

E/L 0969

NIMS ICS All-Hazards Communications Unit Leader Course



FEMA

Student Manual

September 2020



Emergency Communications Support

Version 1.0

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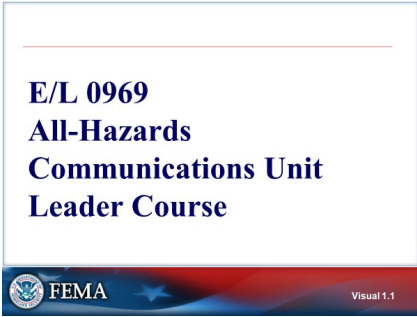
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Unit 1: Course Introduction

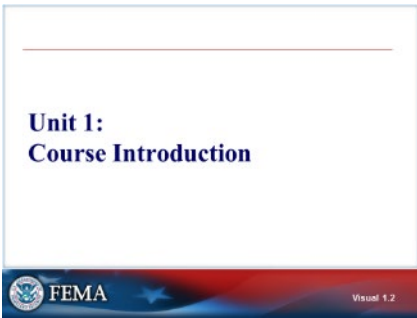
STUDENT MANUAL

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Visual 1.1

E/L 0969 ALL-HAZARDS COMMUNICATIONS UNIT LEADER



Visual 1.2

UNIT 1: COURSE INTRODUCTION




Visual 1.3

UNIT TERMINAL OBJECTIVE

Upon completion of this unit, students will be able to identify course objectives and position-specific resource materials for the position of Communications Unit Leader.

Unit Enabling Objectives

- Describe the course objectives.
- Explain the purpose of Position Task Books.
- Describe the Qualification Process for the Communications Unit Leader.
- Identify components of the Communications Unit Leader (COML) Response Kit.
- Explain the Cybersecurity and Infrastructure Security Agency (CISA) Personal Information Announcement.
- Identify fundamental Communications Unit Leader tasks.



Visual 1.4

UNIT ENABLING OBJECTIVES


State the Unit Enabling Objectives.

- Describe the course objectives.
- Explain the purpose of Position Task Books.
- Describe the Qualification Process for the Communications Unit Leader.
- Identify components of the Communications Unit Leader (COML) Response kit.
- Explain the Cybersecurity and Infrastructure Security Agency (CISA) Personal Information Announcement.
- Identify fundamental Communications Unit Leader tasks.

The Pretest and Final Exam are based on the Unit Enabling Objectives from Units 2 - 10.

Unit Overview

- Introductions
- Administrative Considerations
- Expectations
- Course Objective
- Course Design
- Position Task Books
- SWIC's Request for Google Mapping of COMLs
- COML tasks and the ICS Form 205




Visual 1.5


UNIT OVERVIEW

This visual provides a general overview of the topics to be covered in the unit.

Introductions



- Instructor and student introductions
- Incident response experiences
- Disaster experience
- Reasons for being a Communications Unit Leader



Visual 1.6

INTRODUCTIONS

The instructor gives an overview of their personal experience as a Communications Unit Leader and the agencies in which they have worked.

You will be asked to introduce yourself and provide an overview of your incident response experiences and ICS background as well as your reasons for wanting to be a Communications Unit Leader.

After the introductions, the instructor will distribute the Pretest.



Visual 1.7

Pretest



Visual 1.8

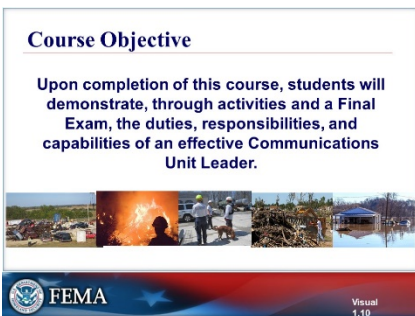
ADMINISTRATIVE CONCERNS



Visual 1.9

EXPECTATIONS

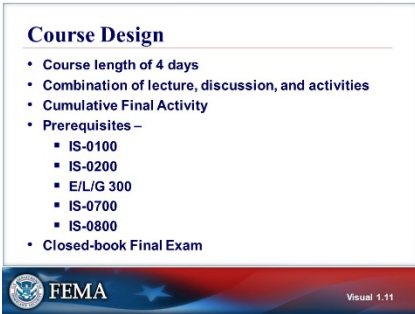
Share your expectations for the course.



Visual 1.10

COURSE OBJECTIVE

Upon completion of this course, students will demonstrate, through activities and a Final Exam, the duties, responsibilities, and capabilities of an effective Communications Unit Leader.



Visual 1.11

COURSE DESIGN

The course is scheduled to be 4 days in length.

Through a combination of lecture, discussion, and activities, students, upon course completion, will be provided the knowledge to meet the objectives of the course. Student interaction and participation will be integral to this process.

The course materials were developed as a position-specific course focusing on the duties and responsibilities of one member of an Incident Management Team (IMT) (in this course, Communications Unit Leader) in an all-hazards context.

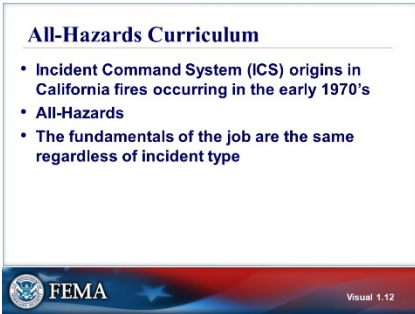
Prerequisites

- IS-0100 An Introduction to the Incident Command System, ICS 100
- IS-0200 Basic Incident Command System for Initial Response, ICS 200
- E/L/G 0300 Intermediate Incident Command System for Expanding Incidents, ICS 300
- IS-0700 An Introduction to the National Incident Management System (NIMS)
- IS-0800 National Response Framework (NRF)

Recommended –

- G 0191 Emergency Operations Center/ Incident Command System Interface (Emergency Management Institute)
- E/L/G 0400 Advanced Incident Command System for Complex Incidents, ICS 400

Closed-Book Final Exam - To receive a certificate of completion for the course, students must obtain a 75% or higher on the Final Exam. The Final Exam will be closed-book, one hour will be allotted for its completion, and the Final Exam's questions will be based on the Unit Enabling Objectives for Units 2 - 10. Unit 1 will not be tested in the Pretest nor the Final Exam.



Visual 1.12

ALL-HAZARDS CURRICULUM

NIMS ICS All-Hazards Position Specific training originated following the devastating fires in California in the early 1970's, and was reinforced following the terrorist attacks on the World Trade Center and the Pentagon on September 11, 2001, and the natural disasters of Hurricanes Katrina and Rita in 2005.

These incidents underscored the need for the nation's emergency managers and first responders to develop an improved posture for protection, prevention, mitigation, response, and recovery through an "all hazards" strategy. At the core of this realization is the need for standardized training in systems and performance competencies that enable emergency management and response resources to execute the essential tasks needed to overcome any challenge.

This curriculum was validated by a diverse cadre of course developers with COML backgrounds.

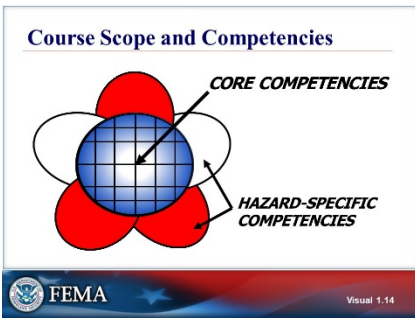
Given our personal incident experiences, each of us - instructors included - have a limited perspective (by no means All-Hazards).

A COML needs to fundamentally possess the same core knowledge, skills, and abilities whether they are responding to a fire, an oil spill, a mass-casualty incident, or any other incident. In other words, regardless of the hazard, discipline, or incident, the essential job of a COML is the same. Therefore, students should not be deterred if one "hazard" from the list is spoken to more than another. Students can still obtain critical insight to the position and should add examples from their own disciplines to the discourse.

DISCUSSION ACTIVITY



Visual 1.13



Visual 1.14

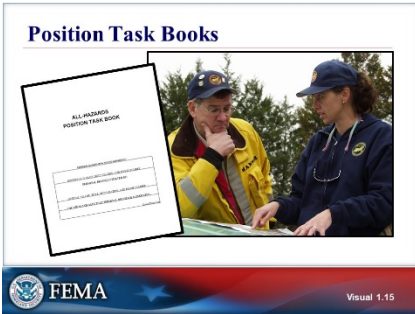
COURSE SCOPE/COMPETENCIES

Competency is a broad description that groups core behaviors necessary to perform a specific function. The Flower Diagram illustrates the concept that successful performance of the tasks, duties, activities in any position requires both core and incident-specific competencies.

Key Points:

- Core competencies are the competencies required of a COML regardless of discipline.
- Hazard-specific competencies are those required to perform in a particular discipline, such as law enforcement, fire, public health, HAZMAT, EMS, public works, etc.
- The center of the flower represents the core competencies of the position.
- The petals represent the hazard-specific competencies associated with specific disciplines.
- You cannot be competent as a COML with only the center of the flower or only the petals—"The flower needs to be complete" to ensure qualification.

This course will help to establish core competencies (center of the flower) for the COML position. The hazard-specific competencies will have to be developed through additional agency or discipline training, field training, and the completion of the COML Position Task Book, discussed on the next visual.



Visual 1.15

POSITION TASK BOOKS

PTBs are the primary tools for observing and evaluating the performance of trainees aspiring to a new position within ICS. PTBs allow documentation of a trainee's ability to perform each task, as prescribed by the position. Successful completion of all tasks is the basis for recommending certification.

The PTB is a checklist of tasks that trainees must demonstrate or perform successfully to become certified in the ICS position to which they aspire. A person qualified in that position must observe, evaluate, and sign-off on the trainee's PTB for the trainee to gain certification.

The "code" (see the "Code" column in the PTB) assigned to the task indicates in which of these six areas the task must be demonstrated or performed. Demonstration of proficiency can be performed:

- In training (Code C)
- During a full-scale exercise (Code E)
- During a functional exercise (Code F)
- During an incident or event (Code I)
- As part of day-to-day job duties (Code J)
- During a tabletop exercise (Code T)

PTBs are organized into a hierarchy of:

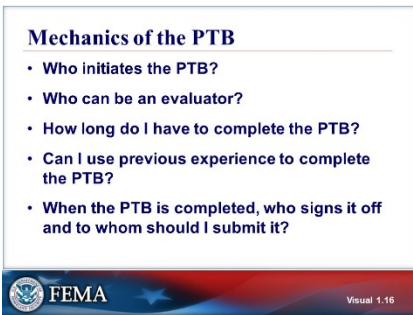
- Competencies—A broad description that groups core behaviors necessary to perform a specific function.
- Behaviors—A general description of an observable activity or action demonstrated by an individual in a particular context.
- Tasks—A specific description of a unit of work activity that is a logical and necessary action in the performance of a behavior; how the behavior is demonstrated or performed in a particular context.

Again, these are signed-off by qualified evaluators.

A given agency or department must individually adopt PTBs as its training standard. PTBs are an integral part of the "performance-based" system Federal agencies have adopted for emergency response training.

To earn a PTB, a trainee must first successfully complete the requisite training courses for that position.

Refer to the All-Hazards COML PTB.

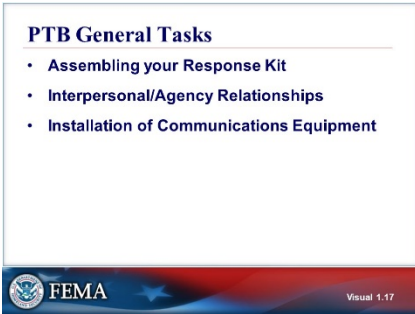


Visual 1.16

MECHANICS OF THE PTB

Evaluators are anyone in the Command structure who can verify that the work was completed satisfactorily. States may have other specific requirements.

Who is designated to sign off on PTBs is determined by State or local decisions.



Visual 1.17

PTB GENERAL TASKS

- Appropriate ICS forms and logs
- State Communications Interoperability Plan (SCIP)
 - This document is strategic, not tactical
 - It is worth reading so that the Communications Unit Leader has a good understanding of his/her surroundings and the systems in place
 - It is a Statewide strategic plan that aligns State, local, and tribal emergency responders to a single vision of future communications interoperability and provides Communications Unit Leaders with the statewide vision for interoperability
- Tactical Interoperable Communications Plans (TICP)
 - Communication assets and Standard Operating Procedures for their activation and use on a regional basis
 - TICPs are common to Urban Area Security Initiative (UASI) areas, but may also exist locally
- Disaster Management Interoperability Services (DMIS)
 - FEMA-shared, Web-based program for emergency managers that provides forms and information sharing for maintaining situational awareness.
- Inventories or other lists of local and regional communications response equipment
- Preplanned local system coverage maps
- Contact, capability, and availability information for local and regional Communications Technicians and Specialists

Assembling Your Response Kit

Obtain and assemble information and materials needed for a response kit prior to receiving an assignment, including critical items needed for the assignment and items needed for functioning during the first 72 hours.

Have the ability to self-sustain for at least 48 hours. Many carry two kits. One contains the COML-related items such as forms or radios. The other is for personal items such as food and a change of clothes.


The following items are suggested as basic information and materials kept in a response kit:

- Pads of paper, pencils, pens, and tape
- Food, beverages, and medications to be self-sustaining for 72 hours or more
 - MREs are commonly available and last for about 10 years however other dehydrated food options are available (but beware most have high sodium contents)
 - At least 2 gallons of water
- Portable radio(s) as appropriate for the region, Hand-held GPS
- Radio programming equipment (cloning cable or computer), adapters, and suitable tools, Gang chargers
- First-aid kit
- 24-hour clock
- Multi-purpose tool
- T-cards for equipment and T-card racks (unless this is part of IMT equipment)
- Access cards or keys to radio facilities and sites within the region

Pre-Planning Activities

FAMILY – Preparation is required for your family before you mobilize.

- Prepare family disaster plan so your family will be safe
- Home emergency supplies - water, food, first aid kit, flashlight, medications/prescriptions
- Evacuation – Routes and Locations
- Go Bag/Survival Kit - Ready on short notice
- POC (out of state) & phone number to notify & update status




Visual 1.18

Visual 1.18

Qualification Process for the COML

The qualification process is specific to each state and/or IMT.

- COML Course completion
- PTB completion
- Authority Having Jurisdiction (AHJ)




Visual 1.19

Visual 1.19

Steps to Qualification

- Prerequisites
- Completion of the course
- Start the Position Task Book (PTB)
- PTB Sign-off
- Agency certification of the PTB
- Submit the PTB to the Authority Having Jurisdiction



Visual 1.20

Visual 1.20

PRE-PLANNING ACTIVITIES

Pre-planning with your family is important. Make sure there are emergency supplies to include at least 3-5 days of food, flashlights with spare batteries, warm blankets and alternative forms of heat.

Every member of your family should have a Go Bag or Bug Out Bag, which contains essential supplies in the event of a need to evacuate the house in an emergency. It should include essential documents, or copies, such as birth certificates, wills and tax returns. It should also include essential medications.

Refer to www.ready.gov for additional guidance.

QUALIFICATION PROCESS FOR THE COML

Completion of the COML course is one step in the credentialing process.

Completion of tasks and assignments, documented in the Position Task Book (PTB), is the next step.

Once a PTB is completed, it is submitted to the Authority Having Jurisdiction (AHJ) of the applicant or to the Statewide Interoperability Coordinator (SWIC).

STEPS TO QUALIFICATION


In some states, the agency (such as an IMT) provides the credentialing and in others it is conducted by the state.

The course certificate of completion is your “learner’s permit.”

A Communications Unit Leader student has 3 years to complete the Position Task Book (PTB) and can use 3 years of previous experience.

CISA Personal Information Announcement

- Communication Assets Survey & Mapping (CASM) tool
 - Map student's home agency location
 - COML, COML T1T, COMT, COMT T1T, AUXCOMM, AUXCOMM T1T, ITSL, INCM, INTD, RADO Trainees: Student's name, organization, contact information
 - Access is controlled by state's CASM manager



Visual 1.21

CISA PERSONAL INFORMATION ANNOUNCEMENT


The Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) Personal Information Announcement

Communication Assets Survey and Mapping (CASM) tool: You are encouraged to visit <https://cas.m.dhs.gov> and request an account ("Request New Access" in the middle of the page).

The Statewide Interoperability Coordinators (SWICs) have expressed an interest in knowing where their trained communications experts are, tracking their status and knowing how to contact them. In support of that interest, CISA has developed the capability for the CASM tool to depict public safety and emergency management related agencies on a map at its street address. Students can then be mapped to their agency.

CISA Personal Information Announcement (Cont.)

- CASM
 - System requires two factor authentication
 - State's CASM manager controls sharing with other states
 - Students' name and agency are entered into CASM, students choose whether or not to have their contact information entered



Visual 1.22

CISA PERSONAL INFORMATION ANNOUNCEMENT (CONT.)


CASM requires two factor authorization for access. The state's CASM manager controls sharing access with other states.

For courses not taught or supported by CISA, the state's CASM manager has the option to enter this course and the students into CASM.

For CISA taught/supported courses, at a minimum, students' name and agency affiliation will be entered into CASM. You may choose to not have your contact information (address, e-mail address and phone number(s)) entered into CASM. If you authorize the information on the sign-in sheet to be entered into CASM, initial the "Yes" block. If you want your contact information omitted and only your name and agency entered, initial the "No" block.

What does a COML do?

- Plans and manages the technical and operational aspects of the communications function during an incident or event
- Prepares ICS Form 205 Incident Radio Communications Plan
- Establishes Incident Communications Center (ICC)
- Orders and manages personnel, equipment
- Establishes needed capabilities
- Participates in incident action planning



Visual 1.23

WHAT DOES A COML DO?

The Communications Unit Leader is responsible for fundamental tasks that include creating a communications plan, identifying and ordering the resources needed to implement the plan, setting-up and managing a center for communications, properly documenting all unit activities, and collaborating with the IMT for incident planning.


ICS Form 205 Example

INCIDENT RADIO COMMUNICATIONS PLAN (ICS205)

1. Incident Name COML COURSE		2. Date/Time/Location Date: 09/09/2017 Time: 07:00		3. Operational Period Start Time: 08:00:00 End Time: 09:00:00		
4. Basic Radio Channel Data	5. Assignment	6. IC Frequency	7. IC Frequency	8. IC Frequency	9. Remarks	
Channel ID	Function	Radio-Channel Radio System Name	IC Freq. (MHz)	IC Freq. (MHz)	IC Freq. (MHz)	
1	COMMAND	COM-SICS	COM-SICS	151.5000 N	151.5000 N	UNIFIED-COMMAND
2	TACTICAL	VTW231	OPERATIONS	151.5175 N	151.5175 N	Priority - May need extra equipment
3	TACTICAL	VTW231	PRE	151.4125 N	151.4125 N	Use for additional tactical channels for special operations
4	TACTICAL	VTW231	OP	151.4125 N	151.4125 N	Use for additional tactical channels for special operations
5	OP	OP TO UNIFIED	OP TO UNIFIED	151.0000 N	151.0000 N	For support ICS operations
6	TACTICAL	VTW231	OP	151.7125 N	151.7125 N	Additional operational channel for support plan

10. Special Instructions
Contact the Incident Communications Center (ICC) for additional tactical channels and communication support needs. COML will coordinate with the COMC for additional channels as needed. Advise the ICC of any communication issues.

11. Prepared by: Communications Unit Leader: Name: J. Madden, COML. Signature: J. Madden
ICS 205 Form Page: 1 of 1 Date/Time: 09/09/2017 07:00




Visual 1.24


ICS FORM 205 EXAMPLE

One of the primary responsibilities of a Communications Unit Leader is drafting the ICS Form 205 and submitting it for review and approval.

Pre-planning in the area that the IMT may operate includes completing an ICS Form 217A, and if done correctly, copy & paste can be used to complete the ICS Form 205, this is especially true in the case of the interoperability frequencies.



Handout 1-2: ICS Form 211 Check-in List
Handout 1-3: ICS Form 214 Activity Log
Handout 1-4: Sample Completed ICS Form 214 Activity Log



Visual 1.25

HANDOUT 1-2

The ICS Form 211 Check-in List is used when you check in upon arrival at a deployment site. Sign in when the form is passed around the classroom.

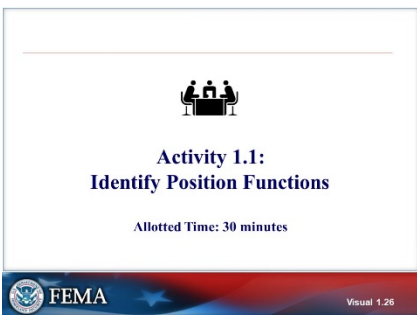
HANDOUT 1-3

The ICS Form 214 should document important factors, decisions, and elements such as the “three A’s” – Actions, Agreements, and Accidents:

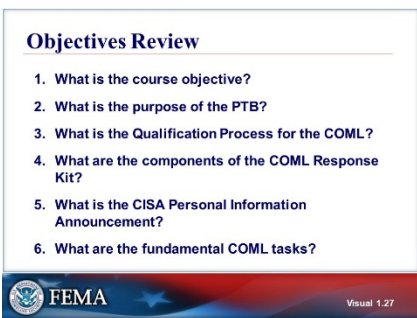
- **Actions** taken during the operational period
- **Agreements** made with Supervisors or others
- **Accidents** that occurred at the incident site

HANDOUT 1-4

Handout 1-4 is a sample completed ICS Form 214.



Visual 1.26



Visual 1.27

ACTIVITY 1.1: IDENTIFY POSITION FUNCTIONS

The instructor will explain Activity 1.1.

You will have 15-30 minutes to complete the activity.

OBJECTIVES REVIEW

- Describe the course objectives.
- Explain the purpose of Position Task Books.
- Describe the Qualification Process for the Communications Unit Leader.
- Identify components of the Communications Unit Leader (COML) Response Kit.
- Explain the CISA Personal Information Announcement.
- Identify fundamental Communications Unit Leader tasks.

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Supplemental Materials

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Activity 1.1: Identify Position Functions

Activity 1.1 Overview—Unit 1

Purpose

This activity will familiarize students with a position's functions as defined in a position task book (PTB).

Objectives

Students will:

- Identify functions performed as part of their job that match the responsibilities of the IMT position.
- Be able to identify basic requirements of the IMT position as identified in the Position Task Book.

Activity Structure

This activity is scheduled to last approximately 30 minutes, including small group discussion and presentation of group findings. Students will review the Position Task Book (PTB) associated with this course and identify their current job responsibilities that are like those identified in the PTB. This analysis should stay at the Competencies level. Each group will present their findings to the rest of the group.

References

FEMA's National Qualification System (NQS) PTBs identify the competencies, behaviors, and tasks that personnel should demonstrate to become qualified for a defined incident position. A copy of the NQS PTB for the position in this course is included as a separate PDF file in the course materials. NQS PTBs can also be downloaded from <https://www.fema.gov/national-qualification-system>. NQS is not the only PTB in common use and other PTBs may be used for this activity. The All-Hazards Incident Management Team Association (AHIMTA) has developed All-Hazards IMT PTBs which are available at <https://www.ahimta.org/ptb>. The National Wildfire Coordination Group (NWCG) has developed wildland firefighting PTBs which are available at <https://www.nwcg.gov/publications/position-taskbooks>.

Rules, Roles, and Responsibilities

Following are the specific activities / instructions for your participation in the activity:

1. Within your work group, select a group spokesperson.
2. Review the PTB. Looking at the Competencies (do not delve into Behaviors or Tasks), identify functions and duties that you perform during your regular job and that are listed in the PTB.
3. Write the common functions/duties/responsibilities on easel pad paper.
4. Present your list to the rest of the class.

Activity 1.1 Schedule

Activity	Duration	Participation Type
Activity Introduction and Overview	2 minutes	Classroom
Discussion / Documentation	15 minutes	Small Groups
Debrief / Review	15 minutes	Classroom

Handouts for Unit 1

Refer to EL_969_HO_1-1_Example_Response_Kit.pdf

Refer to EL_969_HO_1-2_ICCS_Form_211.pdf

Refer to EL_969_HO_1-3_ICCS_Form_214.pdf

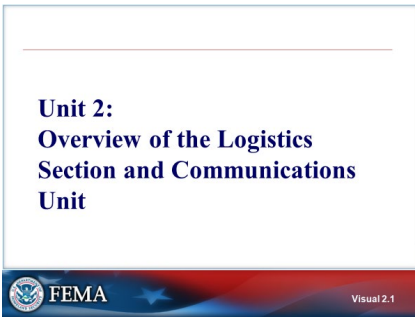
Refer to EL_969_HO_1-4_Sample_ICCS_Form_214.pdf

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Unit 2: Overview of the Logistics Section and Communications Unit

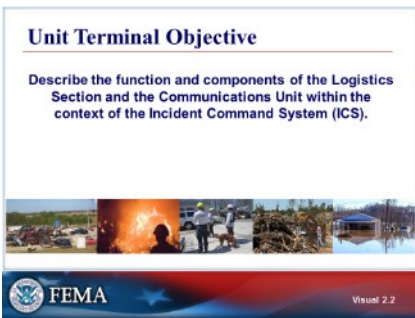
STUDENT MANUAL

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Visual 2.1

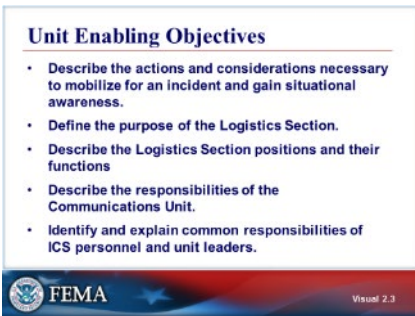
UNIT 2: OVERVIEW OF THE LOGISTICS SECTION AND COMMUNICATIONS UNIT



Visual 2.2

UNIT TERMINAL OBJECTIVE

Describe the function and components of the Logistics Section and the Communications Unit within the context of the Incident Command System (ICS).




Visual 2.3

UNIT ENABLING OBJECTIVES

- Describe the actions and considerations necessary to mobilize for an incident and gain situational awareness.
- Define the purpose of the Logistics Section.
- Describe the Logistics Section positions and their functions.
- Describe the responsibilities of the Communications Unit.
- Identify and explain common responsibilities of ICS personnel and unit leaders.

Unit Enabling Objectives (Cont.)

- Identify responsibilities of the Communications Unit Leader.
- Identify Communications Unit Leader incident information sources.
- Identify and describe necessary actions to ensure readiness for assignment.
- Describe the information gathered from the initial meetings, briefings, and documents.

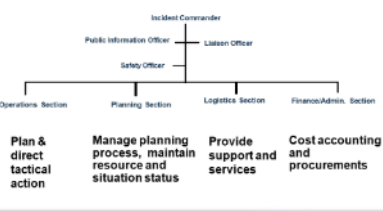


Visual 2.4

UNIT ENABLING OBJECTIVES (CONT.)

- Identify responsibilities of the Communications Unit Leader.
- Identify Communications Unit Leader incident information sources.
- Identify and describe necessary actions to ensure readiness for assignment.
- Describe the information gathered from the initial meetings, briefings, and documents.

Functional Responsibilities




Operations Section: Plan & direct tactical action

Planning Section: Manage planning process, maintain resource and situation status

Logistics Section: Provide support and services

Finance/Admin. Section: Cost accounting and procurements



Visual 2.5

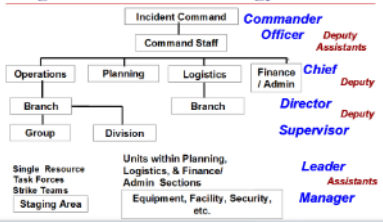
FUNCTIONAL RESPONSIBILITIES

ICS is a system for organizing and managing the response to an incident that has 30+ years of proven success.

Federal doctrine and requirements:

- Homeland Security Presidential Directive Five (HSPD-5) and Eight (HSPD-8)
- National Planning Frameworks
 - National Response Framework (NRF)
- National Incident Management System (NIMS)

Organizational Terminology: Titles



Incident Command: **Commander**

Command Staff: **Officer**, **Deputy Assistants**

Operations: **Branch**, **Group**

Planning: **Division**

Logistics: **Branch**

Finance / Admin: **Chief**, **Deputy**


Director, **Deputy**

Supervisor

Single Resource, Task Forces, Strike Teams, Staging Area

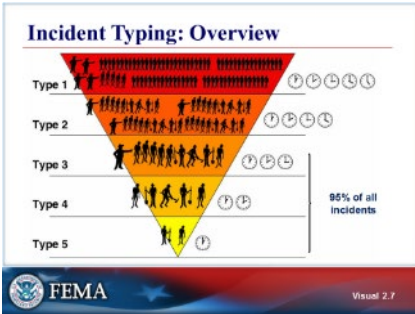
Units within Planning, Logistics, & Finance Admin Sections: **Leader**, **Assistants**, **Manager**

Equipment, Facility, Security, etc.



Visual 2.6

ORGANIZATIONAL TERMINOLOGY: TITLES



Visual 2.7

INCIDENT TYPING: OVERVIEW

Incidents are categorized by five types based on complexity. Type 5 incidents are the least complex and Type 1 the most complex. Incident typing is used to order Incident Management Teams (IMTs) and other resources.

In the visual, the clocks are indicative of operational periods associated with the various types of incidents. The number and types of figures are indicative of the incident complexity and size of response.

Type 5 - One or two single resources with up to six personnel. Command and General Staff positions (other than the Incident Commander) are not activated. Incident is contained within the first operational period and often within a few hours after resources arrive on scene.

Type 4 - Command Staff and General Staff functions are activated only if needed. Resources vary from a single module to several single resources (e.g., Task Force or Strike Team/Resource Team). Limited to one operational period in the control phase. No written Incident Action Plan (IAP) is required for non-HazMat incidents. A documented operational briefing is completed.

Type 3 - Some or all of the Command and General Staff positions may be activated, as well as Division or Group Supervisor and/or Unit Leader level positions. The incident may extend into multiple operational periods and a written IAP may be required for each operational period.

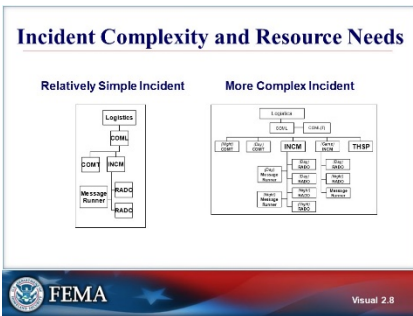
Type 2 - Regional and/or national resources are required to safely/effectively manage the operations. Many Command and General Staff positions are filled. Operations personnel typically do not exceed 200 per operational period and the total does not exceed 500. The incident is expected to go into multiple operational periods. A written IAP is required for each operational period.

Type 1 - National resources are required to safely and effectively manage the operations. Activates the National Response Framework (including Stafford Act major

disasters or emergencies and other catastrophic incidents).

All Command and General Staff positions are activated. The incident is expected to go into multiple operational periods. A written IAP is required for each operational period.

Type 1 Incidents also include incidents in which more than one Federal department or agency is involved, such as credible terrorist threats and potential threats related to high-profile, large-scale planned events. Requests for Department of Homeland Security (DHS) assistance from a Federal department or agency responding under its own authorities. Presidential direction for DHS to assume responsibility for incident management.



Visual 2.8

INCIDENT COMPLEXITY AND RESOURCE NEEDS

If a position is not filled, then it is the responsibility of the COML to ensure that those functions/responsibilities are carried out.

- COMT – Communications Technician
- INCM – Incident Communications Center Manager
- RADO – Radio Operator
- THSP – Technical Specialist



Visual 2.9

UNIFIED COMMAND

Unified Command is a team effort that allows all agencies with jurisdictional responsibilities for an incident, either geographical or functional, to participate in the management of the incident.

This participation is demonstrated by developing and implementing a common set of incident objectives and strategies that all can subscribe to without losing or abdicating agency authority, responsibility, or accountability.

Those organizations that participate in Unified Command should have statutory responsibility for some portion of the incident or event. Assisting or cooperating agencies with no statutory responsibility that nonetheless contribute resources to the incident should not function at the Unified Command level.

This structure is usually implemented when multiple agencies are primary on an incident.

Features of a Unified Command Organization

Unified Command is implemented to make sure all stakeholders are involved and have only one Incident Command Post. Single point ordering and Incident Action Plan relieves confusion and problems associated with over or under ordering resources.

“Co-located facilities” means SAME facilities; it does NOT mean police and fire trailers parked next to each other.

Unified Command Inclusion

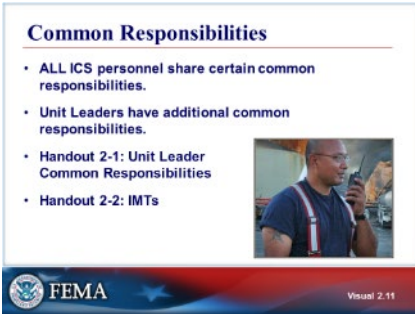
An individual’s inclusion in a Unified Command depends on BOTH the responsibility of that agency, AND whether that particular member has the authority to speak for and commit the agency to a course of action. An individual may be from the right agency, but be the wrong individual.



Visual 2.10

CLEAR SEPARATION OF POSITIONS

ICS fundamentals do not allow the Operations Section Chief and the Logistics Section Chief positions to be combined.



Visual 2.11

COMMON RESPONSIBILITIES

Refer to Handout 2-1: Unit Leader Common Responsibilities and Handout 2-2: Incident Management Team found at the end of Unit 2 in this Student Manual.

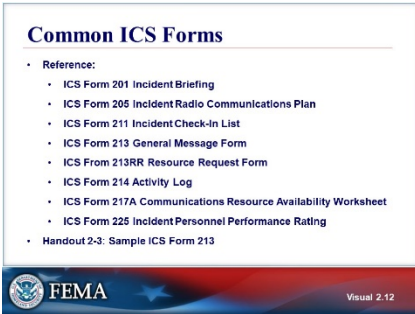
While the Communications Unit Leader has responsibilities specific to his/her unit, all ICS personnel also share a common set of responsibilities. Handouts 2-1 and 2-2 provide an introduction to serving on an incident management team, which includes a description of basic responsibilities such as:

- Receiving an assignment from your agency
- Checking-in upon arrival at the incident
- Receiving briefings from an immediate supervisor
- Acquiring work materials
- Conducting all tasks in a manner that ensures the safety and welfare of you and your co-workers
- Organizing and briefing supervisors
- Knowing the assigned frequencies and ensuring communications equipment is operating properly
- Using clear text and ICS terminology (no codes) in all radio communications
- Completing forms and reports required of the assigned positions and sending them through your supervisor to the Documentation Unit
- Responding to demobilization orders and briefing subordinates regarding demobilization

In addition, unit leaders have an additional, specific set of common responsibilities, which are detailed in Handout 2-1. These include:

- Participating in incident planning meetings as required
- Determining current status of unit activities
- Confirming dispatch and estimated time of arrival of staff and supplies
- Assigning specific duties to fill and supervise staff

- Developing and implementing accountability, safety, and security measures for personnel and resources
- Supervising demobilization of unit, including storage of supplies;
- Providing the Supply Unit Leader with a list of supplies to be replenished
- Maintain unit records, including an ICS Form 214 Activity Log



Visual 2.12

COMMON ICS FORMS

While there are ICS Forms that are common to all ICS personnel and unit leaders, there are forms that are specific to the responsibilities of the Communications Unit Leader.

Refer to the URL:

<https://training.fema.gov/icsresource/icsforms.aspx>.

Communications Unit Leader ICS Forms

ICS Form 205: The Incident Radio Communications Plan provides in one location information on all radio frequency assignments for each operational period. The plan is a summary of information obtained from the Form 217A.

Information from the ICS Form 205 on frequency assignments is normally placed on the appropriate ICS Form 204 Assignment List.

ICS Form 217A: The Communications Resource Availability Worksheet is used by the Communications Unit Leader to assist in determining frequency allocations.

Universal ICS Forms

ICS Form 201: Provides basic information regarding the incident situation and the resources allocated to the incident. It also serves as a permanent record of the initial response to the incident.

ICS Form 211: Personnel and equipment arriving at the incident can check in at various incident locations. Check-in consists of reporting specific information which is recorded on the Check-In List.

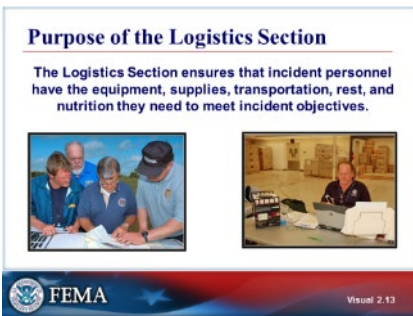
ICS Form 213: The General Message Form is used to record incoming messages which cannot be orally transmitted; to transmit messages to the Incident Communications Center (ICC) for transmission via radio or telephone and for sending any message or notification to incident personnel which requires hard-copy delivery.

Refer to Handout 2-3: Sample ICS Form 213.

ICS Form 213RR: Resource Request Form is used in many jurisdictions in either a hard copy and/or electronic format (including WebEOC). (Note this is not a form included in the NIMS ICS Forms Booklet, but it is downloadable as an individual form from <https://training.fema.gov/icsresource/icsforms.aspx>.)

ICS Form 214: The Activity Log is used to record details of unit activity including strike team activity. The file of these logs provides a basic reference from which to extract information for inclusion in any after-action report. Important actions, accidents, agreements, or disagreements should be documented in this form.

ICS Form 225: The Incident Personnel Performance Rating Form provides agency management with a record of the performance of personnel assigned to ICS positions as evaluated by immediate supervision.



Visual 2.13

PURPOSE OF THE LOGISTICS SECTION

The overall purpose and mission of the Logistics Section is to ensure incident personnel have the equipment, supplies, transportation, rest, and nutrition they need to meet incident objectives.

The vision of the Logistics Section is to function as a well-honed team that supports personnel to meet incident objectives in a safe, efficient manner.

The goal of the Logistics Section is to be transparent to the rest of the IMT.



Visual 2.14

MAJOR RESPONSIBILITIES: LOGISTICS SECTION CHIEF

The Logistics Section may establish Service and Support Branches to manage the six Logistics Section Units in order to reduce span of control.

Facilities Unit

- Provides incident personnel with incident facilities
- Determines requirements for facilities
- Secures facilities and provides layouts
- Supervises security manager and incident base/camp manager

Ground Support

- Provides and maintains transportation for personnel, supplies, equipment, and food
- Inspects vehicles brought in by mutual aid to ensure safety requirements are met
- Develops and implements the Traffic Plan
- Arranges and supports fueling, repair, and maintenance of ground resources
- Maintains records and inventory of support and transportation vehicles
- Maintains incident roads (in wildland fire situations where the roads have to be cut)

Medical Unit

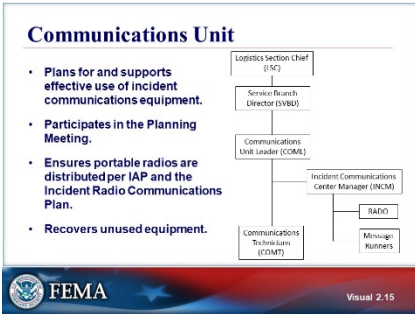
- Responsible for preparing the Medical Plan, obtaining medical aid and transportation, and preparing medical documentation (**for incident personnel**)
- Participates in the Planning Meeting
- Responds to requests for medical aid from incident personnel (not part of the operational response)
- Ensures rehabilitation of incident personnel

Food Unit

- Responsible for ensuring all incident personnel are adequately fed and hydrated
- Supervises assigned personnel/contracts
- Determines food and water requirements
- Determines best method of feeding
- Orders food and water
- Ensures health and safety measures

Supply Unit

- Supports responders with supplies, equipment, and personnel necessary to accomplish the incident objectives
- Participates in logistics planning meetings
- Orders, receives, distributes, and stores supplies and equipment
- Maintains inventory
- Orders or returns supplies
- Services reusable equipment



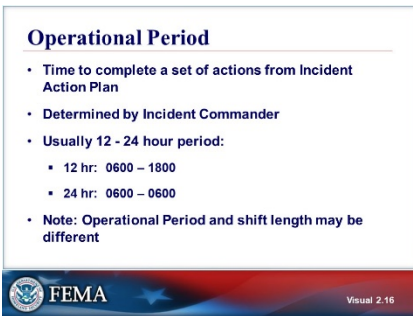
Visual 2.15

COMMUNICATIONS UNIT

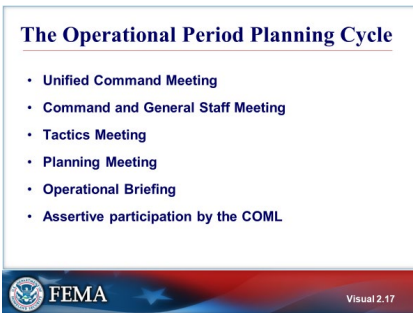
The purpose of the Communications Unit is to plan for and support the effective use of incident communications equipment and facilities. All forms of communication (e.g. faxes, phones, cells, radio) are the responsibility of the Communications Unit.

Functions of the Communication Unit include:

- Installing, distributing, testing, and repairing all communications equipment used during the incident
- Obtaining and disseminating:
 - Equipment assignments
 - Frequency assignments
 - Status of orders
 - Adjacent incident information
 - Equipment availability
- Prepares and implements the ICS Form 205 Incident Radio Communications Plan
- Establishes appropriate communications with distribution/maintenance locations
- Establishes appropriate communications with radio system managers
- Establishes communications with local AUXCOMM leadership as needed
- Ensures communications systems are installed and tested
- Ensures an equipment accountability system is established
- Ensures that personal portable radio equipment from the cache is distributed per the ICS Form 205
- Provides technical information as required on:
 - Adequacy of communications systems currently in operation
 - Geographic limitations on communications systems
 - Equipment capabilities/limitations



Visual 2.16



Visual 2.17

- Amount and types of equipment available
- Anticipated problems in the use of communications equipment
- Recovers equipment from units being demobilized
- Maintains ICS Form 214 Activity Log

Often it is helpful for the Communications Unit Leader to attend the pre-planning meeting, to learn about upcoming needs and resource limitations.

OPERATIONAL PERIOD

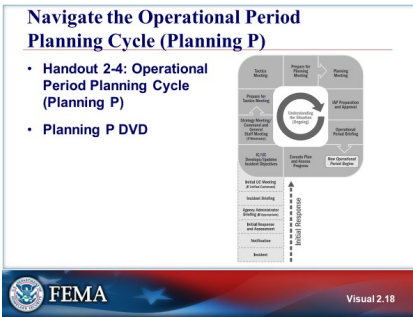
The operational period can be any length as needed by the incident.

THE OPERATIONAL PERIOD PLANNING CYCLE

The Planning meeting is critical for the Communications Unit Leader to attend, even though it is intended for Command and General Staff. The Communications Unit Leader is often missed from the list and he/she should make it a priority to attend.

The Communications Unit Leader needs to be actively interfacing with all other Unit positions and the Command and General Staff.

If your ability to actively interface is inhibited, it is your responsibility to stay informed. Communicating with the Logistics Section Chief and ensuring you have copies of the IAP will help you maintain situational awareness as well.



Visual 2.18

NAVIGATE THE PLANNING P

The Planning Cycle requires completing five major items:

- Tactics Meeting
- Planning Meeting
- Incident Action Plan
- Operational Briefing
- ICS Form 209 Incident Status Summary

Handouts:

- Handout 2-4: Operational Period Planning Cycle (Planning P)
- Video: Planning P Chapters 2-6.

The Communications Unit Leader may or may not participate in the Planning Meetings, depending on the incident and the specifics of the situation.


If the Logistics Section Chief asks, the Communications Unit Leader may participate in the Planning Meeting to give a briefing on specific communications issues and concerns. The Communications Unit Leader's role in Planning is on an as needed basis, to be determined by the Logistics Section Chief.

Obtain Incident Information

- Face-to-face with command and general staff
- ICS Form 201 Incident Briefing Form
- From the Incident Action Plan

Briefing Checklist Includes:

- Situation
- Communications
- Risk Management
- Mission/execution
- Service/support
- Additional information



FEMA Visual 2.19

Visual 2.19

OBTAIN INCIDENT INFORMATION

For the Logistics Section Chief Briefing's purposes, "situation" refers to the current and the expected situation.

The Logistics Section Chief must provide:

- A broad overview of what is happening on the incident and its significance
- The appropriate documentation to the Communications Unit Leader, including the ICS Form 201, the IAP, and any additional information deemed relevant
- The overall goal/mission of the incident response team as well as the method, means, and schedule the team plans to employ

Communications is an important aspect of the briefing for the Logistics Section Chief, conveying what frequencies have already been allocated, and what equipment has already been deployed, as well as projections for future communications needs.

Service and support refers to the location of facilities, as well as an explanation of the ordering process and other support functions. Risk management is essentially a safety brief, informing the Communications Unit Leader of any particular dangers presented at the incident location and how to mitigate them appropriately.

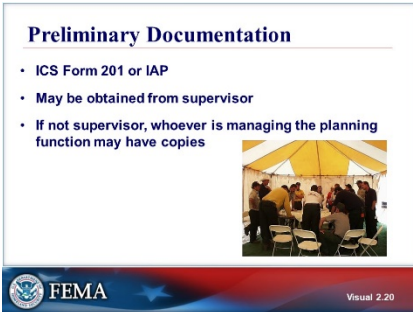
The Logistics Section Chief may not be available during the beginning of the incident. It is even more important to consider how information is exchanged so the Communications Unit Leader can find it elsewhere.

The Communications Unit Leader's job in this situation is to gather information, hopefully from the Logistics Section Chief's briefing, but if not, by asking as many questions as possible.

As a Communications Unit Leader, you may be on the scene prior to an IAP being set up. Planning may not have occurred yet, or an IAP may not be available.

Logistics Section Chief Briefing Information

- Situation-current and expected
 - Operational plan (branches, groups, divisions, air operations)
 - Expected duration of assignment/incident
 - Other agencies involved
 - Operational/logistical resources ordered and/or en route
 - ICS Form 201, ICS Form 209, or IAP if available
- Mission/Execution
 - Transition (incident transfer of command)
 - Length of operational period
 - Policies and operating procedures
 - Meeting schedules
 - Incident Scene Access
- Communications
 - Special needs (e.g., security)
 - Current frequencies and radio systems in use
 - Issues with local communications systems



Visual 2.20

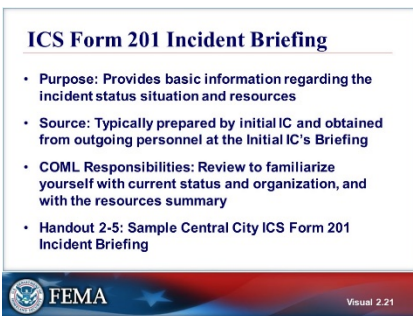
PRELIMINARY DOCUMENTATION

The ICS Form 201 Incident Briefing and the IAP can be used by the Communications Unit Leader to glean information in addition to or in place of the Logistics Section Chief Briefing. As we'll discuss later in the course, the Communications Unit Leader also contributes to and is responsible for the ICS Form 205 Incident Radio Communications Plan, which is part of the IAP.

In the case of the IAP, the Communications Unit Leader might need to go to the Planning Section and request a copy.

In the case of an ICS Form 201, the Communications Unit Leader might need to go to either the Planning Section, or potentially find a copy at the ICP.

Upon arrival at the incident location, procuring information should be a top priority.



Visual 2.21

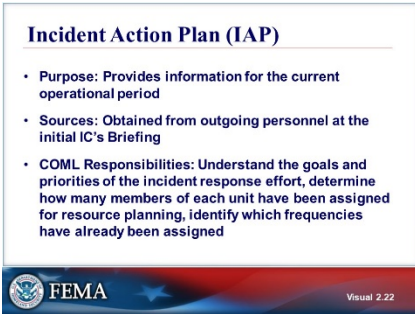
ICS FORM 201 INCIDENT BRIEFING

The ICS Form 201 Incident Briefing Form is used when the incident transitions from Initial Action to an IMT. It provides basic information regarding the incident status situation and resources allocated to the incident. ICS Form 201 is a four-part form.

Communications Unit Leader Responsibilities

- Obtain incident information from the IAP, ICS Form 201 Incident Briefing, or Command and General Staff interviews
- Obtain current frequencies or talkgroups in use
- Obtain the current and anticipated resources
- Discuss current and anticipated issues
- Obtain expected duration of the incident

Refer to Handout 2-5: Sample Central City ICS Form 201 Incident Briefing.



Visual 2.22

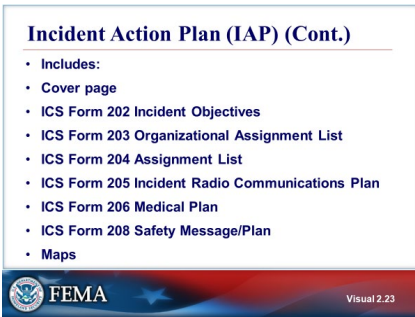
INCIDENT ACTION PLAN (IAP)

The current IAP provides information for the current operational period. It should be available if transitioning from another team.

