Tasks	
ComC 2.1.1	Develop and implement awareness training programs for response communications
ComC 2.1.2	Develop exercises/drills of sufficient intensity to challenge management and operations and to test the knowledge, skills, and abilities of individuals and organizations for response communications
ComC 2.2.1	Develop and conduct training to improve all-hazard incident management capability for response communications
ComC 2.2.2	Conduct an after action review to determine strengths and shortfalls and develop a corrective plan accordingly for response communications
Preparedness Measures	Metric
Communications-specific tabletop exercises are conducted with multi-jurisdictional and multi-agency operations, technical, and dispatch participants	Yes/No
Communications-specific operational exercises with multi-jurisdictional and multi-agency participants are conducted	Yes/No
Operational exercises include an observer specifically to monitor the communications piece to ensure there is adequate information to provide in the After Action Report (AAR) to correct any communication problems that occurred for the future	Yes/No
Frequency with which plans, procedures, and use of all operable communications systems are tested and/or exercised in large and complex exercises	Every 12 months
All personnel including non traditional stakeholders have been trained to operate communications systems according to their incident role	Yes/No
Frequency with plans, procedures, and use of all interoperable communications equipment are reviewed tested and/or exercised	Every 12 months
Interoperability systems are used in pertinent everyday activities and emergency incidents to ensure familiarity with system and cooperation	Yes/No

Performance Tasks and Measures/Metrics

Activity: Alert and Dispatch

Definition: In response to an alert, make notification and provide communications management until the Incident Command (IC), Emergency Operations Center (EOC), and Emergency Management Agency (EMA) are stood-up

Critical Tasks

ComC 4.2	Implement incident communications interoperability plans and protocols
ComC 4.2.1	Communicate incident response information
ComC 4.2.1.1	Use established common response communications language (i.e., plain English) to ensure information dissemination is timely, clear, acknowledged, and understood by all receivers
ComC 3.4	Request external resources using EMAC and other mutual aid/assistance processes (inter- and intra-State)
ComC 3.5	Initiate documentation process of required forms and follow-up notations
ComC 4.2.3	Report and document the incident by completing and submitting required forms, reports, documentation, and follow-up notations on immediate response communications
ComC 4.1.1	Ensure that all critical communications networks are functioning
ComC 4.3	Implement procedures to protect information facility and communication network systems

Performance Measures

Metric

Time in which immediate dispatch information is provided to primary first responders during regular operations	Within 60 seconds from call classification by dispatch
Time in which Emergency Operations Centers (EOCs), first responders, and special resources acknowledge receipt and understanding of radio communications	Within 30 seconds from the end of transmission
Percent of communications sent and received that are completely understood without ambiguity by the sender or the intended receiver	90%
Frequency with which communications back-up is provided (per COOP and/or incident plan process) during emergencies when the conventional mode of communications fail or become overloaded to assure continued service amidst incident	Continuous
Time in which alternate communications and/or dispatch center are staffed in the event of a catastrophic loss of the primary site	Within 1 hour from the loss of primary site
COOP is activated based upon nature and disruption of new failure	Yes/No
Recovery time per classification of failure is realistic and alternative recovery processes are in place for incident support	Yes/No
Percent (above normal peak traffic) of technical surge and back-up capabilities within communications and/or dispatch centers to process incoming calls effectively with the loss of any one communication or dispatch centers (assumes surge staffing will be available in 30 minutes)	200%
COOP allows for maximum response per incident type and duration	Yes/No