- Generally an IAP covers one operational period – commonly 12 hours
- May be only one IAP per incident
- An IAP is unnecessary if the ICS Form 201 meets incident needs
- IAP cover pages may be color-coded for different operational periods

It can be obtained from outgoing personnel at the initial IC's Briefing.

Preparation is typically delegated to the Planning Section Chief; however, plan components are the responsibility of individual units.



Visual 2.23

INCIDENT ACTION PLAN (IAP) (CONT.)

There are several pieces of information that the Communications Unit Leader can obtain from the IAP including:

- The IAP cover page includes incident name, date and time of the operational period, and sometimes will include the incident number
- The ICS Form 202 Incident Objectives sheet will familiarize the Communications Unit Leader with the specific goals of the incident response and their respective priorities
- The ICS Form 203 Organization Assignment List will let the Communications Unit Leader know how many members of what units have thus far been assigned, so that the Communications Unit Leader may anticipate their communication equipment needs
- The ICS Form 204 Assignment List will alert the Communications Unit Leader to the frequencies already assigned to specific units so that the Incident Communications Plan can be constructed around them
 - The ICS Form 204 contains frequency and channel use data
 - Ensure that this data matches the information in the ICS Form 205 prior to the IAP's approval and publication
 - This needs to occur ahead of the IAP being published
- The ICS Form 205 Incident Radio Communications Plan is the responsibility of the Communications Unit Leader and provides the major operational and command frequencies for the incident
 - The production of the ICS Form 205 is a critical element of the Communications Unit Leader's position responsibilities; accuracy and clarity are essential
- The ICS Form 206 Medical Plan contains information such as telephone numbers and frequencies that, if not already assigned, the Communications Unit Leader must have input on

- The Medical Plan is a critical document for the Communications Unit
 - All Unit personnel must be briefed on the ICS Form 206 Medical Plan
 - The Communications Unit is always involved in facilitating effective communications during medical emergencies within an incident
 - The ICS Form 206 may also contain frequency data such as MED Channels for hospital coordination
- The ICS Form 220 Air Operations Summary Worksheet contains the local air frequencies, some of which the Communications Unit Leader must assign, and some of which are assigned by the Federal Aviation Administration (FAA) and cannot be altered
 - Ensure all personnel are briefed on the ICS Form 208 Safety Message/Plan
 - Remember that the COMLs are often deployed in areas that contain unusual risks
 - The IAP documents will also contain important details such as IMT and Ops Section organizational charts, the safety message, and information on the ICP such as traffic patterns and general layout

Communications Unit Leader responsibilities:

- Be familiar with the specific goals of the incident response and their respective priorities - ICS Form 201 Incident Briefing
- Determine how many members of what units have thus far been assigned to anticipate equipment needs - ICS Form 203 Organization Assignment List
- Identify the frequencies already assigned to specific units so that the Incident Communications Plan can be constructed around them – ICS Form 204 Assignment List
- Review and maintain the ICS Form 205 Incident Radio Communications Plan which provides the major operational and command frequencies for the incident
- Review the ICS Form 206 Medical Plan, which contains information such as telephone numbers and

frequencies that, if not already assigned, the Communications Unit Leader must have input on

- Review the ICS Form 220 Air Operations Summary Worksheet, which contains the local air frequencies, some of which the Communications Unit Leader must assign, and some of which are assigned by the FAA and cannot be altered
- Review other documents, such as the IMT and Ops Section organizational charts, the safety message and information on the ICP such as traffic patterns and general layout

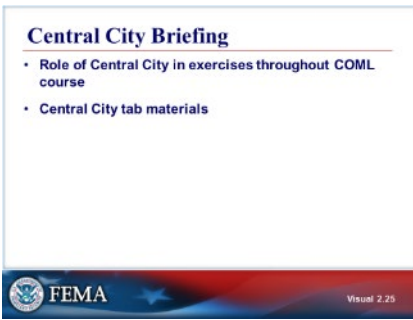


Visual 2.24

INTRA-IMT COORDINATION

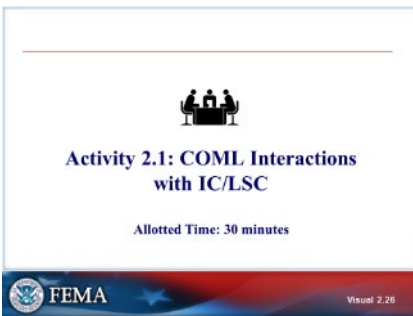
The Communications Unit Leader must coordinate with:

- Incident Commander (IC) – If the incident does not have a Logistics Section Chief, the Communications Unit Leader will work primarily with the Incident Commander to coordinate placement of equipment and facilities
- Operations Section Chief (OSC) – The Operations Section Chief provides numbers and types of work assignments involved with operations
- Planning Section Chief (PSC) – The Planning Section Chief provides an IAP development and meeting schedule to the Communications Unit Leader
- Safety Officer (SOFR) – The primary coordination with the Safety Officer involves ensuring that communications are safely and fully provided, given the limitations of hardware and software
- Finance/Administration Section Chief (FSC) – The Finance Section Chief identifies any spending limitations that may affect the acquisition of communication resources
- Facilities Unit Leader (FACL) – The Facilities Unit Leader provides workspace for the communication unit
- Supply Unit Leader (SPUL) – The Supply Unit Leader orders and receives the communications equipment and personnel for the incident



Visual 2.25

CENTRAL CITY BRIEFING

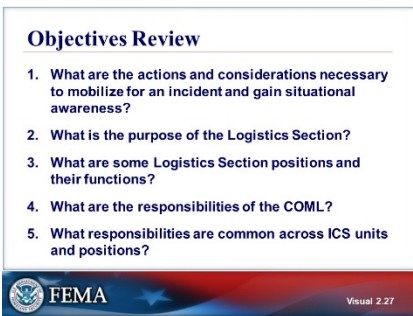


Visual 2.26

ACTIVITY 2.1: COML INTERACTIONS WITH IC/LSC

The instructor will explain Activity 2.1.

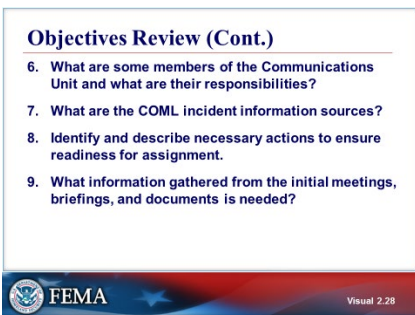
You will have 30 minutes to complete the activity.



Visual 2.27

OBJECTIVES REVIEW

- Describe the actions and considerations necessary to mobilize for an incident and gain situational awareness.
- Define the purpose of the Logistics Section.
- Describe the Logistics Section positions and their functions.
- Describe the responsibilities of the Communications Unit.
- Identify and explain common responsibilities of ICS personnel and unit leaders.



Visual 2.28

OBJECTIVES REVIEW (CONT.)

- Identify responsibilities of the Communications Unit Leader (COML).
- Identify Communications Unit Leader (COML) incident information sources.
- Identify and describe necessary actions to ensure readiness for assignment.
- Describe the information gathered from the initial meetings, briefings, and documents.

Supplemental Materials

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Handout 2-1: Unit Leader Common Responsibilities

The following checklist should be considered as the minimum requirements for this position. Note that some of the tasks are one-time actions; others are ongoing or repetitive for the duration of the incident.

	<u>Task</u>
	1. Obtain briefing from the Logistics Section Chief or Service Branch Director.
	2. Organize and staff Unit as appropriate: <ul style="list-style-type: none"> ▪ Assign Communications Center Manager and Lead Incident Dispatcher. ▪ Assign Message Center Manager and ensure adequate staff is assigned to answer phones and attend fax machines.
	3. Assess communications systems/frequencies in use; advise on communications capabilities/limitations.
	4. Develop and implement effective communications procedures (flow) internal and external to the incident/Incident Command Post.
	5. Assess Incident Command Post phone load and request additional lines as needed.
	6. Prepare and implement ICS Form 205 Incident Communications Plan: <ul style="list-style-type: none"> ▪ Obtain current organizational chart. ▪ Determine most hazardous tactical activity; ensure adequate communications. ▪ Make communications assignments to all other Operations elements, including volunteer, contract, or mutual aid. ▪ Determine Command communications needs. ▪ Determine support communications needs. ▪ Establish and post any specific procedures for use of Incident Command Post communications equipment.
	7. Include cellular phones and pagers in ICS Form 205 Incident Communications Plan, if appropriate: <ul style="list-style-type: none"> ▪ Determine specific organizational elements to be assigned telephones. ▪ Identify all facilities/locations with which communications must be established (shelters, press area, liaison area, agency facilities, other governmental entities' Emergency Operations Centers (EOCs), etc.), identify and document phone numbers.

- Determine which phones/numbers should be used by what personnel and for what purpose. Assign specific telephone numbers for **incoming** calls, and report these numbers to staff and off-site parties such as other local jurisdictions, State and Federal agencies.
- **Do not publicize OUTGOING call lines.**

8. Activate, serve as contact point, and supervise the integration of volunteer radio organizations into the communications system.

9. Ensure radio and telephone logs are available and being used.

10. Determine need and research availability of additional nets and systems:

- Order through Supply Unit after approval by Section Chief.
- Federal systems:
 - Additional radios and other communications devices, including repeaters, radio-telephone interconnects and satellite down-link capabilities may be available through FEMA or the USDA Forest Service.

11. Document malfunctioning communications equipment, facilitate repair.

12. Establish and maintain communications equipment accountability system.

13. Provide technical information, as required, on:

- Adequacy of communications system currently in use.
- Geographic limitation on communications equipment.
- Equipment capabilities.
- Amount and types of equipment available.
- Anticipated problems in the use of communications equipment.

14. Estimate Unit needs for expected operations; order relief personnel.

15. Provide briefing to relief on current activities and unusual situations.

16. Document all activity on ICS Form 214 Activity Log.

Handout 2-2: Incident Management Teams (IMTs)

INCIDENT MANAGEMENT TEAMS

Thomas E. Tarp

California Department of Forestry and Fire Protection

Introduction

CONGRATULATIONS! You have been selected to be a member of an Incident Management Team. This could be a new assignment or you could be a seasoned veteran. Regardless, to be so selected you must have demonstrated that you have the knowledge, experience and leadership felt necessary to manage some of the most complex emergencies. For many, this will be considered the pinnacle of their fire service or resource management career.

What you probably were not told about this appointment was some unique associated roles coming your way. Simultaneously, during an actual emergency, you will be considered a hero and a villain, an emergency management expert and a great waster of taxpayer money, a savior to some and a dunderhead to others.

You may also assume the positions of dictator, saint, reverend, executive, grand inquisitor, teacher, student, leader, follower, drill sergeant, politician, mother/father, as well as many others. Throw in very long work hours, more than just a little stress accompanied by too much caffeine, and it's a wonder you don't lock-up both mentally and physically. But you won't. Besides, it's not good for the image.

There are a couple of other things this appointment brings that probably were not explained either. There is an implied expectation that you will apply your training, knowledge, and experience to the best of your abilities while performing within the team setting. The other is never voiced but always expected; you will aid in the development of others encountered during a deployment so that one day they, too, can be expected to assume the responsibilities as you have. Give them an honest shot of your best and you will be personally surprised with the positive results.

There will be times when you will be blazing new trails in emergency management both for yourself and your team. There is also the chance it will be a new trial for your agency as a whole. Not much pressure, right?

Whenever an individual is faced with new and difficult challenges, some "experts" say we mentally revert to a past situation that comes close to mirroring our current problem and we base decisions and actions on that experience. It has been expressed in terms of each of us having a slide carousel in our brains with all past experiences cataloged as individual slides. When

confronted with a new challenge, we mentally hurry through the carousel looking for a situation that comes close to what is in front of us and pull successful actions from the slide to rectify whatever we are facing. As you face new challenges while on your Incident Management Team assignments, you will be tapping into your private slide collection continually. Is it current and full?

One purpose of this essay is to hopefully add some slides to your carousel based on the experiences of past Incident Management Teams. It is doubtful that any “correct” answers will be provided; in fact, that won’t even be attempted. And for very good reason.

Just as each emergency is different in demands it places upon you, your reaction to challenges presented during incidents will also be different. The fact something worked well for one but, quite possibly, will not for another is determined by each individual’s perception of a problem, finding a solution that meets his/her individual needs and different methods of actually applying resolution. Just as importantly, some situations do not have “correct” responses.

Mistakes or errors will happen to all of us. Hopefully, you will not have to make some of those accomplished during past deployments. There are more than enough new ones out there to stumble through that you should not plow old ground others have explored. One intent of this essay is to demonstrate some of those past experiences and their lasting impacts.

This material is presented only for your consideration when confronted with a new challenge. Some of the items detailed have successfully met the need on past incidents. Some are thoughts about what should have been applied.

None of the material presented is to be construed as policy, procedures or regulations condoned by any agency. Only thoughts on methods, processes and directions drawn from past experiences are offered for your consideration. If you happen to develop a few new slides for yourself along the way, so much the better.

Team Make-up and Procedures

Some basic procedures are needed to streamline and codify team operations during times of emergency stress. By identifying certain performance standards prior to the crunching of time during an actual incident, all members will be able to react with less confusion and in a more professional manner. Some of the areas to consider are:

Written operating procedures. Different Incident Commanders (ICs) may expect different operations to be performed within a team setting. This is acceptable.

However, team members scurrying around trying to figure out what and how to perform is not. IC’s should take time to write out basic operating guidelines so members know what is expected.

How an IC expects the team to work. This will include meeting schedules and acceptable timeframes (i.e., planning meetings lasting no more than 30 minutes requiring everyone to be ready for the meeting). Also included are acceptable get-away times for a dispatch, communication procedures while responding, which team member(s) go to the responsible Emergency Command Center and retrieve what information, as well as other basic information on what an IC feels is necessary for the most professional performance by the team. Detailed directions could easily become over-kill. Team specific guidelines should be developed and endorsed by all team members. Buy-in is paramount.

Position specific expectations the IC has for all team members. We all know what position training delineates for each role; this reinforces and places additional specific responsibilities on a position. These types of expectations, when stated, give a person clear direction to meet. These can be as detailed as felt is necessary by an IC so that he/she is comfortable all areas of concern are clearly assigned to specific team personnel. It would be helpful if position expectations also included the IC's own role so that all personnel understand what that person sees as the primary responsibilities of his/her command position. Position statements should also include direction to those personnel the IC expects/requires written summaries from for inclusion into the team's Narrative Report.

Explanation and examples of Performance Rating that will be used by team members. It is highly recommended that each IC mandate a rating process for all team members as well as personnel who become assigned to an incident. Specific responsibilities delineated in team guidelines should be individual rating factors for the specific position.

Pre-Incident Communications. Intra-team communications are key to a smooth operating group during an incident. ICs will find communications during incidents will flow smoother if members have routinely shared information prior to a deployment. An IC should take the lead in facilitating this flow. With the Internet electronic mail system, this could be as simple as messages to the team as information becomes available that could impact their performance during an incident. Developing a team phone list with all member's pertinent numbers including cell, pager and fax will greatly assist personnel with communicating.

One thrust of these communications is to keep all members apprised of changes and news but another is to develop the group into more than a collection of people. The word "team" comes to mind; the goal is best team interactions possible.

Continuing personnel development. Neither an IC nor the agencies can afford placement of personnel onto an Incident Management Team that are neither experienced enough or willing to perform at a high level during complex incidents. Reasons should be obvious. Therefore, it is incumbent upon all ICs to facilitate an environment within their respective teams that provides the best "hands-on" personnel development possible. After all, who is better suited to become the next major incident planning section chief than personnel who have repeatedly and successfully

worked a unit-level position in a team setting within the planning section? Just being exposed to the dynamics of another position during an actual incident has to be some of the best training agencies can provide. This exposure should include development of selected personnel for the IC's own role. Some ideas to consider:

- Other qualifications; e.g., situation unit leader also qualified as a food unit leader or finance section chief as a safety officer with accident investigation experience.
- Keep all allocated trainee positions full for each deployment. Each team member should strive to make a trainee assignment as meaningful as possible for participants. Once a trainee has demonstrated knowledge and abilities to perform, that person should become eligible for placement onto an Incident Management Team and another person afforded the trainee slot to develop their skills
- Assure that currently assigned personnel have all necessary position training for their position. Require new assignees to meet these standards.
- Become proactive in recommending advanced position training for those team personnel who successfully perform their positions and demonstrate abilities for future roles.
- Members become much more valuable when cross-trained in multiple functions. Knowledge of the other jobs is required.
- Have a “Team Building” atmosphere. Encourage the command and general staff to delegate responsibilities and authorities where appropriate. This will require the IC to do the same.
- Encourage/require functional leaders to “step-back” as incidents allow so that subordinates may perform as a well supervised “lead person” (i.e., the situation unit leader becomes the acting planning section chief during stabilization/mop-up of an incident, etc.). Team members must consider “mentoring” as key important roles.
- Encourage team personnel involvement as instructors of training for those positions that they are qualified. A person naturally becomes more proficient when giving instructions than receiving them.
- Require performance ratings for all team members during activations. One theory of such ratings is to identify a person's preparedness for advancement as well as identification of areas requiring improvement.

Post-incident critiques for team members only must be performed. This should become a standard team process. Identification of areas that went really well and those requiring improvement, what material items are necessary for the next activation and additional training requirements of members are but a few of the desired outcomes. Build towards an improved response for the next activation.

Professionalism. One goal all team members should strive to attain is bringing the highest level of professional management possible to an incident. This concept is difficult to define in that there are as many thoughts on what a “professional” management group is as there are people to

ask. Clearly, your agency expects and has the right to accept nothing less than a group performing management tasks during an incident in a manner that will bring only highest respects from all observing persons. Some items to consider for developing a professional atmosphere:

- Team members know their jobs, roles and required interactions. Obviously, this will entail all members to be position literate and also to understand what is needed to communicate and perform well within a team setting. Being literate of other functions will reinforce the timely and essential transfer of proper information. Written team guidelines further describe specific tasks, communications and relationships that are expected of them.
- Identification of team members. Any person around an incident, including those not attached but interested, should be able to easily identify the incident's management group by name and position. Rapid procurement of standard identification items; e.g., hats, name tags, vests, etc., must be done as new members come onto a team.
- Punctuality in all actions. If a planning meeting is set and advertised for a specific place and time, the meeting must begin at that time and place, regardless of who is missing. This will aid in setting the "tone" for all observed actions conducted by a team. It clearly tells all: "this group means to approach the profession of complex incident management in a businesslike manner". All other actions must also be punctual and purposeful. Routinely, a person will only be late for one such meeting if there is a standard method of recognizing tardiness.
- Team members are approachable and open to input. This sounds fairly simple but it is not an action always seen. The troops out on the lines have been there. Team members need to listen to what they have to say. One approach could be a directive announced during Operational Briefings that all persons assigned above a certain position (division/group supervisor, as an example) must report to a designated location upon relief for debriefing. However, if this is announced, someone from the management group must be at the location until all debriefings are received.
- Incident Action Plans (IAPs) are available to all that need them. Is it correct for a management group to determine personnel below a certain level of the organization (division/group supervisor, as an example) doesn't need one? Watch what happens when there is a serious accident and investigators ask survivors if they knew the overall plan of action or communications for the incident. If time or machines don't allow timely reproduction to meet this demand, posting copies of it allows anyone interested enough to review it.
- Timely and meaningful interaction with the responsible jurisdiction or agency: When invited, an Incident Management Team is a guest expected to perform a mission. By transferring information to the responsible jurisdiction throughout the incident, questions that always seem to arise after the fact should have been covered during the incident for those persons left with its aftermath. This communication will not be limited to the IC's

position. Team members must consider themselves an “extension” of someone from the responsible jurisdiction; find out who this is and develop a rapport. This is the person(s) you want pleased at the end.

- Orderly and complete paperwork. Time records, documentation package, fiscal records, a team’s Narrative Report are just a few written documents which will be available forever to tell history a team came, they conquered and they left. Make sure you go down in history correctly! Addition of internal audits and/or settlement of a cost apportionment only adds to the possibility your historical documentation will be received by a vast number of people. Don’t let an excellent job performed under adverse conditions be judged later by substandard documentation.
- Visual presentations are used. Posting the current Incident Action Plan as well as the next operational period (when available), news from the world outside the incident, meeting schedules and required attendees are but a few to consider. How about posting directions to drop points, Medical Plan, and updated Safety Message, vehicle-parking directions, menu of the day, etc.? Think of visuals as a tool: a team does not have time to tell everyone on an incident everything, but everyone is expected and wants to know everything. Assume they can read!

Transitioning

What is involved when transitioning an emergency incident to an Incident Management Team? Actual definition of the transition should be: “a process to familiarize a group of persons to a situation in progress as well as setting agency strategic priorities for its control.” For an Incident Management Team, this situation is routinely some major complex emergency incident and this familiarization is to give real-time knowledge of the incident along with local operating procedures for the team. Pretty straightforward, right?

Think about the act of transitioning an incident to a team. It hasn’t been a good day with all control actions working splendidly or you wouldn’t be there. Not only is the incident not going well but also there could be tremendous amounts of property loss, injuries or deaths associated with it by the time the team arrives. You normally will be dealing with an agency administrator who may or may not have been part of the decision to activate your team and has an unfathomable amount of details and/or possible political pressures to deal with while wanting only one thing from this group, all who might be strangers: MAKE IT BETTER! All an Incident Management Team wants is all necessary pertinent information, official authority to perform their mission and to go to work; the faster the better. Obviously, if a transition isn’t done efficiently, something important could easily be lost. Missed items at this point will be detrimental to the incident, impacting a team’s efforts and recovering them could be difficult. A rapid transition could well be the worst action taken on an incident.

To avoid “dropping the ball,” transitions should be approached in a clear and systematic manner that transfers the most information possible. Documentation of this transfer is required for later

reference. These documents will become the cornerstone to an Incident Management Team's actions and written history of the incident.

Teams should also view the transitioning process as an opportunity to make that lasting "first impression" upon the responsible agency. Don't miss this opportunity.

So, with all the hazards identified, how is a transition done to minimize adverse impacts? Some issues to consider:

An Agency Administrator Briefing to Incident Management Team or a similar transition form provides a good basis to transfer items proven necessary on past deployments. The form's questions also require a responsible agency to contemplate items that might otherwise go by the wayside. Yearly review of this form's make-up should be undertaken by team ICs to incorporate new information items that have surfaced as needed on recent incidents.

Most federal agencies use an Agency Administrator Briefing to Incident Management Team form or a similar version. States and other departments may have a different version of the form or no form at all. When responding to an activation, the IC may want to call the responsible agency to see if they use a transition form. If no transition form is used by the responsible incident jurisdiction the IC may suggest they consider using one and fax a copy, followed with confirmation it arrived. During these deployments, teams should expect the form to be incomplete and lacking a depth of information. It is not unusual for the IC/team and agency administrator to jointly fill out the form. This may require some education (for both parties) and negotiation. There could be instances where the form will not work at all. However, it can serve as a guide to develop some other mechanism of pertinent information transfer and documentation.

A formal transition takes place at a specified time and location with the completed form. Negotiation by an IC may be necessary on timing of this. A vast majority of team members need to be present for the transition. Travel times for some members could require transition to be delayed beyond a responsible agency's expectations. This will be especially true on incidents where agencies expect a team to assume command upon arrival of the first member. It will be incumbent upon the IC, with the agency administrator's assistance as necessary, to negotiate a realistic timeframe that allows proper personnel to arrive.

- The team should set a professional tone for the briefing by being punctual, identifiable, prepared and attentive
- All team members should be in well-marked Personnel Protective Equipment (PPE) or their agency's work uniform with issued team identification clearly displayed
- Team members should form a group close to the agency speaker, command and general staffs to the front, with notepaper and, hopefully, a copy of the completed transition form available. If a completed form is not available, a blank form can serve as a guide for team members to generate questions pertaining to their specific roles. It is not unusual to have

many people other than the Incident Management Team and key agency personnel present. Determine who everyone is and their role.

- An agency administrator briefing should start with introductions of the key agency personnel by name, title and incident function. Teams should introduce themselves by name and position.
- Routinely, the agency administrator conducts the briefing with an overview of the incident's history, projections, resources status and conditions. However, a team should be prepared to assist this effort.
- After the agency administrator briefing, the IC should negotiate a question period for team members to retrieve necessary information that might have not been dispensed. It may be best for the IC or planning section chief to facilitate this portion, going through team functions ("resource unit leader, any further questions?", etc.). Team members need to be prepared with questions restricted to pertinent issues only.
- Prior to the briefing, the agency administrator and IC should have set an actual time for team actions to begin on the incident. This should be a portion of the briefing. If not mentioned, this will be one of the questions to bring out.
- Collect any written materials or displays presented to the team by the agency administrator, regardless of their value.

TIP! Team members should view the agency administrator briefing as the opportunity to make a lasting "first impression" on the requesting agency/jurisdiction. This could quite possibly be the first meeting the agency administrator has ever had with any member. As an old saying goes, "first impressions are lasting impressions." Take every opportunity to leave the impression that a first-rate professional management group is there to perform a required mission.

The Initial Attack Incident Commander (IAIC) will need to brief the team. The most current incident situation status should be available from this person and his/ her staff. Many times, this briefing is conducted concurrently with the agency administrator briefing. This has pluses and minuses but is normally something a team cannot control. Expected outcomes should be:

- The team will need the best incident information available, e.g., what has happened, what has been attempted, and any projections of incident size, resource status, locations and serviceability. Situation maps, weather forecasts, traffic maps, and Incident Briefing Form, ICS Form 201 if available, should be obtained.
- The team will need direction on future involvement of agency personnel currently on the incident. Do they stay to be incorporated into the incident's structure or are they to be released and when? This is decided between the agency administrator and IAIC.
- Teams can leave a lasting positive impression if a request is made to have a "local" person assigned to them for the purpose of local knowledge availability. Routinely, they will want the IAIC to stay assigned and available to the team. This person had the

agency's trust to manage to this point; an assumption must be made he/she is the best available.

TIP! A word of caution: information from the IAIC could be less useful than one might believe. Some become withdrawn and "beat" because the incident escalated to the point of having to bring in a team. A lot of negativity could be present and this could sway a team without them even seeing the situation.

Team members must assemble as a unit for the purpose of affirming dispensed information and conduct a strategy meeting upon completion of the briefing.

- Confirmation of received information and materials should be done so that all team members start on the same footing. Just as everyone seems to hear an item differently, group knowledge could be disjointed. Do we all have the same information and, if not, where do we get differences ironed out? Take some time to confirm that what information you have is the same information everyone else has.
- Based on known status at the time, a general strategy for the team must be set to facilitate actions. This could be as simple as all functions checking on actions to this point that will affect their roles or it could be setting a time for the first planning meeting should the team be assuming immediate command.
- A signed copy of the Delineation of Roles and Authorities – Administrator's
- Instructions (Delegation of Authority) should also be given to an Incident Management Team, along with the Agency Administrator Briefing form. These documents clearly set team actions into motion. Roles and authorities become extremely important for team non-agency incidents as well as for non-wildland fire incidents (mobilization centers, etc.). Things to consider:
- When an Incident Management Team is requested, immediate contact should be made by the Team IC with the agency administrator to explain the transitioning process including the Delegation of Authority. Remember, some jurisdictions don't routinely transition incidents to teams and this could easily be the first such occurrence. Any expectations that our routine will be known and smoothly take place could be severely shaken.
- Special attention should be taken when a team activation is for an assignment other than assuming command of an incident. Team deployments that are intended to provide management for a part of an incident should trigger an alert to have very specific roles and authorities identified. As an example, during a major multi-county flooding incident, a team is deployed to manage the care and housing of evacuees only and will not participate in the overall management of response to the incident. A team would need their specific roles defined and a clear understanding of their authorities.

TIP! When response is to a non-wildland fire agency, an Incident Management Team will routinely find that requesting jurisdictions will not be familiar with the capabilities of what they

have asked for. However, there is an expectation that a team will know all and the jurisdiction will normally be willing to participate in and provide anything the team suggests.

One of the best ways to demonstrate professional leadership during times of responses to another jurisdiction is to “walk” the jurisdiction through the Transition Briefing (w/form) and assist with the completion of the Delineation of Role and Authorities-Administrator’s Instructions. Time taken at this first meeting will reap benefits throughout a deployment.

TIP! This is also time to determine if all of the jurisdiction’s key personnel are involved with delegation to a team. There is nothing worse than to discover later that someone forgot to tell the county sheriff that an Incident Management Team is being brought in to manage a flood within the county. Not only is a sheriff the highest elected peace officer in the county, but he/she might not necessarily ascribe to the notion that assistance is needed at all. More importantly, they are usually armed! Count the noses and ascertain if all key folks are involved.

TIP! This may be the first, last and only opportunity to gather information before the team assumes an incident. Go slow. Be thorough. Try not to let key players get away before you have gotten all of your questions answered.

That First Operational Period

That first operational period faced by an Incident Management Team is a kaleidoscope of efforts. Each team function is furiously gathering, exchanging, and disseminating information, formulating plans and structuring their specific jobs with needed staffing. Initial/extended attack troops need relief and retrofitting, new line folks need to go out under direction, incident facilities need development, long-range planning begins and an in-depth view of all safety aspects of the incident is required. These and many other tasks must be undertaken beneath the pressures of interagency coordination and the ever watchful eye of media. Not much happening, right?

The state of the Incident Management Team is also a composite of effects. Personnel are routinely working extended hours. They have hopefully gotten their direction and written authority after participating in a Transition Briefing. The incident’s setting could be unfamiliar to them. Personnel currently working on the incident may have limited information. Resources and materials of all types are invariably still “en route”. Mentally, the team knows what to do and desires to do it. Physically, frustration will set in when demands outdistance ability to supply.

Experience will assist in limiting this frustration. Once you’ve lived through a “first operational period,” the next is taken in stride. Some details felt to be critical have proven to be less so. Shortages have been compensated for. Information lacks have become expected.

While it is not acceptable for a team to just throw their hands up in disgust, knowledge that an initial start-up of team operations could be a little rough should be learned. One of the strongest

points of an experienced Incident Management Team is ability to recognize and adapt to situations thrown at them. Professionally bringing control to chaos during a start-up is one of the brightest attributes and lasting impressions a team can impose on an incident. Some tools to consider for coping with this “first operational period” are:

- Recognize and expect shortages. Not resources, but information of all types will be in short supply. ETAs of ordered resources/supplies, situation reports or maps with little useful information, announcements of important person visits, accurate reports of resources currently assigned, timely reports of past injuries, losses or costs will all be among the missing. EXPECT THEM! Develop a sense of adaptation to work around them.

Team Guidelines can lessen chaos. Directions to specific functional roles to gather the best available information PRIOR to arriving can attempt to shortstop the “it’s lost in the system” syndrome. Consider if time/travel allows:

Directing a team “logistics” person to routinely go to the responsible agency dispatch center. Their mission is to:

- Get copies of all agency documents utilized while gathering resources and supplies.
- Ascertain exact procedures and identification of contact person(s) for the continuation of ordering/confirmation with pertinent contact methods and numbers.

Directing a team “planning” person to the responsible agency dispatch center. Their mission is to:

- Retrieve copies of any agency incident situation and resource status documentation developed from the start of the incident.
- Obtain copies of any news releases, incident cost calculations and weather forecasts/projections.
- Get any information available concerning past incidents within the general area of the current one.
- Determine exact procedures for situation updates and other dispatch contacts desired with contact person(s), methods and numbers.

Assign a team “operations” person to personally recon the current situation. This may be done rather than attending the Transition Briefing as long as another operations representative is present for the briefing. Hands-on review of current strategies, resources and projections will greatly enhance a team’s ability to produce a useful Incident Action Plan (IAP) when called upon to do so. Provide multiple briefings for “late” resources. If suppression resources are limited, continue to work on part of the incident where they will do the most good.

A pitfall all team members need to be aware of and recognize is the ease of working themselves beyond usefulness during the first operational period. Commonly members have been working at regular assignments when activated for a team response. Travel is conducted to the incident, a transition takes place and the team goes to work. A team routinely assumes an incident in time to brief and get the second day's operational period to the line. Work continues through day two to prepare facilities, accomplish planning and generally organize a large incident. Even if the incident does not enlarge significantly during day two, team members work all of that day to get their functions staffed and performing well.

Studies show that "burn out" occurs at about hour 11 when under stress. Efficiency, production, and safety become real concerns. Team functions require a mental state capable of simultaneously performing multiple tasks. Everyone has a point of diminishing return with regard to the ability to cope with demands placed upon them. Not only can a forgotten item become lost, personnel can be left in unsafe situations and needs go unmet. Team members can become exhausted without getting dirty. All members must recognize this fact.

Some items to consider for safeguarding against over-extension of team personnel:

- Team positions having a second person assigned will require a conscious division of workload. Team ICs may have to monitor this division to assure it is working. The person not "on" must attempt some rest in an effort to relieve his/her partner at the appropriate time.
- Use of twenty-four hour operational periods has proven to ease compression of time for some functions; i.e., logistics, planning and operations. Not that the workload goes away, only more time is available in an operational period to accomplish it.
- Team guidelines can require certain sections to have deputy positions filled whenever the crunch of an incident is expected to exceed a certain operational period (beyond the team's second).

Experience will teach to expect the unexpected. Being dependent on others will always leave the possibility of letdown. Ordering more assistance is not always an answer either. Availability, travel times or other incidents can severely impact accumulation of more staff. The best word of caution could be to have another plan available when chips don't all fall together.

A common practice during that now famous "first operational period" is a tendency to overestimate production. While this happens less in the Operations, others do fall prey. Our system builds this, i.e., the kitchen's ETA is 1100 hours and an unknown breakdown delays it until 1600 which impacts feeding of troops going out, etc. Overestimation can fell any team member in their quest to accomplish their function.

Teams should consider the possibility of overestimating their own production, especially during that first operational period. Is it really possible to draw together a current IAP, be working on the next and correctly look at contingency planning? Can necessary facilities be developed,

communications organized and drop points marked with available staff? Can each member realistically accomplish all required actions within that “first operational period”?

Some items to consider:

- While developing Incident Objectives, ICS Form 202 for that first operational period, an IC could list specific objectives/goals for non- operations functions, e.g., logistics develop a 2,000 person camp; finance/administration assure all contracted equipment time is started, etc. This prioritizes actions and accomplishments. It also implies recognition of limited resources. A posted visual display of this could be helpful.
- Individual function heads must prioritize specific work to be accomplished. Functional staffing is routinely still short and only so many “things” can be accomplished; what is most “important”? List them and get them done in that order. Should an individual’s priorities impact other team functions (and, THEY ALL WILL!) this must be shared with the other team members. A full team meeting four to five hours into that first operational period works excellent for this intra- team sharing of information about projected shortfalls and accomplishments.
- Recognize when the impossible just takes a little longer to accomplish. Most challenges faced by a team when organizing an incident can be successfully met in numerous ways. Be adaptive and creative while guarding against expending precious time on a scheme with marginal chances of success. A standard “book” answer is not always needed or required.
- Rely on past experiences (mental slides) to meet significant challenges. There is a depth of collective knowledge when an Incident Management Team is assembled. That first operational period team meeting could produce problem solving suggestions from a most unlikely source if members are made aware of a mate’s difficulty and feel free to offer assistance. Use someone else’s slide when necessary.

TIP! Learn to recognize the abilities of other team members. You could and should have cross-trained folks at your disposal. That information officer might also be an outstanding logistics section chief. The strongest attribute of real good management teams is an openness to share ideas and work. Too many times a person’s focus becomes so narrow chasing their individual challenging demons that they forget that there are a lot of folks on a team, all with the common goal of making the entire production work. Share your needs and ideas. Each incident will impact each team member differently. That information officer might not have a lot to do on this incident due to its extremely remote location and, therefore, could be of assistance to logistics. At meetings, have team members brain storm and prioritize what needs to be done. Encourage team members to help out where help is in short supply.

Communicating

During an Incident Management Team deployment, proficient communication becomes extremely important. This includes not only internal incident communications that utilize radios, phones and face-to-face to transmit information used towards control of an incident, but intra-team communications as well as off-incident transfer of information. Effectiveness of communications will directly impact a team's success and impression they leave behind.

Basically, communications can be broken down into three major categories:

- Intra-team
- Intra-incident
- External

Unsuccessful accomplishment of any category will impact a team and incident adversely. A variety of methods exist to avoid this.

Intra-team communicating is the essence of team interaction and requires a conscious effort by all members. It is not that people are excessively introverted but, some do find it extremely difficult to share thoughts and ideas before a group. Some avenues to consider:

- Sincerely welcome new members to the team.
- Efforts must be expended to maintain an intra-team atmosphere that advocates smooth and healthy communications. This is easier said than done. Many obstacles can lead a member to be reluctant to participate.
 - Agency affiliation: Some team members may be hesitant to actively participate in open team communications until it becomes obvious their input is welcome and, yes, needed. Personal discussions with the IC or other team members could help; it may take repeated team interfacing for a person to loosen up enough to participate. All team members need to be aware of this situation and ready to rectify it
 - Rank: Unfortunately, some folks will hesitate to participate because they are outranked. An IC should make it crystal clear that, in a team setting, all collar brass was checked at the door; every member is just that, a member! Your only "rank" is that afforded to your team position. Again, this may take repeated demonstration by all team members to loosen up the rank consciousness.
 - Abilities: A person might be self-conscious of what they perceive as a lack of experience or knowledge compared to other team members, subscribing to the theory of not demonstrating this lack by opening their mouths. Again, the team atmosphere will need to recognize that there are as many different levels of experience as there are members and that's OK. Besides, those with loads of experience had to start somewhere too.

- Team guidelines can describe and structure team operations in a manner that clearly requires and promotes communication's importance to team intra-actions.
 - Team structure requires numerous meetings Transition Briefing

Strategy Meeting

Planning Meeting(s) Operational Briefing(s) Daily Team Meeting(s) Demobilization Planning

Meeting Transition Out Briefing

Post Incident Team Meeting (critique)

- It would be advantageous to discuss meeting processes in team guidelines. Expectations on length, contents, participants, and required interactions as well as need for documentation should be explained.
- Continually drive home the idea that gathering, exchanging and disseminating information is a shared responsibility of all team members. Assure a clear process to accomplish this is understood and expected of and by all.
- Position specific expectations within team guidelines could list those types of information required by team members. This alerts members to the nature and detail each other member expects from them.
- Team ICs and functional section chiefs should monitor conduct of meetings and member's participation to assure an open working atmosphere is cultivated and maintained.

TIP! Meetings by team members coordinate a vast majority of team management efforts. They are required BUT, the abundance of them can become overwhelming for personnel attempting to accomplish something (such as managing an emergency). A watchful eye should track all meetings to eliminate unproductive or counterproductive time. Having a clear posted agenda with outcome expectation, along with member's knowledge of the expectation of their punctuality and preparedness, should maintain the businesslike team attitude. A team member assigned as the team's meeting facilitator (team guidelines) or "Sergeant-at-Arms" could also help. Leave the rabbits for after the incident. Every team meeting should start with, "the purpose of this meeting is _____".

The following people must be present _____, _____, _____, _____.

TIP! Teams should develop a standard procedure for documenting all meetings. Too many key decisions and directions develop during meetings that seem to require later review. Bring in a scribe or delegate this task via team guidelines.

Intra-Incident communications are obviously key to transferring information for the purpose of control. However, even as much as this type of communicating is performed by our troops day-to-day, there are areas for improvement during major incidents.

- Keep the incident's troops informed. We have all been on incidents where no one outside of the incident management's upper echelon had any idea what was going on or projected. Really makes you feel that there was a rudder on those ships, huh? Routinely updated bulletin boards and single page briefings within the base are but two of the ways to accomplish the task of informing the troops. Decide early how and by whom this will be accomplished, then make it happen. Utilize visual displays within the ICP as much as possible. If someone can locate their needed information without asking, a manager's time is not spent answering questions.
- TIP! Each team should have some pre-developed "standard" documents available from personal word processing systems that can be used as needed. Motel policies, personnel standards of conduct, and release priorities are but a few of the documents consistently used incident-to-incident. Teams will develop more upon each activation. Availability will assure use.
- An IAP that cannot be read is less than worthless. Its construction wasted a lot of valuable time and, except for meeting certain personal needs in a biological sense, it isn't worth carrying. Recognize that IAPs must be reproduced; reproduction requires a clean original. At present, the cleanest way to develop an IAP worthy of reproducing is to employ the InciNet and other computer systems. Get one and use it! To meet the need prior to the system's arrival, copies of this program are available for personal computers (laptops) which should be in every planning section chief's possession. If an IAP must be handwritten, find someone who can write legibly and produce the best IAP possible. IAP maps are also a problem to reproduce; the GIS mapping system cranks out great maps in 8-1/2 x 11 inch format that can be reproduced with outstanding results. Use it!
- As a communications plan develops, assure all pertinent information is on each ICS Form 204 Assignment List of the IAP as well as the ICS Form 205 Communications Plan. Complex incidents require complex communications plans. The Assignment List, ICS Form 204 reflects the Communications Plan specific only to the assignment of resources to that division/group. However, reassignment of personnel about the incident during an operational period affords everyone information needed to properly communicate. Likewise, LCES information developed should also be on each specific Assignment List, ICS Form 204 for the same reasons. Build in flexibility while keeping troops informed
- Each IAP should include a listing of staff cell phone numbers. Begin building a cell phone/pager directory early and update it with every new IAP. Teams should have one started in their portable word processor prior to an activation. In areas with adequate cell phone coverage (or made to have adequate coverage when you brought in that portable cell), radio traffic will be freed up for important operations-based communications. Use the radio for operations messages so that others can eavesdrop.
- Operations leaders (chiefs, directors, supervisors and leaders) must be cognizant that certain communications should NOT be conducted via cell phone. It is entirely possible to isolate a large segment of an incident's organization by not using common

communications methods for information needed by many. For instance, if one division had a blow-up condition and reported this via phone only, would adjacent divisions (or anyone else on the incident) have all information necessary to them? Certain items need to be heard via common communication methods.

- Operations leaders and incident dispatchers need to maintain radio discipline on the incident. Not only will this eliminate untimely use of congested airwaves, it should maintain a professional sounding incident for all those listening (like an agency administrator or the media).

TIP! In areas of highly concentrated cellular telephone coverage (heavily populated or with major transportation routes) cellular companies have portable cells as well as large numbers of portable phones available. FCC licensing for these high use areas normally contains a clause that requires companies to provide this service to responders without cost (including the cost of the calls made) during times of disasters. Check with your logistics folks to assure they know how to access this service when needed.

External communications are those made from the incident to the outside world. This will include, but not be limited to, briefing the agency administrator, working with the agency dispatch center, tracking down vendors for specialized items, or transmitting cost information to an appropriate source. These and many other communications will say volumes to legions about the team and its personnel.

Therefore, team members need to be aware of the expectation that all communicating will be of the highest professional level. Some items to consider:

- The most off-incident reviewed and discussed document a team will produce during a deployment is the Incident Status Summary, ICS Form 209. Accept this fact. Completeness, accuracy and timeliness are paramount. There are deadlines for the ICS Form 209 that must be met as this document is used to allocate resources to your incident. It must be on time.

TIP! There are currently many documents required to be transmitted off an incident throughout its life. ICS Form 209s and cost estimates are but a couple. Assure you know them all.

Reconfirm early during the incident with the receiver a timetable and method to be used for each. Entirely too much time can be wasted by too many people tracking down late or incomplete documents.

- Agency administrator briefing times and methods will normally be set during the Transition Briefing. The IC or deputy will routinely do these. Regardless who does them, reviewing the latest intelligence just prior to the event will allow transmission of the best information while making a professional presentation. Agency administrators want the best “feel” for the incident that the experience of a team can give him/ her. Being forthright and honest can ease the making of off- incident decisions.

TIP! Awareness of the importance that is to be given external communication by all team members will go a long way to having the team perceived as a structured and accomplished group who can meet deadlines in a professional manner while facing many difficult tasks.

TIP! Some have found that local Internet providers have been known to provide access for use of an incident free of charge. Check on it if this could be of value

So You're in Unified Command Now What?

It is common for significant incidents to involve more than a single jurisdiction. This is an accepted fact and management of these types of incidents has been addressed under the Incident Command System's provision of Unified Command. What impacts can an Incident Management Team expect under Unified Command? What are some of the pitfalls and what are some "tricks" to making it work?

When transitioning into an incident which is being managed under Unified Command, some immediate alert bells should loudly sound.

Is this legitimately a Unified Command Incident? Unified Command was designed to "allow all agencies with responsibility for the incident, either geographical or functional, to manage an incident." Do you have such an incident? If not clearly understood, ask your agency administrator for clarification. You need to know when an agency is including (or pacifying) a cooperator in Unified Command when in reality the cooperator has no jurisdiction or functional responsibility for the incident.

Has a single ordering point been established? The quickest and longest lasting way to adversely impact a Unified Command incident is to have involved agencies continue processing orders for additional resources/supplies through their normal channels. Incident personnel delegated as having overall incident responsibility for their agency (Incident Commanders) must immediately agree what method (single point) will be used for such ordering, advise their respective agency, and assure all incident personnel from their agency know of and abide by this decision.

Is this a cost share incident? This will be a tough topic to broach. However, it is one that needs an immediate answer. Some agencies do cost sharing as a matter of policy; others will not have a clue what this is about. With "...responsibility for the incident..." should come some expectation of financial support for that responsibility. Impasse on this subject must be referred to your agency administrator immediately. If there is to be a cost share of the incident, some tools are necessary:

- Have cost share technicians been ordered? Very seldom will personnel from the team's finance/administration section have time or expertise required to produce an agreement necessary for cost sharing. Get the help you need. A technician should represent each agency involved.

- Do you have on-hand necessary maps accurately delineating each agency's area of responsibility? If not, get them. If you are not intimately familiar with the areas, have your agency administrator or a designee verify the map's accuracy. This is important!

OK, so all of the immediate bells went off and you got satisfactory answers to the first issues. Now what? To proceed smoothly, some preliminary actions, which are different from a single agency incident, are necessary.

- Establish Unified Command's objectives for the incident that meet all involved agencies' needs. This could be understood as necessary by your counterparts or it could be an entirely new concept. Availability of a blank Incident Objectives, ICS Form 202 could aid in this effort. Keep the development clearly as objectives, not tactical actions. Good luck!
- Establish the management staff who will fill "lead" section chief and officer roles. A team IC can be intimidating here as he/she just showed up with a whole fleet of highly regarded personnel who normally operate as a high performance team. Should all agencies elect to use the Incident Management Team intact, this job is done. However, should another agency feel it is necessary to insert staff from their agency into the management structure, things can become a little more complicated, but there are a couple of avenues to consider:
 - Keep the bulk of the Incident Management Team intact as "lead" person in each function while negotiating for a limited number of "deputy" roles for other team members. Normally, emphasis will be for another agency's person in an operations section chief role. Can your team function correctly if the team operations section chief becomes a deputy? This will be a question each team IC will have to answer for themselves and their team. Make sure your agency administrator reviews any negotiated staffing settlement.
 - Should qualified personnel from another agency be available to fill all "lead" roles, your entire Incident Management Team could become deputies. This will need to be immediately reviewed with your agency administrator; he/she might not have brought you in with this in mind. The issue is thrown back to the administrators from all involved agencies for settlement. It's not the best avenue for a team, but it could be the only way to settle it.
 - Establish information release procedures for the incident. All agencies on the incident will need to agree to a single source for development of information released. The information section may well have personnel from all involved agencies, but released stories must all be the same. This can become the second leading source of problems within a Unified Command setting if left to chance.
 - Agreement on incident facilities, location, purpose and size must be mutual.

The ICs come out of their meeting and announce the outcome of their agreements. Now what? All team members need to consider some thoughts:

- Regardless if the Incident Management Team is to be the “lead” group or if the team is the only command structure present save the other agency(s) ICs; team attitude will set an everlasting tone for the incident. There is a new player in the position of leader; could there be several? Now what? Team intra-actions must continue as normal. React equally to all ICs. This is easier said than done with some. There will be some agency specific needs which might have to be met by staff. While just what they need is more to do, these are the “little” things which could derail a Unified Command with the best intentions. Any questions concerning conflicts of direction should be immediately referred to the team IC for rectification. All team members must want the other agency IC(s) to say after the incident that “the team took me in and accepted me as a full member.”
- Be open and honest with your counterparts. Whatever command structure agreed to will have to work and work well. The attitude and cooperation by the Incident Management Team cannot become a basis for problems.
- Realize that you may be training your counterpart in his/her functional role. Incident Management Teams have qualified and experienced personnel assigned; other agencies may find it hard to match up person-for-person. All team members should expect being relied on to pass along some of this hard earned experience. It can become a full time task. Remember, you may well be developing a future member of your team.
- Remain approachable and open to input. For many of the same reasons as providing on-scene training to counterparts, team members must demonstrate untiring desire for input and interaction. By setting an example of cooperation, a team will stimulate and maintain a desire in all to work together in a common cause.
- With minor exceptions, all management functions must be collocated. This includes the Incident Command Post (ICP). We have all been on incidents that clearly had multiple ICPs, yet were called “Unified Command.” Not True. Get it together and assist keeping it together.