Activity: Provide Incident Command/First Responder/First Receiver/Interoperable Communications	
Definition: In response to notification of an incident, go to the scene to provide and receive interoperable voice data and video communications	
Critical Tasks	
ComC 4.2	Implement incident communications interoperability plans and protocols
ComC 4.2.1	Communicate incident response information
ComC 4.2.2	Coordinate incident site communications to be consistent with the National Incident Management System (NIMS) framework
ComC 4.2.1.1	Use established common response communications language (i.e., plain English) to ensure information dissemination is timely, clear, acknowledged, and understood by all receivers
ComC 4.2.3	Report and document the incident by completing and submitting required forms, reports, documentation, and follow-up notations on immediate response communications
ComC 4.1.1	Ensure that all critical communications networks are functioning
ComC 4.1	Establish and maintain response communications systems on-site
ComC 4.3	Implement procedures to protect information facility and communication network systems
Performance Measures	Metric
Frequency with which local first responders are provided with tactical communications with approved local delivery process specified to incident	Continuous
Frequency with which tactical communications are provided between local disciplines (i.e., law enforcement, fire, and EMS) and among local fire units operating in the disaster site with approved delivery process specific to incident	Continuous
Percent of communications sent and received that are completely understood without ambiguity by the sender or the intended receiver	90%
Frequency with which communications back-up is provided during emergencies when the conventional mode of communications fail or become overloaded	Continuous
COOP and/or Incident Action Plan process assures continued service amidst incident	Yes/No
Time in which tactical communications are provided for regional first responders responding to the disaster site is within parameters of interoperability plans, as approved by governance structure/body	Yes/No
Percent of mobile communications coverage provided in rural areas affected by disaster	95%
Percent of street-level hand-held communications coverage provided in urban/suburban areas affected by disaster	95%
Percent of in-building hand-held communications coverage provided in central areas affected by disaster	95%
Tactical communications are provided for large regional “task forces” providing recovery assistance to disasters and other emergencies within parameters of interoperability plan, as approved by the governance structure/body	Yes/No

Activity: Provide Emergency Operations Center Communications Support

Definition: Upon notification, initiate interoperable system operations, in addition to maintaining, managing, and assuring protection of the interoperable communications systems until the EOC is ordered deactivated

Critical Tasks

ComC 4.2	Implement incident communications interoperability plans and protocols
ComC 4.2.1	Communicate incident response information
ComC 5.4.7	Inform staff and management of interoperable communications requirements
ComC 5.4.5	Provide direction, information and/or support as appropriate to incident command (IC) or unified command (UC) and/or joint field office(s)
ComC 5.3.1.2	Coordinate and provide telecommunications and information technology support to Federal, regional, State, tribal, and local officials and the private sector(s)
ComC 5.2	Establish and ensure connectivity with EOC/MACC
ComC 5.4	Coordinate communications policy and procedure across response entities
ComC 4.1	Establish and maintain response communications systems on-site
ComC 5.3	Establish and maintain interoperable information systems network within the EOC
ComC 5.3.1.1	Coordinate placement of latest technology that is available to agencies participating in response
ComC 5.3.3	Assure redundant communications circuits/channels are available for use
ComC 4.1.1	Ensure that all critical communications networks are functioning
ComC 4.2.1.1	Use established common response communications language (i.e., plain English) to ensure information dissemination is timely, clear, acknowledged, and understood by all receivers
ComC 5.5	Maintain a common operating picture (COP) for real time sharing of information with all the participating entities to ensure all responder agencies are working from the same information
ComC 4.2.3	Report and document the incident by completing and submitting required forms, reports, documentation, and follow-up notations on immediate response communications
ComC 4.3	Implement procedures to protect information facility and communication network systems
ComC 5.3.1.3	Coordinate and open State communications support/channels to local and tribal government and the private-sector to assist in awareness, prevention, response, and recovery communications activities

Performance Measures**Metric**

Percent of communications sent and received that are completely understood without ambiguity by the sender or the intended receiver	90%
Frequency with which communications back-up is provided during emergencies when the conventional mode of communications fail or become overloaded	Continuous
COOP and/or Incident Action Plan process to assure continued service amidst incident is in place	Yes/No
Key officials are notified in the event of an incident using relevant tools and technologies (e.g., call down lists, SMS messages, etc.)	Yes/No