A few hard earned thoughts which could make future Unified Command incidents easier for a team:

- Establish agency specific finance/administration personnel within this section. This may only need to be a deputy to the section chief, but assures proper procedures and documentation are followed for each agency.
- Establish agency specific time recorders within the incident’s finance/ administration section. These people work and report to the finance/ administration section chief. However, specific time recording requirements of each agency will be met.
- Establish agency specific compensation/claims personnel within the finance/administration section. Depending on which agency’s jurisdiction a claim might generate from, the process for submitting claims could be different. By having a person from that agency handle the claim from the start, settlement delays will be avoided.

Again, these people would work for and report to the finance/administration section chief.

- Should you be involved in a cost share agreement, consider:
 - A division-by-division percentage split is required for each operational period of the incident. This assigning of percentages is done by the ICs. Whenever ICs do this, it should be done in private with the cost share technicians, only. Too much pressure is implied to an IC if someone from his/her agency is present/observing; especially a superior.
 - Operations section chiefs have an important and pivotal role in cost share agreements. They will be required to verify, at the end of each operational period, where each resource was actually used during that operational period. This should be made known early so they may employ whatever means necessary to track resource use. Should there be air resources involved, air operation branch directors will be required to do the same. Tell them.

Some Other Things to Consider

Some issues have arisen over the course of past Incident Management Team deployments that warrant consideration, should there be a need for slide development by you. Something similar could surface again:

Two agencies each have an Incident Management Team assigned to an incident. Complicated? Yes. Impossible? Not necessarily. Think about:

- An incident is large enough geographically to require excessive travel times to encircle. While not specifically outlined in ICS, splitting a large incident into two separate areas/zones with clearly defined boundaries can work. However, there can only be one set of incident objectives! Objectives are negotiated between two zones so all needs are met. Although workable, this is not an ideal situation to be in. This setup really calls for an Area Command to be established to coordinate two efforts and prioritize resource usage.
- Agency administrators jointly negotiate that one team will be primary or lead and the other will perform as deputies. Hopefully, team ICs would be consulted on workability of such an arrangement. This is the second best alternative.
- One team works one operational period, the other works the following. This is not good. There is too much loss of command continuity as well as too great of a chance for details to “fall through the cracks.” Stay away from this if at all possible.
- One team is released from the incident at the direction of the agency administrators. This is the best solution and reduces a wasteful commitment of resources

Your position on a statewide priority list during a time of multiple incidents is very low. Resources (especially those of a normally limited nature) are going to be very few and far

between. Expect over-using the resources you do have and long delays on orders. Even items like the Incident Base will be limited at times. Plan accordingly. Your creativeness and flexibility will be tested. DO NOT resort to hedging reports of your situation should nothing current or predicted exist which could change your priority. These embellishments seldom work as you hope. Live through it and see how the team's collective imagination produces results. After all, some incident has to be on the bottom of the list; it's just your turn. Consider using nontraditional approaches such as large numbers of rental dozers; making local government engine crews into a fire crew, etc.

You have a significant incident near a major center which attracts a lot of attention. The team's information section is doing a good job, however, expect repeated requests to interview the IC. In today's world, the media eventually want and need to hear from "the person in-charge." Consider an organized news conference to fulfill this demand. Advertise a conference time which will meet a majority of deadlines of the media present, find an area of adequate size, get good visual aids, brief the presenter(s) on the latest status/possible question areas and do it.

Reporters from most major media sources understand this format and process. However, the team's information officer should facilitate the conference by opening with an explanation that there will be a situation overview and a question/answer period; all to be accomplished within a set timeframe. The information officer should be ready to "rescue" the IC(s), if necessary.

You have an incident with a significant number of structures destroyed. Lucky you. While firefighters did their best, the incident "took" xxx number of structures. Now what? Consider:

- Specific instructions to the entire information section should be: their theme is to be; "firemen SAVED xxx (number) of structures, unfortunately, the fire DESTROYED xxx (number). . . Firemen DO NOT lose structures; we save them!
- You will need to organize a triage group to rapidly count foundations. Media want a number and will harass the information section until given one or will develop their own from any talking source around the incident.
- Determine as soon as practical the identification of those structures destroyed. Addresses, assessors plot maps or anything else, which will positively locate the structures, will aid in this. Assuming the area has been evacuated and residents have not been allowed back due to on- going control activities, you can set in place some processes to ease this situation for the citizens involved.
- As soon as operations can work around limited traffic, announce availability for firefighter-escorted trips during specified times for owners of known destroyed structures. Proof of residency should be required.
- Have agency vans or other suitably marked agency transportation available. Assign compassionate agency fire personnel in uniform with PPE to function as escorts. Outfit the affected citizens in well-marked PPE. Take them to their structure. Reason; too many experiences with this situation have shown that people, even though it is confirmed for

them that their structure is destroyed, HAVE to visit the site for personal closure. When performed correctly, this service will generate rave reviews and leave a lasting impression.

- Discuss this sort of action with a local mental health department or other appropriate agency prior to implementation. They routinely have excellent suggestions and counselors available for this type of traumatic undertaking.
- Consider having Advanced Life Support available during such an operation. This has proven worth the effort as reaction to individual trauma can be overwhelming for some; plan for it.
- The media will want to record these returns for human interest. You cannot stop them unless they are considered a hazard to on-going operations (difficult to do if you are taking citizens in). Information could have them elect a representative to travel with the escorts/ victims in your vans to get a story that they will share. Or, selected victims amenable to media attention could provide this coverage. Check on it. Also, check those that aren't and protect them.
- You have a need for damage assessment for structures destroyed. Place an order for this specialized resource when you have some idea of numbers. It could take a while to assemble the necessary staff to do the job correctly. Consider tapping the county assessor and/or building departments for resources necessary to perform assessments; they have methods we don't, familiarity with what is an inhabitable structure, and resources (plot maps, etc.) which could speed the process. Know what you want from damage assessment; count, photos, prevention information, etc.

You have to recommend evacuation of citizens from the incident. Alert bells should be loudly sounding now. Consider:

- We don't order evacuations; this is a law enforcement function and they have the responsibility. However, they don't have knowledge of incident spread that you do and will be relying on you to trigger the need.
- Get the highest ranking responsible law enforcement agency official you can. Install him/her into your command structure as a "branch director law enforcement" (put the name on the organization chart quickly). Responsibilities are evacuation, traffic control and security as well as their routine duties. Make this person feel a part of the incident's organization by involvement throughout your planning process and IAP implementation. Make sure this person understands you consider him/her as the law enforcement head for the incident that is working within your structure.
- Bring in the county emergency services coordinator (or someone with these responsibilities; different titles exist). This person has (or should have) pre-planned evacuation centers located, contacts with appropriate social response organizations (Red Cross, etc.) and mass transportation contacts. Develop an appropriate level within your organization for this person and delegate necessary responsibilities. This will be fairly

easy in those locations with an active disaster planning effort. It is likely an Emergency Operations Center (EOC) will be established.

- If evacuees are placed into incident generated shelters, have your information section place a team information officer into each shelter. Evacuees will need periodical updates of the current and projected situation. A uniformed person from your staff is best.
- Negotiate early with your law enforcement branch director procedures to be followed once your situation allows reoccupation of the area. Make sure all staff know how this will be announced and what preparatory steps are needed. Law enforcement makes the actual evacuation; they should announce and coordinate reentry.
- There can be pressure (even unvoiced pressure developed within the team) to get people back into their residences as soon as possible. Guard against inhibiting operation's efforts and/or possibly needing to evacuate again (very bad)! Human nature will want to get folks back in quickly; just don't make it too fast. By the same token don't delay unnecessarily. The occupant can help the operation by being present.

Community relations is a broad term for efforts to meet the need of local citizens and elected officials to be informed/involved with your emergency mitigation job. This is an unexplained, but inherent mission each management group has, and one the fire service as a whole has never done well. Consider the following:

- Your incident is burning or seriously threatening to burn (or flood, or...) within a community. Citizens have a right and expectation to be informed BY THEIR FIREFIGHTERS what is happening and being done versus getting this information from the media or word of mouth. One avenue is to organize public briefings within the affected community.

Coordinate any of these efforts with local elected officials (city council person or board of supervisors for the affected area). They need to be afforded the opportunity to be present and/or participate with these briefings.

- Depending on the incident's magnitude or "feel" for community concern, the first such briefing within specific areas might need to be done by the IC(s) with assistance from your information section. Repeat briefings at a location can be delegated to information if this is felt to be appropriate.
- Daily updated single page informational handouts developed by Information and dispersed from places of community gathering and with IAPs are generally well received. Announce in the last one to be published that future issues will not be done.
- Long-term or damaging incidents will generate a lot of interest by elected officials. You have a responsibility to brief them also. Consider the following:
 - Make sure firefighters themselves know the big picture and can provide accurate information to the public, the media, and officials.

- Check with an appropriate source to determine if the entire group of community elected officials (city council/board of supervisors) would entertain a briefing during a public comment section of their organized agenda. This assumes their regular meeting day would be of benefit (incident is still active). Recommend the IC(s) make these presentations.
- Visual displays will greatly assist in such presentations.
- Don't get too technical. These are laypersons, not firefighters. They will be most interested in damages done, projections for control and problems encountered.
- If you are unfortunate enough to have an incident that remains active through another scheduled meeting, see if they would like an update briefing.
- Invite the elected official(s) to attend your Planning Meetings and Operational Briefings. We do not operate in secrecy; invite them and assign a knowledgeable staff to escort them through the processes. If they do attend, announce their presence to the group so your folks know who is in the room.
- If you have a final package of incident maps, damage assessments, rehab plans, team narrative report and the like, have enough packages developed for presentation to the elected officials who have interfaced with you during the incident.

TIP! View the need to meet expectations of citizens and elected officials in the context of; these are your “customers.” We have a responsibility to meet the expectations of our customers. DO IT! This might all seem to be a real waste of the team's valuable time, but we do have a responsibility to keep citizens/elected officials informed. The benefits of expanding this effort will be generally well rewarded. Agency folks left behind after a team mitigates the incident will enjoy an improved respect for the fire service.

Very Important Persons (VIPs) Visits. Incident visits by interested important people will happen. VIPs could be just about anyone; politicians, government department heads, etc. Be prepared for them! Some will be invited, some will appear unannounced. Regardless, teams should have internal procedures in-place and known by all members to deal with these important visitors (team guidelines?). Consider the following:

- A team function is designated as responsible for VIPs. Routinely, this falls to information. It really doesn't matter who, just so long as there is a function responsible and staffed to handle these folks. The goal is to brief the VIPs on the incident's history, what is projected and what problems exist. Visual aids in a briefing area will make this much easier. Dependent upon the visitor, ICs may be expected to make this presentation.
- Tour incident developed facilities with VIPs. Without disturbing work being conducted, orientations to the planning section's efforts will usually amaze folks seeing this activity for the first time. The same is true with the finance section. Of course, a tour of facilities isn't complete without trying the kitchen.

- Requests for tours to the front lines can be expected. If practical, go with appropriately marked PPE and in agency marked vehicles. Expect and plan for over-flight requests; these are appropriate when correctly licensed aircraft are available and such movement does not interfere with operations.
- Upon their departure, ask if a follow-up personal briefing is of value for them. A simple phone number exchange will allow rapid transfer of information to them and could limit return visits.
- Accountability is an often discussed and noble issue, but one which is difficult to see results with. In a team setting, accountability has to start with the team. Team guidelines have laid out specific expectations; did they get met? Your agency administrator laid out expectations (strategic goals/objectives) for the team; did they get met? Section chiefs laid out expectations for their subordinates; did they get met? How do you know? We historically have done poorly when recording job performance with proper documentation. Be a part of a force to change this trend!
- Team members with written guidelines know what is expected of them. Performance ratings should have these expectations incorporated as rating factors. If met, say so. If not, explain why performance was less than adequate. Improvement for a next deployment is the goal.
- Routinely, agency administrators will be very satisfied with a team's performance when the incident is successfully controlled. Sometimes, to the point of embarrassment. However, do they really review your documentation, ask for final cost figures, demand reviews of accidents/injuries or feel free to discuss on-going political problems in an incident's aftermath? No, but these are the issues that administrators deal with. As a last professional gesture, what would an administrator do with a performance rating sheet listing these types of issues handed to him/her by an IC? It might be worth doing just that to watch their expression. If you get one honestly filled out, it will make a great learning tool for the entire team.
- Section heads must feel it's an obligation of their position to honestly rate subordinates. The team should decide early (in their guidelines) to what level of the organization performance ratings would be required. Once done, make the forms available and have a central location staffed for their collection. Distribute off the incident under direction of agency policy or the agency administrator.

Substandard or non-performance is not a frequent occurrence, but one that will need to be faced. If performance impacts the incident detrimentally; release and send them home. Follow with immediate contact to their home supervisor advising of the situation and reason for early return. Follow it with written documentation. Include all pertinent facts. You had better be right as this is about the biggest action you can take against a professional and one that may take follow-up action after the incident. But hey, that's what you get the big money and title for.

TIP! Personnel problems must be referred to the IC immediately. Some tough decisions have to be made. Is the transgression or act sufficient to warrant future punitive action? If so, recommendation is that a specific investigator for the occurrence be requested. Current personnel assigned to the incident already have a job and/or might not have expertise to perform and document a needed investigation properly. Get specialized help when needed.

TIP! Teams should have base/camp rules of conduct available in their portable word processing. This will need to detail acceptable/unacceptable conduct and attire for personnel to adhere to. Post on bulletin boards and include in IAPs as deemed appropriate. Then BACK IT UP!

Your incident has numerous resources from the state's Mutual Aid System assigned. A common situation but one that does have implications associated with it.

- Require a conscious and periodical review by operations on the effectiveness and value of these resources. On many occasions, we can look back and confidently say these resources were held too long. These have, at times, become a security blanket in case "something goes wrong". In many cases, their true value ended 24 hours previously. Monitor.
- Why do we continue to associate "structure protection" needs with Type I engines? In many locations, these monsters have limited applications. Nearly as many Type II and III engines are available through the system and these lend themselves better for many more applications. Think about it when ordering.
- When you have enough advance knowledge of need, request those state-owned engines available through the system. They are cheaper and have adequate capabilities for most applications. Response times can normally be the limiting factor.
- Demobilizing a large collection of mutual aid resources can become a nightmare. Plan early and staff up. The vehicle safety inspection portion takes a while.

You have stabilized the incident and begin planning for demobilization. As the primary thrust to accumulate resources was driven by operation's needs, this section has primary responsibility to generate information on their future needs and scale-back of the incident. One tool to assist in this "crystal ball" projecting is a matrix developed by operations. The matrix lists different types of resources to be used, each operational period out for a minimum of three days and projected needs of each type of resource for each subsequent operational period. Operations should review this matrix often. With exception of the following operational period, numbers can be modified as each operational period completes their assignment and the needs change up or down. Armed with this type of information, the team can begin demobilization planning and proceed. Plan early, review often and demobilize resources that are not needed

What's Coming Your Way Next?

What is on the horizon for Incident Management Teams? Who knows. However, if recent deployments are an indicator of the future, things will be interesting. New challenges exist and possible assignments for situations yet unknown surely will test skills of current and future team members.

The adoption of the Standard Emergency Management System (SEMS) guidelines by the State of California could impact teams deployed to that state. Incident management and coordination have been given new emphasis. Availability of trained/experienced Incident Management Teams is becoming known by many jurisdictions that previously had very little knowledge of or exercise in emergency management. Most are attempting to train and learn a system that will routinely be exercised annually or when “the big one” hits. Many have already demonstrated and acknowledged limited ability to function proficiently due to a lack of continuous application of these skills. With these specialized skills available on demand, many jurisdictions will look to Incident Management Teams to fill their occasional needs. What will this entail?

New types of incidents will need to be managed. Large scale Hazmats, civil disturbances, earthquakes, floods and, yes, an occasional tsunami will all impact California and possibly other locations. Who knows what other calamity will jolt nature’s playground for disasters. However, all will require massive amounts of resources for mitigation. Will managing these effectively be that much different than a wildland fire? No, only the actual application of these resource’s skills will be somewhat different. In other words, effectively dealing with large numbers is not any bigger deal than what we routinely do; only the application will differ.

What can a team expect? Consider:

- Teams will not normally have knowledge or training in many areas needed; dealing with large numbers of displaced citizens (both short and long-term), addressing water and air pollution concerns on a large scale, restoring basics of life needed to survive like emergency drinking water systems and food as well as many other aspects. What to do?
- Get the most knowledgeable technical specialist for areas where the corporate knowledge of the team is lacking; just like on a wildland fire incident. Then listen to them!
- Develop interpersonal skills that will be necessary to coordinate and interact with personnel from many diverse agencies and jurisdictions. This is not as easily accomplished as you might think. You will have inherent problems with some because of the “what do a bunch of wildland firefighters know” syndrome. Show ’em!
- You will not have that warm fuzzy feeling that you have done this particular type of incident a hundred times to fall back on. However, you will have tested emergency management skills exceeding those around you. Use ’em!
- Expenditure of dollars will be a nagging hindrance to feeling free to accomplish what is needed. “Where is all of this money coming from” will become a steady nightmare.

- Pressure to perform without a hitch will be ever present. This could be voiced or personally felt by individual team members. Effects might become overwhelming. Teams should discuss this and recognize its symptoms.
- Possible concerns for team member's personal property and family could surface. Were member's residences within an affected area? Deal with this straight away.
- Teams need awareness of, but avoid, intra and interagency political wars. Our presence at non-wildland fire incidents will incite some while soothing others. Regardless, you have a job to do; just do it and leave the infighting to the real wheels.
- With new types of incidents will come new types of assignments.
- You might not be in charge of the big picture; a portion or role could have been delegated, e.g., managing the receipt and distribution of relief supplies, restoration of water supplies, etc.
- You could be working for another management organization (team) on a portion of the overall incident that may or may not be experienced/ knowledgeable. Expect it.

With expansion of emergency response coordination and management under SEMS legislation comes the requirement for Emergency Operation Centers (EOCs) at various levels of government. Training continues for personnel for EOC staffing. A problem with this system is that a majority of the personnel will perform these EOC duties as an additional responsibility to their normal job. Many have only limited knowledge of performing in an emergency response mode.

Fewer have actually performed on emergency incidents. Obviously, many agencies will look toward Incident Management Teams for assistance based on known capabilities and input from their counterparts throughout the states.

Many jurisdictions and various levels of government have already discovered the abilities and availability of Incident Management Teams. This knowledge is being shared and expanded within those circles. What will a team face while filling a request to function within an EOC?

- A clear delegation of roles and authorities will be required. This should be a must even if the team has to assist in developing them (and you should/will). You could be operating in an arena without benefit of legal backing; may not be legislated to do some of the roles as expected on wildland fires. Get your delegation right and in enough detail to cover you and the agencies you represent.
- A team could be delegated to act as the sole management representative of the responsible jurisdiction. Delegation would need to be very specific and complete. Ramifications from an indiscriminate delegation could become monumental. This could equate to being delegated responsibility for a fire emergency.
- A team could be requested to perform as "shadows" or deputies within an EOC with responsible jurisdiction personnel filling all "lead" roles. The easiest way to visualize this

scenario is a team would be performing a “training” mission of walking the other personnel through the para-military organization of ICS and developing team building skills of the personnel. True delegation of authority would never leave the jurisdiction, but a team will need clear definition of their expected role.

- A team could be delegated portion(s) of large incidents to manage. Again, very specific delegations would need to be documented.

Handout 2-3: Sample ICS Form 213

Refer to EL_969_HO_2-3_ICs_Form_213_1_of_5.pdf

Refer to EL_969_HO_2-3_ICs_Form_213_2_of_5.pdf

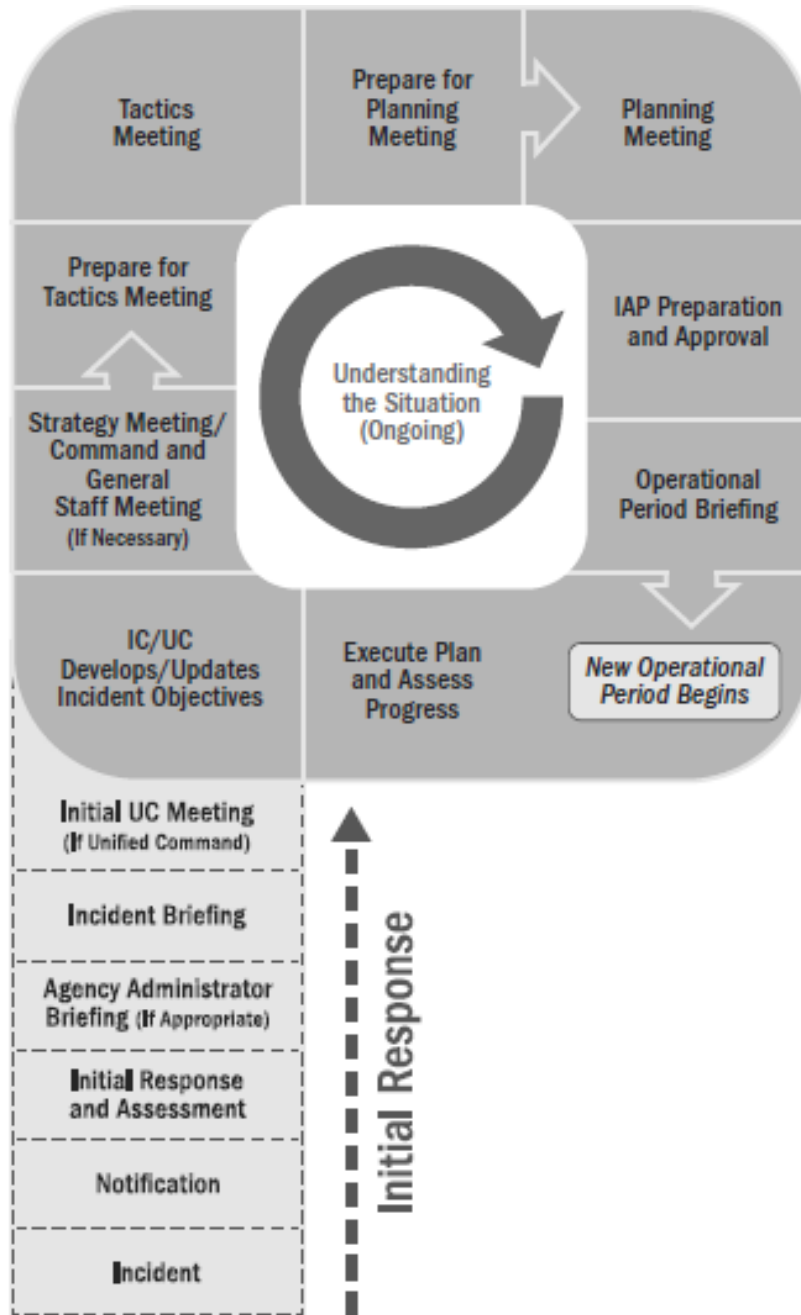
Refer to EL_969_HO_2-3_ICs_Form_213_3_of_5.pdf

Refer to EL_969_HO_2-3_ICs_Form_213_4_of_5.pdf

Refer to EL_969_HO_2-3_ICs_Form_213_5_of_5.pdf

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Handout 2-4: Operational Period Planning Cycle (Planning P)



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Handout 2-5: Sample ICS Form 201

Refer to EL_969_HO_2-5_ICs_Form_201.pdf

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Activity 2.1: COML Interactions with the IC/LSC

Activity 2.1 COML Interactions with the IC/LSC Unit 2

Purpose

The purpose of the activity is to provide the students with an opportunity to practice receiving, organizing, and requesting all of the appropriate information during the initial briefing by the IC/LSC.

Objectives

Students will:

- Identify the key information provided to the COML by the IC/LSC during the Initial Briefing.
- Recognize any incomplete information and ask questions accordingly.
- Draft an ICS Form 201.

Activity Structure

This activity is scheduled to last approximately 30 minutes. The instructor will read from the Train Derailment ICS Form 201 form and the IC/LSC briefing in the instructor guide. The activity is an instructor led discussion and students will ask questions during the activity. Based on this information, students will discuss the significance of the information received and draw conclusions (students will fill out an ICS Form 201).

Rules, Roles, and Responsibilities

Students will work individually, led by the instructor.

Following are the specific activities / instructions for your participation in the activity:

1. Listen to the IC/LSC briefing.
2. Ask appropriate questions to complete the briefing and perform as a COML.

Instructors moderate discussions, answer questions and provide additional information as required.

Activity 2.1 Schedule

Activity	Duration	Participation Type
Instructor Briefing	10 minutes	Classroom
Question and Answer/Discussion	20 minutes	Classroom

Activity 2.1: Blank ICS Form 201

Refer to EL_969_ACT_2.1_ICs_Form_201.pdf

Central City Tab

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Central City Overview

Liberty County is the largest county in the state in terms of population, and includes Central City, the largest and densest population center in the State of Columbia. The population of Central City is approximately 149,000 and the metropolitan area population is approximately 302,400. Central City serves as a major transportation hub within the state: commercial river traffic, rail, air, and interstate traffic and is 40 miles from the Port of Charlotte, on the Big Ocean.

Central City is the county seat for Liberty County and houses a population of 149,000. It is a diverse city with industrial areas, commercial areas, multi-family housing complexes and single family sub-divisions. The Central City government includes a Fire Department, Police Department, and Public Works Department. The city has a separate School District, four Hospitals and Two Universities.

Additional Background Information on Liberty County and Central City

- **Communications Network:** Liberty County operates a county-wide 911 dispatch center and a unified, interoperable trunked radio system used by all fire, EMS and law enforcement agencies. The Columbia State Police is not on this system.
- **Hospitals:** there are 4 hospitals in Central City with a total of over 600 beds.
- **Incident Management Teams (IMT):** The State of Columbia has one Type II IMT and three Type III IMTs. Central City has one Type IV IMT.
- **Liberty County Fire Service:** Liberty County has 12 fire departments with varying capabilities. The largest is the Central City Fire Department which employs over 300 firefighters. There is a single Level A capable HazMat team in Liberty County.
- **Liberty County Law Enforcement:** Law enforcement agencies have overlapping jurisdictions. The State police handle traffic law enforcement on the Interstate highways and State roads outside of incorporated cities and provide investigative assistance to counties and municipalities. The Liberty County Sheriff Department handles general law enforcement in unincorporated areas of the county using a staff of 201 personnel. They have a Type III SWAT Team. The Central City Police Department (CCPD) handles law enforcement and community safety services within the city limits with a staff of 183 personnel. They have a 5 person bomb squad.
- **Emergency Medical Services (EMS):** The State EMS system organizes ALS and BLS Strike Teams to ensure that all communities have EMS response capability. 200 BLS and 300 ALS ground ambulances are licensed but only a few have HazMat capability. Liberty County EMS is managed by the County Public Health Department. There are a total of 93 personnel providing EMS services in Central City and Liberty County areas. One rotary-wing air ambulance is located at Central City Hospital.

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Radio Systems

The State has an Analog, proprietary ACME Trunked Radio System. In this county, they have 1 cell with 5 channels available; there is some overlap from adjacent counties. The in-county cell covers 100% of the county with mobile coverage and most of the county on portable. All State Law and Fire radios have all the Talkgroups. The DOT and DNR radios only have the Interoperability, DNR, and DOT Talkgroups. Their Talkgroups/ channels are:

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 800 MHz			Description State ACME TRS	
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Trunked	STPD DISP	LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
2	Trunked	STPD TRAFFIC	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
3	Trunked	STPD INVEST	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
4	Trunked	STPD ADMIN	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
5	Trunked	STFIRE DISP	FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
6	Trunked	STFIRE1	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
7	Trunked	STFIRE2	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
8	Trunked	FIRE ADMIN	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
9	Trunked	DOT1	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
10	Trunked	DOT2	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
11	Trunked	DOT3	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
12	Trunked	DOTADMIN	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
13	Trunked	DNR1	DNR/L/F/DOT	STATE ACME TRUNKED RADIO SYSTEM				A	
14	Trunked	DNR2	DNR/L/F/DOT	STATE ACME TRUNKED RADIO SYSTEM				A	
15	Repeater	8CALL90	ALL	851.0125 N	156.7	806.0125 N	156.7	A	National Interop Channel
16	Repeater	8TAC91	ALL	851.5125 N	156.7	806.5125 N	156.7	A	National Interop Channel
17	Repeater	8TAC92	ALL	852.0125 N	156.7	807.0125 N	156.7	A	National Interop Channel
18	Repeater	8TAC93	ALL	852.5125 N	156.7	807.5125 N	156.7	A	National Interop Channel
19	Repeater	8TAC94	ALL	853.0125 N	156.7	808.0125 N	156.7	A	National Interop Channel
20									

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The Liberty County Sheriff’s Department operates a 4 channel, simulcast conventional UHF system. The coverage on all channels is basically county wide. Dispatch monitors all channels. However, the interoperability channels have limited countywide coverage, but are effective in Central City. The system consists of the following channels:

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET							Frequency Band UHF		Description Liberty County Sheriff		
Form 217A							UHF				
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks		
1	Repeater	SO DISP	LAW	460.5750 N	162.2	465.5750 N	162.2	A			
2	Repeater	SO TAC1	LAW	461.3250 N	162.2	466.3250 N	162.2	A			
3	Repeater	SO TAC2	LAW	460.9250 N	162.2	465.9250 N	162.2	A			
4	Repeater	SO ADMIN	LAW	460.3125 N	162.2	465.3125 N	162.2	A			
5	Repeater	UCALL40	ALL	453.2125 N	156.7	458.2125 N	156.7	A	National Interop Channel		
6	Repeater	UTAC41	ALL	453.4625 N	156.7	458.4625 N	156.7	A	National Interop Channel		
7	Repeater	UTAC42	ALL	453.7125 N	156.7	458.7125 N	156.7	A	National Interop Channel		
8	Repeater	UTAC43	ALL	453.8625 N	156.7	458.8625 N	156.7	A	National Interop Channel		
9											
10											
11											
12											
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14											
15											
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19											
20											

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

Liberty County Fire operates a 3 channel simulcast VHF system with countywide coverage. Only the dispatch channels (CFD DISP) and VCALL10 are monitored in Dispatch. All fire radios have the Public Works channels as well. The County Fire channels are as follows:

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET							Frequency Band VHF		Description Liberty County Fire	
Form 217A										
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Repeater	CFD DISP	FIRE	151.4450 N	110.9	159.3950 N	110.9	A		
2	Repeater	CFD TAC 1	FIRE	151.3550 N	136.5	159.5950 N	136.5	A		
3	Repeater	CFD TAC 2	FIRE	151.2650 N	156.7	159.1525 N	156.7	A		
4	Simplex	VFIRE21	FIRE	154.2800 N	NONE	154.2800 N	NONE	A	Public Safety Mutual Aid	
5	Simplex	VFIRE22	FIRE	154.2650 N	NONE	154.2650 N	NONE	A	Public Safety Mutual Aid	
6	Simplex	VFIRE23	FIRE	154.2950 N	NONE	154.2950 N	NONE	A	Public Safety Mutual Aid	
7	Simplex	VCALL10	FIRE	155.7525 N	NONE	155.7525 N	156.7	A	National Interop Channel	
8	Simplex	VTAC11	FIRE	151.1375 N	NONE	151.1375 N	156.7	A	National Interop Channel	
9	Simplex	VTAC12	FIRE	154.4525 N	NONE	154.4525 N	156.7	A	National Interop Channel	
10	Simplex	VTAC13	FIRE	158.7375 N	NONE	158.7375 N	156.7	A	National Interop Channel	
11	Simplex	VTAC14	FIRE	159.4725 N	NONE	159.4725 N	156.7	A	National Interop Channel	
12	Repeater	CPW 1	PW/FIRE	153.2275 N	136.5	155.2500 N	136.5	A	Public Works and Fire	
13	Repeater	CPW 2	PW/FIRE	155.6525 N	136.5	154.9950 N	136.5	A	Public Works and Fire	
14	Simplex	VCALL10	FIRE	155.7525 N	NONE	155.7525 N	156.7	A	National Interop Channel	
15	Simplex	VTAC11	FIRE	151.1375 N	NONE	151.1375 N	156.7	A	National Interop Channel	
16	Simplex	VTAC12	FIRE	154.4525 N	NONE	154.4525 N	156.7	A	National Interop Channel	
17	Simplex	VTAC13	FIRE	158.7375 N	NONE	158.7375 N	156.7	A	National Interop Channel	
18	Simplex	VTAC14	FIRE	159.4725 N	NONE	159.4725 N	156.7	A	National Interop Channel	
19										
20										

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

Liberty County Ambulance

The County is served by a single Emergency Medical provider. This is a private company that operates a two channel T-Band UHF radio system.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band UHF – T-Band		Description MEDS (County EMS)	
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Repeater	MEDS1	EMS	488.9125 W	D162	491.8125 W	D162	A	
2	Repeater	MEDS2	EMS	488.4375 W	D162	491.4275 W	D162	A	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The City of Central City operates an 8 channel P25 Trunked Radio System. This system supports all Central City agencies. System coverage includes Central City and approximately 3 miles surrounding the boundaries.

In this region, there are strong Mutual Aid agreements in place with Law, Fire and Public Works, so all jurisdictions surrounding the city work well together. The following Talkgroups and channels are available in their portable and mobile radios:

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET				Frequency Band 800 MHz		Description Central City P25 TRS			
Form 217A									
Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Trunked	CCPD DISP	LAW	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
2	Trunked	CCPD TAC1	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
3	Trunked	CCPD TAC2	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
4	Trunked	CCPD ADMIN	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
5	Trunked	CCFIRE DISP	FIRE	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
6	Trunked	CCFIRE TAC1	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
7	Trunked	CCFIRE TAC2	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
8	Trunked	CCFIRE ADMIN	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
9	Trunked	CCPW DISP	PUB WORKS	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
10	Trunked	CCPW TAC1	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
11	Trunked	CCMUNI GOV	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
12	Trunked	CCADMIN1	LOCAL GOV	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
13	Trunked	CCADMIN2	LOCAL GOV	CENTRAL CITY P25 TRUNKED RADIO SYSTEM			D		
14	Repeater	8CALL90	ALL	851.0125 N	156.7	806.0125 N	156.7	A	National Interop Channel
15	Repeater	8TAC91	ALL	851.5125 N	156.7	806.5125 N	156.7	A	National Interop Channel
16	Repeater	8TAC92	ALL	852.0125 N	156.7	807.0125 N	156.7	A	National Interop Channel
17	Repeater	8TAC93	ALL	852.5125 N	156.7	807.5125 N	156.7	A	National Interop Channel
18	Repeater	8TAC94	ALL	853.0125 N	156.7	808.0125 N	156.7	A	National Interop Channel

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The City of North City operates a conventional Narrow Band VHF system for Law and Fire. North City Public Works relies upon Cell services for communications. LAW/FIRE coordination is conducted on National Interop Channels. The consolidated dispatch center monitors VCALL10.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET							Frequency Band VHF		Description North City Law and Fire	
Form 217A										
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Repeater	NPD DISP	LAW	152.1450 N	107.2	157.3650 N	107.2	A		
2	Repeater	NPD TAC	LAW	150.3200 N	136.5	158.6850 N	136.5	A		
3	Repeater	NFD DISP	FIRE	154.9950 N	167.9	155.1525 N	167.9	A		
4	Simplex	VFIRE21	FIRE	154.2800 N	NONE	154.2800 N	NONE	A	Public Safety Mutual Aid	
5	Simplex	VFIRE22	FIRE	154.2650 N	NONE	154.2650 N	NONE	A	Public Safety Mutual Aid	
6	Simplex	VFIRE23	FIRE	154.2950 N	NONE	154.2950 N	NONE	A	Public Safety Mutual Aid	
7	Simplex	VCALL10	ALL	155.7525 N	NONE	155.7525 N	156.7	A	National Interop Channel	
8	Simplex	VTAC11	ALL	151.1375 N	NONE	151.1375 N	156.7	A	National Interop Channel	
9	Simplex	VTAC12	ALL	154.4525 N	NONE	154.4525 N	156.7	A	National Interop Channel	
10	Simplex	VTAC13	ALL	158.7375 N	NONE	158.7375 N	156.7	A	National Interop Channel	
11	Simplex	VTAC14	ALL	159.4725 N	NONE	159.4725 N	156.7	A	National Interop Channel	
12										
13										
14										
15										
16										
17										
18										
19										
20										

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The City of East City operates a P25 trunked radio system for all users in the City. All radios have the interoperable channels, but there is no ISSI connection between the system in Central City and the system in East City.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 800 MHz			Description East City P25 TRS	
Form 217A									
Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Trunked	EASTPD DISP	LAW	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
2	Trunked	EASTPD TAC1	ALL	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
3	Trunked	EASTPD SWAT	LAW	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
4	Trunked	EAST FIRE DISP	FIRE	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
5	Trunked	EASTFIRE1	ALL	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
6	Trunked	EASTFIRE2	ALL	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
7	Trunked	EAST PW 1	PUB WORKS	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
8	Trunked	EAST PW 2	PUB WORKS	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
9	Trunked	EAST PW 3	ALL	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
10	Trunked	EASTADMIN1	LOCAL GOV	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
11	Trunked	EASTADMIN2	LOCAL GOV	EAST CITY P25 TRUNKED RADIO SYSTEM			D		
12	Repeater	8CALL90	ALL	851.0125 N	156.7	806.0125 N	156.7	A	National Interop Channel
13	Repeater	8TAC91	ALL	851.5125 N	156.7	806.5125 N	156.7	A	National Interop Channel
14	Repeater	8TAC92	ALL	852.0125 N	156.7	807.0125 N	156.7	A	National Interop Channel
15	Repeater	8TAC93	ALL	852.5125 N	156.7	807.5125 N	156.7	A	National Interop Channel
16	Repeater	8TAC94	ALL	853.0125 N	156.7	808.0125 N	156.7	A	National Interop Channel
17									
18									
19									
20									

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The City of West City operates a conventional Narrow Band UHF system for Law enforcement and a conventional Narrow Band VHF system for the Fire Department. Public Works uses a T-Band UHF single channel system. All radios have the appropriate National Interop Channels.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET							Frequency Band UHF and VHF		Description West City	
Form 217A										
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Repeater	WEST PD DISP	LAW	461.3750 N	136.5	466.3750 N	136.5	A		
2	Repeater	WEST PD TAC1	LAW	461.1250 N	136.5	466.1250 N	136.5	A		
3	Repeater	WEST PD TAC2	LAW	460.8550 N	136.5	465.8550 N	136.5	A		
4	Repeater	WEST PW DISP	PW	488.4675 N	186.2	491.4675 N	186.2	A		
5	Repeater	UCALL40	ALL	453.2125 N	156.7	458.2125 N	156.7	A	National Interop Channel	
6	Repeater	UTAC41	ALL	453.4625 N	156.7	458.4625 N	156.7	A	National Interop Channel	
7	Repeater	UTAC42	ALL	453.7125 N	156.7	458.7125 N	156.7	A	National Interop Channel	
8	Repeater	UTAC43	ALL	453.8625 N	156.7	458.8625 N	156.7	A	National Interop Channel	
9	Repeater	WEST FIRE DISP	FIRE	155.5250 N	110.9	158.5255 N	110.9	A		
10	Simplex	WEST FIRE TAC	FIRE	154.1250 N	110.9	154.1250 N	110.9	A		
11	Simplex	VFIRE21	FIRE	154.2800 N	NONE	154.2800 N	NONE	A	Public Safety Mutual Aid	
12	Simplex	VFIRE22	FIRE	154.2650 N	NONE	154.2650 N	NONE	A	Public Safety Mutual Aid	
13	Simplex	VFIRE23	FIRE	154.2950 N	NONE	154.2950 N	NONE	A	Public Safety Mutual Aid	
14	Simplex	VCALL10	FIRE	155.7525 N	NONE	155.7525 N	156.7	A	National Interop Channel	
15	Simplex	VTAC11	FIRE	151.1375 N	NONE	151.1375 N	156.7	A	National Interop Channel	
16	Simplex	VTAC12	FIRE	154.4525 N	NONE	154.4525 N	156.7	A	National Interop Channel	
17										
18										
19										
20										

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

Coast Guard Station Central City

The Coast Guard operates on Marine Channels 16, 21A, 61 and 81A.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band Marine VHF & Public Safety VHF			Description Coast Guard Station - CC		
Form 217A											
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq	N or W	RX Tone/NAC	TX Freq	N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Simplex	MARINE 16	MARINE	156.8000	W	NONE	156.8000	W	NONE	A	Distress Frequency
2	Simplex	MARINE 21A	MARINE	157.0500	W	NONE	157.0500	W	NONE	A	
3	Simplex	MARINE 61	MARINE	156.0750	W	NONE	156.0750	W	NONE	A	
4	Simplex	MARINE 81A	MARINE	157.0750	W	NONE	157.0750	W	NONE	A	
5	Simplex	VCALL10	ALL	155.7525	N	NONE	155.7525	N	NONE	A	National Interop Channel
6	Simplex	VTAC11	ALL	151.1375	N	NONE	151.1375	N	NONE	A	National Interop Channel
7	Simplex	VTAC12	ALL	154.4525	N	NONE	154.4525	N	156.7	A	National Interop Channel
8	Simplex	VTAC13	ALL	158.7375	N	NONE	158.7375	N	156.7	A	National Interop Channel
9	Simplex	VTAC14	ALL	159.4725	N	NONE	159.4725	N	156.7	A	National Interop Channel
10											
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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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

The Oil Refinery Security and Fire operates on a proprietary ACME trunked system. They have two talkgroups assigned to them and no interoperability channels in their radios.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 800 MHz		Description Oil Refinery Security and Fire ACME TRS		
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Trunked	OIL SEC 1	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
2	Trunked	OIL SEC 2	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
3	Trunked	OIL FIRE CMD1	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
4	Trunked	OIL FIRE TAC 1	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
5									
6									
7									
8									
9									
10									
11									
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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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

Consolidated Communications Resources by Type

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET Form 217A							Frequency Band National Interop VHF Channels	Description Central City Incident	
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Simplex	VCALL10	All Eligible	155.7525 N	NONE	155.7525 N	NONE	A	
2	Simplex	VTAC11	All Eligible	151.1375 N	NONE	151.1375 N	NONE	A	
3	Simplex	VTAC12	All Eligible	154.4525 N	NONE	154.4525 N	156.7	A	
4	Simplex	VTAC13	All Eligible	158.7375 N	NONE	158.7375 N	156.7	A	
5	Simplex	VTAC14	All Eligible	159.4725 N	NONE	159.4725 N	156.7	A	
6	Simplex	VFIRE21	FIRE	154.2800 N	NONE	154.2800 N	NONE	A	Public Safety Mutual Aid
7	Simplex	VFIRE22	FIRE	154.2650 N	NONE	154.2650 N	NONE	A	Public Safety Mutual Aid
8	Simplex	VFIRE23	FIRE	154.2950 N	NONE	154.2950 N	NONE	A	Public Safety Mutual Aid
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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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band National Interop UHF Channels		Description Central City Incident	
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Repeater	UCALL40	All Eligible	453.2125 N	156.7	458.2125 N	156.7	A	National Interop Channel
2	Repeater	UTAC41	All Eligible	453.4625 N	156.7	458.4625 N	156.7	A	National Interop Channel
3	Repeater	UTAC42	All Eligible	453.7125 N	156.7	458.7125 N	156.7	A	National Interop Channel
4	Repeater	UTAC43	All Eligible	453.8625 N	156.7	458.8625 N	156.7	A	National Interop Channel
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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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band National Interop 800 Channels			Description Central City Incident	
Form 217A										
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Repeater	8CALL90	ALL	851.0125 N	156.7	806.0125 N	156.7	A		
2	Repeater	8TAC91	ALL	851.5125 N	156.7	806.5125 N	156.7	A		
3	Repeater	8TAC92	ALL	852.0125 N	156.7	807.0125 N	156.7	A		
4	Repeater	8TAC93	ALL	852.5125 N	156.7	807.5125 N	156.7	A		
5	Repeater	8TAC94	ALL	853.0125 N	156.7	808.0125 N	156.7	A		
6										
7										
8										
9										
10										
11										
12										
13										
14										
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17										
18										
19										
20										

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band 800 MHz			Description State ACME TRS	
Form 217A										
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks	
1	Repeater	CFD DISP	FIRE	151.4450 N	110.9	159.3950 N	110.9	A		
2	Repeater	CFD TAC 1	FIRE	151.3550 N	136.5	159.5950 N	136.5	A		
3	Repeater	CFD TAC 2	FIRE	151.2650 N	156.7	159.1525 N	156.7	A		
4	Repeater	CPW 1	PW/FIRE	153.2275 N	136.5	155.2500 N	136.5	A	Public Works and Fire	
5	Repeater	CPW 2	PW/FIRE	155.6525 N	136.5	154.9950 N	136.5	A	Public Works and Fire	
6	Repeater	NPD DISP	LAW	152.1450 N	107.2	157.3650 N	107.2	A		
7	Repeater	NPD TAC	LAW	150.3200 N	136.5	158.6850 N	136.5	A		
8	Repeater	NFD DISP	FIRE	154.9950 N	167.9	155.1525 N	167.9	A		
9	Repeater	WEST FIRE DISP	FIRE	155.5250 N	110.9	158.5255 N	110.9	A		
10	Simplex	WEST FIRE TAC	FIRE	154.1250 N	110.9	154.1250 N	110.9	A		
11	Simplex	MARINE 16	MARINE	156.8000 W	NONE	156.8000 W	NONE	A	Distress Frequency	
12	Simplex	MARINE 21A	MARINE	157.0500 W	NONE	157.0500 W	NONE	A		
13	Simplex	MARINE 61	MARINE	156.0750 W	NONE	156.0750 W	NONE	A		
14	Simplex	MARINE 81A	MARINE	157.0750 W	NONE	157.0750 W	NONE	A		
15										
16										
17										
18										
19										
20										

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET						Frequency Band UHF		Description Central City Incident	
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Repeater	SO DISP	LAW	460.5750 N	162.2	465.5750 N	162.2	A	
2	Repeater	SO TAC1	LAW	461.3250 N	162.2	466.3250 N	162.2	A	
3	Repeater	SO TAC2	LAW	460.9250 N	162.2	465.9250 N	162.2	A	
4	Repeater	SO ADMIN	LAW	460.3125 N	162.2	465.3125 N	162.2	A	
5	Repeater	MEDS1	EMS	488.9125 W	D162	491.8125 W	D162	A	
6	Repeater	MEDS2	EMS	488.4375 W	D162	491.4275 W	D162	A	
7	Repeater	WEST PD DISP	LAW	461.3750 N	136.5	466.3750 N	136.5	A	
8	Repeater	WEST PD TAC1	LAW	461.1250 N	136.5	466.1250 N	136.5	A	
9	Repeater	WEST PD TAC2	LAW	460.8550 N	136.5	465.8550 N	136.5	A	
10	Repeater	WEST PW DISP	PW	488.4675 N	186.2	491.4675 N	186.2	A	
11									
12									
13									
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16									
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18									
19									
20									

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 700/800 MHz		Description Central City Incident		
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Trunked	STPD DISP	LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
2	Trunked	STPD TRAFFIC	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
3	Trunked	STPD INVEST	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
4	Trunked	STPD ADMIN	LAW/FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
5	Trunked	STFIRE DISP	FIRE	STATE ACME TRUNKED RADIO SYSTEM				A	
6	Trunked	STFIRE1	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
7	Trunked	STFIRE2	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
8	Trunked	FIRE ADMIN	FIRE/LAW	STATE ACME TRUNKED RADIO SYSTEM				A	
9	Trunked	DOT1	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
10	Trunked	DOT2	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
11	Trunked	DOT3	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
12	Trunked	DOTADMIN	DOT/DNR/L/F	STATE ACME TRUNKED RADIO SYSTEM				A	
13	Trunked	DNR1	DNR/L/F/DOT	STATE ACME TRUNKED RADIO SYSTEM				A	
14	Trunked	DNR2	DNR/L/F/DOT	STATE ACME TRUNKED RADIO SYSTEM				A	
15	Trunked	CCPD DISP	LAW	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	
16	Trunked	CCPD TAC1	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	
17	Trunked	CCPD TAC2	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	
18	Trunked	CCPD ADMIN	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	
19	Trunked	CCFIRE DISP	FIRE	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	
20	Trunked	CCFIRE TAC1	ALL	CENTRAL CITY P25 TRUNKED RADIO SYSTEM				D	

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ICS Form 217A Communications Resource Availability Worksheet

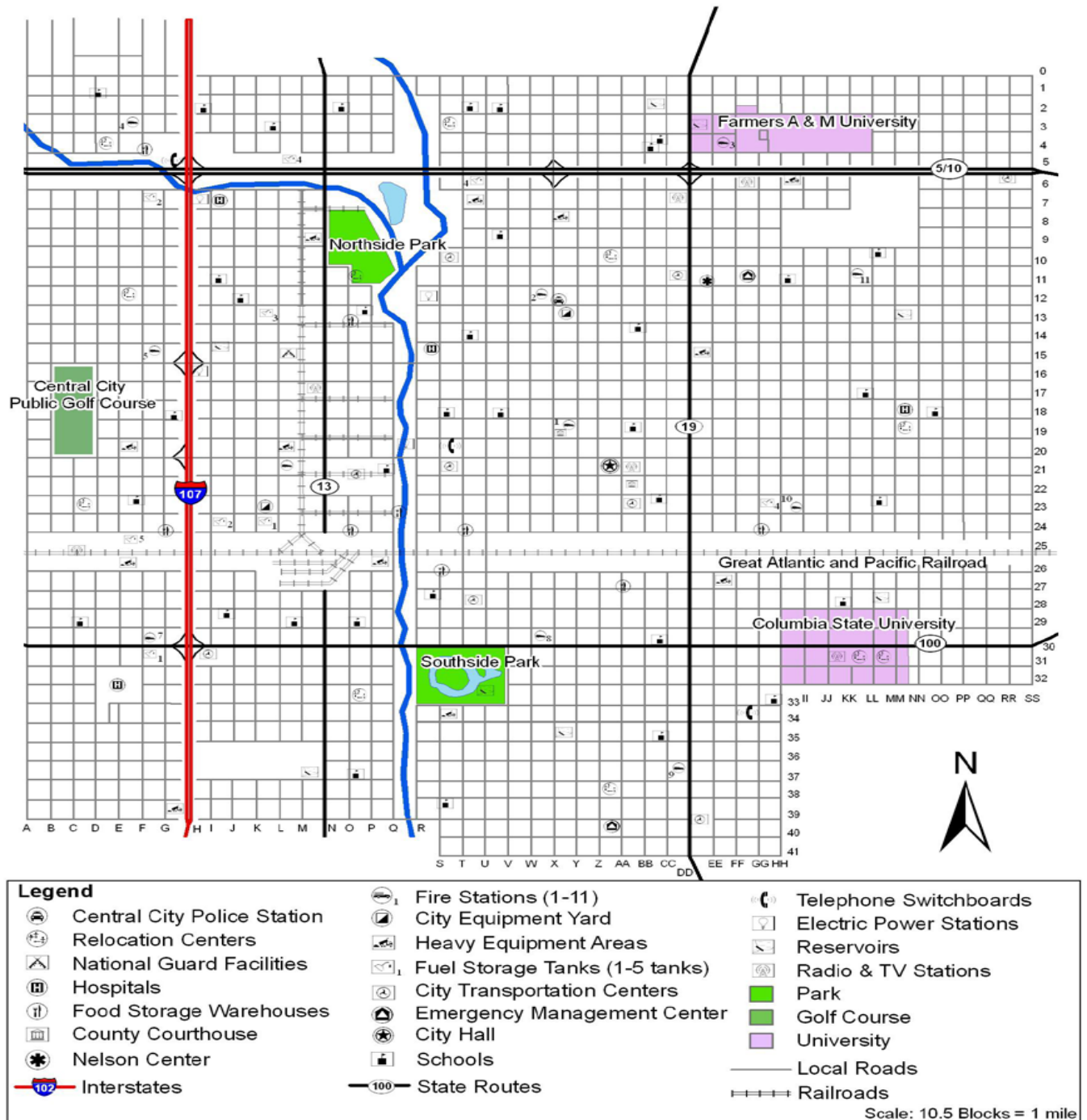
COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 700/800 MHz		Description Central City Incident		
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Trunked	CCFIRE TAC2	ALL					D	
2	Trunked	CCFIRE ADMIN	ALL					D	
3	Trunked	CCPW DISP	PUB WORKS					D	
4	Trunked	CCPW TAC1	ALL					D	
5	Trunked	CCMUNI GOV	ALL					D	
6	Trunked	CCADMIN1	LOCAL GOV					D	
7	Trunked	CCADMIN2	LOCAL GOV					D	
8	Trunked	EASTPD DISP	LAW					D	
9	Trunked	EASTPD TAC1	ALL					D	
10	Trunked	EASTPD SWAT	LAW					D	
11	Trunked	EAST FIRE DISP	FIRE					D	
12	Trunked	EASTFIRE1	ALL					D	
13	Trunked	EASTFIRE2	ALL					D	
14	Trunked	EAST PW 1	PUB WORKS					D	
15	Trunked	EAST PW 2	PUB WORKS					D	
16	Trunked	EAST PW 3	ALL					D	
17	Trunked	EASTADMIN1	LOCAL GOV					D	
18	Trunked	EASTADMIN2	LOCAL GOV					D	
19	Trunked	OIL SEC 1	SEC/FIRE					A	Proprietary ACME system
20	Trunked	OIL SEC 2	SEC/FIRE					A	Proprietary ACME system

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 portable or mobile radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET					Frequency Band 700/800 MHz		Description Central City Incident		
Form 217A									
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users/Assignments	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D, or M	Remarks
1	Trunked	OIL FIRE CMD1	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
2	Trunked	OIL FIRE TAC 1	SEC/FIRE	OIL REFINERY SECURITY AND FIRE TRUNKED RADIO SYSTEM				A	Proprietary ACME system
3									
4									
5									
6									
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Map of Central City

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Urban Train Derailment Narrative

In the early morning today, a CC&BF freight train derailed and rolled down an embankment along the Roaring River. Parts of the front of the train lay on its side in the river and along the steeply sloping riverbank. The area along the riverbank is part of the Central City Northside Park. The train consisted of 4 diesel locomotives, 23 tank cars (pressurized and non-pressurized), 12 hopper cars, and 2 cryogenic liquid tank cars containing liquid oxygen (LOX). Initial assessment indicates that several of the pressurized tank cars containing chlorine and anhydrous ammonia have ruptured. Two of the LPG tank cars exploded on impact during the derailment, causing a fire. The hopper cars containing ammonium nitrate lie on their sides, and the contents have spilled onto the banks of the river. The locomotive diesel tanks have ruptured, spilling diesel into the river. The cryogenic tank cars appear to be intact; however, several of the non-pressurized tank cars have released an unknown quantity of crude sulfate turpentine into the river.

The Engineer driving the train managed to get to the riverbank and is being treated at Central Hospital for serious injuries sustained in the derailment. Central City Police Department cars are on both sides of the river at the derailment. Their police radio picks up a report of a chlorine gas cloud forming immediately downstream from the leaking rail cars. This report was picked up by several citizens who contacted the local news stations in Central City. Reporters from the major local TV, radio, and newspaper news bureaus are on the way to the incident. One of the TV news crews is already shooting pictures. The local TV reporter is asking to do an interview for their evening news, and other reporters are lining up for interviews as well.

There is uncertainty about whom or which agency is in charge of the incident. There is a pervasive rumor that the train Engineer's license to operate the engine had expired, but that is being checked out. The neighborhoods immediately adjacent to the spill on both sides of the river are being evacuated due to the danger posed by the chlorine gas. The area about 200 yards from the derailment has been cordoned off. Hazmat crews and rail crews are busy containing the spill and bringing in equipment to remove the derailed cars. The mayor has issued an evacuation order for residents in the surrounding area and is requesting assistance from the state. The Red Cross is establishing an evacuation center at North High School in Central City.

There are rumors that hundreds of Coho salmon, a federally listed threatened species have been killed in the river. The Parks Department, County, and State Department of Natural Resources have issued an advisory and closed the river to fishing, recreation and other uses for 25 miles downriver from the rail bridge site.

The Emergency Medical Agency (EMA) in Liberty County is reporting numerous incidents of burning eyes and lungs. The Central City hospital has exceeded its capability to staff the emergency room. There are numerous water intakes along this stretch of the Roaring River.

Liberty County is the largest county in the state in terms of population, and includes Central City, the largest and densest population center in the State of Columbia. The population of Central City is approximately 149,000 and the metropolitan area population is approximately 302,400. Central City serves as a major transportation hub within the state: commercial river traffic, rail, air, and interstate traffic and is 40 miles from the Port of Charlotte, on the Big Ocean.

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Central City Train Derailment IAP

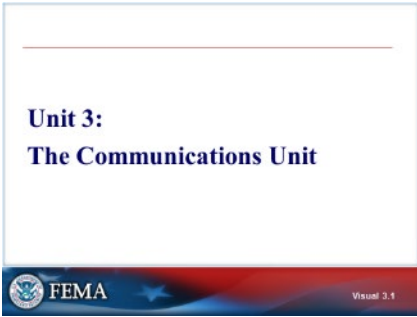
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Unit 3: The Communications Unit

STUDENT MANUAL

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Visual 3.1

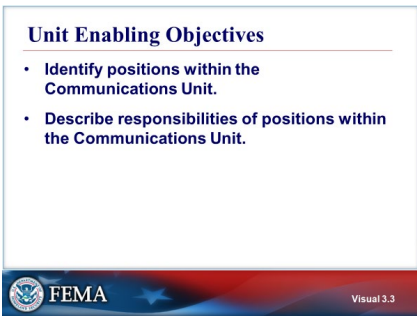
UNIT 3: THE COMMUNICATIONS UNIT



Visual 3.2

UNIT TERMINAL OBJECTIVE

Describe the function and components of the Communications Unit and qualification process for the Communications Unit Leader.



Visual 3.3

UNIT ENABLING OBJECTIVES

- Identify positions within the Communications Unit.
- Describe responsibilities of positions within the Communications Unit.

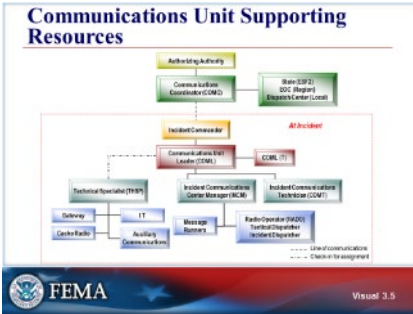


Visual 3.4

NATIONAL INCIDENT MANAGEMENT SYSTEM/INCIDENT COMMAND SYSTEM

The COML works for the Service Branch, under Logistics. Only extremely large incidents are likely to have a Service Branch.

The COML must have an integral working knowledge of ICS.



Visual 3.5

COMMUNICATIONS UNIT SUPPORTING RESOURCES

One of the most important officials the COML must contact is the communications point of contact (POC).

This is an unofficial title, and the actual POC may have one of a number of different titles, such as the Communications Coordinator (COMC), Communications Duty Officer (CDO), an NWCG term that is starting to work its way into the All-Hazards community.

In the local response this could be the Radio System Manager or the Communications Center Manager; at a state level this could be the SWIC or state Communications Officer.

The communications POC/CDO/COMC helps with:

- Equipment assignments
- Frequency assignments (repeaters, links, aircraft, tactical)
- Status of orders (preorders, equipment, when ordered, ETA, etc.)
- Adjacent incident information (interoperability issues, frequency assignments, incident locations, contact information)
- Equipment availability (pre-positioned, cache location, shortages)
- Verifying incident location
- Identifying if communications coordination assistance is available



Visual 3.6

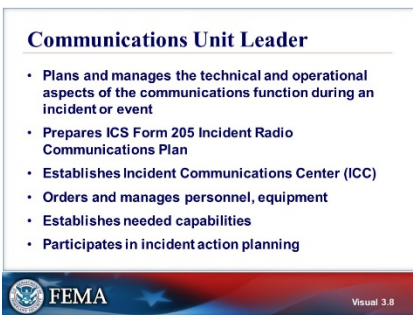
THE COMMUNICATIONS UNIT



Visual 3.7

COMMUNICATIONS UNIT PERSONNEL

- Incident Communications Technician (COMT) - Installs and troubleshoots communications equipment
- Incident Communications Center Manager (INCM) - Manages an Incident Communications Center (ICC), when having the COML do so would present span-of-control issues
- Radio Operator (RADO) - Staffs the ICC, using radios to receive information and relay messages
- Auxiliary Communicator (AUXCOMM) – This unofficial ICS position supports the operational and technical aspects of the Auxiliary Communications Unit, maintains and/or operates the AUXCOMM network; the knowledge to perform this function applies to every AUXCOMM position
- Technical Specialist - Catch-all term for outside specialists providing expertise to the COML
- Message Runner - Physically relays messages to areas not yet served with any communications system



Visual 3.8

COMMUNICATIONS UNIT LEADER

The COML is responsible for tasks that include creating a Communications Plan, identifying and ordering the resources needed to implement the plan, setting-up and managing a center for communications, properly documenting all unit activities, and collaborating with the IMT for incident planning.

Communications Unit Leader (COML)

Duties: As with any ICS position, the COML is responsible for the duties of unfilled subordinate positions (INCM, COMT, THSP, RADO/Tactical Dispatcher) until delegated.



FEMA Visual 3.9

Visual 3.9

COMMUNICATIONS UNIT LEADER (COML)

The COML is responsible for completing the duties of any organizationally subordinate task he or she has not delegated.

Even after delegated, the COML maintains responsibility for overseeing the work of his/her subordinates.

When a Unit Leader does not delegate duties, he/she assumes them.

Incident Communications Center Manager (INCM)

Duties:

- Manage the operational aspects of the Communications Unit
- Supervise Radio Operators
- Assists the COML in establishing and maintaining the Incident Communications Center (ICC)



FEMA Visual 3.10

Visual 3.10

INCIDENT COMMUNICATIONS CENTER MANAGER (INCM)

The INCM is responsible for duties that include the items on the slide. The INCM will often assist the COML in cache management, record keeping, etc.

The INCM is essential to the smooth and efficient operation of an Incident Communications Center.

Communications Technician (COMT)

The COMT is responsible for supporting the technical activities of the Communications Unit. For example:

- Radio/system coverage
- Radio programming
- Maintenance and repair
- Gateway management
- Cache management
- Portable repeater deployment



FEMA Visual 3.11

Visual 3.11

COMMUNICATIONS TECHNICIAN (COMT)

This position is critical for the implementation of Technical Assets.

Communications Technician (COMT) (Cont.)

Duties: Provides for the technical implementation of incident communications systems:

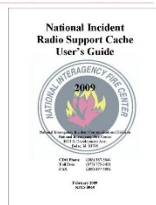
- Provides for equipment distribution
- Tracks equipment
- Trains users on use of equipment
- Verifies proper programming of equipment for incident
- Assists COML in the development of the ICS Form 205 Incident Radio Communications Plan



Visual 3.12

Communications Technician (COMT) (Cont.)

Similarly, an NWCG-qualified COMT is responsible for deploying radio cache assets specifically belonging to the National Interagency Incident Communications Division (NIICD) at the National Interagency Fire Center (NIFC) in Boise, Idaho.



Visual 3.13


COMMUNICATIONS TECHNICIAN (COMT) (CONT.)**COMMUNICATIONS TECHNICIAN (COMT) (CONT.)**

The difference between an NWCG and an All-Hazards COMT. These include:

- NWCG COMT:
 - Frequencies assigned by NIICD
 - Radio cache, including radios and portable repeaters, comes from NIFC
 - Radios programmable in the field and do not need a unique ID to work
 - Gateway device usually not needed
- All-Hazards COMT:
 - Typically, radio system is a trunked radio system or overlapping systems from neighboring agencies
 - Radios brought by responders from their agency or a cache deployed from the Authority Having Jurisdiction (AHJ)
 - Radios cannot be field programmed or added to AHJ system in the field
 - Gateway device may be needed
 - Encryption may be a requirement or utilized by some responders (typically LE)

Radio Operator (RADO)

A RADO staffs a radio operator's position at the ICC and is responsible for documenting all radio and telephone messages.




FEMA Visual 3.14

Visual 3.14

Incident Dispatchers and Tactical Dispatchers

Some local agencies have trained public safety dispatchers to work in the field at the incident scene as Incident and/or Tactical Dispatchers who can bring additional training and experience to the ICC.



FEMA Visual 3.15

Visual 3.15

Technical Specialists

"Technical Specialist" is a catch-all position that allows for the formal incorporation of personnel who may not be "qualified" in a specific NIMS/ICS position. For example:

- Information Technology (IT) Specialist
- Local Agency Radio Technicians (not qualified as a COMT)
- Telephone Technicians
- Interoperability Gateway Specialist
- Mobile Communications Center Specialist
- Cache Radio Specialist
- GIS Specialist



FEMA Visual 3.16

Visual 3.16

RADIO OPERATOR (RADO)

The RADO is responsible for tasks that include documenting all radio and telephone messages.

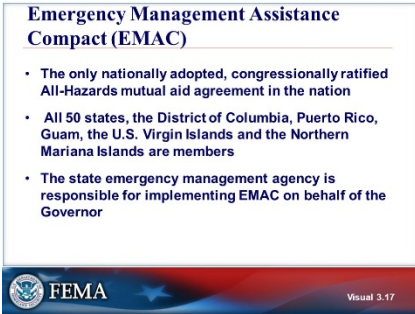
In the All-Hazards environment, experienced communicators will be more effective.

INCIDENT DISPATCHERS AND TACTICAL DISPATCHERS

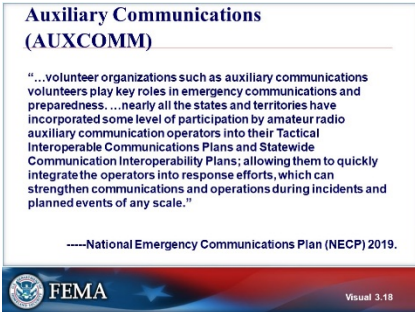
As part of completing your Mobilization Guide, determine what local resources are available to you. If Incident Dispatch Teams are not available locally, they are available through the Emergency Management Assistance Compact (EMAC). Just like with any resource, you will need to be specific in your request that you want Incident Dispatchers and go through the proper channels.

TECHNICAL SPECIALISTS (THSP)

Technical Specialists are responsible for tasks that include all aspects of the job that you need help with. Do not be afraid to ask for help. No one person can be a complete expert in every possible scenario you may face. Know when you are getting in over your head.



Visual 3.17



Visual 3.18

What EMAC (Emergency Management Assistance Compact) is and what types of resources are available (<https://www.emacweb.org/>).

- Agreements are in place for the use of resources between states
- EMAC allows for states to assist each other directly without federal declarations
 - May be very useful in making agreements with adjacent states
- All states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands and the Northern Mariana Islands are members of EMAC

AUXILIARY COMMUNICATIONS (AUXCOMM)

This unofficial ICS position supports the operational and technical aspects of the Auxiliary Communications Unit, maintains and/or operates the AUXCOMM network. The knowledge to perform this function applies to every AUXCOMM position.

Auxiliary Communicators have been helping with backup emergency communications since before the Titanic sank.

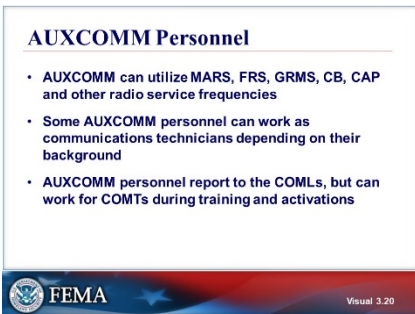
Every state uses AUXCOMM personnel in one way or the another. Some states more than other states.



Visual 3.19

AUXILIARY COMMUNICATIONS (AUXCOMM)

- Needs to be coordinated by the COML as part of the overall communications strategy
- Integration into incident communications
 - Provide alternate communications in cases where local services fail, or become degraded or overloaded
 - Can provide email over the air and other digital capabilities including video
 - Many ham repeaters have backup power sources
 - Can provide direct (simplex) capabilities for point-to-point communications
 - Can provide high frequency (short wave) for long distance communications
 - Provide auxiliary support to active emergency communications
- Local involvement protocol varies
- AUXCOMM classes are available through CISA



Visual 3.20


AUXCOMM PERSONNEL

- MARS – Military Affiliated Radio Service
- FRS – Family Radio Service
- GMRS – General Mobile Radio Service
- CAP – Civil Air Patrol
- CB - Citizen Band

Many AUXCOMM personnel are skilled at operating a radio net – managing a large number of operators on a channel or frequency. Many are experienced at providing communications for large public service events and/or practice passing formal written messages as part of the National Traffic System.

AUXCOMM Personnel (Cont.)

- Can operate on voice, digital, satellite, VoIP, RoIP and numerous other modes if they have the right equipment
- AUXCOMM personnel should know exactly what is expected of them prior to them volunteering
- AUXCOMM personnel work directly for the NIMS/ICS organization that they report to when activated



Visual 3.21

AUXCOMM PERSONNEL (CONT.)

When requesting AUXCOMM support specific needs and resources should be specified.

Many AUXCOMM units have a communications trailer that can provide many capabilities.



AUXCOMM people can work well in a NIMS/ICS environment if they are taught the rules and what specifically is required of them.

AUXCOMM people need to know they work for the COML and not their local radio club when activated.

Most importantly, they must train alongside the COML if there is to be a working bond between them during activation.

AUXFOG

- The DHS Auxiliary Field Operations Guide (AUXFOG) was released by DHS in 2013
- The current version can be downloaded from the DHS website at <https://www.cisa.gov/publication/afog-documents>


Visual 3.22

AUXFOG

Plain Language

Common terms and definitions that can be understood by individuals from all responder disciplines.

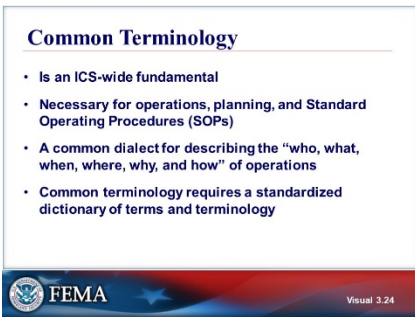
The intent of plain language is to ensure the clear and accurate communication of information during an incident.



Visual 3.23

PLAIN LANGUAGE

Using plain language was adopted to eliminate the plethora of different codes that have been adopted over the years by agencies.

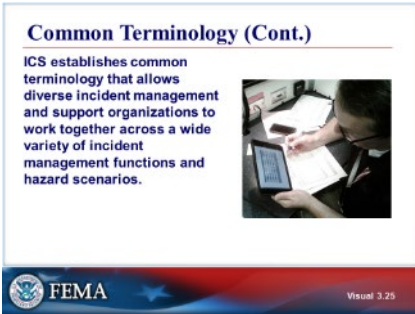


Visual 3.24

COMMON TERMINOLOGY

Not all Plain Language has the same meaning, and the outcomes can be very different.

It is essential that all responders understand the mission the same way to be effective.



Visual 3.25

COMMON TERMINOLOGY (CONT.)

Organizational Functions - Major functions and functional units with incident management responsibilities are named and defined. Terminology for the organizational elements is standard and consistent.

Resource Descriptions - Major resources—including personnel, facilities, and major equipment and supply items—that support incident management activities are given common names and are “typed” with respect to their capabilities, to help avoid confusion and to enhance interoperability.

Incident Facilities - Common terminology is used to designate the facilities in the vicinity of the incident area that will be used during the course of the incident.

Technology solutions by themselves are not sufficient to fully address communication interoperability problems in a given local government, state, or multi-state region. State and local officials consider a standard database of interoperable communications frequencies to be essential to frequency planning and coordination for interoperability frequencies and for general public safety purposes. Police and fire departments often have different concepts and doctrines on how to operate an incident command post and use interoperable communications.

Similarly, first responders, such as police and fire departments, may use different terminology to describe the same thing. Differences in terminology and operating procedures can lead to communications problems even where the participating public safety agencies share common communications equipment and spectrum. State and local officials have drawn specific attention to problems caused by the lack of common terminology in naming the same interoperability frequency (GAO 04-1057T pg. 9).

Note: While the common naming for interoperable frequencies has been out for some time there are still areas that refer to them by ‘old’ names.

Common Terminology (Cont.)

Not all Common Terminology has the same meaning. For example, the term "cover" has several meanings.

- If you told a fire fighter to cover, they would take their fire engine and go to another station.
- If you told a police officer to cover, they would back up another officer.
- If you told a Marine to cover, they would lay down suppressive gunfire.



Visual 3.26

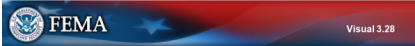
SAFECOM Plain Language Guide



Visual 3.27

Objectives Review

1. What are the positions within the Communications Unit?
2. What are the responsibilities of positions within the Communications Unit?



Visual 3.28

COMMON TERMINOLOGY (CONT.)

SAFECOM PLAIN LANGUAGE GUIDE

Refer to the SAFECOM Plain Language Guide to use as a future reference guide: https://www.fema.gov/media-library-data/20130726-1824-25045-1506/plain_language_guide.pdf

OBJECTIVES REVIEW

- Identify positions within the Communications Unit.
- Describe responsibilities of positions within the Communications Unit.

Unit 4: Interoperable Communications

STUDENT MANUAL

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Visual 4.1

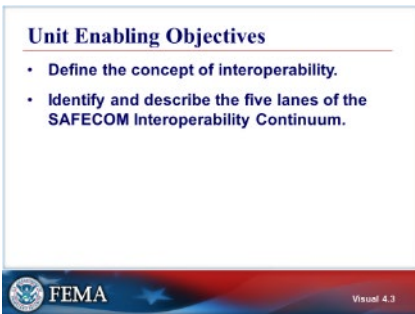
UNIT 4: INTEROPERABLE COMMUNICATIONS



Visual 4.2

UNIT TERMINAL OBJECTIVE

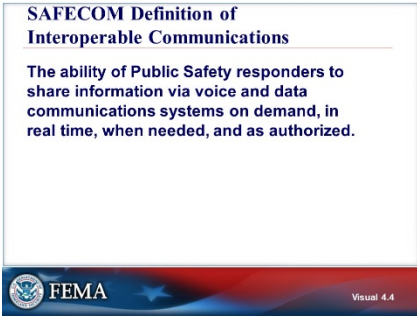
Identify methods for the application, coordination, and use of interoperable communications.



Visual 4.3

UNIT ENABLING OBJECTIVES

- Define the concept of interoperability.
- Identify and describe the five lanes of the SAFECOM Interoperability Continuum.



Visual 4.4

SAFECOM DEFINITION OF INTEROPERABLE COMMUNICATIONS

Interoperability does not require allowing all radio users to speak to all other radio users, which would create mass confusion. Rather, it refers to systems and processes that allow parties to communicate even if their equipment differs.

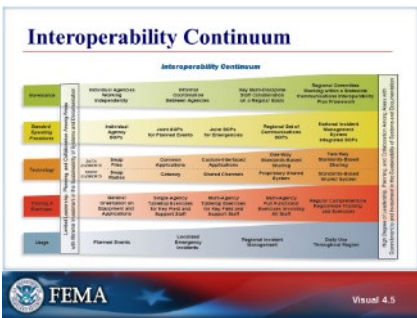
Interoperability is not the creation of a “party line.”

National Emergency Communications Plan (NECP)

The NECP established three goals for response level emergency communications. As defined by the 2008 National Emergency Communications Plan, response-level communications is the capacity of individuals with primary operational leadership responsibility to manage resources and make timely decisions during an incident. Primary operational leadership is at the top level of the Operations Section.

Access the 2019 NECP here:

<https://www.hsd1.org/?view&did=829720>



Visual 4.5

INTEROPERABILITY CONTINUUM

Refer to Handout 4-1: Interoperability Continuum (at the end of this Unit in this Student Manual).

Interoperability is much more than technology. All of the items listed in these lanes are tools for interoperability. All are acceptable and even essential for effective interoperability. Failing to recognize these five components to interoperability will leave huge gaps in the Communication Unit’s (and the entire locality’s) interoperable capabilities.



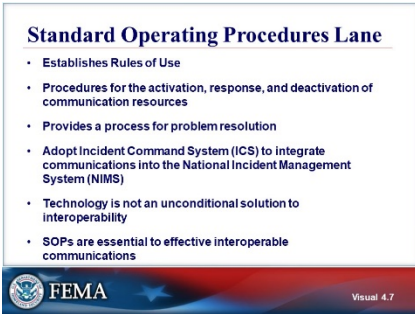
Visual 4.6

GOVERNANCE LANE

The Governance Lane allows for the codification of interagency relationships. It is the “frame of the car,” or the organizational infrastructure that everything else is built upon.

Governance builds sustainability in relationships between agencies and refers to actions and programs undertaken by leadership for the purposes of managing the organization.

Good governance in advance of an incident helps secure funding for communications operations, avoid confusion, and establish rights and responsibilities.



Visual 4.7

STANDARD OPERATING PROCEDURE LANE

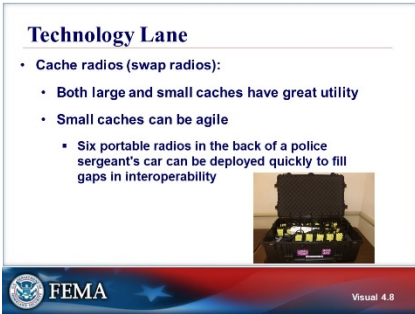
The Standard Operating Procedures (SOPs) Lane promotes a set of SOPs at the local agency level to a regional set of communication SOPs that adopt ICS and integrate communications into National Incident Management Systems (NIMS) SOPs.

SOPs, as well as planning and operations, are created and run using common terminology rather than agency-specific codes or jargon. This avoids confusion on an incident, where personnel may be coming from different backgrounds.

Technology is not an unconditional solution to interoperability. SOPs are essential to effective interoperable communications.

SOPs establish rules of use, procedures for activation, response, and deactivation of communications resources. They provide a process for problem resolution.

- Using common terminology provides everyone on the incident a common dialect for describing the “who, when, why, where, what, and how” of operations, which is necessary when planning and running operations or forming SOPs
- Technology is not an unconditional solution to interoperability; SOPs are essential to effective interoperable communications



Visual 4.8

TECHNOLOGY LANE

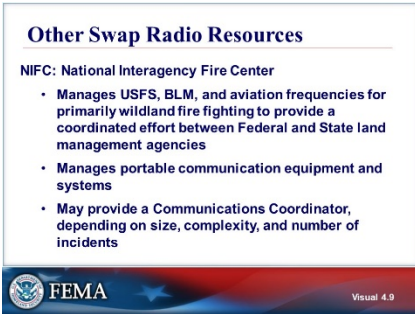
The Technology Lane displays the level of sophistication and ease of interoperability as radio systems go from less to more sophisticated.

Radio caches are extremely useful tools for interoperability. These are radios set aside as a regional communications resource that are fully charged, have extra batteries and battery chargers, and are labeled with the owning agency information, frequencies, band, and system. Many times the deployment of cache radios can keep interoperability simple.

Regional resources can include portable repeaters on interoperable frequencies and/or towers. Some agencies or states also have portable systems that can be deployed to fill in gaps or expand capabilities in areas of poor coverage.

Emergency Management Assistance Compact (EMAC) allows for states to assist each other directly without federal declarations. EMAC may be very useful in obtaining equipment from other states (<https://www.emacweb.org/>).

The technology lane is a toolbox with a number of solutions. The Communications Unit Leader/COMT should be able to choose from any number of these solutions as appropriate to meet communications requirements of the specific incident being supported.



Visual 4.9

OTHER SWAP RADIO RESOURCES

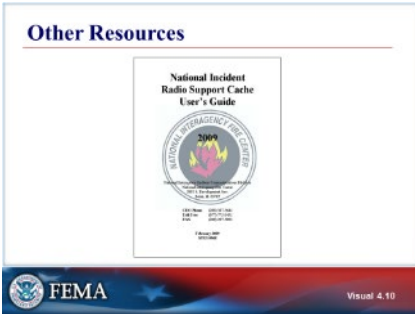
The National Interagency Fire Center (NIFC) provides a Communications Coordinator at times, depending on the complexity and number of incidents occurring, to assign frequencies and equipment to incidents and prevent interference.

To use the National Incident Radio Support Cache, there must be a prearranged reimbursable agreement in place to request this resource. The NIICD Cache System is designed to support land management incidents, namely wildfires. When NIICD radios are deployed to a non-wild land incident, they are typically requested by going through a State Forestry Agency, Department of Natural Resources, EMAC or other emergency management procurement process. It is required the cache be accompanied by a NWCG-qualified COMT.

It is important to go through the proper channels when requesting these resources; however, even then, they are limited in availability. Availability may vary according to the state of the fire season and other factors at any given time.

- The NIFC manages USFS, BLM, and aviation frequencies, primarily for wildland firefighting
- NIFC manages portable communication equipment and systems and may provide a communications coordinator
- The National Incident Radio Support Cache also has equipment available for federally recognized incidents

Access the National Interagency Incident Communications Division at <https://www.nifc.gov/NIICD/index.html>. To download the Radio Inventory Database, go to <https://www.nifc.gov/NIICD/documents.html>, and select Radio Inventory Database under NIICD Documents.



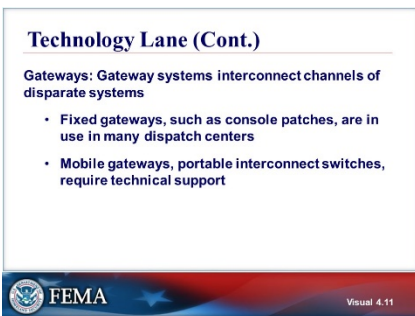
Visual 4.10

OTHER RESOURCES

A copy of the National Incident Radio Support Cache User's Guide is available online.

You must have a prearranged reimbursable agreement in place to request this resource. As an alternative, request through a State Forestry Agency, Department of Natural Resources, or through the emergency management procurement process.

This cache was designed primarily to support wildfire and land management agencies. Resources may be scarce during fire season.

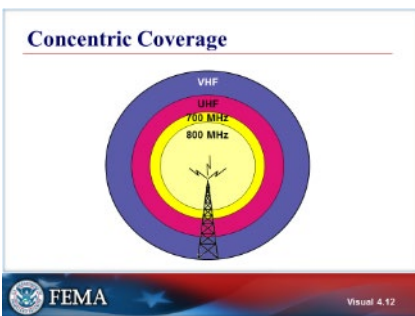


Visual 4.11

TECHNOLOGY LANE (CONT.)

Gateways provide a connection between unlike radio bands or radio systems. They can make interoperability a reality, with quality audio and clean signals. Gateways are a tool, but can create issues as well. Proper gateway management is essential for safe and effective utilization.

The COML must have a good understanding of any gateway capabilities and limitations. In many instances where disparate radio systems are connected together the field personnel must still be in the radio foot print of their home system unless an interoperable frequency is being used.

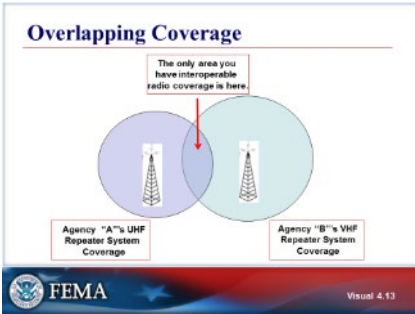


Visual 4.12

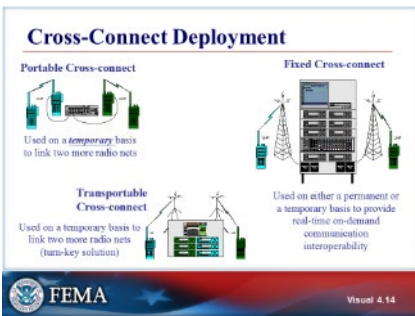
CONCENTRIC COVERAGE

The colored circles represent the approximate coverage reductions that can be expected, from the same site, as the frequencies increase.

Height of antenna also plays an important part of any coverage as does the amount of power of the transmitter.



Visual 4.13



Visual 4.14

OVERLAPPING COVERAGE

The two systems can be joined together, but will only provide coverage in the overlap area. Joining them together outside the overlap area is ineffective for the incident.

CROSS-CONNECT DEPLOYMENT

- A portable cross-connect is used on a temporary basis to link two or more radio networks in an ad-hoc fashion. This is useful when trying to extend radio coverage into a building or below ground where signals from the main transmitter cannot penetrate.
- Transportable cross-connects are similar to, but sturdier than, portable cross-connects and can be moved to new locations as necessary, though still meant to be temporary.
- A fixed cross-connect can operate in real time and is instantly deployable to provide on-demand connections between networks.

It is essential that the Communications Unit Leader understands the uses and limitations of each type of gateway device.

- Fixed gateways are simple to deploy and can be tested and trained with regularly
 - Overlap coverage of disparate systems should be mapped
- Mobile gateways may have range limitations (simplex) and can have interference issues
- Portable gateways can have power supply limitations, reduced performance of portable receivers, and antenna limitations but are small and easily deployed in the field

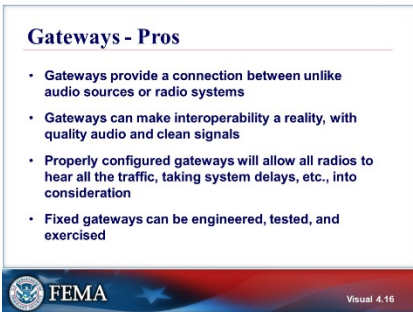


Visual 4.15

TECHNICAL AND OPERATIONAL RESOURCES

Considerations when choosing a gateway design.

- What will the gateway be used for? (i.e., deployment environment, mobile, fixed, in building, tunnel...)
- How many interfaces are required?
- Where will the interface devices be connected? (i.e., directly to the gateway, remotely via the Internet...)
- What types of patches are needed? (Many, one to many, many to one, one way monitor only...)
- What is your budget?
- How are you going to troubleshoot interference?
- How are you going to troubleshoot major system failure?

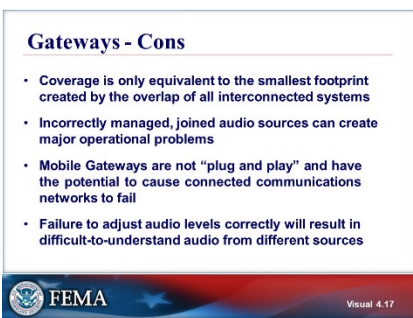


Visual 4.16

GATEWAYS – PROS

Gateways - Pros

- Gateways provide a connection between unlike audio sources or radio systems
- Gateways can make interoperability a reality, with quality audio and clean signals
- Properly configured gateways will allow all radios to hear all the traffic, taking system delays, etc., into consideration
- Fixed gateways can be engineered, tested, and exercised



Visual 4.17


GATEWAYS – CONS

Gateways - Cons

- Coverage is only equivalent to the smallest footprint created by the overlap of all interconnected systems
- Incorrectly managed, joined audio sources can create major operational problems
- Mobile Gateways are not “plug and play” and have the potential to cause connected communications networks to fail
- Failure to adjust audio levels correctly will result in difficult-to-understand audio from different sources

Gateways – Cons (Cont.)

- Not fully understanding the methodology used in the gateway can result in the “Ping-Pong” effect and other issues that make a combined system unusable
- Gateways require knowledgeable personnel with the skills to troubleshoot problems at all times
- Gateways must be used as a part of a coordinated plan at an incident; knowing where they are and what they are patching is essential for the COML
- Gateways are not plug and play



Visual 4.18

GATEWAYS – CONS (CONT.)

Coordination is the key; always go through the Communications Unit Leader prior to creating a patch and know what is being patched.

Portable and mobile gateways should have a specialist with them at all times.

Use caution to address itinerate gateways.

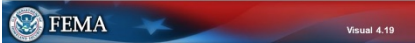
Gateway management is essential. Communications Unit Leaders should have the authority over any inventory on the scene.

One significant potential problem is interference – gateways deployed without the knowledge of the COML or linking channels or systems together without an agreement can cause interference to operations. When multiple gateways are on the scene of an incident, such as those deployed in multiple mobile command vehicles, it is important that all operators are aware not to turn on gateways without direct permission of the COML.

There have been instances where a fixed gateway in a region was turned on remotely without anyone’s knowledge and tied two different agencies dispatch channels together for several hours until it was located.

Technology Lane (Cont.)

Shared channels: Common frequencies or talkgroups that have been established and are programmed into radios to provide interoperable communications among agencies



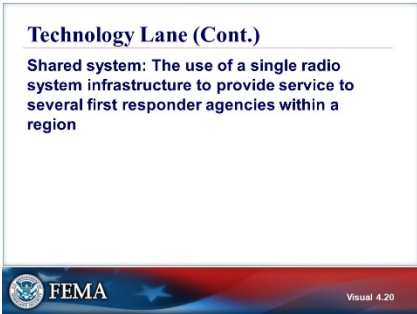
Visual 4.19

TECHNOLOGY LANE (CONT.)

Shared channels are common frequencies or talk groups that are established and are programmed into radios beforehand to provide interoperable communications among agencies.

Multi-band portable radios will make the shared channel concept a reality across bands.

Interoperability is promoted when agencies share a common frequency band, air interface (analog or digital), and are able to agree upon common channels.



Visual 4.20

TECHNOLOGY LANE (CONT.)

Explain the next step in the continuum, shared systems.

A shared system involves use of a single proprietary radio system infrastructure (usually with all components from a single manufacturer) to provide service to several Public Safety agencies within a region.

Usually, shared systems are established at the request of the members of the Governance lane, and require considerable coordination so that the shared system that is selected fits all of the local organizations' needs.

With a shared system, cross-connects or gateways become unnecessary, as components will work together much more easily, since they were all built to do so.

However, in the case of trunked radio systems, there may be system limitations on the number of users that can be on a system at any one time. The COML needs to gain an understanding of any limitations from the radio system manager.



Visual 4.21

TECHNOLOGY LANE (CONT.)

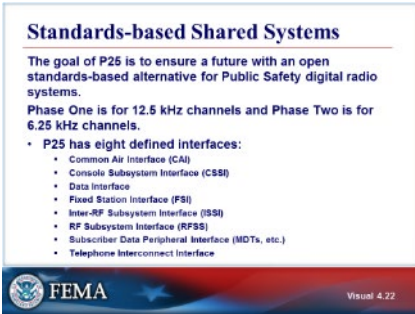
Project 25 or P25 is synonymous with public safety digital radio standards. Technical writing is supported by the Telecommunications Industry Association, an ANSI-certified standards organization.

There are eight common elements of a standards-based system. These elements are:

- Common Air Interface (CAI): Point of connection between radio transmitters and receivers; defines the technical form and function of the digital signal that goes over the airwaves
- Console Subsystem Interface (CSSI): Defines how radio frequency components of a standards-based system and dispatcher consoles connect with one another
- Data Interface
- Fixed Station Interface (FSI): Defines how components of a shared standards radio system that are fixed in place connect with other components of the system
- Inter-RF Subsystem Interface (ISSI): Defines how different standards-based radio networks can connect with one another
- RF Subsystem Interface (RFSS)
- Subscriber Data Peripheral Interface (MDTs, etc.)
- Telephone Interconnect Interface

Many of the older propriety systems are near end of life and are being replaced with systems that meet the P25 standards for interoperability.

There are still some challenges with shared encryption in this area.



Visual 4.22

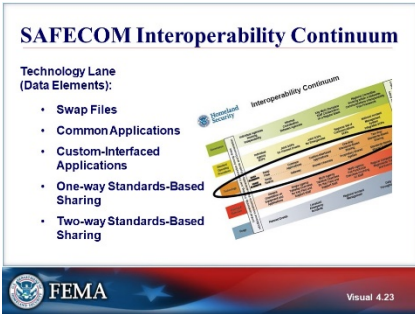
STANDARDS-BASED SHARED SYSTEMS

P25 is a phased approach to fielding new Public Safety communications technology as quickly as it is available following the development of standards and the testing of the technology in the field.

P25 is an ongoing, phased effort to introduce technology promoting interoperability, providing a backward/forward migration path to related technologies. P25 also ensures lifecycle competitive procurement, spectrum efficiency, and is operationally user friendly.

The goal of P25 is to ensure a future with an open standards-based alternative for Public Safety digital radio systems in the United States and across the globe (P25 is also used in many other countries).

P25 is not a completed standard at this time. Several P25 interfaces are still in the standards approval process. P25 standards are recognized ANSI standards.



Visual 4.23

SAFECOM INTEROPERABILITY CONTINUUM

Swap Files - Swapping files involves the exchange of stand-alone data/application files or documents through physical or electronic media (e.g., universal serial bus devices, network drives, emails, faxes). This process effectively creates a static “snapshot” of information in a given time period. Though swapping files requires minimal planning and training, it can become difficult to manage beyond one-to-one sharing. With data frequently changing, there may be issues concerning the age and synchronization of information, timing of exchanges, and version control of documents. Each of these issues can hinder real-time collaborative efforts. In addition, the method of sharing files across unprotected networks raises security concerns.

Common Applications - The use of common proprietary applications requires agencies to purchase and use the same or compatible applications and a common vocabulary (e.g., time stamps) to share data. Common proprietary applications can increase access to information, improve user functionality, and permit real-time information sharing between agencies.

However, the use of common proprietary applications requires strong governance to coordinate operations and maintenance among multiple independent agencies and users; these coordinated efforts are further compounded as the region expands and additional agencies use applications. Common proprietary applications also limit functionality choices as all participating agencies must use compatible applications.

Custom-Interfaced Applications - Custom-interfaced applications allow multiple agencies to link disparate proprietary applications using single, custom “one-off” links or a proprietary middleware application. As with common applications, this system can increase access to information, improve user functionality, and permit real-time information sharing among agencies. Improving upon common applications, this system allows agencies to choose their own application and control the functionality choices.

However, if using one-to-one interfaces, the use of multiple applications requires custom-interfaces for each linked system. As the region grows and additional agencies participate, the required number of one-to-one links will grow significantly. Proprietary middleware applications allow for a more simplified regional expansion; however, all students must invest in a single “one-off” link to the middleware, including any state or Federal partners. Additionally, custom-interfaced applications typically require more expensive maintenance and upgrade costs. Changes to the functionality of linked systems often require changes to the interfaces as well.

One-Way Standards-Based Sharing - One-way standards-based sharing enables applications to “broadcast/push” or “receive/pull” information from disparate applications and data sources. This system enhances the real-time shared situational picture and is established without direct access to the source data; this system can also support one-to-many relationships through standards-based middleware.

However, because one-way standards-based sharing is not interactive, it does not support real-time collaboration between agencies.

Two-Way Standards-Based Sharing - Two-way standards-based sharing is the ideal solution for data interoperability. Using standards, this approach permits applications to share information from disparate applications and data sources and to process the information seamlessly. As with other solutions, a two-way approach can increase access to information, improve user functionality, and permit real-time collaborative information sharing between agencies. This form of sharing allows participating agencies to choose their own applications. Two-way standards-based sharing does not face the same problems as other solutions because it can support many-to-many relationships through standards-based middleware. Building on the attributes of other solutions, this system is most effective in establishing interoperability.

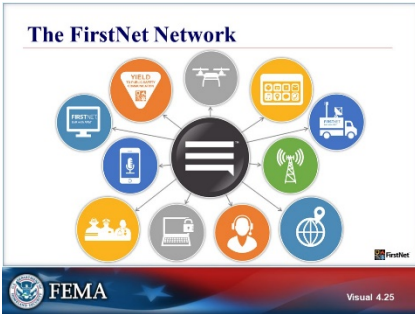


Visual 4.24

TECHNOLOGY LANE (DATA ELEMENTS)

FirstNet is headed by a Board, consisting of the Secretary of Department of Homeland Security (DHS), the Attorney General of the United States, the Director of Office of Management and Budget (OMB), and 12 individuals appointed by the Secretary of Commerce.

The Secretary of Commerce must appoint at least 3 individuals to represent the collective interests of States, localities, tribes, and territories; seek to ensure geographic and regional representation of the United States; seek to ensure rural and urban representation; and appoint at least 3 individuals who have served as public safety professionals.



Visual 4.25

THE FIRSTNET NETWORK

Explain: The FirstNet Authority was born out of the September 11, 2001, terrorist attacks. This event brought to the forefront the many communications challenges that first responders face during emergencies and disasters. These issues were captured in the 9/11 Commission Report, which identified gaps in emergency communications and recommended the creation of a single nationwide network to enhance the communications used by police, fire, and EMS personnel. The public safety community spearheaded efforts to fulfill the 9/11 Commission's recommendation. All major public safety organizations and associations were united in their push for a dedicated, reliable wireless network for exclusive use by first responders. Public safety's advocacy efforts before the U.S. Congress led to the creation of the First Responder Network Authority (FirstNet Authority) in 2012. The FirstNet Authority announced the selection of AT&T to build the first nationwide wireless broadband network dedicated to America's first responders.

The FirstNet Network provides many benefits to public safety and we will review them quickly before going into tactical applications in the next few slides.

Now let's talk about the technology behind FirstNet. FirstNet is driven by one public safety network platform and core. Public safety has Quality of Service, Priority, and Preemption (QPP) on the network. The FirstNet Core was implemented in March 2018. This core network is based on 3GPP standardized Evolved Packet Core (EPC) and IP Multimedia Subsystem (IMS).