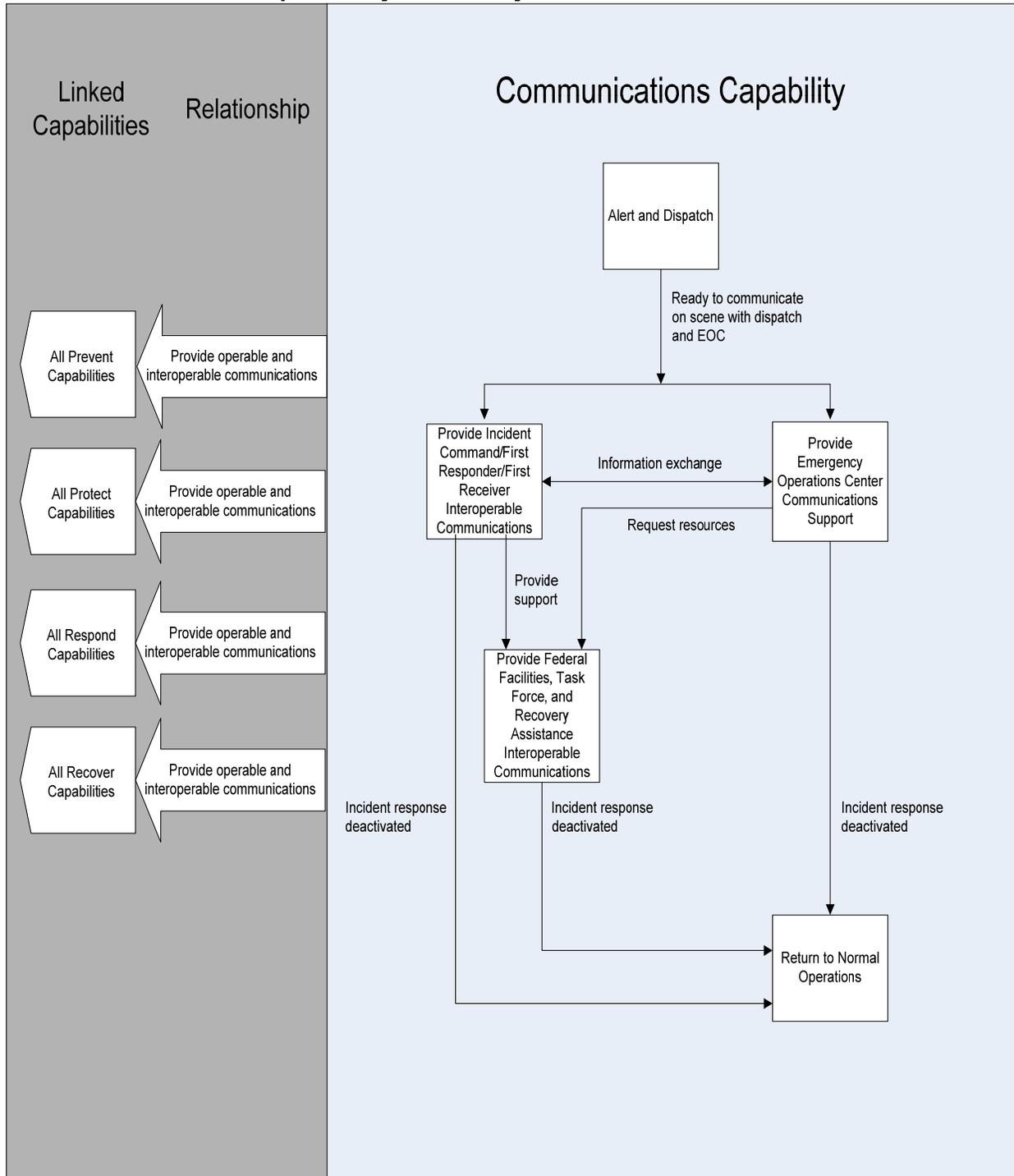
Activity: <i>Provide Federal Facilities, Task Force, and Recovery Assistance Interoperable Communications</i>	
Definition: In response to an alert, make notification and provide communications management until the Incident Command and EOC are stood-up	
Critical Tasks	
ComC 4.2	Implement incident communications interoperability plans and protocols
ComC 4.2.1.1	Use established common response communications language (i.e., plain English) to ensure information dissemination is timely, clear, acknowledged, and understood by all receivers
ComC 4.2.3	Report and document the incident by completing and submitting required forms, reports, documentation, and follow-up notations on immediate response communications
Performance Measures	
	Metric
Tactical communications are provided for large regional “task forces” providing recovery assistance to disasters and other emergencies within the parameters of interoperability plans, as approved by governance structure/body	Yes/No
Frequency with which communications back-up is provided during emergencies when the conventional modes of communication fail or become overloaded	Continuous
COOP and/or Incident Action Plan process assures continued service amidst incident	Yes/No
Percent of communications sent and received that are completely understood without ambiguity by the sender or the intended receiver	90%
Communications policies and procedures are followed	Yes/No