Some of the key features the FirstNet Core provides are:

- Basic network services (phone/text/mms)
- Mission-critical services (QPP, push-to-talk and future features)
- Secure access to private/public networks, PSEN/PSAP, enterprise and cloud applications

- Enables full network sharing among Band 14 and AT&T commercial bands while enabling Band 14 secondary use
- Quality of Service (QoS), priority and preemption across **Band 14 plus** all AT&T LTE bands

Being a FirstNet user is unlike being on any commercial network. Upon subscribing to the network, users are provided a flexible multi-level Priority solution. However, differences in priority levels are subtle.

- FirstNet gives Public Safety the best possible chance of success at accessing and using services, including the ability to clear other low priority (commercial) traffic if needed with preemption.
- While no network can guarantee access 100% of the time, FirstNet is designed to help meet the demands of public safety with four 9s availability as the goal.
- Next we will discuss two key features of the FirstNet network that the COML may be responsible for on an incident scene, deployables and local control.



Visual 4.26

FIRSTNET-DEDICATED DEPLOYABLE ASSETS

Emphasize: FirstNet's network includes access to hundreds of existing AT&T deployables, plus access to an additional 72 dedicated FirstNet ground-based deployables, strategically pre-positioned with satellite and/or terrestrial backhaul capacity to provide coverage wherever necessary in the United States, and in the U.S. territories.

The 72 deployable assets are available including Satellite Cell on Light Trucks (SatCOLTs) and Satellite Cell on Wheels (SatCOWs (trailers)). AT&T also provides 3 Flying Cell on Wings (Flying COWs) and an Aerostat to FirstNet subscribers. AT&T also provides 3 Flying Cell on Wings (Flying COWs) and an Aerostat to FirstNet subscribers.

FirstNet subscribing agencies can request these assets to support operational requirements at no cost, 24/7 by calling FirstNet support. They are available to support areas where there is no terrestrial coverage in an emergency situation or a pre-planned event where extra capacity and coverage may be needed.

Many of the deployables in the FirstNet dedicated fleet use satellite backhaul. This enables AT&T to rapidly respond to time-sensitive public safety deployments without the need to establish terrestrial backhaul. Once on-site, service is generally available within 1-4 hours. Projected design enhancements to the FirstNet fleet of deployables will result in more rapid availability. The FirstNet fleet of deployables is LTE Band 14 enabled and provides voice (including VoLTE), data, location, messaging, alerting, whitelisting, and priority and preemption services. Each FirstNet deployable is designed to be capable of up to 25 Mbps downlink and 8 Mbps uplink.

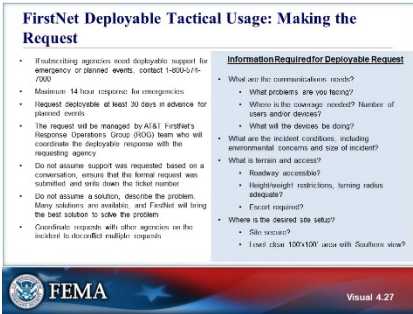
The 3 Flying Cells on Wings (COWs) were added to the fleet in March 2019. Each Flying COW is comprised of 2 tethered drones and a trailer for transport that is equipped with satellite and fiber backhaul connections; capable of withstanding light rain and wind speeds up to 25 miles per hour; able to reach heights of up to 400 feet, making it ideal for situations like wildfires and mountain

rescue missions where the terrain may have previously made it difficult to maintain connectivity.

AT&T added an aerostat in December 2019. This is a 55-foot long blimp for support during responses to major incidents or natural disasters. The aerostat can give first responders wide-scale portable connectivity over an extended period of time. It can stay up for about 2 weeks and fly up to 1,000 feet, potentially providing over 2 times the coverage area as compared to other deployable solutions. The Flying COWs and the Aerostat are provided by AT&T above and beyond the contract -- this is just one of the many value-added benefits that the FirstNet public-private partnership brings to public safety.

These deployables, dedicated for FirstNet subscriber use, build upon AT&T's existing deployable assets. AT&T also brings a fleet of hundreds of Network Disaster Recovery (NDR) assets that are used to maintain the network. These assets may act as a "backup" if the FirstNet dedicated assets are not available for request.

Customer Owned And Maintained deployables (COAM): FirstNet adopting agencies can also purchase new or convert existing assets into COAM deployable units. PSEs that own COAM deployables have unlimited use of those assets, however, they will need to contact AT&T to coordinate and mitigate any interference with existing terrestrial coverage when deploying them.



Visual 4.27

FIRSTNET DEPLOYABLE TACTICAL USAGE REQUEST

The request for the deployable can be initiated by any FirstNet subscribing agency. The requestor must be prepared to provide the agency Foundation Account Number (FAN). In order to request, call FirstNet Customer Care: 1-800-574-7000, or work with the agency's FirstNet Built by AT&T POC. In emergency situations, there is a 14-hour Recovery Time Objective (RTO) for deployables. For planned events, FirstNet deployables must be requested at least 30 days in advance.

As a requestor, you need to be prepared to provide basic information. You can give the information verbally or request that they email the form, which you can then fill out and email back. Initial call information will be referred to the AT&T Response Operations Group (ROG) who manages the deployable response. You may receive follow-up calls to obtain additional details, ask other questions, plan arrival/site access/setup, etc.

As a technical person, it may be tempting to specify the solution you would like to see. Don't specify a solution to AT&T. Instead, accurately describe the problem. AT&T has many resources at its disposal and can bring many different solutions depending on the scenario. Pre-supposing a solution may cause better alternatives to be overlooked. Large incidents involving multiple agencies may result in multiple agencies requesting FirstNet support. As a result, coordinate when possible so only the required number of requests are submitted. State EOCs may be asked to de-conflict requests when necessary.

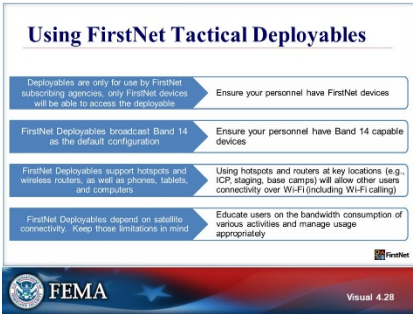
As you prepare to make your request for FirstNet deployable support, there are a number of things AT&T may request.

1. Explain your communications needs

- Specify any problems that are being experienced (why is a deployable being requested)

- Identify locations where coverage is needed, approximate numbers of users, approximate number and types of devices (remember every user could have multiple devices)
 - What will the devices do? – voice calls, text messaging, e-mail, apps, data connectivity, send/receive still images, send/receive video, VTC functions, app use, web browser, sensors, video feeds, etc.
2. Provide incident conditions
- Environmental concerns - Extreme cold or heat, high winds, potential hazards
 - How large is the incident site?
3. Provide terrain and access
- Are roadways passable? Do they have: Steep inclines? Sharp curves? Deep dips or washouts? Roadway/bridge weight restrictions?
 - If unit is to be placed on parking garage or other structure.
 - Are there height or weight clearance restrictions?
 - Is the turning radius adequate for the selected deployable?
 - Will an escort be required?
4. Explain site setup information
- Is the site secure?
 - Level, clear 100' by 100' site for placement
 - Every deployable must have a minimum 100' safety perimeter, and should be placed at least 500' away from a Command Post or other areas with high responder traffic

- Satellite requires a clear view of the southern sky
- Each deployable has a generator which must be refueled by AT&T. Therefore, ongoing access is required
- Once on site, deployable is managed remotely from a network operations center – it is not necessary for technicians to remain on site



Visual 4.28

UTILIZING FIRSTNET TACTICAL DEPLOYABLES

Explain: In order for the deployable to be effective once on scene, FirstNet users must be onsite. Deployables are intended to support FirstNet users with FirstNet capable devices. Put your plan for accessing and using FirstNet services in place before you need it.

Part of that plan is ensuring your personnel have Band 14 devices. FirstNet deployables are equipped with Band 14 and use that spectrum as their default spectrum to broadcast. FirstNet deployable assets are typically configured to restrict access to devices with Black FirstNet SIMs. By turning on only Band 14 and restricting access to Black FirstNet SIMs, public safety spectrum is completely dedicated to public safety.

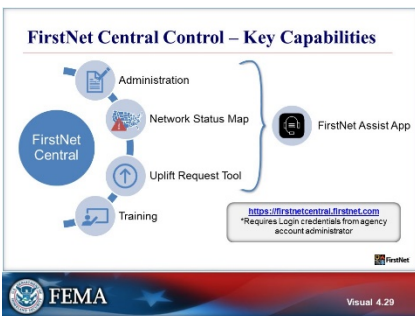
Although FirstNet deployable assets are also capable of operating on at least one commercial LTE band, they are typically configured to operate only on Band 14 and locked down to devices with the Black FirstNet SIM (PLMN ID). Otherwise, commercial users would also access the deployable and potentially consume bandwidth provided by the satellite backhaul. If a deployable activated commercial LTE spectrum in addition to Band 14, depending on the location, it could potentially create a negative impact to the macro network in the area. If in a very rural or remote area with limited/no commercial LTE coverage, it may be possible to also activate a commercial LTE band, but this is usually not necessary, requires careful coordination within the network, and is ultimately an AT&T decision.

In addition to the deployable allowing the use of FirstNet cellphones, it also allows for the use of FirstNet Hotspots and wireless routers. Smaller, localized groups of users are good places to put FirstNet hot spots so that non-FirstNet devices can connect via WiFi when at that location. For example: Incident Command, Staging Centers, Base Camps, Medical Triage sites, Fueling sites, Evacuation Hubs.

While the deployables provide connectivity in otherwise unconnected environments, they still have limitations, so you must use FirstNet deployables responsibly. Deployables are primarily dependent on satellite

connectivity which has some known limitations. Satellite bandwidth is a very limited resource and cannot compare to the backhaul capabilities of terrestrial connections like fiber. As a result, speeds will be limited when compared to infrastructure-based connection speeds.

Therefore, ensure all personnel are using resources wisely. Only stream video or use other high bandwidth applications if they are necessary to the mission. Be cognizant of the limited bandwidth – *and the life saving applications needing that bandwidth* – at all times. Educate other users who may be unaware on how their bandwidth usage may affect others' operations.



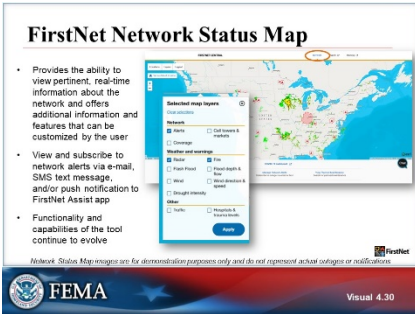
Visual 4.29

FIRSTNET CENTRAL - KEY CAPABILITIES

FirstNet Central provides administrators and users with access to various capabilities and resources. This slide identifies some of the key capabilities accessible through the portal, including administration, Network Status Map, Uplift Request Tool, and various training resources and guides. FirstNet Central continues to evolve with additional features and capabilities for FirstNet subscribers.

FirstNet Central functions are available via the web at the address (<https://firstnetcentral.firstnet.com>) or via the FirstNet Assist App found on the App Store or Google Play.

Two primary tactical functions within FirstNet Central that a COML may employ on an incident are the Network Status Map and the Uplift Request Tool.



Visual 4.30

FIRSTNET NETWORK STATUS MAP

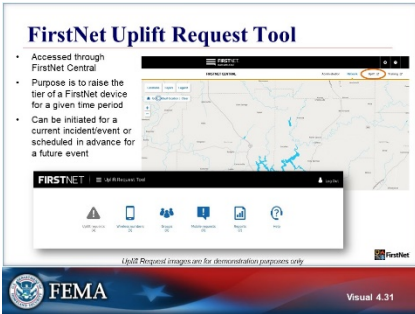
The Network Status Map was developed by AT&T to enhance situational awareness during emergencies and other events. Access to this tool is determined by how the user's account was provisioned by their Agency Administrator. Users who have been provisioned as an Uplift Request Manager will automatically have access to the standard version of the Network Status Map.

Administrators and Uplift Managers can view Network Coverage, Network Alerts (unplanned outages and planned maintenance), and can subscribe to receive outage alerts via e-mail, SMS text message, and/or via a push notification to the FirstNet Assist App.

Unplanned outages are illustrated on the map by a red shaded area representing the AT&T market area within which the outage is occurring.

- The shaded area represents the *entire AT&T market area* and does *not* depict the actual geographical area impacted by the outage, simply that the outage is somewhere within the red shaded area.
- The user can click on the red shaded area to display a pop-up window containing available details about the outage.

Users can toggle on and off layers (e.g., weather radar, wind speed, active fire incidents) as desired. Additionally, the Advanced Network View (within the Network Status Tool) provides cell site level detail and access to this feature must be enabled by an agency administrator. Features and functions within the Network Status Map will continue to evolve based on public safety feedback and input.



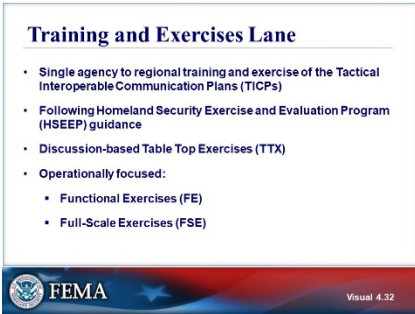
FIRSTNET UPLIFT REQUEST TOOL

The Uplift Request Tool gives public safety the ability to control, at their agency level, the experience of a device on the network. An agency can choose to prioritize devices to optimize the user experience on the broadband network during various incidents, events, or other times where congested conditions are anticipated.

Uplift managers can access the Uplift Request Tool through Local Control. FirstNet Primary users always have the highest level of priority, preemption, and quality of service on the network, referred to as “First Priority™” or “QPP.”

Uplift mainly benefits Extended Primary users; the tool’s purpose is to raise the tier of a FirstNet device (meaning any device with a FirstNet SIM) and grant all three benefits of QPP for a given time period.

Devices can be uplifted from 1-48 hours at a time and extended, as needed, in increments of up to 48 hours at a time by editing the original Uplift Request. Uplift Requests can be scheduled up to one year in advance.



Visual 4.32

TRAINING AND EXERCISES LANE

Regional exercises are an excellent opportunity to establish a Communications Unit Leader for the area, in addition to the benefits of working cooperatively, and aid the goal of interoperability accordingly.

A result of these exercises is the opportunity for creation and exercise of Tactical Interoperable Communications Plans (TICPs), which provide a context and/or reference for a Communications Unit Leader, should an actual incident occur.

The Training and Exercises Lane provides for single-agency training and exercising as well as regional training and exercising of the TICP. Regional exercises are an excellent opportunity to establish a Communications Unit Leader.

Following Homeland Security Exercise and Evaluation Program (HSEEP) guidance, and making ample use of the NIMS discussion-based Table Top Exercises (TTX) ensures maximum readiness and understanding of interoperability scenarios.

Exercises should follow the HSEEP for discussion-based exercises, tabletop exercises (TTX), or the operational-based exercises of functional exercises (FE), or full-scale exercises (FSE).



Visual 4.33

USAGE LANE

The Usage Lane encourages the use of a Communications Plan for planned events, local emergencies, and regional incidents, used on a daily basis.

Gaining familiarity with the format and requirements of the plan allows the Communications Unit Leader to function more efficiently when called to a major incident.

Regular usage of interoperable systems builds confidence in responders who develop better familiarization.

The overall goal of the Continuum is to get to the right edge of the Usage Lane “daily use throughout region” because this means that all critical elements in the previous lanes have been properly addressed and resolved.

This lane encourages the use of the TICP for planned events, local emergencies, regional incidents, and on a daily basis.

Usage is the keystone of all interoperable communications. If it is not used on a daily basis, it will not be used in incident response.

Routine usage of interoperable elements promotes familiarity and consistency.

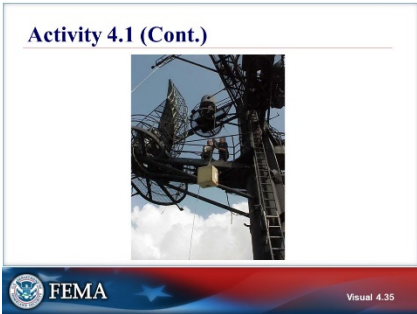


Visual 4.34

ACTIVITY 4.1: COMMUNICATION ASSET DEPLOYMENT STRATEGIES

The instructor will explain Activity 4.1.

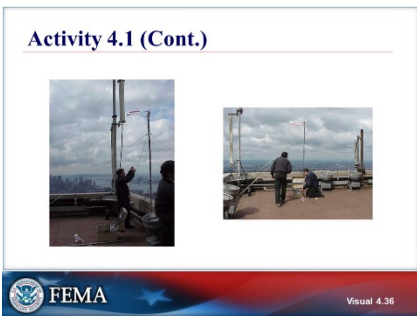
You will have 30 minutes to complete this activity.



Visual 4.35

ACTIVITY 4.1 (CONT.)

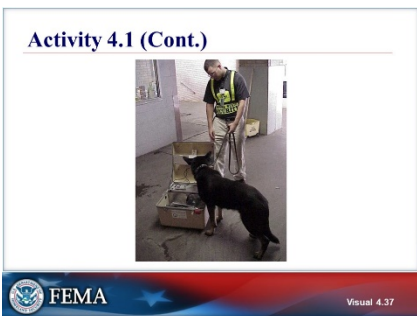
This image shows the installation of a repeater on the USS Intrepid during Sept. 2001.



Visual 4.36

ACTIVITY 4.1 (CONT.)

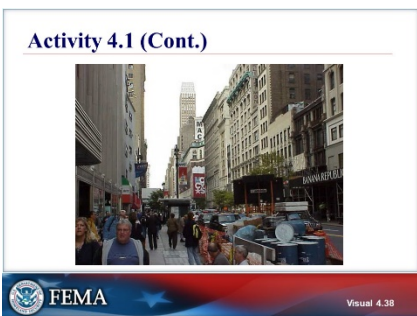
These images show a repeater on the 81st floor (Deck) of the Empire State Building (Sept. 2001).



Visual 4.37

ACTIVITY 4.1 (CONT.)

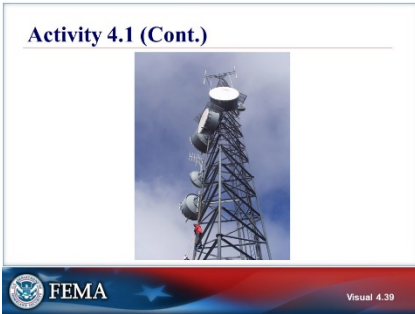
This image shows Empire State Building K-9 Security.



Visual 4.38

ACTIVITY 4.1 (CONT.)

This image is from an unknown urban location.



Visual 4.39

ACTIVITY 4.1 (CONT.)

This image shows an unidentified tower.

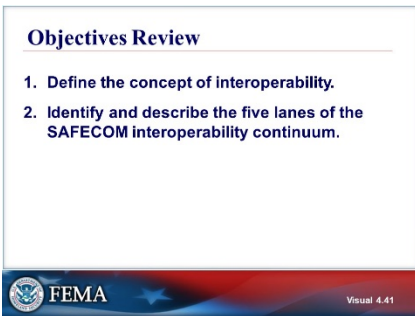


Visual 4.40

ACTIVITY 4.2: INTEROPERABILITY CHALLENGES

The instructor will explain Activity 4.2.

You will have 30 minutes to complete this activity.



Visual 4.41

OBJECTIVES REVIEW

Unit Enabling Objectives

- Define the concept of interoperability.
- Identify and describe the five lanes of the SAFECOM Interoperability Continuum.

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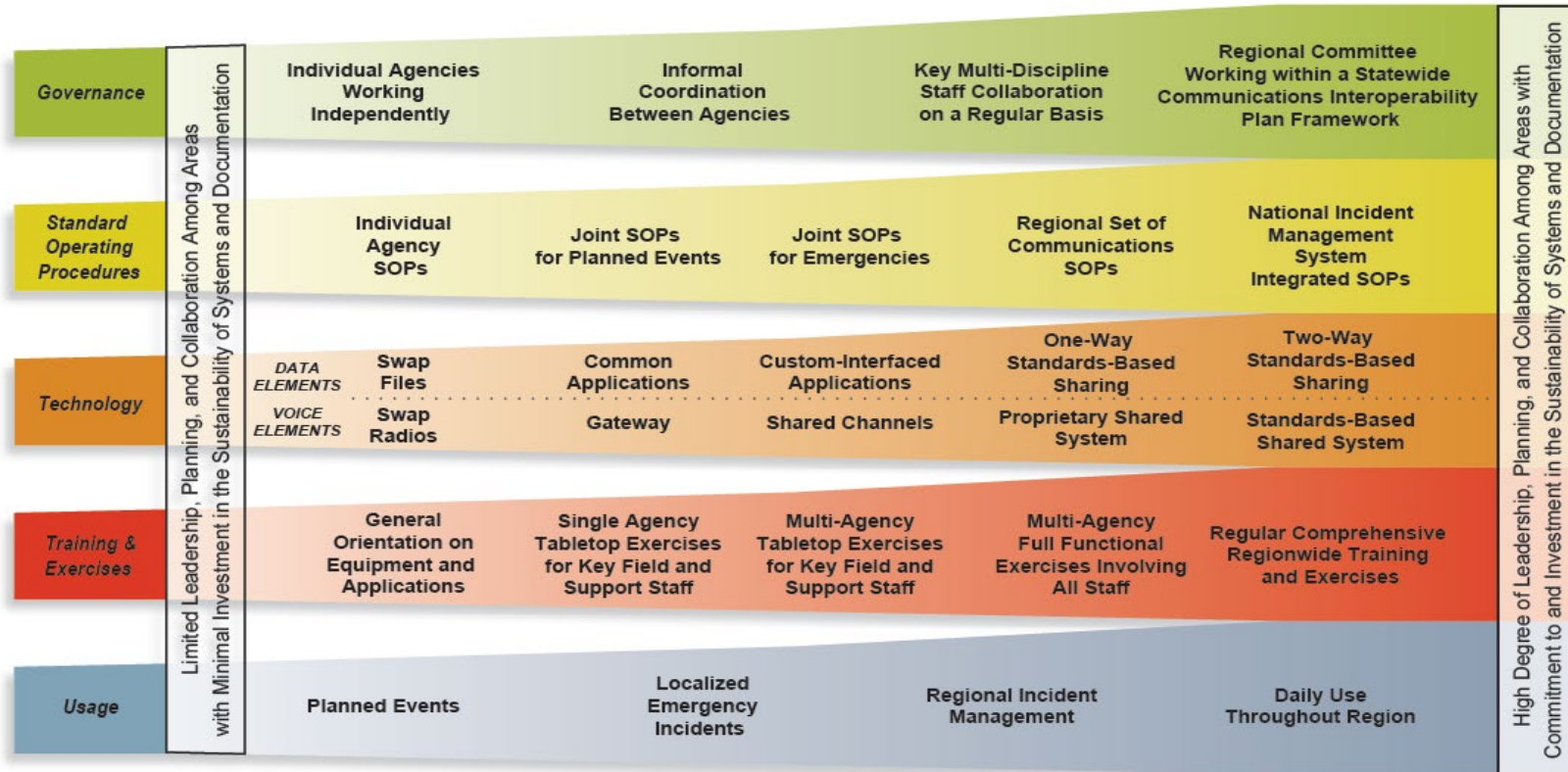
Supplemental Materials

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Handout 4-1: Interoperability Continuum



Interoperability Continuum



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Activity 4.1: Communication Asset Deployment Strategies

Unit 4 - Activity 4.1 Communication Asset Deployment Strategies

Purpose

The purpose of the activity is to provide the students with an opportunity to develop deployment strategies for communication assets in all-hazards environments, explain the challenges that their strategy overcomes, and identify any challenges created by their strategy.

Objectives

Students will:

- View visuals of all-hazards situations and develop strategies for deploying portable communications equipment in that situation.
- Identify how those strategies overcame challenges and may have created new challenges.

Activity Structure

This activity is scheduled to last approximately 30 minutes, including instructor led discussion. The instructor will review the visuals with the participants discussing key points.

Key Points to consider as you discuss your strategies:

- “Hot and High” (Max power & max elevation) is often a poor strategy.
- Refer to the incident objectives, “What is the nature of the incident? What are you trying to cover?”
- Being on the skyline of a metropolitan area can bring more interference than you may be able to manage.
- Consider using buildings for blocking interference.
- Stay off RF congested sites.
- Consider site security and access.
- Can you use a mid-floor window and have the building act as a shield?
- Coverage in “concrete canyons” (metros) can present issues.
- Consider multiple possibilities and alternates.
- Existing towers are only useful if you have OSHA qualified personnel to install antennas.
- Test, test, test.
- Know where your coverage is and is not.
- Don’t overlook the obvious.
- Elevation is not the only consideration.

Rules, Roles, and Responsibilities

Students will participate in an instructor led discussion.

Following are the specific activities/instructions for your participation in the activity:

1. Review the visuals as presented by the instructor.
2. Identify repeater deployment challenges associated with that environment.
3. Identify challenges that their proposed solutions may create.
4. Develop a deployment strategy for communication assets based on these challenges.
5. Identify challenges created by their solutions.

Instructors moderate discussions, answer questions and debrief the activity when students are finished with the final visual.

Activity 4.1 Schedule

Activity	Duration	Participation Type
Activity	30 minutes	Classroom

Activity 4.2: Interoperability Challenges

Activity 4.2 Interoperability Challenges Unit 4

Purpose

The purpose of the activity is to provide the students with an opportunity to identify the challenges specific to communications in certain all-hazards environments and explain how to use existing communications technology to overcome these challenges.

Objectives

Students will:

- Discuss how all-hazards environments pose unique challenges to the COML.
- Identify how communications technology can be used to overcome challenges.

Activity Structure

This activity is scheduled to last approximately 30 minutes, including instructor led discussion. Students will discuss potential challenges and solutions to achieving interoperability using the Urban Train Derailment Narrative (at the end of Unit 2) and the Urban Train Derailment IAP (a compilation of files referenced in Unit 2). Students can also use information provided in the Central City tab at the end of Unit 2. The Instructor will provide a series of injects to stimulate discussion that the students will respond to in a group-discussion format.

Rules, Roles, and Responsibilities

Students will participate in an instructor-led discussion. Following are the specific activities / instructions for your participation in the activity:

1. Review the information provided.
2. Identify challenges to interoperability.
3. Identify technologies and techniques that can overcome these challenges.
4. Apply these to the initial challenges.
5. Repeat 3 and 4 with the Instructor's injects.

Instructors moderate discussions, answer questions, and provide additional information as required.

Activity 4.2 Schedule

Activity	Duration	Participation Type
Activity	30 minutes	Classroom

Urban Train Derailment Narrative

In the early morning today, a CC&BF freight train derailed and rolled down an embankment along the Roaring River. Parts of the front of the train lay on its side in the river and along the steeply sloping riverbank. The area along the riverbank is part of the Central City Northside Park. The train consisted of 4 diesel locomotives, 23 tank cars (pressurized and non-pressurized), 12 hopper cars, and 2 cryogenic liquid tank cars containing liquid oxygen (LOX). Initial assessment indicates that several of the pressurized tank cars containing chlorine and anhydrous ammonia have ruptured. Two of the LPG tank cars exploded on impact during the derailment, causing a fire. The hopper cars containing ammonium nitrate lie on their sides, and the contents have spilled onto the banks of the river. The locomotive diesel tanks have ruptured, spilling diesel into the river. The cryogenic tank cars appear to be intact; however, several of the non-pressurized tank cars have released an unknown quantity of crude sulfate turpentine into the river.

The Engineer driving the train managed to get to the riverbank and is being treated at Central Hospital for serious injuries sustained in the derailment. Central City Police Department cars are on both sides of the river at the derailment. Their police radio picks up a report of a chlorine gas cloud forming immediately downstream from the leaking rail cars. This report was picked up by several citizens who contacted the local news stations in Central City. Reporters from the major local TV, radio, and newspaper news bureaus are on the way to the incident. One of the TV news crews is already shooting pictures. The local TV reporter is asking to do an interview for their evening news, and other reporters are lining up for interviews as well.

There is uncertainty about whom or which agency is in charge of the incident. There is a pervasive rumor that the train Engineer's license to operate the engine had expired, but that is being checked out. The neighborhoods immediately adjacent to the spill on both sides of the river are being evacuated due to the danger posed by the chlorine gas. The area about 200 yards from the derailment has been cordoned off. Hazmat crews and rail crews are busy containing the spill and bringing in equipment to remove the derailed cars. The mayor has issued an evacuation order for residents in the surrounding area and is requesting assistance from the state. The Red Cross is establishing an evacuation center at North High School in Central City.

There are rumors that hundreds of Coho salmon, a federally listed threatened species have been killed in the river. The Parks Department, County, and State Department of Natural Resources have issued an advisory and closed the river to fishing, recreation and other uses for 25 miles downriver from the rail bridge site.

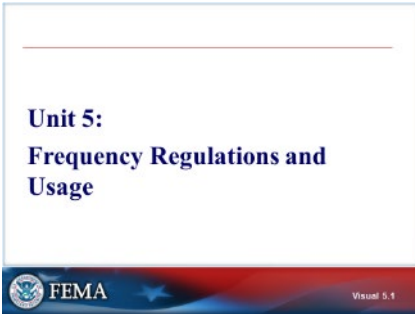
The Emergency Medical Agency (EMA) in Liberty County is reporting numerous incidents of burning eyes and lungs. The Central City hospital has exceeded its capability to staff the emergency room. There are numerous water intakes along this stretch of the Roaring River.

Liberty County is the largest county in the state in terms of population, and includes Central City, the largest and densest population center in the State of Columbia. The population of Central City is approximately 149,000 and the metropolitan area population is approximately 302,400. Central City serves as a major transportation hub within the state: commercial river traffic, rail, air, and interstate traffic and is 40 miles from the Port of Charlotte, on the Big Ocean.

Unit 5: Frequency Regulations and Usage

STUDENT MANUAL

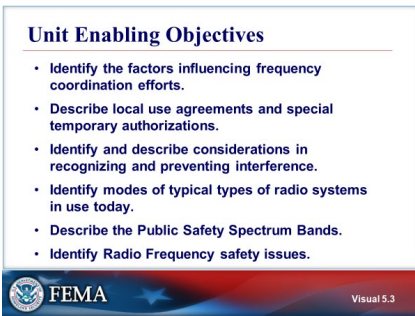
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Visual 5.1



Visual 5.2



Visual 5.3

UNIT 5: FREQUENCY REGULATIONS AND USAGE

UNIT TERMINAL OBJECTIVE


Identify methods and standards relating to frequency regulations and use.

UNIT ENABLING OBJECTIVES

- Identify the factors influencing frequency coordination efforts.
- Describe local use agreements and special temporary authorizations.
- Identify and describe considerations in recognizing and preventing interference.
- Identify modes of typical types of radio systems in use today.
- Describe the Public Safety Spectrum Bands.
- Identify Radio Frequency safety issues.

Terminology and Conventions of Use

- A *frequency* is a defined unit of electromagnetic spectrum, one of several parameters that define a channel.
- A *channel* is a talk path and may use one or two frequencies.
- A *talkgroup* is a virtual channel within a group of frequencies and is used in reference to trunking radio systems.



Visual 5.4

TERMINOLOGY AND CONVENTIONS OF USE

Frequency is a defined segment of radio spectrum capable of supporting voice and data transmissions; a unit of electromagnetic spectrum. Much like a street address, it identifies the location, but does not identify the size of the lot.

Channel is a frequency or pair of frequencies assigned to a specific purpose and typically preprogrammed into radio equipment, to allow easy and consistent use. A channel may also have additional associated technical characteristics such as tone coded squelch (CTCSS) or P25 Network Access Code (NAC).

Talkgroups are virtual channels used in a trunked radio environment. To the user, they appear to be identical to a channel, but behind the scenes, the radio is constantly seeking and acquiring different frequencies as needed to provide a reliable talk path to the user.


It is essential for the COML to recognize and understand the differences between these elements. Without this understanding, the accurate creation of an ICS form 205 will be impossible.

Providing the fourth digit after the decimal is necessary in today's environment to accurately display and program frequencies. It is also essential to know if this is a narrowband or wideband frequency. With few exceptions, all frequencies between 150 MHz and 512 MHz were converted to narrowband by 2013. Thus, it will likely always require the N or W designation for safety's sake below 512 MHz into the future.

Terminology and Conventions of Use (Cont.)

Frequencies are written with up to five places past the decimal and should be identified as "wide" (25 kHz spacing) "narrow" (12.5 kHz spacing) or "ultra-narrow" (6.25 kHz spacing).

- Example: 155.4750 N
- All frequency references on an ICS Form 205 represent mobile and portable frequencies
- Frequencies are not shown for trunked systems



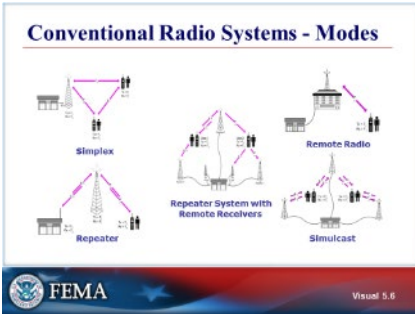
Visual 5.5

TERMINOLOGY AND CONVENTIONS OF USE (CONT.)

Frequencies are not shown for trunked systems. The ICS Form 205 is filled out from the subscriber's/end user's perspective, not the infrastructure's.

This reflects what would need to be programmed into a radio in the field.

In trunked radio systems the name of the talk group is listed, not the frequency, as the frequency changes based on system availability.



Visual 5.6

CONVENTIONAL RADIO SYSTEMS – MODES

Conventional systems are, and will continue to be, in heavy use in public safety communications.

These terms indicate how channels are used. The terms Analog and Digital describe how frequencies (within a channel) are modulated or are “carried” through the air. These four terms are not necessarily related. Conventional systems can be analog or digital as can trunked systems.

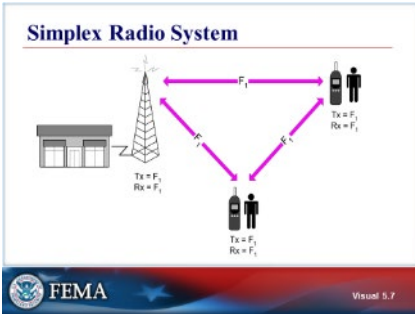
Narrowband and wideband are the width of the signal, signals are typically 25kHz for wideband and 12.5kHz for narrowband. Some systems use 6.25kHz bandwidth which allow for more channels within the available bandwidth.

Simulcast, digital, trunked, and voted are all mutually exclusive terms. One term does not imply that any of the other terms are in play.

Conventional systems are not old or being phased out. New conventional systems are being built regularly. The type of system depends on the user needs.

Overview of Radio Frequency (RF) Systems: Conventional or Trunked

- Conventional radio system modes:
 - Simplex
 - Repeated
 - Simulcast
- Trunked radio system modes:
 - Repeated
 - Simulcast



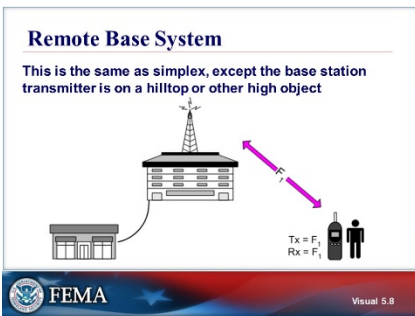
Visual 5.7

SIMPLEX RADIO SYSTEM

Simplex is the simplest type of system; relying on only one frequency, it is very reliable, but has very limited range, particularly around terrain or other obstructions. It is very effective for tactical and other high risk, short range applications. Commonly referred to as “car-to-car” or “direct.”

It should be noted that in some trunked systems, there are talkgroups named ‘car-to-car’ – they are still on the radio system and are not a simplex frequency.

Simplex has the advantage that it is not dependent on the system, and therefore works if there is a radio system outage.



Visual 5.8

REMOTE BASE SYSTEM

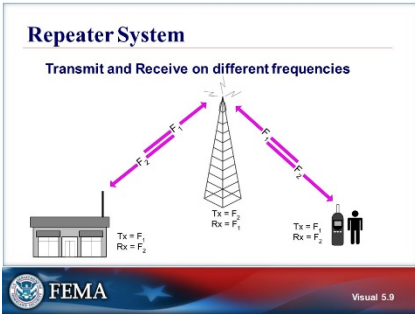
By installing the Base radio on a high structure, building, or hill, the base station can send and receive from mobiles and portables over a much wider area than otherwise.

This method does not improve the car-to-car range at all, just the base-to-mobile coverage.

The connection to the transmitter site can be a hard line (copper wire circuit), or more commonly, an IP/fiber optic line. Alternatives are microwave or other RF signal.

What is the limiting factor on remote base system’s usable transmit range?

The base transmitter in a Land Mobile Radio (LMR) system typically has much more power than mobile or portable radios. The base antenna is typically at a much higher elevation than mobile or portable radio antennas. For these reasons, mobile and portable communications are limited by their talk-back capability.



Visual 5.9

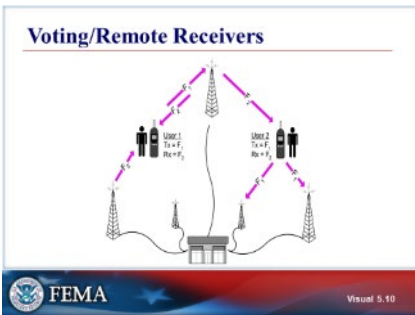
REPEATER SYSTEM

The portable or mobile or base station transmits on “F1” and the repeater is listening for “F1.” As soon as it detects a signal, the repeater starts transmitting on “F2.” All the portable, mobile or base station radios on this channel are listening on “F2.”

Frequency separation is important. This is problematic in VHF.

The coverage using this method is vastly improved. A low-power portable radio can suddenly talk great distances through the repeater. A typical VHF repeater system can reach 50 miles.

This method requires two frequencies to work. This may be difficult to achieve in some areas of the country due to frequency congestion.



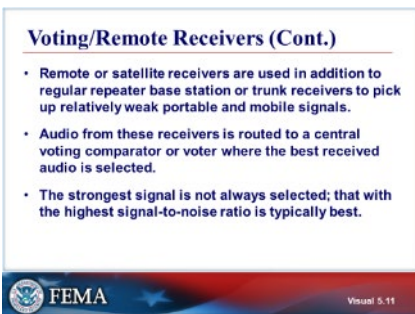
Visual 5.10

VOTING/REMOTE RECEIVERS

Remote receivers are installed to “balance a system.”

If a base station or repeater is located on a high object, has a high gain antenna, stable power supply and is engineered, the mobile—but more likely the lower power portable radios—may not have enough power to reach back to the fixed station. Installing remote receivers allows the lower power radios to access the system.

This is especially useful in mountainous terrain or in urban areas with tall buildings.




Visual 5.11

VOTING/REMOTE RECEIVERS (CONT.)

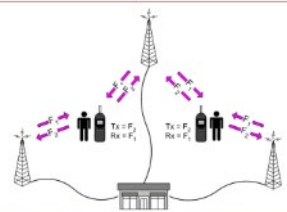

Voting/Remove Receives (Cont.)

- Selected audio may come from multiple receivers during a single transmission.
- Some systems are configured to lock onto a single receiver, once chosen, for a transmission.
- Selected audio is routed to the ultimate receiving locations, such as consoles or repeaters for retransmission.



Visual 5.12


Simulcast Radio System

Visual 5.13

The Radio Spectrum

- Radio frequencies are the products of resonance or vibration.
- These vibrations can be used for effective communication at a number of frequencies.
- As the speed of the resonance increases, physical properties change.
- Frequencies range from the audible to the production of light.
- As frequencies pass above the audio range, the waves begin to travel through air and become radio frequencies.



Visual 5.14

VOTING/REMOTE RECEIVERS (CONT.)

A similar capability is achieved where the mobile radio acts like a portable repeater.

The portable works on a different set of frequencies, the mobile re-transmits the received signal to the portable. This is especially effective for 'reaching' into buildings or in remote areas.

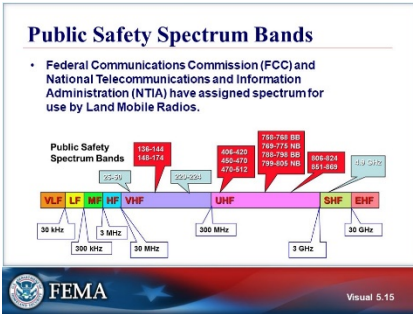
SIMULCAST RADIO SYSTEM

The use of simulcast prior to the invention of GPS was very limited, due to the enormous cost of providing the accurate timing. Now with low-cost GPS devices, time accuracy is easy to achieve.

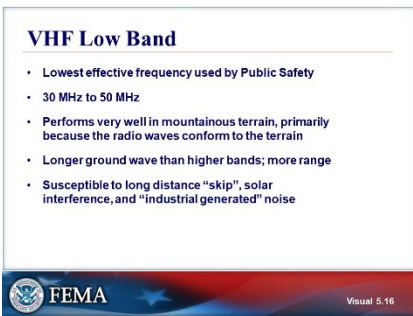
This method does not add any capacity to a channel, in fact to some degree it reduces capacity, since prior to its implementation, two far away users could use a channel at the same time, without interfering with each other. On the other side of this argument, all users hear everything on the given channel regardless of how far away they are, assuming they are within the radio system footprint.

Simulcast does not increase capacity; it increases channel loading.

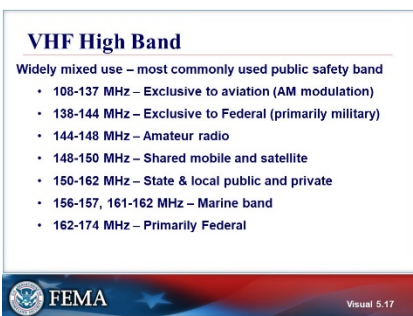
THE RADIO SPECTRUM



Visual 5.15



Visual 5.16



Visual 5.17

PUBLIC SAFETY SPECTRUM BANDS

VHF LOW BAND


- VHF Low Band can travel great distances, so the person to whom you are speaking may not be who you wanted
 - Low band frequencies have properties similar to HF frequencies – CB is 27mhz
- Low band is still in use in many States, though very few manufacturers still make low band equipment – state patrols typically still have low band capability, most rural fire departments have moved away from low band
- Susceptible to background noise, which has increased greatly due to the proliferation of other technologies
- Caution should be used in placing low-band channels in gateways due to potential interference

VHF HIGH BAND

AM radio gradually gets quieter as the signal is lost. This allows aircraft to "turn up" the radio to hear farther away, resulting in a much noisier signal. FM will "capture" the signal, and for the most part, the quality will be either good or very poor—not much degradation just because of distance.

VHF High Band (Cont.)

- Non-Federal LMR Frequency pairings are random
- Extensive Federal use
- Good medium-range propagation




Visual 5.18

VHF Usage

VHF FCC Part 90 LMR has no designated pairs


- Inconsistent use (high side/low side) e.g.
 - 153.9275/155.0475 ; 155.0475/159.3075
- Inconsistent TX/RX splits
 - 153.9275/154.4375; 153.7475/159.4575
- 175 kHz minimum; the further apart the better



Visual 5.19

VHF Usage (Cont.)


- Can cause interference to other repeaters:
 - Repeater output to repeater input on same or close frequencies
- Adjacent frequencies overlap each other
- Usage
 - Analog or digital
 - Conventional or trunked
 - Repeated, base, mobile



Visual 5.20

UHF Band

- 406-420 MHz – Federal Use
- 420-450 MHz – Amateur radio and Federal radio-location
- 450-470 MHz – Non-Federal public and industrial/business
- 470-512 MHz – Non-Federal public safety and industrial/business - also UHF TV channels 14-20
- Standard frequency pairings



Visual 5.21

VHF HIGH BAND (CONT.)

- Most commonly used frequency band in public safety (50% of licensed systems)
- No standard frequency pairings for repeaters
- Most Federal law enforcement and Federal land management (fire) is on VHF

VHF USAGE

VHF USAGE (CONT.)

This is the most widely used (congested) frequency band, it supports:

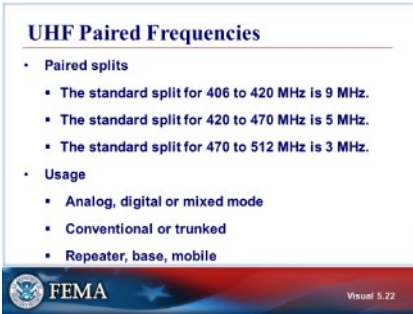
- All modes of transmission (analog or digital)
- All forms of system design (conventional or trunked)
- All form factors (repeaters, base stations, mobiles, portables)

UHF BAND

UHF is less capable in terrain than VHF, but works inside buildings better than VHF.

Frequency pairs for repeaters are standard splits, making programming and other issues more predictable.

Many radios will not span the Federal UHF and the State & local UHF splits. Manufacturers make radios available in two model types to account for these capabilities.



Visual 5.22

UHF PAIRED FREQUENCIES

- UHF is allocated in pairs
 - 9 MHz separation—Federal allocations
 - Bandwidth between TX and RX pair
 - The standard split for 420 to 470 MHz is 5 MHz
 - The standard split for 470 to 512 MHz is 3 MHz, corresponding to half of a TV channel (6MHz)
- Usage
 - All modes of transmission (analog or digital)
 - All forms of system design (conventional or trunked)
 - All form factors (repeaters, base stations, mobiles, portables)



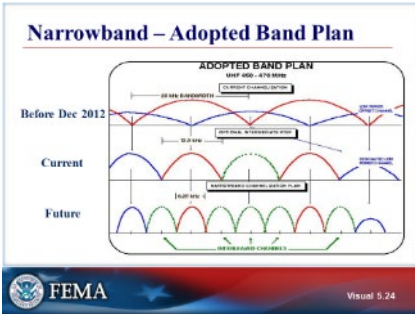
Visual 5.23

NARROWBAND – VHF/UHF

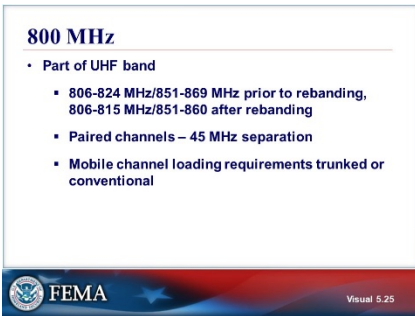
Exceptions to the basic Narrowband Requirements:

- Paging-only channels - Public Safety paging channels 152.0075 MHz and 157.450 MHz are exempt
- Amateur Service
- Maritime Mobile service

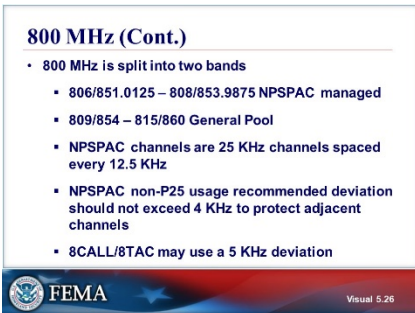
VHF Band 150-174 MHz and 421-512 MHz convert from 25 kHz bandwidth channels to 12.5 kHz bandwidth channels (or equivalent voice talk paths – one per 12.5 kHz)



Visual 5.24



Visual 5.25



Visual 5.26

NARROWBAND – ADOPTED BAND PLAN

The radio spectrum is a finite amount of space.

- As technology improves more and more people are using radio waves. The narrowband plan was a way to allow more people to use radios without interfering with each other and still use the same amount of spectrum.

800 MHz

- Part of the UHF band which is 300 – 3000 MHz
- Primarily trunked operations
- Frequencies allocated by Regional Planning Committee (RPC) plans
- Some general pool frequencies not allocated by RPCs
- Good building penetration, but reduced range compared to VHF and UHF

800 MHz (CONT.)

Standard naming convention for the UTAC channels is that the first character indicates the band:

- V for VHF
- U for UHF
- 8 for 800mhz
- 7 for 700mhz
- “D” at the end indicate “direct” or simplex mode

800 MHz (Cont.)

- Usage
 - Analog or digital
 - Not limited to P25 digital
 - Conventional or trunked
 - Repeater, base, mobile



Visual 5.27


800 MHZ (CONT.)

This band supports:

- All modes of transmission (analog or digital)
- All forms of system design (conventional or trunked)
- All form factors (repeaters, base stations, mobiles, portables)

800 MHz (Cont.)

- 5 dedicated interoperability channels
 - (8Call/8TACs)
- General and Regional planning channels
 - Normal coordination/licensing
- RPC (Regional Planning Committee) channels
 - Pre-allocated – coordination by local RPC



Visual 5.28

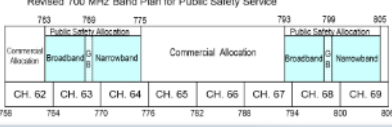

800 MHZ (CONT.)

Revised 700 MHz Band Plan

700 MHz Band prior to its being licensed to FirstNet

- 763-768 MHz (5 MHz for fixed base, repeater outputs)
- 793-798 MHz (5 MHz for mobile, repeater inputs)

Revised 700 MHz Band Plan for Public Safety Service

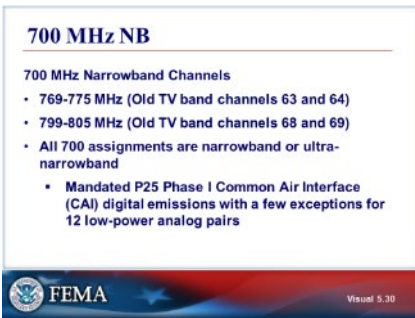
Visual 5.29

REVISED 700 MHZ BAND PLAN

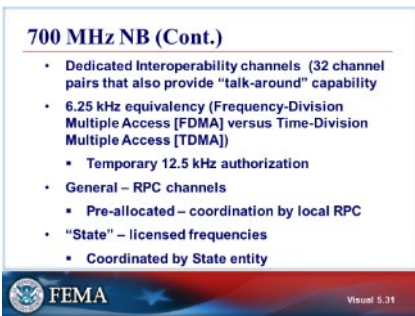
In July 2007, the Federal Communications Commission (FCC) revised the 700 MHz band plan and service rules to promote the creation of a nationwide interoperable broadband network for public safety and to facilitate the availability of new and innovative wireless broadband services for consumers. The Commission designated the lower half of the 700 MHz Public Safety Band (763-768/793-798 MHz) for broadband communications. The Commission also consolidated existing narrowband allocations to the upper half of the 700 MHz Public Safety block (769-775/799-805 MHz).

Further, in order to minimize interference between broadband and narrowband operations, the Commission adopted a one megahertz guard band (768-769/798-799 MHz) between the public safety broadband and narrowband segments. Finally, the Commission established a single nationwide license – the Public Safety Broadband License – for the 700 MHz public safety broadband spectrum.

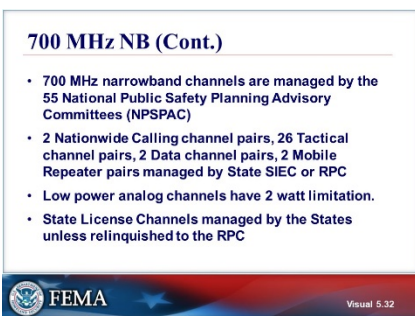
This is all prior to the Middle Class Tax Relief and Job Creation Act of 2012 that created FirstNet.



Visual 5.30



Visual 5.31



Visual 5.32

700 MHz NB

The merits and issues with Revised 700 MHz NB.

- Reuse of the old TV band channels 63, 64, 68 and 69
- Adjacent to 800 MHz public safety band
- Digital requirement
- Mandated P25 Phase I Common Air Interface (P25 CAI)
- Original channelization shifted to address changes to 700 Broadband Rule changes
- Performance similar to 800 MHz

700 MHz NB (CONT.)

- Dedicated interoperability channels (32 channel pairs)
- FDMA versus TDMA
- Coordination by RPC and state

700 MHz NB (CONT.)

As we progressed, and developed newer equipment, we learned from past mistakes.

- Realizing five interoperability channels are not enough during a large incident, 32 nationwide channels were reserved in the band.
- Channel pairing was set at 30 MHz separation
- State licensed channels are managed by the state where they know the user's requirements
- This is the first time a transmission mode was designated

700 MHz NB (Cont.)

- Usage
 - P25 digital with the exception of the low power channels
 - Conventional or trunked
 - Repeater, base, mobile



Visual 5.33

700 MHz NB (CONT.)

This band supports:

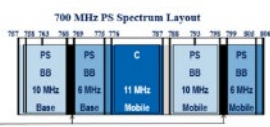
- P25 digital with the exception of the low power channels
- All forms of system design (conventional or trunked)
- All form factors (repeaters, base stations, mobiles, portables) This is the first time a transmission mode was designated
- The 700mhz interoperable channels include some designated for air to ground operations

700 MHz FirstNet


700 MHz Broadband Channels (FirstNet)

- 758-768 MHz (10 MHz for fixed base)
- 788-798 MHz (10 MHz for mobile)

700 MHz PS Spectrum Layout



Guard-bands

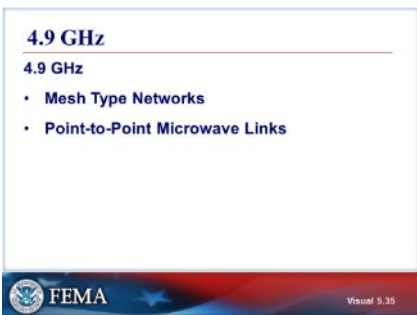


Visual 5.34

700 MHz FIRSTNET

With the passage of the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act), some existing public safety licenses in the 700 MHz Band and an additional license (known as the D Block), together totaling 22 MHz, have been designated by Congress to support a broadband communications network for public safety. As required by the act, the initial 10-year license to use these frequencies was assigned by the FCC to FirstNet. It is renewable for an additional 10 years, on condition that FirstNet has met its duties and obligations under the act.

A total of 34 MHz of spectrum capacity available for public safety networks within the 700 MHz band: the 20 MHz designated for broadband (data), 2 MHz guard-bands and 12 MHz allocated for narrowband communications (primarily voice).

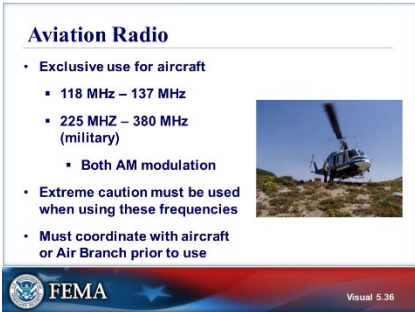


Visual 5.35

4.9 GHZ

A portion of the 4.9 GHz Band (50 MHz) was made available through FCC rules for Public Safety use. These uses include:

- Mesh type networks where multiple nodes operate as an area-wide network
- Point-to-point microwave links
 - Point-to-point links are frequently used on an itinerant basis to make data connections to mobile communications vehicles, video links to public safety aircraft and other incident related support



Visual 5.36

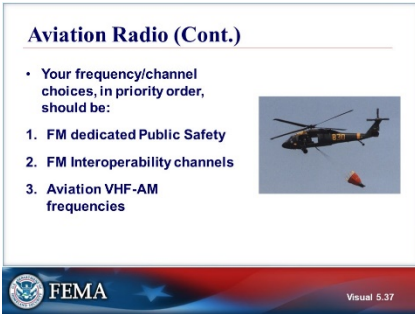
AVIATION RADIO

Voice air-to-air, air-to-ground and air-to-flight control facilities:

- 118.000 MHz–136.975 MHz (all civil and military aircraft worldwide have this capability)
- 225 MHz–380 MHz (military aviation UHF band) – non-military radios cannot be programmed to these frequencies
- AM modulation with 25 kHz channel spacing in US radios and 8.33 kHz channel spacing in European radios
 - VHF frequencies with AM modulation are sometimes referred to phonetically as “Victor” frequencies and UHF frequencies with AM modulation are sometimes referred to as “Uniform” frequencies. These terms have roots in military aviation. Vietnam era Army helicopter pilots had three radios to simultaneously monitor: UHF-AM, VHF-AM, and Low Band FM which evolved into the shorthand terminology of “Uniform”, “Victor” and “FM”. Since most Wildland firefighting pilots were former military pilots, this terminology is also widely used in wildland firefighting.
- Ideally, frequencies to be used with participating aircraft should be precoordinated with the aircrew or the owning agency prior to aircraft takeoff. The aviation frequency monitored at the incident can be included on the ICS Form 213 when the aviation asset is requested.
- If an Air Branch has been activated, you should coordinate aviation frequencies through them.
- If a COML needs to talk to an Air Traffic Control Tower and a phone number is unavailable, attempt to contact them on the published “Ground Control” frequency.
 - Always use the; “Hey you, this is me” format (say callsign of who you wish to talk to, then say your current callsign, such as “Westville Ground, Comm 20”) when communicating with aircraft or with air traffic control (ATC).

- If communicating with the military, remember they may use the words “over” if they are expecting a response, or “out” if they are not. You should do the same.
- Always use the NATO phonetic alphabet when communicating with aircraft or ATC facilities.

There are commercial applications that allow tracking of aircraft assigned either in or near your area-of-operation. Do not patch AM aviation frequencies without express approval of the Aviation Branch, if activated, and the radio system owner because you may be adding access to thousands of radios.



Visual 5.37

AVIATION RADIO (CONT.)

Most Public Safety and National Guard air assets have FM capability to communicate with ground operations. These are intended for air-to-ground communications. Simplex channels should be the first choice of air to ground communications.

Licensing or permission is not required in Part 87 of the FCC regulations for the following air-to-ground frequencies, as long as they are used for their intended purpose while supporting an emergency incident or event:

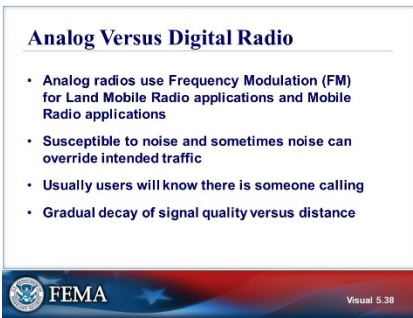
- 123.1 for Search and Rescue (SAR), 122.9 for SAR secondary and SAR training, and 121.5 (also known as “Guard”) for aircraft emergencies ONLY.
- 122.8 and 122.9, known as “multi-comm frequencies,” can be used to support an incident’s/event’s air-to-ground needs
- 122.925, also a multi-comm frequency, has limitations, but may be used to support fire suppression
- VSAR-16, 155.16 MHz, is a nationwide FM SAR frequency

Your choices, in priority order, should be:

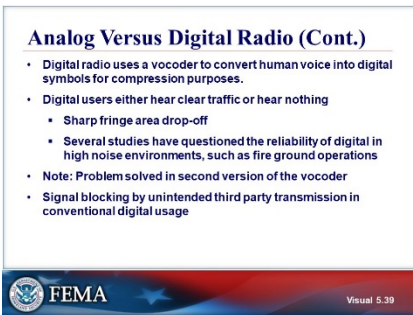
1. FM dedicated public safety channels (may require an agreement or license)
2. FM interoperability channels, may require coordination with the SWIC
3. Aviation VHF-AM frequencies

Many emergency services aircraft include conventional FM public safety LMR channels, including interoperability channels, appropriate to their area of operation.

- **Protection of AIR-TO-GROUND channels is critical to safe air Operations.**
- The above ground level (AGL) altitude of aircraft significantly increases the range of aircraft radios, similar to the effect of very tall antennas, and therefore must be taken into consideration due to possible interference with adjacent systems. Because interoperability channels have standardized frequencies and tones, an aircraft at only 1,000 feet



Visual 5.38



Visual 5.39

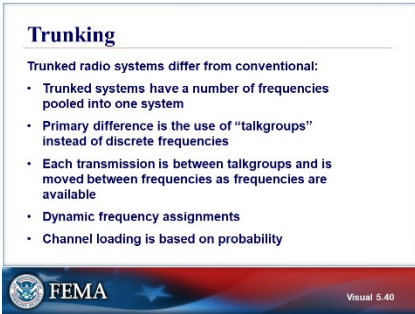
AGL may activate all repeaters or radios set to that channel within a 50 mile radius.

ANALOG VERSUS DIGITAL RADIO

- Most established systems use analog, however many systems are upgrading to digital as the older systems reach end of life, or support from vendors
- Susceptible to noise – worse at low band, less at upper UHF
- Usually has some minimal indication of a transmission
- Gradual decay of signal in fringe areas of operation

ANALOG VERSUS DIGITAL RADIO (CONT.)

- Digital vocoder converts analog audio to digital format.
 - Used to be proprietary digital format, but P25 standards are adopted in new systems
- Consistent quality out to fringe with rapid drop of signal Bit error rate.
- High ambient noise environments may tend to “confuse” the vocoder and cause poor performance in areas such as fire ground operations
- May drop a desired signal in the presence of a “hidden” third-party transmitter where an alternate transmitter (or channel) keys up.



Visual 5.40

TRUNKING

- Greater number of potential talk paths than available frequencies due to the statistical probability length of given radio calls and the statistical availability of frequencies.
- Number of simultaneous calls limited to the total number of talkpaths (frequency pairs) available on a given trunked site.
 - Site design considers the normal amount of probable radio traffic covered by a particular radio site, some will have more available frequency pairs and thus pathways.
- Quality usually indicated by the number of “busy” indications.
- Systems are typically scaled for very few “busies”.
- Interoperability talkgroups should be pre-defined in local/regional systems and part of system pre-planned fleet mapping.
- Trunking is based on the theory of probability; there is no guarantee of access in congested time periods.

Trunking (Cont.)

- When was trunking invented?
- Talkgroups capacity enhanced by probability of channel availability
 - Instantaneous capacity is limited to the actual frequency capacity
- Fleet mapping should include interoperability talkgroups
- Fleet mapping should also include conventional channels as a backup to the trunking system(s) and for interoperability




Visual 5.41

TRUNKING (CONT.)

How Many Lines Run Between 2 Cities?

- The answer is very few, possibly as few as 20. This is based upon the probability that a very small percentage of the City "A" population will want to talk to the City "B" population at the same time (Erlang Theory).
- This is the exact same theory used in Trunked radio, a large number of users sharing a small number of trunked channels, making the utilization very efficient.



FEMA Visual 5.42

Visual 5.42

HOW MANY LINES RUN BETWEEN 2 CITIES?

Historically, cities used to assign a connection on limited long distance telephone lines.

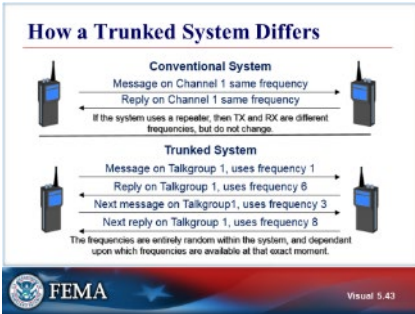
Public telephone systems are designed for normal business use, so there is not capacity for every user to make a long distance (trunk) call at the same time.

Greater number of potential talk paths than available frequencies due to the statistical probability length of given radio calls and the statistical availability of frequencies.

Number of simultaneous calls limited to the total number of frequencies used in the system.

Quality usually indicated by the number of "busy" indications.

Public Safety radio systems are typically scaled for very few "busies" (less than 1%). FCC regulations require a 70:1 radio to channel design specification although a higher ratio can be applied for in a rural area. (Code of Federal Regulation Title 47 Part 90.631)



Visual 5.43

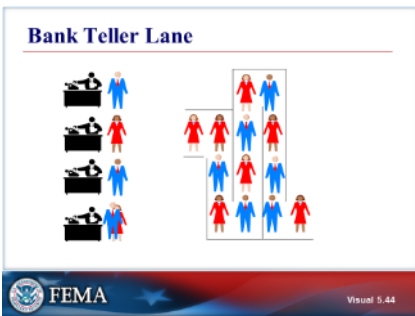
HOW A TRUNKED SYSTEM DIFFERS

Conventional – If someone is using your system, you have to wait until they are done before you can use it

Trunking – Uses a pool of frequencies (channel pairs) that are dynamically assigned as needed. Every time you key your radio, it sends out a command channel stating you're ready to transmit.

The system sees what resources are available at that time and assigns the first available channel pair. It then sends an acknowledgment tone and you get a double beep meaning it is OK to talk. Every time you talk, you could be on a different channel pair. Because of this dynamic frequency assignment, including a unique ID for each radio (that has to be recognized by the system) programming parameters for trunked radio systems are complex and thus cannot be easily done in the field by a COML on an incident.

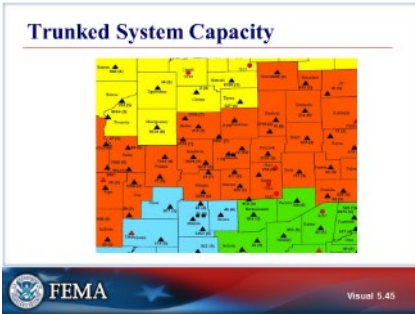
Therefore pre-programmed cache radios are the ideal solution if pre-programmed 'common' channels are not available.



Visual 5.44

BANK TELLER LANE

A good analogy is that a conventional system is like getting into the checkout line at a grocery store. Each person waits in line for their turn. Trunking is more analogous to waiting at the bank in a single queue for the next available teller.



Visual 5.45

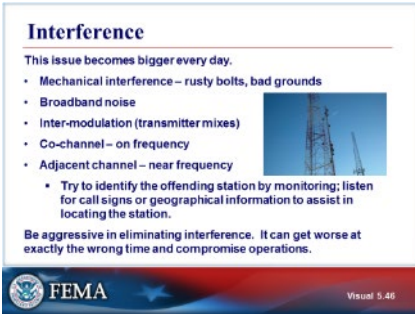
TRUNKED SYSTEM CAPACITY

Talkgroups do not equal talkpaths. A given site will contain a fixed number of available talkpaths. A COML should understand system architecture in order not to overload a site. This diagram depicts site locations followed by the number of talkpaths available in parentheses.

Typically, towers that cover a smaller footprint are used in trunked systems (700/800MHz versus VHF frequency ranges). A specific tower in the system will be designed with a specific talkpath (capability).

Shared channels are good, but scanning can be a mess. To avoid these problems, it can be recommended to not allow scanning.

Also, if people outside of the coverage of a specific radio tower suddenly all decide to want to listen to an incident, each tower now has to transmit that talkgroup – this increases the load on the system and decreases the available capacity at each tower site.



Visual 5.46

INTERFERENCE

Interference is becoming more of a problem everyday—more and more users occupying the finite spectrum available. Many sources of interference, including other radio users, thousands of wireless devices and even cash registers and other “not radio” devices.

When installing temporary equipment, being high (on rooftops) may not be the best option.


Use radio techs, Amateur Radio operators (they are very good at direction finding as they self police their frequencies) or the FCC to assist in locating the source of interference.

How does interference affect radio communications?

- Congestion causes increased interference
- Licensed spectrum users
- Ambient commercial and industrial noise sources
 - Computers
 - Industrial systems (RF gluing, computer control)
- High power transmitters—near field overload
- Intermodulation (Intermod)—mixing of various frequencies
 - Direct frequency mixes in transmitters
 - Rusty bolts, fences
 - Loose or badly soldered coax connectors
- Bidirectional amplifiers (BDAs)
- Digital TV over-the-air antenna amplifiers
 - Self-oscillation
- Co-channel (same frequency-different user)
- Adjacent channel—near frequency

Interference (Cont.)

- First choice may be to contact the agency or licensee directly, and try to find out if they changed something recently, such as antennas or power output.
- Most public safety agencies will cooperate to rectify interference.
- The FCC may also be of assistance finding the offending station.
- Make contact; operator information can be obtained via the FCC Universal Licensing System (ULS) database: <http://wireless.fcc.gov/uls/>



FEMA Visual 5.47

Visual 5.47

INTERFERENCE (CONT.)

The best way to isolate the cause is to listen. If you hear voice traffic, try to identify locations or try to capture call signs, either voice or Morse code. The licensees of the call signs can be tracked down using the FCC ULS database.

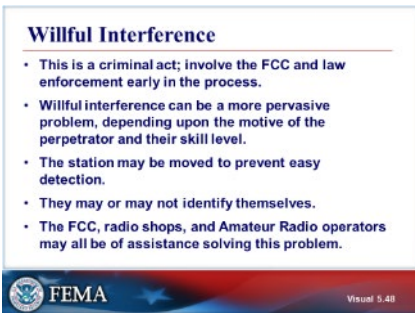
Actions that can be taken to identify and eliminate interference:

- Direct “on frequency” interference
 - Attempt to contact licensees directly
- In extreme cases, the FCC may be able to assist in identifying dedicated interference sources
- Proper installation practices can help prevent interference
- FCC database may help to identify sources

With the exception of licensed trunked systems, the FCC classifies all other frequencies as “shared” without legal recourse to exclusivity.

Willful Interference

- This is a criminal act; involve the FCC and law enforcement early in the process.
- Willful interference can be a more pervasive problem, depending upon the motive of the perpetrator and their skill level.
- The station may be moved to prevent easy detection.
- They may or may not identify themselves.
- The FCC, radio shops, and Amateur Radio operators may all be of assistance solving this problem.



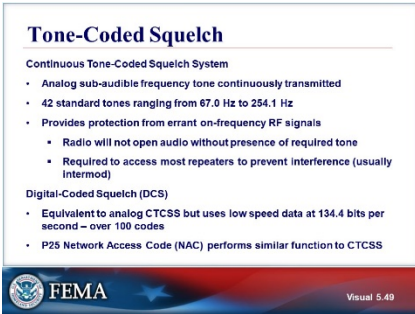
FEMA Visual 5.48

Visual 5.48

WILLFUL INTERFERENCE

Willful interference can be hard to track, some interferers will even identify themselves, but they tend to be fairly sophisticated and move around to prevent getting caught.

This is a criminal act! Involve the FCC and law enforcement early on in the process. Willful interference can be a more pervasive problem, depending upon the motive of the perpetrator and their skill level. The station may be moved to prevent easy detection. They may or may not identify themselves. The FCC, radio shops, and amateur radio operators may all be of assistance solving this problem.



Visual 5.49

TONE-CODED SQUELCH

Continuous Tone Coded Squelch System (CTCSS) provides discrete access to shared channels by users. Excluding CSQ, there are 42 standard CTCSS tones; they have many trade names such as PL, QC, and others. There is also a digital version called Digital-Coded Squelch (DCS).

Continuous Tone-Coded Squelch System (CTCSS)

- Analog sub-audible frequency tone continuously transmitted
- Excluding CSQ, 42 standard tones ranging from 67.0 Hz to 254.1 Hz for analog channels
- Provides protection from errant on-frequency RF signals
 - Radio will not open audio without the presence of the required tone
 - Particularly required for repeater operations to control repeat function
- Private Line (PL), Channel Guard (CG), Quiet Talk (QT), Quiet Channel (QC), Tone Guard (TG), and Tone Lock (TL), are all manufacturer-specific names for the CTCSS function; “PL” or “tone” are commonly used to refer to CTCSS.

Digital-Coded Squelch (DCS)

- Equivalent action as analog using digitally encoded 134.4 Hz sub-audible tone
- P25 uses a digital equivalent of tone code squelch



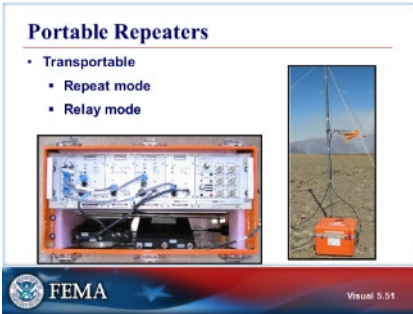
Visual 5.50

RADIO PROGRAMMING

In the wildland fire world, all radios are usually programmed at each incident to reflect the needs of the incident. This is possible because there is a limited pool of equipment types and there is more control over the radios. In the “All Risk” environment, the COML has to be more cautious. First, there are many more radio types potentially at the scene. In addition, many require special software and cables; it would be very difficult to have every cable and the correct software for every incident.

Some radio software manufacturers will not allow previous versions of their software to program a radio that has been programmed with a newer version. This means if your software is older than the version that last programmed the radio; you are “locked out.” Conversely, if you have newer software, the owner’s radio shop may be “locked out.” This requires a great deal of caution on behalf of the COML and COMT to make sure you are aware of the ramifications of programming.

System managers or radio owners must give permission prior to reprogramming. NEVER program the trunked side of a radio unless you have permission and have a full understanding of the configuration of the systems.



Visual 5.51

PORTABLE REPEATERS

Portable repeaters are a great asset to help in areas with no coverage or when damage has occurred to the infrastructure.

Some are vehicle mounted, which provides a stable power supply; however, where vehicles can go is not always the best place to install these devices.

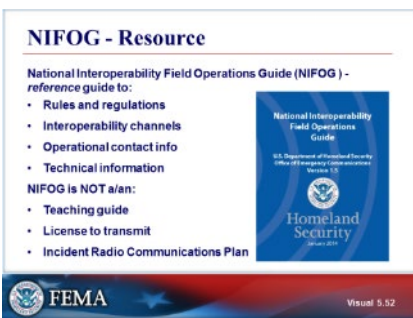
Portable repeaters can be battery powered, solar, or AC powered. The solar and battery powered models are typically low power, but this can still provide great coverage with good placement and antenna selection.

Basic transportable repeaters:

- Mobile—Vehicle-mounted
- Transportable—Hand-carry (for example, helicopter, boat transport)

In the all-hazards world portable repeaters on the interoperable UTAC frequencies can usually be easily deployed.

- When deploying a temporary repeater, contact the FCC Duty Officer to obtain a Special Temporary Authorization (STA). This can usually be granted over the phone in an emergency with a follow up written request.



Visual 5.52

NIFOG – RESOURCES


The contents of the National Interoperability Field Operations Guide (NIFOG) include:

- Common interoperability channel lists
- Common used frequency lists
- Miscellaneous technical references
- Contact numbers

NIFOG – Resource (Cont.)

Rules and regulations

- Different rules for state, local, tribal, territorial governments (FCC) vs. Federal Government (NTIA)
- Some channels are authorized by rule, some require individual licensing




Visual 5.53

NIFOG – Resource (Cont.)

Interoperability Channels

- National Interoperability Channels (FCC rules)
- Federal Interoperability Channels (NTIA rules)
- Mutual Aid Channels – require FCC License or NTIA Authorization
- Conditions on license can limit availability, e.g. near Canadian border




Visual 5.54

NIFOG – Resource (Cont.)

Operational Information

- National-level Operations Centers
- Emergency Support Functions (ESF) at FEMA HQ
- FEMA Regional Offices
- USCG Rescue Coordination Centers



Visual 5.55

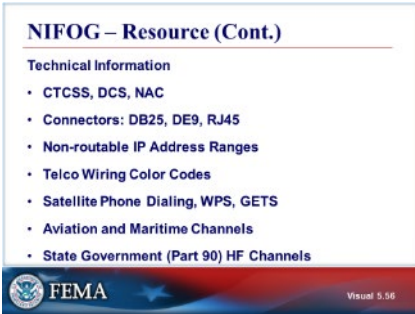
NIFOG – RESOURCES (CONT.)

- Rules and Regulations
- When can the frequencies be used?
 - Mobile and portable during times of emergency
 - Fixed repeaters require a license

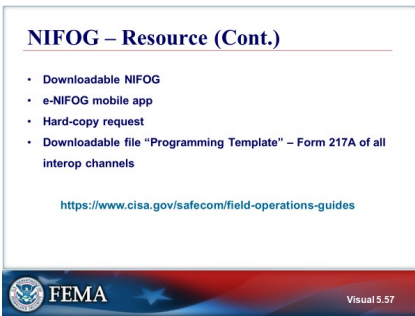
NIFOG – RESOURCES (CONT.)

- Common interoperability channels: national and federal.
- Conditions on license can limit availability, e.g. near Canadian border.
- Some Federal interoperable channels may be used for agency operational repeaters in some urban areas – check your local area BEFORE an event by contacting Federal partners.

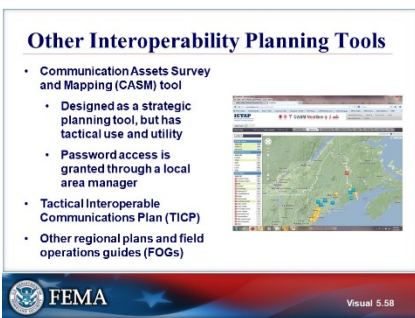
NIFOG – RESOURCES (CONT.)



Visual 5.56



Visual 5.57



Visual 5.58

NIFOG – RESOURCES (CONT.)

Reference information:

- Sub audible tones: CTCSS, DCS, NAC
- Wiring layout Connectors: DB25, DE9, RJ45
- Non-routable IP Address Ranges
- Telco Wiring Color Codes
- Satellite Phone Dialing, WPS, GETS
- Aviation and Maritime Channels
- State Government (Part 90) HF Channels

NIFOG – RESOURCES (CONT.)

- Common interoperability channel lists
- Commonly used frequency lists
- Miscellaneous technical references
- Contact numbers

The NIFOG is downloadable from the Homeland Security SAFECOM website: <https://www.cisa.gov/safecom/field-operations-guides>. Using this method to obtain a soft copy of the NIFOG ensures you will receive notification of any updates.

OTHER INTEROPERABILITY PLANNING TOOLS

Communication Assets Survey and Mapping (CASM) tool was not intended as a tactical tool; however, it may provide useful data. CASM is only as good as the quality of data entered. CASM:

- Displays communication interoperability on a regional basis.
- Use requires two factor authentication.
- All rights are tied to the password (create, modify, read).
- Passwords are available by contacting the Local Area Manager for CASM.



Visual 5.59

COMMUNICATIONS INTEROPERABILITY

Interoperability can be a great asset on incidents; it can also be a major problem. The need for radio interoperability needs to be a discussion held with the COML and Operations to determine what is practical and what the positives and negatives are.

Keep any interoperability efforts as simple as possible; complexity may lead to issues.

Communications interoperability is the ability of public safety service and support providers to communicate with staff from other responding agencies, to exchange voice and/or data communications as required, on demand and in real-time, as authorized.

- Communications interoperability is not a party-line
- Common mission, common area
- Interoperability might or might not be a priority

Keep it simple! Complex fixes increase risks and vulnerabilities.

While everyone may want to talk to everyone, everyone doesn't need to talk to everyone!

Usually "one up and one down" requirement in ICS. Remember limitations of users on trunked systems.



Visual 5.60

INTEROPERABILITY CHANNELS

In the NIFOG, the channels are listed for each band. All are narrowband, but you may encounter radios that have not been upgraded.

National Public Safety Telecommunications Council (NPSTC) has created a nationwide naming convention for all these channels. Not all agencies have adopted this convention, but most are leaning toward it.

VCALL and VTACs, UCALL, and UTACs are narrowband assignments. Some agencies, especially in urban areas, may have fixed repeaters on some of the UTAC channels for interoperable purposes. They may be permanently on or able to be turned on by remote. Check your area BEFORE an event.

There are wideband interoperability channels available.

The VTAC repeater channels use two of the VTAC tactical channels to create a repeater pair. Some VTAC channels cannot be used near waterways as some frequencies are marine frequencies.


Refer to the NIFOG.

Interoperability Channels (Cont.)

National Interoperability Channels:

- 800 MHz: 1 Calling and 4 Tactical
 - Calling: 8Call90
 - Tactical: 8TAC91, 8TAC92, 8TAC93, 8TAC94
- 700 MHz band: 32 interop repeater pairs listed in the NIFOG

Note: A "D" appended to the channel name denotes direct / Talk-around channel.



Visual 5.61

INTEROPERABILITY CHANNELS (CONT.)

Since not all agencies have adopted NPSTC's naming convention, you may encounter areas where the fire mutual aid channels are referred to by older names such as FERN (fire emergency response network), or HEARS (hospital emergency radio system) etc.

In areas where National Guard air assets are used to assist in wildland fires and search & rescue operations, they are equipped with the VFIRE frequencies.

VCALL and VTACs, UCALL and UTACs are narrowband assignments. There are wideband interoperability channels available.

700 MHz band: 32 interop repeater pairs, plus 32 talk-around channels (append "D" to the channel name).

The 700 MHz repeater pairs are located in the NIFOG:
 7CALL50, 7TAC51, 7TAC52, 7TAC53, 7TAC54,
 7TAC55, 7TAC56, 7GTAC57, 7MOB59, 7LAW61,
 7LAW62, 7FIRE63, 7FIRE64, 7MED65, 7MED66,
 7DATA69, 7CALL70, 7TAC71, 7TAC72, 7TAC73,
 7TAC74, 7TAC75, 7TAC76, 7GTAC77, 7MOB79,
 7LAW81, 7LAW82, 7FIRE83, 7FIRE84, 7MED86,
 7MED87, and 7DATA89.



Visual 5.62

LOCAL USE AGREEMENTS FCC RULE 90.421

These are agreements to allow one agency to use another agency's radio system without requiring the first agency to license the channel. They can only be granted within the footprint of the license that has been issued. The agency with the license can revoke a local use agreement at any time. These agreements should be in writing.

This is not designed to replace the license requirements. You can only agree to the terms of your license, especially related to your licensed area of operation. You cannot authorize use outside of the terms of your FCC license. These should be written agreements. Agreements do not need to be complex.

This rule is particularly useful to allow Federal agencies to operate on the VFIRE/UTAC frequencies, for which they are not specifically licensed.

The FCC does not normally issue a specific license for the interoperable frequencies. Permission to utilize is granted by virtue of a Part 90 public safety license (which Federal agencies do not have as they are licensed by NTIA).



Visual 5.63

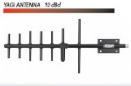
SPECIAL TEMPORARY AUTHORIZATION

- Can be obtained to install infrastructure temporarily
- Easy to obtain, if the need is there
- Typically good for 6 months
- When do you want to do this?
- These are obtained from the FCC licensees; see FCC rule 1.931
- Stations authorized by NTIA see NTIA Manual section 8.3.32
- These are used generally for fixed systems during system failures, not typically used for planned events or exercises.
 - They are allowed for emergencies involving danger to life and property
 - Used for temporary interoperable repeater installations (for planned events and emergencies)
 - Informal application may be used
 - Grants are typically for 6 months

If you do need one, they are not difficult to get. Generally you can do this online. Be prepared to provide name and address of the applicant agency, the location of the proposed installation or area of operations, and the nature of the emergency.

RF Exposure

- RF Exposure can harm human tissue
- Typically not an issue with the relatively low power and relatively low frequency equipment used in Public Safety
- RF hazards analysis required for FCC license applications and OSHA workplace safety
- Can be an issue with high-power base stations




FEMA Visual 5.64

Visual 5.64

RF Exposure (Cont.)

- Easiest protection is distance; RF exposure drops off very quickly.
- High power broadcast (AM, FM, or TV) and radar antennas are the most hazardous.
- If in doubt, get an engineer to evaluate your situation.



FEMA Visual 5.65

Visual 5.65

RF EXPOSURE

Humans can be at risk from radio frequency (RF) exposure. Be wary of high power transmitters—they can cause human harm, particularly radar and broadcast antennas.

Found at high-power broadcast and military and aviation radar facilities, higher frequency emissions are the cause of more damage, typically to soft tissue such as the eyes.

Directional antennas such as dishes and Yagi antennas produce more focused energy.

Consult with radio engineering professionals for Maximum Permissible Exposure (MPE) evaluations for fixed high-power stations.

RF EXPOSURE (CONT.)

Exposure level drops by 75% or more each time the distance from the transmitter is doubled. FCC Encyclopedia - Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety/>

OET Bulletin 56 Questions and Answers about Biological Effects and Potential Hazards of Radio frequency Electromagnetic Fields

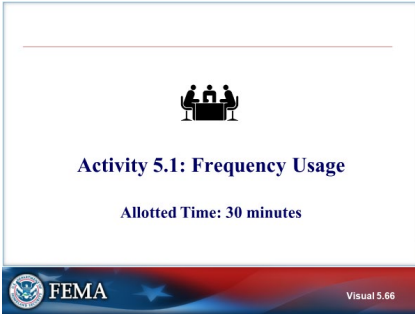
https://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e3.pdf

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields

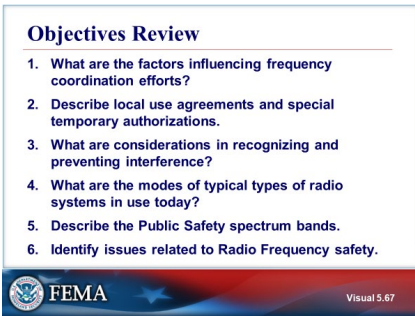
https://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

FM Model for Windows Software Program

<http://www.fcc.gov/oet/info/software/fmmodel/>



Visual 5.66



Visual 5.67

ACTIVITY 5.1: FREQUENCY USAGE

The instructor will explain Activity 5.1.

You will have 30 minutes to complete the activity.

OBJECTIVES REVIEW

Unit Enabling Objectives

- Identify the factors influencing frequency coordination efforts
- Understand local use agreements and special temporary authorizations
- Identify and describe considerations in recognizing and preventing interference
- Identify modes of typical types of radio systems in use today
- Describe the Public Safety Spectrum Bands
- Identify Radio Frequency safety issues

Supplemental Materials

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Activity 5.1: Frequency Usage

Unit 5 - Activity 5.1 Frequency Usage

Purpose

The purpose of the activity is to provide students with an opportunity to discuss frequency issues and explain solutions to address these challenges.

Objectives

Students will:

- Discuss best practices and lessons learned from their experiences in frequency issues.
- Identify solutions to the frequency issues discussed.
- Identify and make recommendations on how to address the frequency issues.

Activity Structure

The activity will be an instructor led discussion of frequency issues. Ask the students about their experiences using local, regional, state, and national interoperability channels.

This activity is scheduled to last approximately 30 minutes.

Rules, Roles, and Responsibilities

Students will work in an instructor led discussion.

Following are the specific activities / instructions for your participation in the activity:

1. Identify frequency issues.
2. Identify and recommend solutions to the issues.
3. Present issues and recommendations during discussion.

Facilitators will answer questions and facilitate group presentations and discussion on each group's answers.

Activity 5.1 Schedule

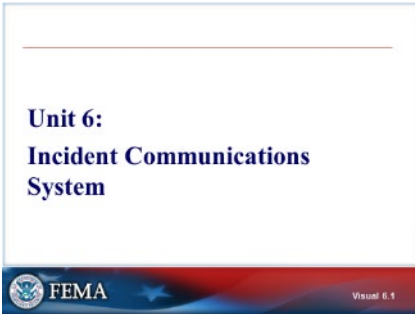
Activity	Duration	Participation Type
Activity	30 minutes	Classroom

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Unit 6: Incident Communications Systems

STUDENT MANUAL

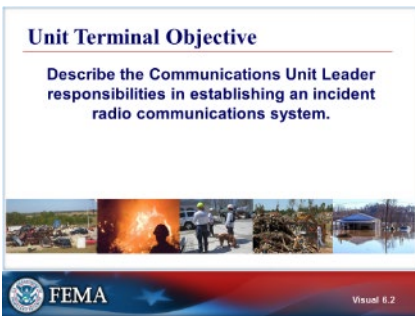
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Visual 6.1

UNIT 6: INCIDENT COMMUNICATIONS SYSTEM

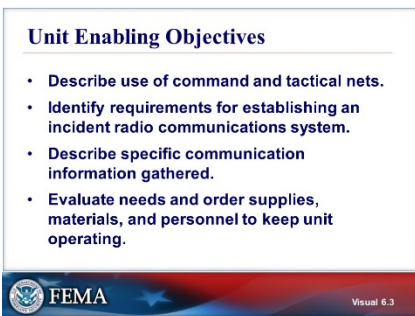
Announce the unit.



Visual 6.2

UNIT TERMINAL OBJECTIVE

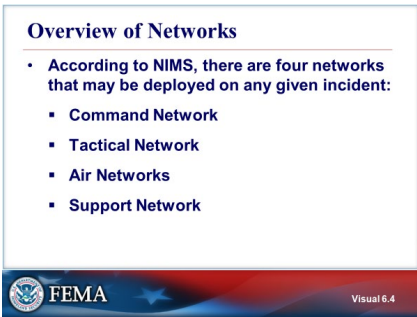
Describe the Communications Unit Leader's responsibilities in establishing an incident radio communications system.



Visual 6.3

UNIT ENABLING OBJECTIVES

- Describe use of command and tactical nets.
- Identify requirements for establishing an incident radio communications system.
- Describe specific communication information gathered.
- Evaluate needs and order supplies, materials, and personnel to keep unit operating.

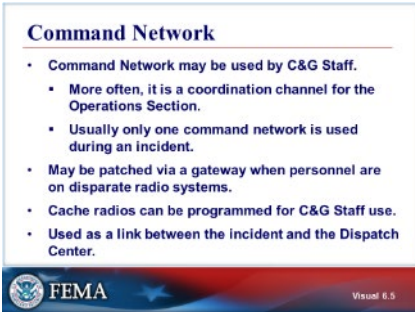


Visual 6.4

OVERVIEW OF NETWORKS

There are four networks that may be deployed on any given incident:

- Command Network may be used by the Command and General (C&G) Staff
 - More often, it is a coordination channel for the Operations Section
- Tactical Networks are used by the Operations Section to execute incident response
- Air Networks (two separate types of air networks)
 - Air-to-Ground Network is used to coordinate air support
 - Air-to-Air Network is used to communicate between aircraft (this network may, or may not be coordinated by the Communications Unit Leader, and must be coordinated by the Air Branch (if established))
- Support Network (also known as the Logistics Network) is used by the Logistics Section to coordinate the support of the incident/event

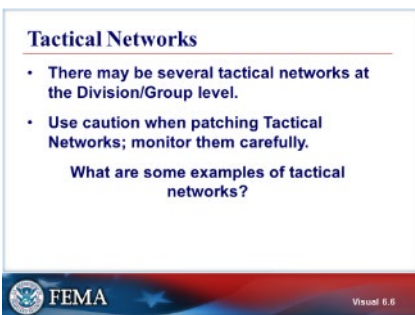


Visual 6.5

COMMAND NETWORK

This network is used as a link between the incident and the Dispatch Center, enabling communication between the C&G staff and the other incident networks (in addition to its other uses).

- Cache radios or gateways may be desirable to overcome disparate systems
- Usually only one Command Net is used during an incident by the C&G staff
- The positions down to Division/Group Supervisors will likely need two radios, one on the Command Channel and one for tactical use. Any time two radios are in use, a “best practice” is to use a scribe/RADO/INTD to monitor the second radio.
- Scanning may be a possibility, but should only be used as a last resort because it is a poor solution
- It may be patched via a gateway when personnel are on disparate radio systems
- Cache radios or agency radios can be programmed for Command and General Staff use
- The Command Net is also used as a link between the incident and the Dispatch Center



Visual 6.6

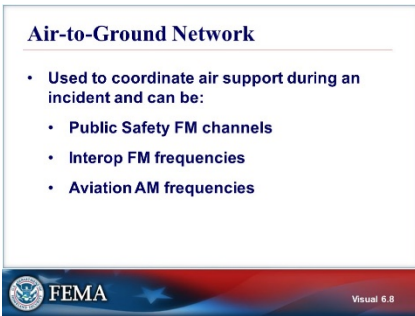
TACTICAL NETWORKS

Depending on size and structure of the incident response, there may be several tactical networks at the Division (geographic) or Group (function) level.

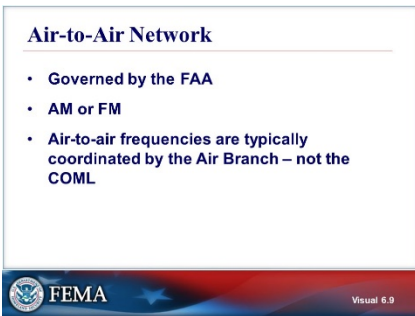
Tactical networks are usually the most challenging networks to design, as they must enable operations, and are usually designed around tactical requirements. They may require the use of mobile communications units to follow tactical units to patch tactical networks.



Visual 6.7



Visual 6.8



Visual 6.9

TACTICAL INTEROPERABILITY

AIR-TO-GROUND NETWORK

An air-to-ground network is used to coordinate air support during an incident. This usually involves a number of frequencies in both AM and FM.

Air-to-air channels may not be used for air-to-ground communications.


The FAA maintains strict control over air-to-air frequencies in order to avoid interference that may cause an aircraft safety hazard.

As a result, the COML cannot assign air-to-air frequencies.

Support Network

Groups on this network include:

- Incident Base/Camps/Incident Command Post
- Ground Support/Transportation
- Security
- Communications Unit




Visual 6.10

Initial Priorities

- Keep constant communications with the Communications POC or local radio system manager.
- The Communications Unit supports all aspects of incident management.
- Priorities may not follow traditional expectations.

Is there something you can do to enhance existing systems while a definitive solution is being implemented?



Visual 6.11

SUPPORT NETWORK

The Support (or Logistics) Network can be a critical component to incident management and should not be minimized. Essential support to the incident is predicated on logistical efficiency.

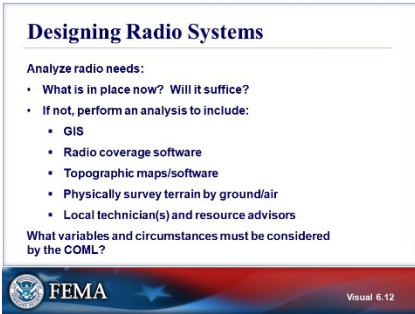
The Logistics Section may be geographically stable, and many units within the Section do not require as many radio system assets. More often, these units require phone, fax, and Internet data links.

Based on the nature of the incident, the Support Net may be a large network. Groups on this network will include camps, security, staging, and transportation channels.

INITIAL PRIORITIES

Upon arriving at an incident, the Communications Unit Leader will have a number of priorities that require attention.

As the situation develops, the Communications Unit Leader must keep constant communication with the Communications Point of Contact, especially if the Communications Unit Leader is unfamiliar with the area.



Visual 6.12

DESIGNING RADIO SYSTEMS

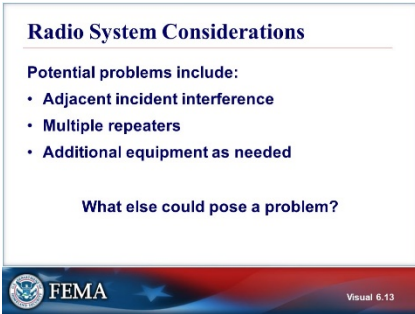
The first step to creating the command network is analyzing the situation and geography to determine where repeater sites will be necessary.

When analyzing coverage, the Communications Unit Leader must consider:

- Terrain
- Incident size
- Available equipment
- Incident coverage
- Timing
- ICP/ICC locations
- Camp locations (remote)
- Roads
- Travel routes
- Accessibility
- Helibase location
- Aircraft
- Staging areas
- Incident size and expected growth
- Incident objectives
- Operational boundaries
- Assigned resource communication capabilities

There are a number of resources available for analyzing the situation, such as Geographic Information Services (GIS), a software package that provides information on terrain and geographic features for a given area and radio coverage software, which uses a more radio-wave-centric approach to determining coverage, as well as topographic software or maps.

Online tools such as <http://www.cplus.org> can provide coverage maps based on location and frequency.



Visual 6.13

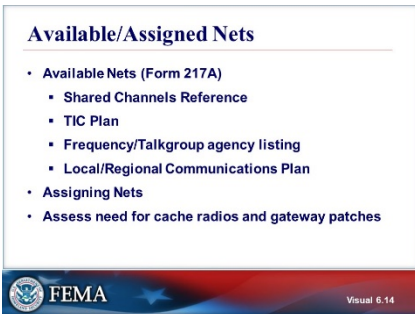
RADIO SYSTEM CONSIDERATIONS

When designing the Command Net, the Communications Unit Leader must be concerned with several potential problems, such as interference from an adjacent incident. Interference with normal daily response radio traffic (e.g., Northridge earthquake, Atlanta tornado, and Ft. Worth tornado) can be a complication (resolving this interference will be addressed later).

The necessity of establishing multiple repeater sites can be problematic, as they will prolong the wait for the Command Network and pose potential interoperability issues.

Additional equipment may be needed: More complexity means more need for equipment. Repeaters, links, additional cache radios, etc. are required as an incident's communications scale in complexity.

The Communications Unit Leader must continually consult with the incident leadership and immediately order anything they request, including auxiliary communications services, or recommend an alternative solution.



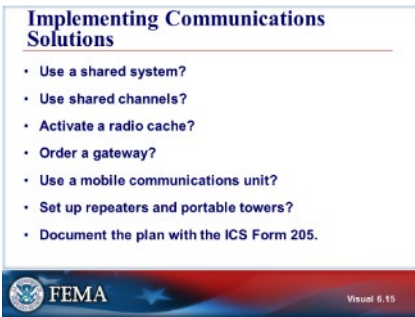
Visual 6.14

AVAILABLE/ASSIGNED NETS

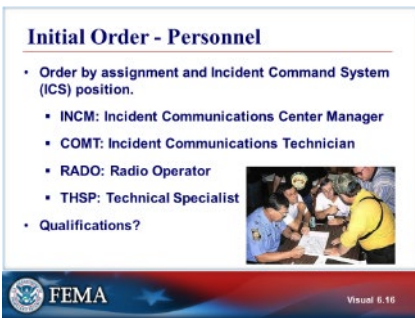
Form 217A is a spectrum inventory.

Properly done, it can save the Communications Unit Leader time and minimize the possibility of mistakes on the ICS Form 205 Incident Radio Communications Plan.

COML's should develop these for their area of operation PRIOR to any incident.



Visual 6.15



Visual 6.16

IMPLEMENTING COMMUNICATIONS SOLUTIONS

Close coordination and monitoring should be done when a gateway device is used.