Activity: <i>Return to Normal Operations</i>	
Definition: Initiate deactivation procedures for the interoperable communications system and return the system to a ready state	
Critical Tasks	
ComC 4.2.1.1	Use established common response communications language (i.e., plain English) to ensure information dissemination is timely, clear, acknowledged, and understood by all receivers
ComC 4.2.3	Report and document the incident by completing and submitting required forms, reports, documentation, and follow-up notations on immediate response communications
ComC 7.1.1	Develop communications section of the demobilization plan
ComC 7.1	Initiate interoperable deactivation procedures
ComC 7.1.2	Monitor communications demobilization
Performance Measures	
	Metric
Percent of communications sent and received that are completely understood without ambiguity by the sender or the intended receiver	90%

Linked Capabilities

Linked Capability	Relationship
All Prevent Capabilities	Communications provides all Prevent capabilities with operable and interoperable communications
All Protect Capabilities	Communications provides all Protect capabilities with operable and interoperable communications
All Respond Capabilities	Communications provides all Respond capabilities with operable and interoperable communication
All Recover Capabilities	Communications provides all Recover capabilities with operable and interoperable communications.

Capability Activity Process Flow



Resource Element Description

Resource Elements	Components and Description
Interoperability Communications Plan	A plan for a designated area that includes governance, standard operating procedures, technology, training and exercises, and usage. An Interoperability Communications Plan is created for each designated participant area prior to an incident
Governance Group	Organization of agencies and jurisdictions who have entered governance agreements (i.e., memorandum of understanding/memorandum of agreement [MOU/MOA]) to coordinate decision making across agencies and jurisdictions.
Technology—System of Systems	Operable communication systems for the disciplines and jurisdiction as defined by the local requirements that allows for mutual aid components to connect in when authorized and as necessary. System-of-systems consists of local, State, and Federal components that can be connected through common interface standards. Element includes the following processes: Needs assessment; Evaluate current capability; Develop requirements; Perform gap analysis; System alternatives (with costs and types); Phase-in implementation; Define spectrum needs; Define security/encryption needs; Develop future upgrade plan and budget process.
Interoperable Communications Technical Assistance Program (ICTAP) Teams	Technical assistance team that implements the ICTAP, a program designed to enhance interoperable communications among local, State, and Federal emergency responders and public safety officials, and is associated with the Department of Homeland Security Office of Grants and Training's (G&T) Urban Area Security Initiative (UASI) grant program. Each team provides technical assistance in four phases: Phase 1: Define Technical Assistance Requirements; Phase 2: Define Enhancements Needed; Phase 3: Implementation; Phase 4: Continued services as needed until local support is in place
Public Safety Answering Point (PSAP) and Public Safety Communications Center Continuity of Operations Plan	Plan that provides ability to have redundant and back-up systems in place during an emergency

Planning Assumptions

- This capability reaches across all 15 National Planning Scenarios and within each capability. All major incidents require communication and interoperability to facilitate management of an incident. Therefore, the target level of interoperability is independent of a specific scenario. Interoperability is a support function for all other responder capabilities, so this mission-critical capability must be in place to ensure the personnel who are providing the other capabilities have access to the information they need to respond appropriately.
- Interoperability is the communication between disciplines and jurisdictions that permits real time exchanges of information on demand, with whoever needs it, when properly authorized, in conformance with the Incident Command System.
- Communications is the transmission of thoughts, messages, or information. The ability to communicate is critical to effective emergency response and is one of the most difficult tasks that must be performed during an incident or event. Effective communication during an emergency

requires a system that is both interoperable and redundant. The ability to transmit thoughts, messages, and information can be accomplished through a multitude of ways. In emergency response, the mechanisms that assist personnel in communications can vary, but are largely made up of wireless voice (radio), voice and data telephone (wireless and landline), wireless data, and internet voice/data.