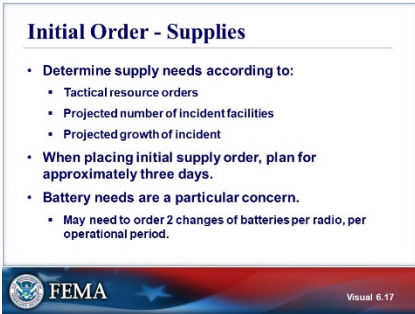
Encrypted channels should NEVER be patched through a gateway. Nearly all Federal channels are encrypted.

INITIAL ORDER – PERSONNEL

- The initial order of personnel should consist of those individuals necessary to create the backbone of the planned communications system, even if that system has yet to be explicitly designed.
- An ICC may not be used.
 - If it is put into the plan, appropriate staffing must be ordered.
- If the Communications Unit Leader expects the ICC to grow, or other communications outposts are necessary from the outset, then the Communications Unit Leader must also order an Incident Communications Center Manager (INCM) to maintain span of control.
- If any technical problems present themselves, the Communications Unit Leader should not hesitate to place Technical Specialists on the initial order as needed.

Assess the personnel requirements according to the duration and complexity:

- RADO and COMT are almost always the first ordered; most incidents require them.
- INCM is in the initial order if the COML plans to create outposts or has span-of-control issues.
- Technical Specialists are usually any local individuals the Communications Unit needs, but will not fit under any other title. AUXCOMM (Auxiliary Communications) personnel can provide a wide variety of specialties including email over radio.



Visual 6.17

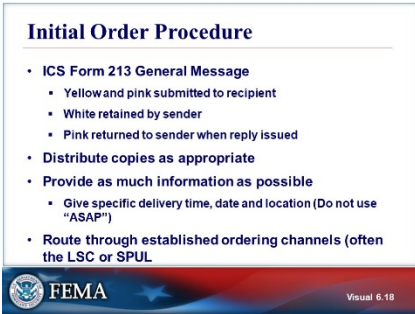
INITIAL ORDER – SUPPLIES

The initial order of supplies should be calculated on a number of factors, not all of them well-known. The initial order will take time to arrive, and any second order will often have to wait until the first order arrives. As a result, the initial order should tend towards inclusion and projection.

The Communications Unit Leader must develop an idea of what kind of growth the incident will experience, particularly with regard to the number of camps and estimated crew orders.

When placing an initial order, it's important to determine supply needs based on tactical resource orders, the projected number of incident facilities, and the projected growth of the incident. Each of these variables can influence the communications resources needed.

The initial supply order should aim to sustain communications operations for three days.



Visual 6.18

INITIAL ORDER PROCEDURE


ICS Form 213 General Message.

- When placing the order to the Supply Unit or to the Ordering Manager (ORDM), use the ICS Form 213 – General Message with all appropriate copies disbursed.
- Position codes should be used for personnel, and detailed quantities and descriptions should be included to prevent any chance of receiving the wrong equipment
- Other details must also be included, such as ETA, ETD, deliver to, or method of delivery
 - “ASAP” is not acceptable
 - Orders should always move through established channels
 - Be specific when ordering quantities (packages versus pallets)
 - Remember to include all necessary ‘parts’ i.e., radios with antennas, batteries, speaker mics, belt clips, etc.
 - Do not mix personnel requests and supply requests on the same order form
 - Personnel requests should anticipate practical travel times
- To disburse copies of the ICS Form 213 correctly, yellow and pink are submitted to the recipient, white is retained by the sender, and then pink is returned to the sender when a reply is issued
- Organize copies of the ICS Form 213 by date and time

It is critical to follow the ordering process and route requests through established ordering channels to eliminate instances of duplicate ordering and ensuring payment for purchases, supplies, and services.

Order and Manage Use of Temporary System Equipment

- Determine required coverage area
- Locate equipment sites
- Provide for equipment security
- Avoid interference issues
- Apply local and regional SOPs
- Adhere to mutual aid agreements



Visual 6.19

ORDER AND MANAGE USE OF TEMPORARY SYSTEM EQUIPMENT



It is not the job of the Communications Unit Leader to install equipment. The Communications Unit Leader must provide for the installation of equipment and/or systems.

Security and interference must be considered. Coordination with the COMT is essential. Access to roof tops of buildings is often restricted and could provide a good location for equipment in urban areas. Many buildings may already have radio equipment located on the roof so care to prevent interference is necessary.

Local plans, SOPs, and mutual aid agreements are based on local knowledge and experience. Do not disregard these when implementing systems.

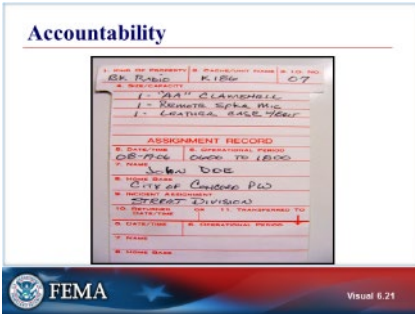
Swap/Cache Radios

- Provide radio cache programming coordination and validation
- Accountability



Visual 6.20

SWAP/CACHE RADIOS



Visual 6.21

ACCOUNTABILITY

Refer to Handout 6-1: Accountability Tracking Systems.

“T” cards are a method to track resources. Positive identification is necessary to recover assets post-incident. It is perfectly reasonable to ask for identification such as a driver’s license.

Do not abbreviate agency names or personnel names, as those abbreviations may be unfamiliar to those who check the equipment back in. If it cannot be avoided, keep an abbreviations list available for review as personnel change from one operational period to another.

Make sure it is legible and at a minimum you have: name, complete agency name, and some contact information (cell phone preferable).

Various software packages or homemade Excel spreadsheets can also be used as tracking systems.

Regardless of electronic systems and databases, it is recommended to keep a paper accountability system in place (i.e., T-Cards).



Visual 6.22

CONSIDER COMMERCIAL SERVICES

Sparse resources may dictate utilizing non-typical resources. Utility companies often operate large, robust radio networks. Commercial satellite providers may offer solutions, as well as local telephone and data companies.

A push-to-talk radio over satellite service for public safety. In a collaborative effort with the Department of Justice Ligado Networks (formerly Lightsquared) provides SMART (Satellite Mutual Aid Radio Talkgroups) for regional and nationwide coverage.

For more information go to:

<http://www.networkinv.com/technology/satrad-satellite-push-to-talk/smart-talk-groups/>

SMART Talkgroup white paper

<http://www.networkinv.com/wp-content/uploads/SMART-Talk-Group-White-Paper-Dec-2011.pdf>

- This is where your MOB Guide fills a role
- Define your ordering point in your MOB Guide
- Before the incident, know your authority to order and obligate fiscally



Visual 6.23

SOLUTIONS FOR TELEPHONE AND DATA


- Consider vulnerability of cell service for emergency operations
- Wireless carriers may be able to provide Cellular on Wheels (COWS), Cell on Light Trucks (COLT), and other cellular and wireless resources
- How do you get landline telephone services?
 - What options exist in your community?
 - Do you have the right telephone numbers for the local phone company?
 - How do you get the government account rep?
- If the landline network is down, what other options are available (e.g., satellite, VoIP lines, etc.)?
- Solutions for a stand alone telephone switch systems are available to connect a command post to other elements of an incident management team. While they can be interconnected to available landline or cellular services they can provide interconnect between various points of an IMT without incurring call costs.
- Other solutions include the use of old military field phones, such as TA-213's which operate on their own D-cell batteries. Switchboards that operate with these systems are available. These are very durable for field deployments.

Before requesting resources from wireless carriers, be clear on what it is you are trying to accomplish. All carriers are not the same in terms of coverage, quality, and reliability in any given area. No one system will provide service to all users. Clearly identify and get approval for any associated costs in advance. These resources may take considerable time to deploy and they may have deployment costs attached. Be sure you have written approval before requesting these resources.

Pre-planning is key to the access of critical personnel from telephone providers in an incident.

Technology Services

- Do you need data devices?
- Internet connectivity?
- Establish LAN and WAN?
- Can you provide VoIP?



FEMA Visual 6.24

Visual 6.24

Declared Emergency Coordination

Federal Coordination:	State/Local Coordination:
• JFO: Joint Field Offices	• EMA: State/Local Emergency Management Agencies
• ESF2: Communications	• EOC: Emergency Operations Centers
• DEC: FEMA Disaster Emergency Communications Division	• Communications Coordinator
• MERS: Mobile Emergency Response Systems	

FEMA Visual 6.25

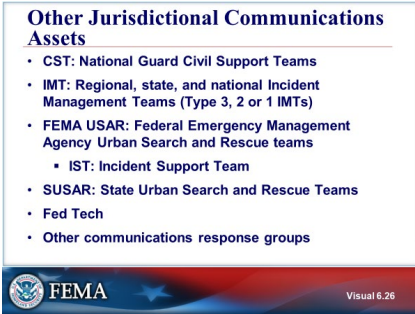
Visual 6.25

TECHNOLOGY SERVICES

A “data connection” does not inherently imply reliability. Qualify that connections are suitable for public safety grade communications.

DECLARED EMERGENCY COORDINATION

- Joint Field Offices (JFOs) generally are for the coordination of Federal responders
- Emergency Support Function 2 (ESF2): Communications
- FEMA’s Disaster Emergency Communications (DEC) provides tactical disaster emergency communications capabilities to support all-hazards disaster response and national security response requirements
 - Mobile Emergency Response Systems (MERS): FEMA’s communications response that supports Federal, State and local responders—not disaster victims
- Emergency Management Agencies (EMA) will typically coordinate local disaster response and will be the interface to State and Federal resources
- Emergency Operations Centers (EOC) are a component of NIMS; they support incident response through multiagency coordination



Visual 6.26

?

OTHER JURISDICTIONAL COMMUNICATIONS ASSETS

Explain: Other Jurisdictional Communications Assets to coordinate with:

- National Guard Civil Support Teams (CSTs)
 - Full-time, State-controlled support teams deploy with a well-equipped communication package; check with your local team on their communications and other support capabilities. These teams can be reached through the State EMA and/or the State National Guard Headquarters
- Department of Defense (DOD)
- Tactical Emergency Response Teams (TERTs)
- Regional, State, and national Incident Management Teams (Type 3, 2, or 1 IMTs)
- Federal Emergency Management Agency Urban Search and Rescue Teams (FEMA USAR Teams)
 - The teams deploy with a robust communication capability and a Communication Specialist– they cannot share their frequencies and their comms are encrypted – they should not be attached to a gateway device
- State Urban Search and Rescue Teams
- Fed Tech
 - Ad-hoc group of Federal and local technical assets that track interference
- Other jurisdictional communication response groups
 - Group discussion on working with other response groups

Suggested Discussion Question -

Ask: What other jurisdictional communications assets has the group dealt with?



Visual 6.27

PRIORITY TELECOMMUNICATIONS SERVICES

Explain: Priority Telecommunications Services enhance the existing commercial infrastructure with priority features for public safety or national security personnel to improve their chances of completing a call when wireline and cellular telephone usage is high resulting in calls not getting through.

This visual introduces three major priority service programs that have been established by the Federal government in order to provide prioritized system access for designated users or to allow for prioritized installation/restoration of services.

The Federal government administers these priority communications services that are provided by the wireline and wireless telecommunications carriers and are necessary to promote National Security and Emergency Preparedness (NS/EP) functions.

Wireless Priority Service (WPS):


- Enhances call completion on the wireless network
- Historically offers up to a 90 percent call completion during congestion

Telecommunications Service Priority (TSP):

- Authorizes organizations to receive priority for the repair and installation (also referred to as restoration and provisioning) of critical voice and data circuits that NS/EP communications. An organization has to have applied in advance of an incident.

GETS: Enhances Landline Call Completion

- GETS provides end-to-end priority over landline commercial networks
- GETS calls receive some priority features in WPS-capable cellular networks
- Greater than 95% call completion rates
- Over 400,000 GETS subscribers



FEMA Visual 6.28

Visual 6.28

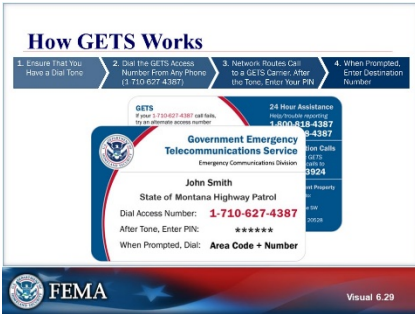
GETS: ENHANCES LANDLINE CALL COMPLETION

Government Emergency Telecommunications Services (GETS): provides priority access to the public wireline network.

- GETS uses the capacity of the public network; it is not a separate system.
- GETS is supported by all major service providers.
- GETS is a no-cost calling card that provides priority for outbound calls to all regular telephone numbers.
- Enables users to have end-to-end priority on their land-lines
- Historically offers over a 95 percent call completion during congestion

Key features:

- GETS calls will wait or queue for a resource to be available to set up the call.
- GETS calls will try another long distance carrier if one is busy.
- GETS calls not subjected to carriers' call restrictions like the general public when the network is congested.
- GETS calls will have priority routing to a dialed cell phone if on a WPS carrier *Note: no priority from a cell phone until the call reaches the Public Switched Telephone Network (PSTN).



Visual 6.29

HOW GETS WORKS

Making a GETS call is simple:

1. *[push Enter]*. Determine that you have a dial tone on your phone (for wireless phones, check for signal strength “bars”)
2. *[push ENTER]*. Dial the universal GETS Access Number 1-710-627-4387
3. *[push ENTER]* After the tone, enter your GETS Personal Identification Number (PIN)
4. *[push ENTER]* When prompted, enter the Destination Telephone Number

The network will automatically route your call.

Point out that instructions for using GETS are located on the front of the GETS card. “Area Code + Number” means your destination number.

•


Important to Know

- GETS will not work without dial tone.
- May experience soundless delays while queuing.
- GETS does not mitigate cellular congestion.
- GETS cannot be used for toll-free numbers.
- Need to test GETS occasionally.
- Identify point of contact for GETS.
- Useful over satellite phones (also note that most satellite phones also have a direct number that does not connect to the ground system for sat-phone to sat-phone calls).
- For MOB Guide, find out who in your agency has GETS and WPS cards.

All Communication Unit staff should have GETS Cards.

WPS: Enhances Cellular Call Completion

- WPS is an add-on feature to existing cellular service
- WPS provides priority on the radio connection between the user's cellular device and the cell tower, and provides priority processing in the core wireless networks
- Available on all nationwide and some regional cellular carriers
- Provides greater than 90% call completion rates
- There are over 400,000 WPS users



FEMA Visual 6.30

Visual 6.30

WPS: ENHANCES CELLULAR CALL COMPLETION

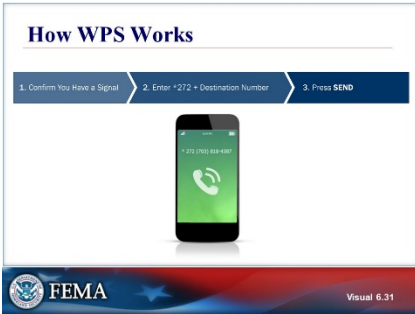
WPS started in 2004. WPS provides priority voice access to the cellular networks when abnormal call volumes exist, providing enhanced call completion for key NS/EP users, including critical Public Safety personnel. WPS is available with both CDMA and GSM carriers: AT&T Mobility, Sprint, T-mobile, Verizon Wireless, Cellcom, C Spire, GCI, and SouthernLINC.

Key features:

- WPS calls will queue for the next available radio channel
- CDMA WPS calls will receive priority on the signaling channel that sets up the call
- WPS calls do receive most GETS features when the call traverses the Public Switch Telephone Network; however use of WPS + GETS together will ensure all features are available

Typical problems with WPS:

- When upgrading/purchasing a phone and the WPS feature doesn't transfer – solution – check for WPS immediately to ensure feature transferred. If WPS has not transferred, call your wireless provider.
- User hits the SEND key after *272 but before entering the destination number. (Should enter *272 + Destination Number + SEND).
- Silence on the line – solution – do not hang up for 30 seconds, call is queuing for resources.
- Can't use *272 with contact list – solution – pre-program a second entry number for official calls that previews the call with *272.
- No signal – no solution – WPS needs a signal to work.
- Cannot dial 911 – WPS will not forward geo data to PSAP.



Visual 6.31

HOW WPS WORKS

Making a WPS call is easy...

1. Confirm you have a signal
 2. Dial *272 plus the ten-digit number you are calling
 3. Push the SEND button
- [pause]

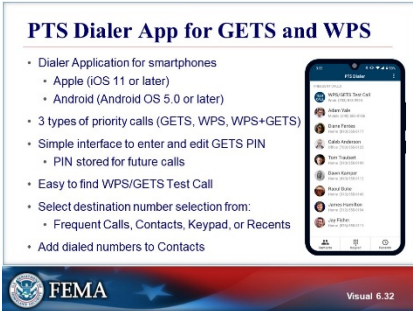
You can further simplify WPS by creating a priority call list in your phone's Contacts by adding *272 in front of the numbers you are likely to be calling during a response. To make a WPS call, all you have to do is select the called number as you would for a regular call to that number – the *272 is automatically added, giving your call WPS priority.

Additionally, there is a GETS/WPS Dialer App available for Android smart phones and BlackBerry phones. The App provides several advantages:

- Allows a user to make a GETS and/or WPS call to a number in the Contact List on the phone, or to manually enter a destination number
- Enables you to enter/edit your GETS PIN just once, then store on phone
- Allows a new destination number called to be added to the phone's Contacts
- Provides an interactive in-app Help
- Allows the Auto or Manual selection of the GETS access number
- The Call Log includes calls made from the Dialer and outside the Dialer

Important to Know

- WPS will not work without a signal.
- Users may experience waits up to 28 seconds.
- WPS may not work when roaming.



Visual 6.32

- 9-1-1 loses geo locator.
- Utilizes the same point of contact that GETS does.
-

PTS DIALER APP FOR GETS AND WPS

Dialer Application for smartphones

- Apple (iOS 11 or later)
- Android (Android OS 5.0 or later)

3 types of priority calls (GETS, WPS, WPS+GETS)

Simple interface to enter and edit GETS PIN

- PIN stored for future calls

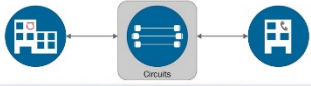
Easy to find WPS/GETS Test Call

Select destination number selection from Frequent Calls, Contacts, Keypad or Recent calls

- Add dialed numbers to Contacts

TSP: Solution for Repair or New Installation

- Established in November 1988 by Federal Communications Commission (FCC) Report and Order FCC 88-341
- TSP is a mandatory requirement for all FCC-regulated telecommunications companies
- Tariffed rates are approved by state utility regulators



FEMA Visual 6.33

Visual 6.33

TSP: SOLUTION FOR REPAIR OR NEW INSTALLATION

In 1988, the Federal Communications Commission issued a Report and Order (FCC 88-341) establishing the TSP Program as the regulatory, administrative, and operational framework for priority provisioning and restoration of qualified NS/EP telecommunications services.


Often times, it is necessary to either prioritize the provisioning of new communications services or prioritize the restoration of services that have been damaged or otherwise are not functioning. This is especially true in disaster situations when numerous outages may occur at once or systems become overloaded by demand.

The TSP program consists of two components: Restoration and Provisioning.

Supported by an FCC regulatory mandate, TSP establishes priority for restoration/provisioning of NS/EP circuits. TSP restoration priorities are applied to new or existing telecommunication services to ensure they are restored by telecommunications vendors before a non-TSP program user.

Circumstances to Apply TSP to Circuits

- TSP provides priority repair or expedited installation of critical voice and data circuits:
 - Repair and replacement of damaged circuits at EOCs, hospitals, PSAPs, power facilities, government headquarters, financial institutions, etc.
 - Priority installation of new circuits when needed to support operations such as disaster response and recovery, and large scale security events



FEMA Visual 6.34

Visual 6.34

CIRCUMSTANCES TO APPLY TSP CIRCUITS

Note that TSP restoration assignments must be requested and assigned before a service outage occurs. In other words, a user cannot request restoration assignments for critical circuits after a natural or technical disaster strikes.


TSP provisioning priorities facilitate the priority installation of new telecommunication services by vendors in a shorter than normal time interval. However, this service cannot be used to compensate for inadequate planning on the part of the user.

With the exception of EMERGENCY provisioning orders, restoration orders are processed before new service provisioning orders. In all cases the service order is expedited according to the service vendor's "Best Effort."

Requesting GETS and WPS

- Designate a GETS/WPS Point of Contact (POC) for your organization
- POC establishes GETS and WPS account online using www.cisa.gov/gets or www.cisa.gov/wps or by contacting the Priority Telecommunications Service Center at 1-866-627-2255
- POC requests GETS and WPS for an initial group of users/key functions/locations through the online system
- POC distributes GETS Cards and confirms WPS activations

A subscriber must specifically request GETS and/or WPS - signing up for one service doesn't automatically subscribe the POC to both



Visual 6.35

REQUESTING GETS AND WPS


Your organization's GETS/WEPS POC can establish GETS and WPS accounts on line or telephonically.

Remember that GETS and WPS are two separate systems and must be requested individually.

Requesting TSP

- Request a TSP Account (TSP "POC") through the Priority Telecommunications Service Center at 1-866-627-2255
- Identify specific services for TSP; Submit TSP Service Request(s) on a per service basis
- Upon approval, the Service Center sends TSP Code for each specific service
- Order TSP through your service vendor
- Update internal records and procedures to reflect implementation of TSP

Signing up for TSP doesn't automatically subscribe the POC to GETS and/or WPS - a subscriber must specifically request each service of interest



Visual 6.36

REQUESTING TSP

Please contact the TSP Program Office staff with questions regarding the TSP Program between 8 a.m. and 6 p.m. (EST), Monday through Friday.

For Restoration Requests:

Help Desk, between 8 a.m. and 6 p.m. Eastern time, Monday thru Friday: 866-627-2255 or 703-676-2255
 TSP Program Office Staff, between 8 a.m. and 4:30 p.m. Eastern time, Monday thru Friday: 703-235-5359


For Emergency and Essential Provisioning Requests:

TSP Program Office Staff, between 8 a.m. and 4:30 p.m. Eastern time, Monday thru Friday: 703-235-5359
 After normal working hours: 703-235-5080 (ask for the TSP Duty Coordinator)

FAX: 703-235-5806. For secure fax number, call 703-235-5080

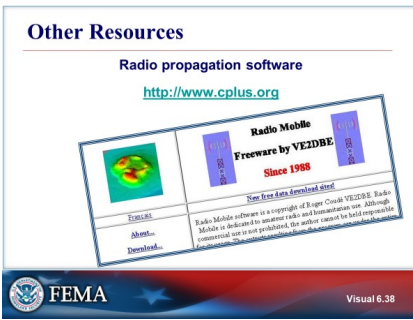
Resources

- Web Sites:
 - www.cisa.gov/gets
 - www.cisa.gov/wps
 - www.cisa.gov/tsp
 - www.cisa.gov/publication/getswps-documents
 - www.cisa.gov/pts-videos
- CISA Priority Telecommunications Service Center:
 - 1-866-627-2255
 - Monday-Friday, 8 am-6 pm Eastern Time Zone
 - Follow voice prompts for GETS, WPS or TSP



Visual 6.37

RESOURCES



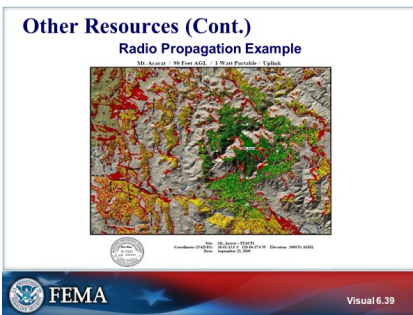
Visual 6.38

OTHER RESOURCES

<http://www.cplus.org/> is a tool that the COML can utilize before an event and map possible sites and propagation.

Propagation software may provide an approximation of coverage, but shouldn't be used for hard planning data.

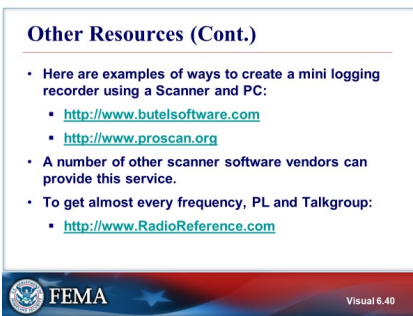
Systems should be physically tested and not deployed solely on the basis of propagation software.



Visual 6.39

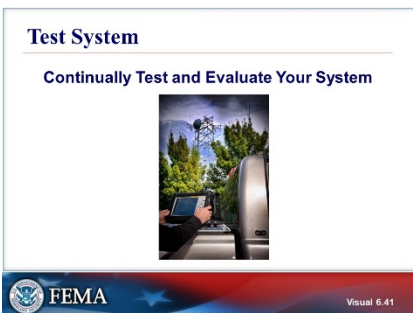
OTHER RESOURCES (CONT.)

The visual is an example of a radio propagation map.



Visual 6.40

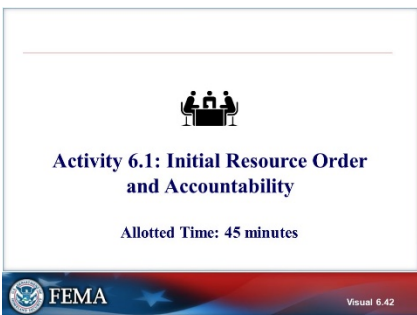
OTHER RESOURCES (CONT.)



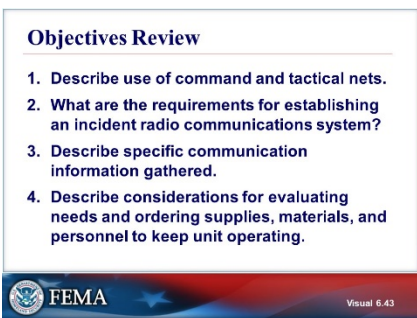
Visual 6.41

TEST SYSTEM

Test and retest frequently. Monitor performance based on responder input. Stay ahead of the curve.



Visual 6.42



Visual 6.43

ACTIVITY 6.1: INITIAL RESOURCE ORDER AND ACCOUNTABILITY

The instructor will explain Activity 6.1.

You will have 45 minutes to complete the activity.

OBJECTIVES REVIEW

Unit Enabling Objectives

- Describe use of command and tactical nets.
- Identify requirements for establishing an incident radio communications system.
- Describe specific communications solutions information gathered.
- Evaluate needs and order supplies, materials, and personnel to keep unit operating.

Supplemental Materials

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Handout 6-1: Accountability Tracking Systems

Accountability Information for Communications Equipment

- Handheld Radios-Information that needs to be tracked when you assign radios
 - Individual's name (check ID)
 - Resource order number (crew, overhead, equipment)
 - Position on the incident
 - Home Unit
 - Contact information
 - Radio identification number (kit#, property #, serial #)
 - Accessories (microphone, antenna, case, etc.)
 - Date
 - Resource order number for radio
 - Who owns the equipment
- Radio equipment (repeaters, links, remotes, etc.)-information that needs to be tracked
 - ID number (kit #, property #, serial #)
 - Location (site name, map)
 - Description of the equipment (repeater, link, remotes)
 - Resource order number (equipment or supply number)
 - Travel time, method, and route
 - Contact information (private land owner, facility, etc.)
 - Accessibility (key, private land, helicopter)
 - Who owns the equipment
- Telephony: information that needs to be tracked about telephones
 - Type of phone-cell, satellite, landline, etc.
 - Circuit number
 - Line number
 - Phone list
 - Location (section, unit, etc.)
 - Telephone set
 - Fax machines
 - Vendor contact information (technical support and sales)
 - Installation/release date

- Resource order numbers (supply or equipment)
- Features (toll restrictions, hunt groups, class of service, etc.)
- Cost
- Cellular and satellite phones additional information:
 - Type of telephone
 - Individual's name
 - Resource order number (crew, overhead, equipment)
 - Position on the incident
 - Home unit
 - Contact information
 - Phone identification number (kit #, property #, serial #, phone #)
- Data systems information:
 - Contact information (from resource order) for the company
 - Vendor contact information (technical support and sales)
 - Circuit number from a telephone company
 - Location of network equipment (hub, switch, printers)

Activity 6.1: Initial Resource Order and Accountability

Activity 6.1

Initial Resource Order and Accountability

Unit 6

Purpose

The purpose of Activity 6.1 is to provide the students with an opportunity to order supplies, personnel, and equipment on the ICS Form 213 - General Message. This activity will also provide the students with an opportunity to identify the pros and cons of specific tracking systems for accountability purposes during an incident.

Objectives

Using the Central City Overview in Unit 2, the Urban Train Derailment Narrative at the end of this Unit, and the Central City IAP (a compilation of files referenced in Unit 2), students will:

- Identify personnel, equipment and supplies needed for the Communications Unit using the ICS Form 213 General Message.
- Demonstrate familiarity with the available options for accountability tracking systems

Activity Structure

This activity is scheduled to last approximately 45 minutes, including small group discussions and presentation of group findings.

- Students will break into small groups and compile three lists for their initial orders: personnel, equipment, and supplies.
- Students will then present their findings to the class.
- The Instructor will then demonstrate how to fill out the ICS Form 213 General Message properly. (Sample 213s)

Students, in turn, will fill out the ICS Form 213 General Message.

Rules, Roles, and Responsibilities

Students will work in small groups and then work individually following the instructor demonstration.

Following are the specific activities / instructions for your participation in the activity:

1. Review the Central City Overview, Train Derailment Scenario, and the Central City IAP information provided.
2. Identify resources required in each category based on the needs of the scenario.
3. Fill out an ICS Form 213 General Message.

Instructors moderate discussions, answer questions, demonstrate how to correctly fill out the form, and provide feedback to students about their ICS Form 213 General Message.

Activity 6.1 Schedule

Activity	Duration	Participation Type
Instructor Briefing	5 minutes	Classroom
Compile Initial Order Lists	10 minutes	In groups
Fill Out Forms	10 minutes	Classroom
Presentations	20 minutes	Group Spokesperson

Activity 6.1: Urban Train Derailment Narrative

In the early morning today, a CC&BF freight train derailed and rolled down an embankment along the Roaring River. Parts of the front of the train lay on its side in the river and along the steeply sloping riverbank. The area along the riverbank is part of the Central City Riverfront Park. The train consisted of 4 diesel locomotives, 23 tank cars (pressurized and non-pressurized), 12 hopper cars, and 2 cryogenic liquid tank cars containing liquid oxygen (LOX). Initial assessment indicates that several of the pressurized tank cars containing chlorine and anhydrous ammonia have ruptured. Two of the LPG tank cars exploded on impact during the derailment, causing a fire. The hopper cars containing ammonium nitrate lie on their sides, and the contents have spilled onto the banks of the river. The locomotive diesel tanks have ruptured, spilling diesel into the river. The cryogenic tank cars appear to be intact; however, several of the non-pressurized tank cars have released an unknown quantity of crude sulfate turpentine into the river.

The Engineer driving the train managed to get to the riverbank and is being treated at Central Hospital for serious injuries sustained in the derailment. Central City Police Department cars are on both sides of the river at the derailment. Their police radio picks up a report of a chlorine gas cloud forming immediately downstream from the leaking rail cars. This report was picked up by several citizens who contacted the local news stations in Central City. Reporters from the major local TV, radio, and newspaper news bureaus are on the way to the incident. One of the TV news crews is already shooting pictures. The local TV reporter is asking to do an interview for their evening news, and other reporters are lining up for interviews as well.

There is uncertainty about whom or which agency is in charge of the incident. There is a pervasive rumor that the train Engineer's license to operate the engine had expired, but that is being checked out. The neighborhoods immediately adjacent to the spill on both sides of the river are being evacuated due to the danger posed by the chlorine gas. The area about 200 yards from the derailment has been cordoned off. Hazmat crews and rail crews are busy containing the spill and bringing in equipment to remove the derailed cars. The mayor has issued an evacuation order for residents in the surrounding area and is requesting assistance from the state. The Red Cross is establishing an evacuation center at North High School in Central City.

There are rumors that hundreds of Coho salmon, a federally listed threatened species have been killed in the river. The Parks Department, County, and State Department of Natural Resources have issued an advisory and closed the river to fishing, recreation and other uses for 25 miles downriver from the rail bridge site.

The Emergency Medical Agency (EMA) in Liberty County is reporting numerous incidents of burning eyes and lungs. The Central City hospital has exceeded its capability to staff the emergency room. There are numerous water intakes along this stretch of the Roaring River.

Liberty County is the largest county in the state in terms of population, and includes Central City, the largest and densest population center in the State of Columbia. The population of Central City is approximately 149,000 and the metropolitan area population is approximately 302,400. Central City serves as a major transportation hub within the state: commercial river traffic, rail, air, and interstate traffic and is 40 miles from the Port of Charlotte, on the Big Ocean.

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Activity 6.1: Sample ICS Form 213s (5)

Refer to EL_969_ACT_6.1_ICs_Form_213_1_of_5.pdf

Refer to EL_969_ACT_6.1_ICs_Form_213_2_of_5.pdf

Refer to EL_969_ACT_6.1_ICs_Form_213_3_of_5.pdf

Refer to EL_969_ACT_6.1_ICs_Form_213_4_of_5.pdf

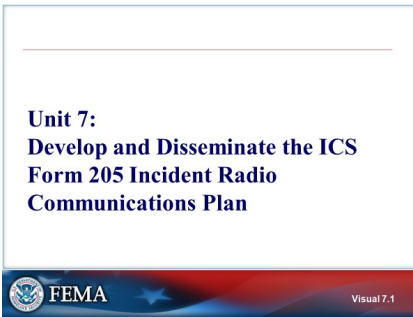
Refer to EL_969_ACT_6.1_ICs_Form_213_5_of_5.pdf

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Unit 7: Develop and Disseminate the Incident Radio Communications Plan (ICS Form 205)

STUDENT MANUAL

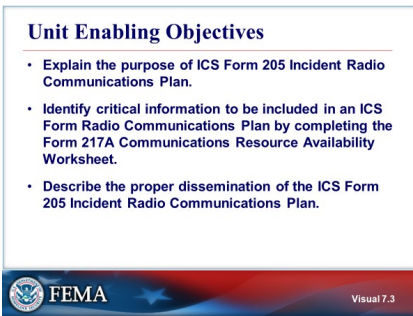
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Visual 7.1



Visual 7.2



Visual 7.3

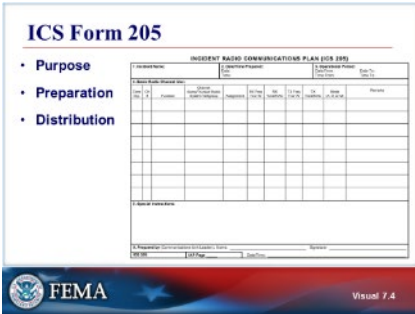
UNIT 7: DEVELOP AND DISSEMINATE THE INCIDENT RADIO COMMUNICATIONS PLAN (ICS FORM 205)

UNIT TERMINAL OBJECTIVE

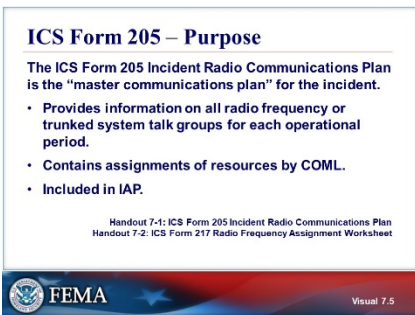
Create a properly constructed ICS Form 205 Incident Radio Communications Plan and a Form 217A Communications Resource Availability Worksheet.

UNIT ENABLING OBJECTIVES

- Explain the purpose of ICS Form 205 Incident Radio Communications Plan.
- Identify critical information to be included in an ICS Form 205 Incident Radio Communications Plan by completing Form 217A Communications Resource Availability.
- Identify security requirements for Form 217A Communications Resource Availability and ICS Form 205 Incident Radio Communications Plan.
- Describe the proper dissemination of the ICS Form 205 Incident Radio Communications Plan.



Visual 7.4



Visual 7.5

ICS FORM 205

The Incident Radio Communications Plan (ICS Form 205) is the primary responsibility of the Communications Unit Leader to complete an Incident Radio Communications Plan (ICS Form 205), addressing the needs of the incident in the most effective manner possible.

The ICS Form 205 is given to the Planning Unit to be included in the IAP.

ICS FORM 205 – PURPOSE


Refer to Handout 7-1: ICS Form 205 Incident Radio Communications Plan (Blank).

The ICS Form 205 Incident Radio Communications Plan is the listing of all frequencies and their relevant agency assignments for each operational period during the incident. The Radio Communications Plan includes technical data such as AM vs. FM, wideband vs. narrowband, or analog vs. digital.

The ICS Form 205 Incident Radio Communications Plan, a part of the IAP, is completed by the Communications Unit Leader, and is primarily meant for incident operations.

ICS Form 205 – General Guidelines

- Incident Radio Communications plan includes:
 - Command Radio Network
 - Tactical (division) net requirements
 - Support net requirements
- Not all networks appear on the "official" ICS Form 205 Incident Radio Communications Plan.



Visual 7.6

ICS FORM 205 – GENERAL GUIDELINES

The Communications Unit Leader should keep a personal copy of the ICS Form 205 Incident Radio Communications Plan that is inclusive of all the networks they have assigned.

The production of the ICS Form 205 is a critical element of the Communications Unit Leader's position responsibilities. Accuracy and clarity are essential. Have someone else check the ICS Form 205 Incident Radio Communications Plan for accuracy!


Command radio networks that are unclassified should be included on the form.

Some Communications Unit Leaders place the tactical nets first on the ICS Form 205 Incident Radio Communications Plan, rather than the command net, so that Operations Section personnel have easy access to the channels that they use most often.

ICS Form 205 – Specific Contents

- Important information includes:
 - Repeater locations
 - Incident location
 - Interoperable gateway locations and points of contact
 - Patched channels

What other information may be important to include?

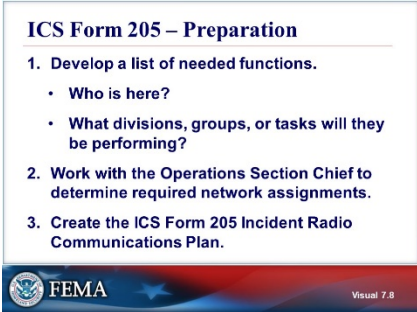


Visual 7.7

ICS FORM 205 – SPECIFIC CONTENTS

The ICS Form 205 Incident Radio Communications Plan can contain a wealth of information, but its creation should not get bogged down with details.

The Communications Unit Leader should determine the coordinate format and datum for the incident. Ensure standardization for the data. Example: Decimal format versus degrees, minutes, and seconds for latitude and longitude.



Visual 7.8

ICS FORM 205 – PREPARATION

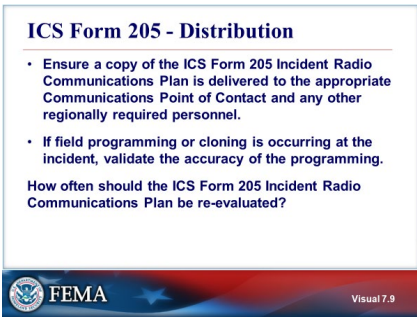
Constructing an ICS Form 205 Incident Radio Communications Plan can be made easier by asking a series of questions:

- Who is here?
- Who is coming?
- When are they arriving?

Next, place the agencies into functional groups by asking the following:

- What is their assignment?
- Where are they doing it?
- When are they doing it?
- What equipment did they bring with them?

With this information, combined with a complete Form 217A Communications Resource Availability Worksheet, the Communications Unit Leader should have all the information required to complete an ICS Form 205 Incident Radio Communications Plan.



Visual 7.9

ICS FORM 205 – DISTRIBUTION

The Communications Unit Leader prepares the ICS Form 205 Incident Radio Communications Plan and delivers it to the Planning Section, where it is incorporated into the IAP. The Incident Radio Communications Plan is duplicated and given to all recipients of the IAP, including the Incident Communications Center (the creation of which will be addressed in another unit).

Communications Unit Leader should develop a master ICS Form 205 Incident Radio Communications Plan, identifying all frequencies used during the incident, including logistics frequencies and sensitive or confidential information.

Information from the plan is placed by the Planning Section on the ICS Form 204 Assignment List. Operationally, the Communications Unit Leader will usually fill in the ICS Form 205 Incident Radio Communications Plan and obtain tentative approval. It is essential to then check the ICS Form 204 for accuracy, even though it is not your responsibility.


After completion of the ICS Form 205 Incident Radio Communications Plan, the Communications Unit Leader will deliver it to the Planning Section and ensure a copy is delivered to the appropriate Communications Point of Contact and any other regionally required personnel.

Form 217A Communications Resource Availability Worksheet

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET

Channel Configuration	Channel Name / Trunked Radio System / Talk Group	Eligible Users	Mode	Frequency Band		Mode	TX Tone	Mode	Notes
				W	M				
Duplex	WVALL00	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVALL00	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC11	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC11	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC12	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC12	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC13	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC13	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC14	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC14	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A

Handout 7-3: Form 217A Communications Resource Availability Worksheet



Visual 7.10

FORM 217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET

Refer to Handout 7-2: Form 217A Communications Resource Availability Worksheet (Blank).


This is a document, prepared prior to an incident with complete details of available channels/talkgroups in a given area. This document should include all public safety frequencies/talkgroups available (with established use agreements), regardless of agency, discipline or ownership, with the understanding that you may need permission to use them.

For some incidents, there may not be a Form 217A Communications Resource Availability Worksheet. Frequencies will then have to be collected from local sources.

Form 217A Communications Resource Availability Worksheet (Cont.)

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET

Channel Configuration	Channel Name / Trunked Radio System / Talk Group	Eligible Users	Mode	Frequency Band		Mode	TX Tone	Mode	Notes
				W	M				
Duplex	WVALL00	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVALL00	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC11	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC11	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC12	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC12	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC13	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC13	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Duplex	WVAC14	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A
Simplex	WVAC14	Any Public Safety	851.0125	W	156.7	808.0125	W	156.7	A



Visual 7.11


FORM 217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (CONT.)

Form 217A Communications Resource Availability Worksheet (Cont.)

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET

Channel Configuration	Channel Name / Trunked Radio System / Talk Group	Eligible Users	Mode	Frequency Band		Mode	TX Tone	Mode	Notes
				W	M				
Simplex	WVALL10	Any Public Safety	155.7525	N	156.7	155.7525	N	156.7	A, Tactical/Repeat
Simplex	WVAC11	Any Public Safety	151.1375	N	156.7	151.1375	N	156.7	A, Tactical/Repeat
Simplex	WVAC12	Any Public Safety	154.4525	N	156.7	154.4525	N	156.7	A, Tactical/Repeat
Simplex	WVAC13	Any Public Safety	158.7375	N	156.7	158.7375	N	156.7	A, Tactical/Repeat
Simplex	WVAC14	Any Public Safety	159.4725	N	156.7	159.4725	N	156.7	A, Tactical/Repeat
Duplex	WVAC33	Any Public Safety	159.4725	N	136.5	151.1375	N	136.5	A, Tactical/Repeat
Duplex	WVAC34	Any Public Safety	158.7375	N	136.5	154.4525	N	136.5	A, Tactical/Repeat
Duplex	WVAC35	Any Public Safety	159.4725	N	136.5	158.7375	N	136.5	A, Tactical/Repeat
Duplex	WVAC36	Any Public Safety	151.1375	N	136.5	159.4725	N	136.5	A, Tactical/Repeat
Duplex	WVAC37	Any Public Safety	154.4525	N	136.5	158.7375	N	136.5	A, Tactical/Repeat
Duplex	WVAC38	Any Public Safety	158.7375	N	136.5	159.4725	N	136.5	A, Tactical/Repeat

WVAC33-38 Recommended for dispatch; tactical repeater use only (F-13 Station Class F107)
WVAC39-38 are preferred; WVAC39-38 should be used only when necessary due to interference.




Visual 7.12

FORM 217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (CONT.)

Form 217A Communications Resource Availability Worksheet (Cont.)
 "Copy" an available resource from the pre-filled Form 217A

Channel Configuration	Channel Name / Talked Radio System Talk Group	Eligible Users	Mobile RX Freq	N I	RX Tone NAC	Mobile TX Freq	N I	TX Tone NAC	Mode A, C, or M	Notes
Duplex	SCALL90	Any Public Safety	881.0125	W	156.7	806.0125	W	156.7	A	



Visual 7.13

FORM 217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (CONT.)


The Communications Resource Availability Worksheet is prepared by a Communications Coordinator or Communications Unit Leader in an administrative setting prior to an incident.

During an incident, a Communications Unit Leader may use the tools of popular word processing or spreadsheet software, to "copy" a line from a completed Form 217A - Communications Resource Availability Worksheet and "paste" the line directly into an Incident Radio Communications Plan (ICS Form 205). This minimizes the technical information regarding a channel or talkgroup from being copied incorrectly when completed by hand.

In addition, the Form 217A - Communications Resource Availability Worksheet provides a standardized template for the presentation of channels or talkgroups that might be considered for use by appropriate personnel during an incident.

Form 217A Communications Resource Availability Worksheet (Cont.)
 "Paste" resource to be used from Form 217A to line on ICS Form 205 which designates how channel or talk group will be used during incident.

Channel Configuration	Channel Name / Talked Radio System Talk Group	Eligible Users	Mobile RX Freq	N I	RX Tone NAC	Mobile TX Freq	N I	TX Tone NAC	Mode A, C, or M	Notes
Command	SCALL90	Command	881.0125	W	156.7	806.0125	W	156.7	A	



Visual 7.14

FORM 217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (CONT.)


The beauty of the Form 217A is that the person preparing an ICS Form 205 can copy and paste the data.

On simplex channels the opportunity for errors is fairly low, but when using more complex channels such as P25 with NAC codes, etc. the chances for errors is increased significantly.

When building your Form 217A, ensure that the format matches your ICS Form 205.

ICS Form 205

- When completing the ICS Form 205 Radio Communications Plan, remember your audience!
- Clarity and accuracy are essential!



Visual 7.15


ICS FORM 205 (CONT.)

When creating an ICS Form 205 Incident Radio Communications Plan, remember the users of this document are not technical; do not use technical jargon, unless it is essential. Keep it readable for the end user.

Make sure the ICS Form 205 is correct; have another knowledgeable person review it before it gets published.

Incident/Unified Command Communications Pathway

COMMAND	CFD TAC1 151.3550
Support Nets (AREPS) (Each Agency)	
OPERATIONS	VTAC11 151.1375
LOGISTICS	UTAC41D 453.4625
FIRE	VTAC12 154.4525
LE	VTAC14 159.4725
AIR OPS	Air to Ground 170.000
EMS	VTAC13 158.7375



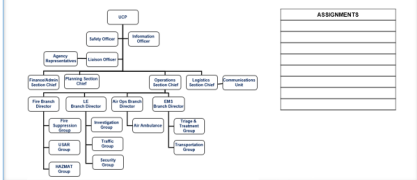

Visual 7.16

INCIDENT/UNIFIED COMMAND COMMUNICATIONS PATHWAY

Colors represent the various nets to be used; multicolored boxes indicate the need for two radios.

Functional Assignments

How are the Command and General Staff going to communicate?

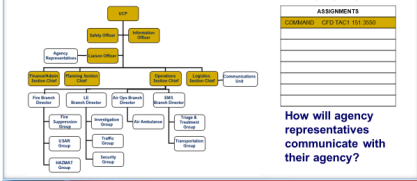



Visual 7.17


FUNCTIONAL ASSIGNMENTS

Functional Assignments (Cont.)

The IC, Command, and General Staff all carry compatible VHF radios. Incident Command will be established on CFD TAC1 (Duplex).



How will agency representatives communicate with their agency?



Visual 7.18

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

Agency reps will communicate on their support net.

ASSIGNMENTS	
COMMAND:	CFD TACT 151.9000
SUPPORT:	Support Net (USERF) (Each Agency)
OPERATIONS:	
LOGISTICS:	
FINANCE/ADMINISTRATION:	

What is an alternative to using the Command Net for the Operations Section?

FEMA Visual 7.19

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

Operations Section Chief and Branch Directors carry compatible VHF radios and operate a tactical net on VTAC11 151.1375.

ASSIGNMENTS	
COMMAND:	CFD TACT 151.9000
SUPPORT:	Support Net (USERF) (Each Agency)
OPERATIONS:	VTAC11 151.1375
LOGISTICS:	
FINANCE/ADMINISTRATION:	

Will the Communications Unit need a logistics net?

FEMA Visual 7.20

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

Yes, the Communications Unit will operate on UTAC41D 453.4625.

ASSIGNMENTS	
COMMAND:	CFD TACT 151.9000
SUPPORT:	Support Net (USERF) (Each Agency)
OPERATIONS:	VTAC11 151.1375
LOGISTICS:	UTAC41D 453.4625
FINANCE/ADMINISTRATION:	

What tactical net will be assigned to the Fire Branch?

FEMA Visual 7.21

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

All Local Fire resources carry VHF radios with the common national channels. Fire will use VTAC12 (154.4525 MHz).