- Communications interoperability is the ability of multiple entities to intermingle meaningful transmission of thoughts, messages, or information while using similar or dissimilar communications systems. A redundant communications system is a duplication of communications systems that can be accessed by personnel for the purpose of responding to, and/or mitigating and recovering from an incident or event.
- One of the major issues facing public safety and service agencies is the inability to communicate with one another when the need arises. Effective and efficient emergency response requires coordination, communication, and sharing of vital information among numerous public safety agencies. As the *National Strategy for the Physical Protection of Critical Infrastructures and Key Assets* observes, “most systems supporting emergency response personnel have been specifically developed and implemented with respect to the unique needs of each agency.”
- Public Safety Answering Point (PSAP), Public Safety Communication Centers, and Emergency Operation Centers (EOCs) must be in place and competently operational with the resources, and operational integrity to perform during an incident.
- Agencies must be “operable,” meaning they must have sufficient public safety and service agency communications capabilities to meet their everyday internal requirements before they place value on being “interoperable,” meaning being able to work with other disciplines and agencies. They need to improve those systems first but this improvement planning needs to include a vision for improved interoperability with other disciplines and agencies. At a time when more attention is being paid to interoperability among different disciplines and jurisdictions within the community, there still exists fundamental communication deficiencies within disciplines and jurisdictions as practitioners strive to perform the most routine and basic elements of their job functions.
- These deficiencies result in daily communication challenges for those working on the front lines in public safety and service agencies. The Interoperability Continuum (see reference link below) outlines critical elements for the planning and implementation of successful public safety and service agencies’ communications and interoperability solutions. These elements include governance, standard operating procedures, technology, training and exercises, and usage of interoperable communications. To drive progress along the five elements of the continuum and improve interoperability, public safety and service agency practitioners should observe the following principles:
 - Gain leadership commitment from all public safety and services agencies.
 - Foster collaboration across all public safety and services agencies for planning and implementation.
 - Work with policy makers to gain leadership commitment and resource support for interoperability.
 - Plan and budget for ongoing updates to systems, procedures, and documentation.
 - Use interoperability solutions on a regular basis.
- Interoperability is a support function for all other responder capabilities, so this mission critical capability must be in place to ensure the other capabilities have access to the information they need to respond.
- Existing Continuity of Operations Plans (COOPs) for public safety and service agency communications systems are in place.

- Individual agencies and jurisdictional systems must be operable and functioning before mutual aid can come in and connect to interoperate.
- Spectrum management should be coordinated to allow adequate allocation across all disciplines and jurisdictions.
- Critical infrastructure protective actions have been implemented to ensure communications systems remain operable.

Planning Factors from an In-Depth Analysis of a Scenario with Significant Demand for the Capability

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
Interoperability Communications Plan	One plan supports each designated participating area	All appropriate planning has been done prior to an incident	One per designated participant area
Governance Group	One governance group supports each participating area	All appropriate interactions, decisions and agreements have been made prior to incident to ensure effective response at the incident	One governance group per participating area as designated by local responder requirements
Technology- System of Systems	System that is appropriately connected to achieve interoperability when authorized and as necessary		One operable communication system for each individual agency
Interoperable Communications Technical Assistance Program (ICTAP) Teams		Needed prior to incident to ensure appropriate planning and engineering support is in place during an incident	20 ICTAP teams for technical engineering and planning as requested by the participating area

Approaches for Large-Scale Events

Because interoperability refers to the coordination and communication of command level or other authorized staff at the operational level, all large-scale events and the 15 National Planning Scenarios require plans that provide for established interoperability infrastructure before the incident occurs. Planning should include the ability to reconstitute normal communications systems that have been saturated, disrupted, or destroyed during an event.

Target Capability Preparedness Level

Resource Element Unit	Type of Element	Number of Units	Unit Measure (number per x)	Lead	Capability Activity supported by Element
Interoperability Communications Plan	Plan	1	Per State/Territory	State	All Activities
Interoperability Communications Plan	Plan	1	Per intrastate Region	Local (Intrastate region)	All Activities
Interoperability Communications Plan	Plan	1	Per UASI city	Local (City)	All Activities
Governance Group	Organization and Leadership	1	Per State	State	All Activities
Governance group	Organization and Leadership	1	Per intrastate Region	Local (Intrastate region)	All Activities
Technology—System of Systems	Resource Organization	1	Nationally	Federal/State/Local	All Activities

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