ASSIGNMENTS	
COMMAND:	CFD TACT 151.9000
SUPPORT:	Support Net (USERF) (Each Agency)
OPERATIONS:	VTAC11 151.1375
LOGISTICS:	VTAC12 154.4525
FINANCE/ADMINISTRATION:	

What channel will the LE Branch use?

FEMA Visual 7.22

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

LE will use VTAC14 159.4725.

ASSIGNMENTS	
Command	VEO TACT13 151.9000
Support	Support Unit (SUPPORT) (Each Agency)
Operations	OPERATIONS 151.1375
Logistics	LOGISTICS 159.4725
Finance/Administration	FIN 159.4725
LE	VTAC14 159.4725

What Air Ops net will work for the Air Ambulance?

FEMA Visual 7.23

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

The Air Operations net will use the Air to Ground frequency 170.0000.

ASSIGNMENTS	
Command	VEO TACT13 151.9000
Support	Support Unit (SUPPORT) (Each Agency)
Operations	OPERATIONS 151.1375
Logistics	LOGISTICS 159.4725
Finance/Administration	FIN 159.4725
LE	VTAC14 159.4725
AG	AG to Ground 170.0000

What channel would the EMS Branch use?

FEMA Visual 7.24

FUNCTIONAL ASSIGNMENTS (CONT.)

Functional Assignments (Cont.)

The EMS Branch will use VTAC13 158.7375 and may add an additional transportation tactical channel.

ASSIGNMENTS	
Command	VEO TACT13 151.9000
Support	Support Unit (SUPPORT) (Each Agency)
Operations	OPERATIONS 151.1375
Logistics	LOGISTICS 159.4725
Finance/Administration	FIN 159.4725
LE	VTAC14 159.4725
AG	AG to Ground 170.0000
EMS	VTAC13 158.7375

FEMA Visual 7.25

FUNCTIONAL ASSIGNMENTS (CONT.)

Completion of the ICS Form 205

INCIDENT RADIO COMMUNICATIONS PLAN (ICRSP)

1. Incident Name	2. Incident Location	3. Incident Date	4. Incident Time	5. Incident Type	6. Incident Cause	7. Incident Status	8. Incident Priority	9. Incident Severity	10. Incident Impact	11. Incident Response	12. Incident Outcome

FEMA Visual 7.26

COMPLETION OF THE ICS FORM 205

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICRSSE)										
1. Incident Name:		2. Date/Time Prepared:		3. Date/Time of Incident:		4. Date/Time of Review:			5. Date/Time of Revision:	
COML COURSE		09/24/20		09/24/20		09/24/20			09/24/20	
Unit ID	Function	Channel	Assignment	RF Freq. (MHz)	RF Band (MHz)	RF Power (W)	IC (A, E, W, B)	Mode	Priority	Remarks
1	COMMAND	COM1	COM1	151.50000	151.50000	50	A	EMERGENCY	Priority	
2	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	
3	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	

FEMA Visual 7.27

COMPLETION OF THE ICS FORM 205 (CONT.)

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICRSSE)										
1. Incident Name:		2. Date/Time Prepared:		3. Date/Time of Incident:		4. Date/Time of Review:			5. Date/Time of Revision:	
COML COURSE		09/24/20		09/24/20		09/24/20			09/24/20	
Unit ID	Function	Channel	Assignment	RF Freq. (MHz)	RF Band (MHz)	RF Power (W)	IC (A, E, W, B)	Mode	Priority	Remarks
1	COMMAND	COM1	COM1	151.50000	151.50000	50	A	EMERGENCY	Priority	
2	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	
3	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	

FEMA Visual 7.28

COMPLETION OF THE ICS FORM 205 (CONT.)

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICRSSE)										
1. Incident Name:		2. Date/Time Prepared:		3. Date/Time of Incident:		4. Date/Time of Review:			5. Date/Time of Revision:	
COML COURSE		09/24/20		09/24/20		09/24/20			09/24/20	
Unit ID	Function	Channel	Assignment	RF Freq. (MHz)	RF Band (MHz)	RF Power (W)	IC (A, E, W, B)	Mode	Priority	Remarks
1	COMMAND	COM1	COM1	151.50000	151.50000	50	A	EMERGENCY	Priority	
2	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	
3	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	

FEMA Visual 7.29

COMPLETION OF THE ICS FORM 205 (CONT.)

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICRSSE)										
1. Incident Name:		2. Date/Time Prepared:		3. Date/Time of Incident:		4. Date/Time of Review:			5. Date/Time of Revision:	
COML COURSE		09/24/20		09/24/20		09/24/20			09/24/20	
Unit ID	Function	Channel	Assignment	RF Freq. (MHz)	RF Band (MHz)	RF Power (W)	IC (A, E, W, B)	Mode	Priority	Remarks
1	COMMAND	COM1	COM1	151.50000	151.50000	50	A	EMERGENCY	Priority	
2	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	
3	TACTICAL	PHO2	PHO2	151.50000	151.50000	50	A	EMERGENCY	Priority	

FEMA Visual 7.30

COMPLETION OF THE ICS FORM 205 (CONT.)

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICSRM)

Agency/Station	Channel	Frequency	Mode	Power	Notes
1. COMMUNICATIONS CENTER (CCC)	VHF-1	151.425 MHz	FM	50W	CCC - Main Channel
2. COMMUNICATIONS CENTER (CCC)	VHF-2	151.475 MHz	FM	50W	CCC - Backup Channel
3. TACTICAL	VHF-3	151.525 MHz	FM	50W	Tactical - Main Channel
4. TACTICAL	VHF-4	151.575 MHz	FM	50W	Tactical - Backup Channel
5. AIR	VHF-5	123.0 MHz	FM	50W	Air - Main Channel
6. TACTICAL	VHF-6	151.625 MHz	FM	50W	Tactical - Additional Channel

FEMA Visual 7.31

COMPLETION OF THE ICS FORM 205 (CONT.)

Completion of the ICS Form 205 (Cont.)

INCIDENT RADIO COMMUNICATIONS PLAN (ICSRM)

Agency/Station	Channel	Frequency	Mode	Power	Notes
1. COMMUNICATIONS CENTER (CCC)	VHF-1	151.425 MHz	FM	50W	CCC - Main Channel
2. TACTICAL	VHF-2	151.475 MHz	FM	50W	Tactical - Main Channel
3. TACTICAL	VHF-3	151.525 MHz	FM	50W	Tactical - Backup Channel
4. TACTICAL	VHF-4	151.575 MHz	FM	50W	Tactical - Additional Channel
5. AIR	VHF-5	123.0 MHz	FM	50W	Air - Main Channel
6. TACTICAL	VHF-6	151.625 MHz	FM	50W	Tactical - Additional Channel

FEMA Visual 7.32

COMPLETION OF THE ICS FORM 205 (CONT.)

Incident Radio Communications Plan Sensitive Information

Generally, IAPs become public information and radio programming information may become compromised through general distribution of the IAP beyond incident personnel.

FEMA Visual 7.33

INCIDENT RADIO COMMUNICATIONS PLAN SENSITIVE INFO


Most traffic will be heard outside of the incident. If you need secure communications, AES encryption is the tool.

Encrypted radios should not be utilized in a gateway and patched to non-encrypted systems. If encrypted to encrypted networks are created, remember they are unencrypted at the gateway device so appropriate security must be provided.

Regardless of how tightly you keep ICS Form 205 or Form 217A, do not consider any channel secure unless it is encrypted.

Incident Radio Communications Plan Sensitive Information (Cont.)

- Department of Homeland Security (DHS) restricts the publication of detailed frequency and programming information regarding Urban Search & Rescue (USAR) and Disaster Medical Assistance Team (DMAT) channels to DHS-authorized personnel who have obtained the necessary clearances.
- Therefore, US&R and DMAT frequencies will not be published on an ICS Form 205, even if known to the COML.
- This same philosophy may apply to Bomb Squad, SWAT team, military teams, intelligence gathering, or other channels being used.




Visual 7.34

INCIDENT RADIO COMMUNICATIONS PLAN SENSITIVE INFO (CONT.)

Incident Radio Communications Plan Sensitive Information (Cont.)

Encryption

- No encrypted radio should be used in a gateway and connected to an unencrypted channel



Visual 7.35

INCIDENT RADIO COMMUNICATIONS PLAN SENSITIVE INFO (CONT.)


Many times, encryption can be a hindrance to interoperability. All encryption is not equal.

Key management is critical to maintaining effectiveness and interoperability.

Key management will likely not be delegated to the Communications Unit Leader. It is important that the Communications Unit Leader identify and work with the system managers responsible for key management.

Sample Security Statement for ICS Form 205 & Form 217A

This document and other records, including data specifically associated with this document, relate to unique and specific vulnerability assessments and/or Deployment plans in the event of CRIMINAL TERRORISM and are protected by the 2002 Public Disclosure Act amendments, Section 42.17.310(1)(ww), and as such they must be treated as confidential.



Visual 7.36

SAMPLE SECURITY STATEMENT FOR ICS FORM 205 & FORM 217A



Activity 7.1: Planned Event Communications Plan

Allotted Time: 45 minutes



Visual 7.37


ACTIVITY 7.1: PLANNED EVENT COMMUNICATIONS PLAN

The instructor will explain Activity 7.1.

You will have 45 minutes to complete the activity.

Objectives Review

1. Explain the purpose of ICS Form 205 Incident Radio Communications Plan.
2. What critical information is to be included in an ICS Form 205 Incident Radio Communications Plan by completing Form 217A Communications Resource Availability Worksheet?
3. Describe the proper dissemination of the ICS Form 205 Incident Radio Communications Plan.



Visual 7.38

OBJECTIVES REVIEW

Unit Enabling Objectives

- Explain the purpose of ICS Form 205 Incident Radio Communications Plan.
- Identify critical information to be included in an ICS Form 205 Incident Radio Communications Plan by completing Form 217A Communications Resource Availability Worksheet.
- Describe the proper dissemination of the ICS Form 205 Incident Radio Communications Plan.

Supplemental Materials

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Handouts for Unit 7

Refer to EL_969_HO_7-1_ICs_Form_205.pdf

Refer to EL_969_HO_7-2_ICs_Form_217A.pdf

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Activity 7.1: Planned Event Communications Plan

Unit 7 - Activity 7.1 Planned Event Communications Plan

Purpose

The purpose of Activity 7.1 is to complete an ICS Form 205 Incident Radio Communications Plan. The ICS Form 205 should provide a Command Channel for all resources, along with Fire, Law, and EMS tactical channels and County Fair Support.

Objectives

Students will:

1. Complete an ICS Form 205 Incident Radio Communications Plan.

Activity Structure

This activity is scheduled to last approximately 45 minutes, including instructor led discussion. The instructor may use a large, laminated version of an ICS Form 205 Radio Communications Plan to demonstrate how to complete a blank form. Students will then do the same with a blank ICS Form 205 Incident Radio Communications Plan, a pre-filled Form 217A Communications Resource Availability Worksheet (Central City tab), and organizational chart from the Central City scenario. Each student will turn in their ICS Form 205 for the instructor to review.

Activity Scenario Update

The County Fair is being held in Central City on Friday and Saturday nights. The event hosts big name stars, which draws 40,000 people each night. The City Police requests and receives support from the State Police, and West City, East City and North City to assist. The Fire Department usually posts several units at the site, including an ambulance.

Before the event, an IAP is being developed.

Suggested Question: You have been appointed the COML. With whom would you be consulting and what other communications contingency planning would you do for this type of event?

Rules, Roles, and Responsibilities

Students will work individually.

Following are the specific activities / instructions for your participation in the activity:

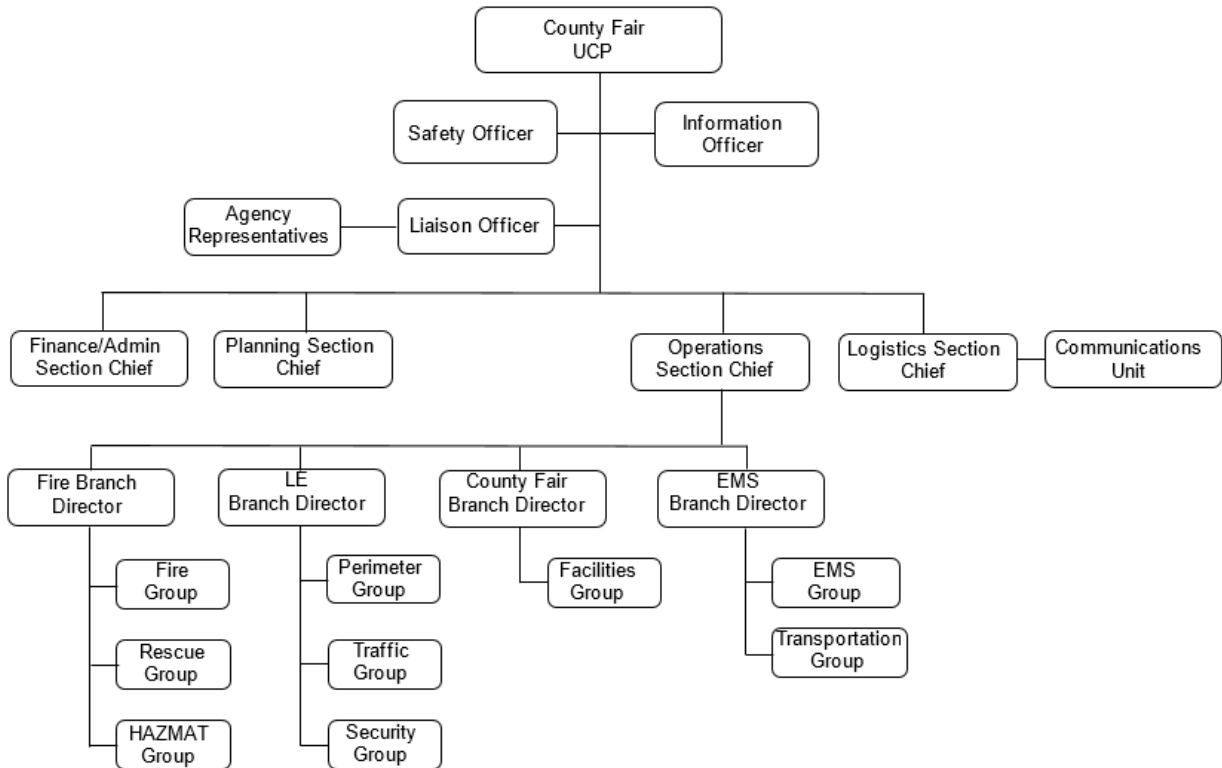
1. The instructor will demonstrate how to complete an ICS Form 205 Radio Communications Plan using the Central City Scenario.
2. Students will review the new County Fair information.
3. Each student will complete the attached ICS Form 205 Radio Communications Plan based on the ICS Form 217A Communications Resource Availability Worksheet and Organizational Chart in the Central City tab.
4. The instructor will make corrections and review with the students on a case-by-case basis.

Instructors moderate discussions, answer questions and provide additional information as required.

Activity 7.1 Schedule

Activity	Duration	Participation Type
Instructor Introduction	5 minutes	Classroom
Observe Instructor's Completion	5 minutes	Classroom
Complete ICS Form 205	20 minutes	Individually
Review with Instructor	15 minutes	Classroom

Activity 7.1: County Fair Organizational Chart (from the Central City Scenario)



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Activity 7.1: ICS Form 205 Incident Radio Communications Plan

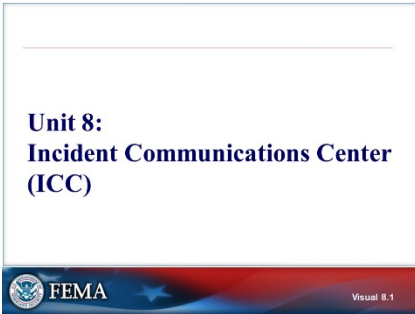
Refer to EL_969_ACT_7.1_ICs_Form_205.pdf

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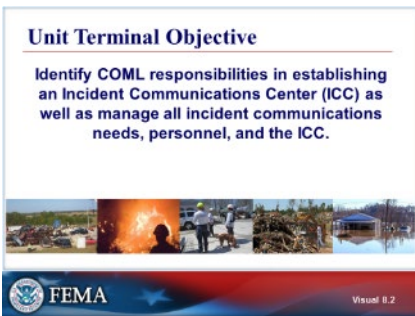
Unit 8: Incident Communications Centers (ICC)

STUDENT MANUAL

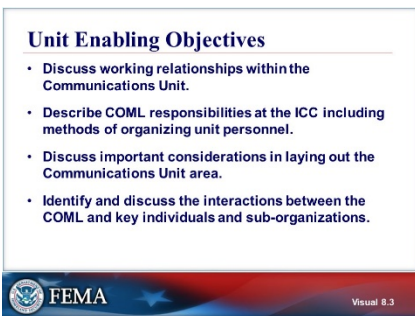
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Visual 8.1



Visual 8.2



Visual 8.3

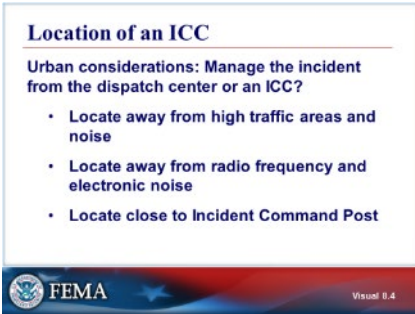
UNIT 8: INCIDENT COMMUNICATIONS CENTER (ICC)

UNIT TERMINAL OBJECTIVE

Identify Communications Unit Leader responsibilities in establishing an Incident Communications Center (ICC) as well as managing all incident communications needs, personnel, and the ICC.

UNIT ENABLING OBJECTIVES

- Discuss working relationships within the Communications Unit.
- Describe COML responsibilities at the ICC including methods of organizing unit personnel.
- Discuss important considerations in laying out the Communications Unit area.
- Identify and discuss the interactions between the COML and key individuals and sub-organizations.

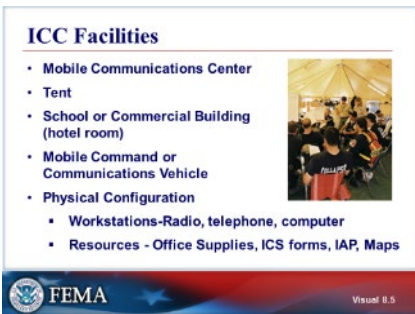


Visual 8.4

LOCATION OF AN ICC

There are a number of considerations and concerns when establishing an ICC, including the following:

- The location must be safe, first of all, so as not to distract resources from the actual incident response in the event of an emergency
- The site must be large enough that individual workstations do not interfere with one another, and can accommodate the potential growth of the incident
- The area must be located away from radio frequency and electronic noise, such as communication towers, refrigeration trucks, and electrical generators
- The ICC should also be close to the ICP and the Medical Unit to relay orders such as Medevac requests quickly
- The Incident Command Post (ICP) will have significant electrical power requirements, of course, and should be located close to a source for this.



Visual 8.5

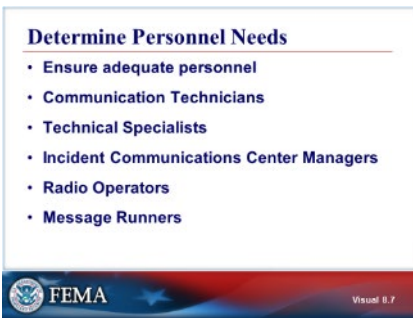
ICC FACILITIES

Within the Communications Center, the Communications Unit Leader must make sure that workstations are created to accommodate the various technologies utilized on the incident.

There will need to be workstations for radios, telephones, and computers, although some technologies will incorporate several of these workstation types. To supply these workstations, the Communications Unit Leader must also ensure that the ICC has an adequate supply of ICS forms, copies of the IAP, and maps of the incident area.



Visual 8.6



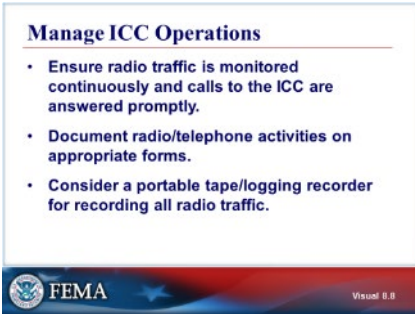
Visual 8.7

MOBILE COMMUNICATIONS CENTERS

DETERMINE PERSONNEL NEEDS

Remember the comfort and safety of the Communications Unit personnel are your responsibility.

Ensure all personnel are briefed on the ICS Form 208 Safety Message/Plan. Remember that the COMTs are often deployed in areas that contain unusual risks.



Visual 8.8

MANAGE ICC OPERATIONS

Managing an ICC involves finding and training the appropriate number of people to staff the ICC. It involves having processes in place for staff, some of whom may be volunteers, to facilitate tracking and documentation of communications traffic.

The Medical Plan is a critical document for the Communications Unit. All Unit personnel must be briefed on the ICS Form 206 Medical Plan.

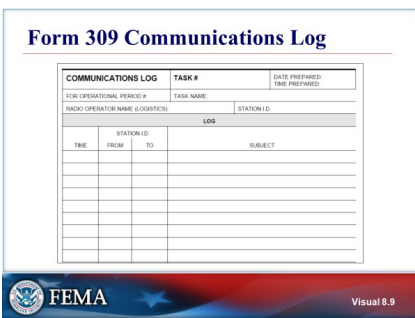
The Communications Unit is always involved in facilitating effective communications during medical emergencies within an incident. The ICS Form 206 Medical Plan may also contain frequency data such as MED Channels for hospital coordination.

Ensure all radio traffic is monitored. Document radio/phone activities on the Form 309 Communications Log. Use the ICS Form 213 General Message to communicate messages to the appropriate party and relay information back to the field.

Maintain contact with the local dispatch center.

Be prepared for the “incident within the incident”:

- Firefighters suffering from heat exhaustion
- SWAT Officer is the victim of a gunshot wound
- The scheduled or unscheduled arrival of visiting dignitaries



Visual 8.9

FORM 309 COMMUNICATIONS LOG

Maintaining Form 309 is an essential function of the Communications Unit to record telephone and radio traffic.

The Form 309 is not included in the NIMS ICS Forms Booklet.

Local Dispatch Center

Maintain contact with the local dispatch center through an interoperability channel or talkgroup:

- Phone Line
- Internet Connection
- Fax
- E-mail/Scan



FEMA Visual 8.10

Visual 8.10

Incident Within the Incident

- Prepare incident-within-an-incident response plans prior to their need. Include national medical incident protocol in response plans.
 - Auto accident with injuries involving responders
 - Firefighter suffering heat exhaustion
 - SWAT Officer is a victim of a gunshot wound
 - Dignitaries' (un) scheduled site visit
- Handout 8-1: Communications Center Protocol
- Handout 8-2: Medical Emergency Procedure Plan
- Handout 8-3: Expanded ICS Form 206 Medical Plan

FEMA Visual 8.11

Visual 8.11

Determine Supply Needs

- Maintain quantities of supplies at a level to prevent shortage of any basic needed items.
- Maintain supplies according to:
 - Current resource orders
 - Projected growth of the incident
 - Projected number of personnel in the ICC
- General Guideline: When placing initial supply order, plan for approximately three (3) days.

FEMA Visual 8.12

Visual 8.12

LOCAL DISPATCH CENTER

INCIDENT WITHIN THE INCIDENT

Refer to Handout 8-1: Communications Center Protocol, Handout 8-2: Medical Emergency Procedure Plan, and Handout 8-3: ICS Form 206 Medical Plan.

The protocol for handling an incident-within-the-incident should be in place before the primary incident occurs. Careful creation of this protocol can have a significant impact on incident personnel.

Prepare incident-within-the-incident response plans prior to their need. Include the newest national medical incident protocol in these plans.

- Communication Center Protocol
- Medical Emergency Procedure Plan
- ICS Form 206 Medical Plan


Situations may occur where providing care to responders in contrast to the victims of the incident becomes the priority.

DETERMINE SUPPLY NEEDS

- Maintain supplies according to:
 - Current resource orders
 - Projected growth of the incident
 - Projected number of personnel in the ICC
- Make sure that you have ordered well in advance and in sufficient quantities

Maintain Quantity

- Take inventory.
- Determine battery needs.
- Portable battery chargers in an urban environment.
- Consider the need for cell phone chargers and other portable electronic devices.
- General Guideline: Order two (2) changes of batteries per radio, per operational period.



FEMA

Visual 8.13

Visual 8.13



Activity 8.1: Creating an Incident Communications System

Allotted Time: 45 minutes




FEMA

Visual 8.14

Visual 8.14

Objectives Review

1. Discuss working relationships within the Communications Unit.
2. Describe COML responsibilities at the ICC including methods of organizing unit personnel.
3. Discuss important considerations in laying out the Communications Unit area.
4. Identify and discuss the interactions between the COML and key individuals and sub-organizations.



FEMA

Visual 8.15

Visual 8.15

MAINTAIN QUANTITY

- Take inventory
 - In the urban environment, portable battery chargers and a reliable power source are critical

ACTIVITY 8.1: CREATING AN INCIDENT COMMUNICATIONS SYSTEM

The instructor will explain Activity 8.1.

You will have 45 minutes to complete the activity.

OBJECTIVES REVIEW

Unit Enabling Objectives

- Discuss working relationships within the Communications Unit.
- Describe COML responsibilities at the ICC including methods of organizing unit personnel.
- Discuss important considerations in laying out the Communications Unit area.
- Identify and discuss the interactions between the COML and key individuals and sub-organizations.

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Supplemental Materials

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Handout 8-1: Incident Communications Center Protocol

Incident Communications Center Protocol Standard Elements	
1. Determine the nature of the emergency.	
2. Medical injury/illness? If injury/illness is it life threatening?	
3. If life threatening, clear designated frequency for emergency traffic.	
4. Identify the on-scene Point of Contact (POC) by resource and last name (i.e. POC is TFLD Smith).	
5. Contact Medical Unit Leader immediately.	
6. Request POC to provide number injured, patient assessment, and location (geographic and GPS coordinates).	
7. Identify on-scene medical personnel by position and name (i.e. on-scene medical personnel is EMT Jones).	
8. Request preferred method of patient transport.	
9. Determine if any additional resources and/or equipment are needed.	
10. Document all information received and transmitted on the radio or phone.	
11. Document any changes in the on-scene Point of Contact or medical personnel as they occur.	
Prepared by (Medical Unit Leader)	10. Reviewed by (Safety Officer)

*Reference:
NWCG#025-2010 Memorandum, dated 5/25/10 – Attachment B*

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Handout 8-2: Medical Emergency Procedure Plan

Purpose

The direction provided in these procedures is intended to create a standard set of protocols for Incident Management Teams (IMTs) and Communication Centers to follow during a medical emergency. These procedures will be incorporated into IMT Incident Emergency Plan upon arrival at an incident *and* will allow for the integration of incident management operations with local/county/state emergency service systems.

Critical Elements

Identify Options for Medical Evacuations

The lead Safety Officer for the IMT will identify and prioritize transport options in terms of efficiency, based on resource availability, proximity, and potential for success—with a contingency plan in case the preferred mode of transportation cannot be used.

Identify One On-Scene Point of Contact

At the scene of a medical emergency, an on-scene point of contact will be determined or designated by chain of command. This point of contact and the person assessing/treating the patient may or may not be the same person. The point of contact will:

- Take charge of the scene and identify/determine who is in charge of assessing and treating the patient.
- Use the Incident Communication Protocol to relay critical information regarding patient assessment, transportation, and resource needs.
- Coordinate the request for transportation and/or other resources based on patient assessment.
- Ensure that information about patient assessment, transportation or other resource needs is transmitted directly to the Incident Command Post Communications in order to reduce the time it takes to communicate essential information and to limit the potential for miscommunication.

Key Roles and Responsibilities

Incident Management Team (IMT)

The IMT (Medical Unit Leader and Safety Officer) will collaborate with local unit and local Emergency Medical Services and Emergency Operations Center (EMS/EOC) to ensure integration of local systems into IMT planning meetings, operational briefings, and Incident Action Plan documents (ICS Form 206 and 206-Block 8 Expanded). Local systems can include specifics on ordering procedures, resource limitations, availability and capability, policies, guidelines, hours of operations, response times, billing, dispatch protocols, etc.

If necessary, the IMT should assign a person to function as a liaison to coordinate with the local jurisdiction with authority for Emergency Medical Services. The position would report to the IMT Medical Unit Leader or Safety Officer.

The IMT should include local EMS/EOC personnel in operational and planning meetings and briefings.

Agency Administrators

The host unit will provide the necessary information to the IMT on local/county/state resource capabilities, capacities, ordering procedures, cooperative agreements, role of dispatch centers, and key contacts or liaisons.

Incident Communication Protocol

1. Determine the nature of the emergency.
2. If the emergency is a medical injury/illness, determine if the injury/illness is life threatening.
3. If the injury is life threatening, then clear designated frequency for emergency traffic.
4. Identify the on-scene point of contact by position and last name (i.e. TFLD Smith).
5. Ensure that the Medical Unit Leader is contacted immediately.
6. Identify number injured, patient assessment(s) and location (geographic and/or GPS coordinates).
7. Identify on-scene medical personnel by position and last name (i.e. EMT Jones).
8. Identify preferred method of patient transport.
9. Determine any additional resources or equipment needed.
10. Document all information received and transmitted on the radio or phone.
11. Document any changes in the on-scene point of contact or medical personnel as they occur.

Reference:

NWCG#025-2010 Memorandum, dated 5/25/10 -- Attachment A

Handout 8-3: ICS Form 206 Medical Plan

Refer to EL_969_HO_8-3_ICS_Form_206.pdf

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Activity 8.1: Creating an Incident Communications System

Unit 8 - Activity 8.1 Creating an Incident Communications System

Purpose

The purpose of this activity is to design a communications system taking into consideration the needs of the response agencies and personnel needed for the ICC.

Objectives

Students will:

- Recognize the significance of the information received and draw conclusions to create a communications system and recognize any incomplete information.
- List personnel needed for ICC positions.
- Identify needed communication assets to support the communications system.
- Complete an ICS Form 205 Incident Radio Communications Plan.

Activity Structure

This activity is scheduled to last approximately 45 minutes. This activity is a continuation of the Planned Event ICS Form 205 activity. It is based upon the receipt of new incident information that requires revision of the ICS Form 205. The instructor will read an updated script below in the Activity Scenario Update. Based on this information, the students will discuss the significance of the information received and what conclusions to draw as they create a communications system. Depending on the students' level of comfort, instructors can decide if the activity should be completed individually or in small groups.

Activity Scenario Update

While departing from Central City Airport, a business jet carrying John Jones and his band, a high visibility rock group, declared an emergency immediately after liftoff. The aircraft turned left from the runway heading, impacted the ground, and skidded through the perimeter fence across a major highway and into a two story office building. There was an immediate fire and there are at least 20 injuries. The status and number of plane occupants is unclear. After the initial Law and Fire response, the Fire Department has struck a third alarm, which has completely stripped the City Fire Department. The city has activated the local IMT, and you are responding as the COML.

Using the ICS Form 217A data previously created, students will design a communications system, taking into consideration the needs of the Fire Department for fire suppression, Law Enforcement for scene preservation, perimeter control, etc., including mutual aid responses from neighboring jurisdictions, the Airport Authority, FAA, NTSB, Building Owners, the business owner occupants, the Jet aircraft owners located at the airport, and any other agencies that you

may consider as likely responders. This is a high profile event since the press was informed that John Jones was on the plane. TV and Newspaper reporters are swarming the ICP and trying to get information.

Rules, Roles, and Responsibilities

Participants will work either individually or in small groups, led by the instructor.

Following are the specific activities / instructions for your participation in the activity:

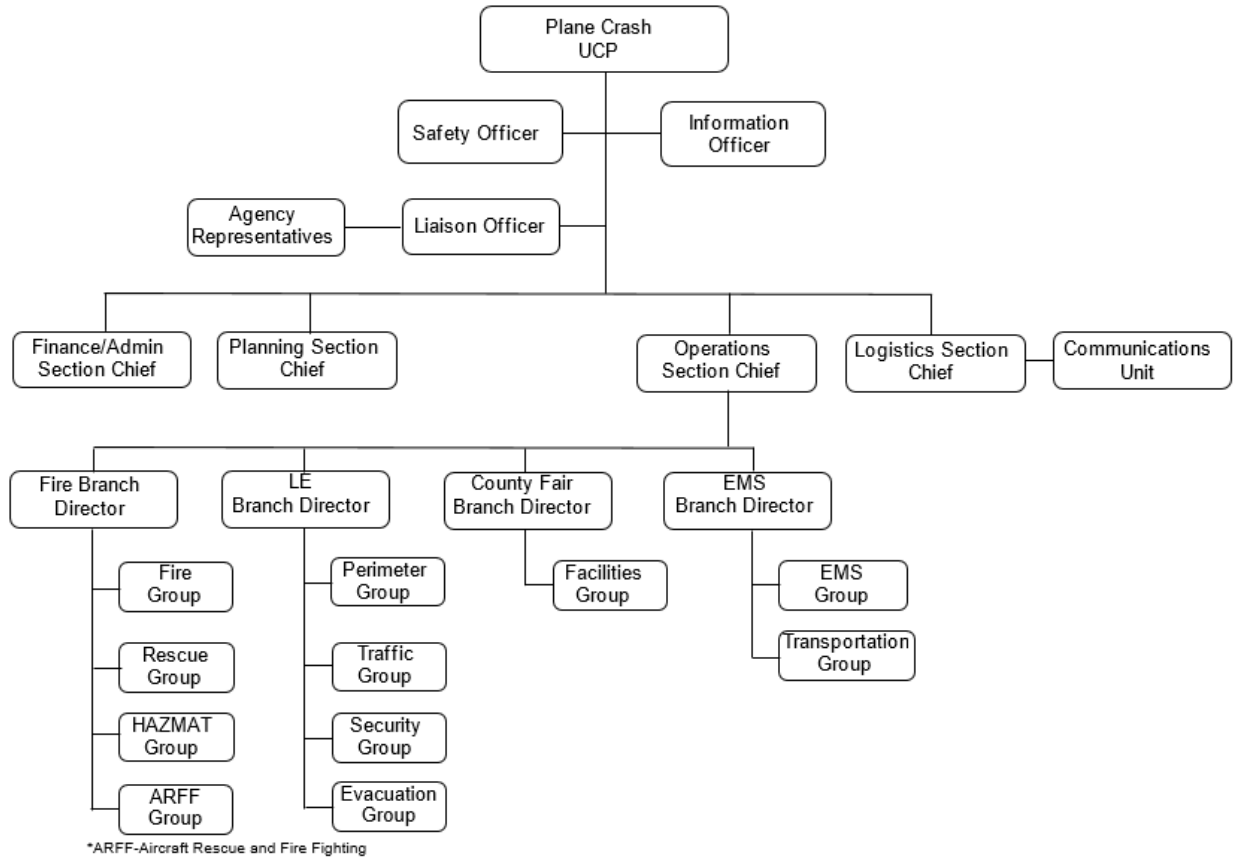
1. Review the scenario update information and create a communications system.
2. Identify and list personnel needed for the ICC.
3. Identify and list additional communications equipment needed to support the communications system.
4. Complete an ICS Form 205 Incident Radio Communications Plan based on the ICS Form 217A from the Central City scenario, Plane Crash Organization Chart on the next page, and updated information.
5. Make corrections according to the Instructor's feedback.

Instructors moderate discussions, answer questions and provide additional information as required.

Activity 8.1 Schedule

Activity	Duration	Participation Type
Instructor Introduction	2 minutes	Classroom
Instructor Briefing	3 minutes	Classroom
Complete ICS Form 205	25 minutes	Individually
Review with Instructor	15 minutes	Classroom

Activity 8.1: Plane Crash Organizational Chart



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Activity 8.1: ICS Form 205 Incident Radio Communications Plan

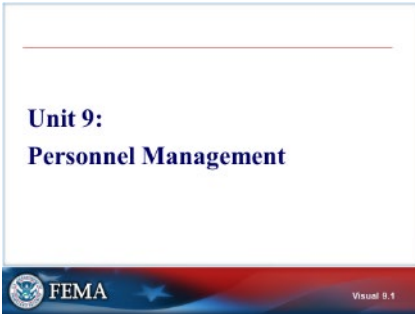
Refer to EL_969_ACT_8.1_ICs_Form_205.pdf

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Unit 9: Personnel Management

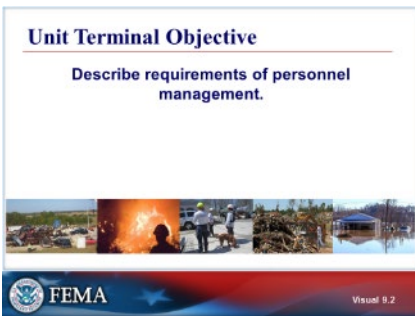
STUDENT MANUAL

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Visual 9.1

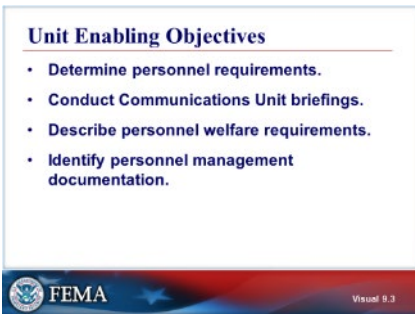
UNIT 9: PERSONNEL MANAGEMENT



Visual 9.2

UNIT TERMINAL OBJECTIVE

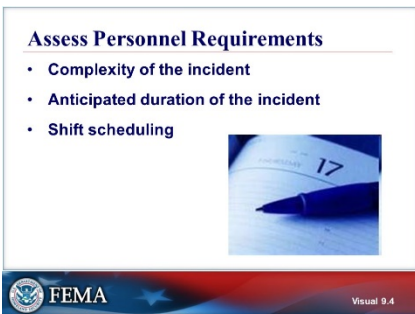
Describe requirements of personnel management.



Visual 9.3

UNIT ENABLING OBJECTIVES

- Determine personnel requirements
- Conduct Communications Unit briefings
- Describe personnel welfare requirements
- Identify personnel management documentation




Visual 9.4

ASSESS PERSONNEL REQUIREMENTS

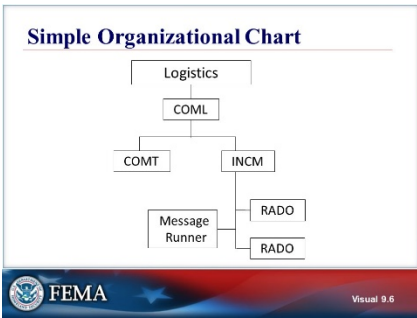
Ordering Personnel

- Order by assignment and Incident Command System (ICS) position:
 - INCM: Incident Communications Center Manager
 - COMT: Incident Communications Technician
 - RADO: Radio Operator
 - THSP: Technical Specialist
- Qualifications?



Visual 9.5

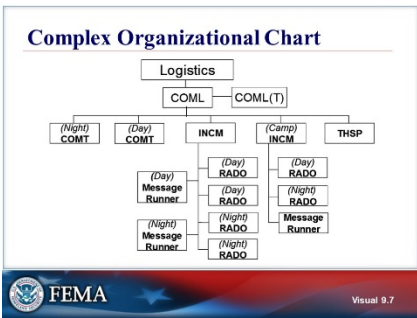
ORDERING PERSONNEL



Visual 9.6

SIMPLE ORGANIZATIONAL CHART

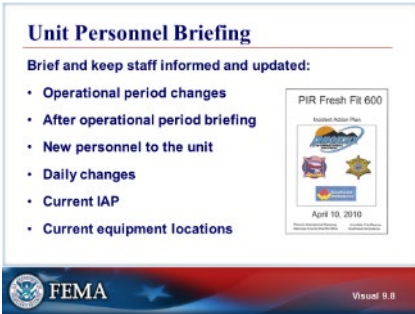
The Message Runner is a position that often gets forgotten, but it is essential if the plan is to use paper ICS Form 213 General Messages for messaging.



Visual 9.7

COMPLEX ORGANIZATIONAL CHART

The great thing about ICS is that it can expand and contract dynamically to meet incident needs.



Visual 9.8

UNIT PERSONNEL BRIEFING

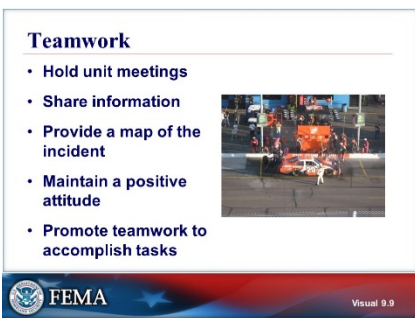
The Communications Unit Leader must continually keep their staff informed and updated, in keeping with their leadership role. The Communications Unit Leader should brief the Communications staff at the beginning and end of each operational period. The Communications Unit Leader is also responsible for informing and briefing newly arrived personnel.

- Review the Incident Action Plan (IAP)
 - The ICS Form 205 Incident Radio Communications Plan
 - The Division ICS Form 204 Assignments Lists
 - The ICS Form 206 Medical Plan if available
- Review the ICS Form 201 if the IAP is not available
 - Assigned frequencies/talkgroups
 - Current and ordered resources
 - Map of the incident

This is where the Communications Unit Leader should make GIS products available.

Other important changes the Communications Unit Leader must keep their staff apprised of include:

- Weather
- Medical emergencies
- Operations
- Current equipment locations



Visual 9.9

TEAMWORK

Personnel Welfare

- Provide a safe and comfortable environment
- Application of the Fair Labor Standards Act
- Equal Opportunity Laws
- Civil Rights Laws
- Freedom from sexual harassment
- Critical incident stress management
- Work and rest guidelines
- Union shop regulations (local)
- Mutual Respect is key



FEMA Visual 9.10

Visual 9.10

PERSONNEL WELFARE


The Communications Unit Leader is ultimately responsible for the welfare of his or her personnel.

Complying with applicable regulations is crucial, but Communications Unit Leaders should also act to provide other employee welfare, such as critical incident stress management, based on the circumstances of the incident.

If the Communications Unit Leader is on unfamiliar ground in a personnel matter, get help. It is better to ask for assistance than struggle through difficult and complicated events.

Managing Technical Staff

- Understanding a task, and technical proficiency in it, are not the same thing.
- Rely on subordinates' knowledge.
- Trust staff and be honest about abilities.



FEMA Visual 9.11


Visual 9.11

MANAGING TECHNICAL STAFF

It is important that the Communications Unit Leader understand what they have instructed their staff to do, its implementation, and its implications for the incident; however, this does not mean they must be proficient with the particular task.

Safety and Risk Management Process

- You are responsible for your people.
- What is the risk management process?
- Definition: A process of evaluating and mitigating hazards in the work environment.
- Steps of the risk management process:
 - Situational awareness
 - Hazard assessment
 - Hazard control
 - Decision point
 - Evaluate



FEMA Visual 9.12

Visual 9.12


SAFETY AND RISK MANAGEMENT PROCESS

A general principle is that risks are commensurate with the benefit gained. That is, if the incident requires a more complex installation and maintenance of equipment, greater risk will accompany the added complexity.

Ensure that mitigations are carried out. Simply reporting them is not sufficient.

Personnel Documentation Management

- Complete personnel evaluations
- Maintain timekeeping records
- Maintain an ICS Form 214 Activity Log



FEMA Visual 9.13

Visual 9.13

PERSONNEL DOCUMENTATION MANAGEMENT

- Completing personnel evaluations will help Unit personnel improve their performance and learn from an incident.
 - Trainees will need evaluations for completion of Position Task Books
- Maintaining required or appropriate timekeeping records is critical for financial management of the incident.
- Maintaining an ICS Form 214 Activity Log allows for an after-action review of the Communications Unit's tactics and radio traffic.

ICS Form 214 Activity Log

The image shows a screenshot of the ICS Form 214 Activity Log. The form is titled 'ICS Form 214 Activity Log' and includes a header with the FEMA logo and the text 'Visual 9.14'. The form itself is a grid with several columns and rows, designed for recording incident details and personnel activities. The columns are labeled: Incident Name, Date Prepared, Time Prepared, Unit Name, Unit Leader, Operational Period, Personnel Roster, and Activity Log. The rows are numbered 1 through 10. The form is presented in a visual format with a blue and red background at the bottom.

Visual 9.14

ICS FORM 214 ACTIVITY LOG

- Incident Name – Print the name assigned to the incident
- Date Prepared – Enter the date prepared (month, day, year)
- Time Prepared – Enter time prepared (24-hour clock)
- Unit Name – Enter unit or resource designator (e.g., Communications Unit)
- Unit Leader – Enter the name of the Communications Unit Leader
- Operational period – enter the time span covered by the log (e.g., 1800 Oct. 12 to 0600 Oct. 13)
- Personnel Roster – List the name, position, and home base of each member assigned to the unit during the operational period
- Activity Log – Enter the time and briefly describe each significant occurrence or event (e.g., task assignments, task completions, injuries, difficulties encountered, etc.)
- Prepared By – Enter the name and title of the person approving the log
- Provide log to immediate supervisor at the end of each operational period

Purpose

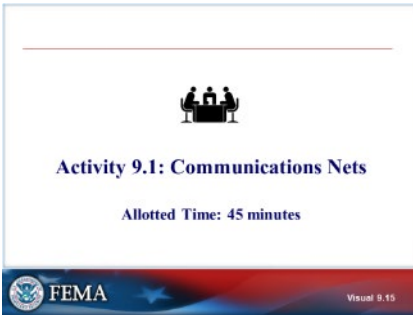
The Activity Log is used to record details of Unit activity. The file of these logs provides a basic reference from which to extract information for conclusion in an after-action report.

Initiation of Log

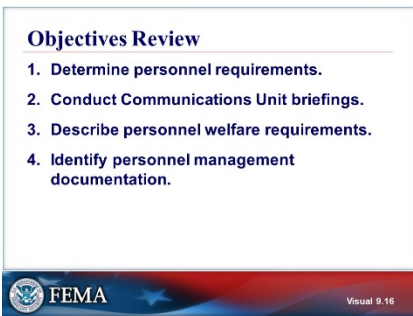
- An Activity Log is initiated and maintained by the Communications Unit Leader
- Should only be a recording of major events, not every action

Distribution

- The Documentation Unit maintains a file of all Activity Logs
- It is necessary that one copy of each log be submitted to the Documentation Unit
- If there is no Documentation Unit, the form goes to the Planning Unit



Visual 9.15



Visual 9.16

ACTIVITY 9.1: COMMUNICATIONS NETS

The instructor will explain Activity 9.1.

You will have 45 minutes to complete the activity.

OBJECTIVES REVIEW

Unit Enabling Objectives

- Determine personnel requirements
- Conduct Communications Unit briefings
- Describe personnel welfare requirements
- Identify personnel management documentation

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Supplemental Materials

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Activity 9.1: Communication Nets

Unit 9 - Activity 9.1 Communication Nets

Purpose

The purpose of this activity is to create an ICS Form 205 to address Command and Tactical Network channel assignments. Consider assigning tactical channels for current and potential responders.

Objectives

Students will:

- Recognize the significant information received and draw conclusions to create a communications system.
- Recognize any incomplete information and ask questions accordingly.
- Students will complete an ICS Form 205 Radio Communications Plan.

Activity Structure

This activity is a continuation of the previous ICS Form 205 Radio Communications Plan activity. It is based upon the receipt of new incident information that requires revision of the ICS Form 205 Radio Communications Plan. The activity is scheduled to last approximately 45 minutes. The instructor will read an updated script from the City of Central City scenario (see Activity Scenario Update). Based on this information, the students will discuss the significance of the information received and what conclusions to draw as they create an ICS Form 205 Radio Communications Plan.

Rules, Roles, and Responsibilities

Students will break into small groups.

Following are the specific activities / instructions for your participation in the activity:

1. Review the information provided.
2. Complete the attached ICS Form 205 based on the Form 217A located in the Central City tab, Tanker Accident Organization Chart, Harbor Division Map and updated information.
3. Make corrections according to the Instructor's feedback.

Instructors moderate discussions, answer questions, and provide additional information as required.

Activity Scenario Update

Central City has experienced an event where a large marine tanker delivering crude oil to the refinery has impacted the pier. The tanker was significantly damaged and is leaking crude oil into the harbor. There is no fire currently, but there is significant potential. The crude flammable vapors are all around the harbor and generally heading toward the downtown area.

The agencies involved are: Central City Fire, Police, Public Works, State Police, State DNR, State Fire, Coast Guard and the Refinery. Mutual Aid is en route or on-scene from the State Law and Fire agencies as well as mutual aid from North, East, and West Cities.

Using the ICS Form 217A Communications Resource Availability Worksheet, participants will create an ICS Form 205 Radio Communications Plan that addresses a Command Channel, at least one Law Enforcement Tac, a DNR Tac, at least one Fire Tac, including the refinery security and the Coast Guard. They will plan for the NTSB, EPA, Spill Control companies and any other responders they think would attend.

Suggested Question

This is planning for the second operational period; all agencies have at least some assets at the scene. How would you design the communications systems to be used?

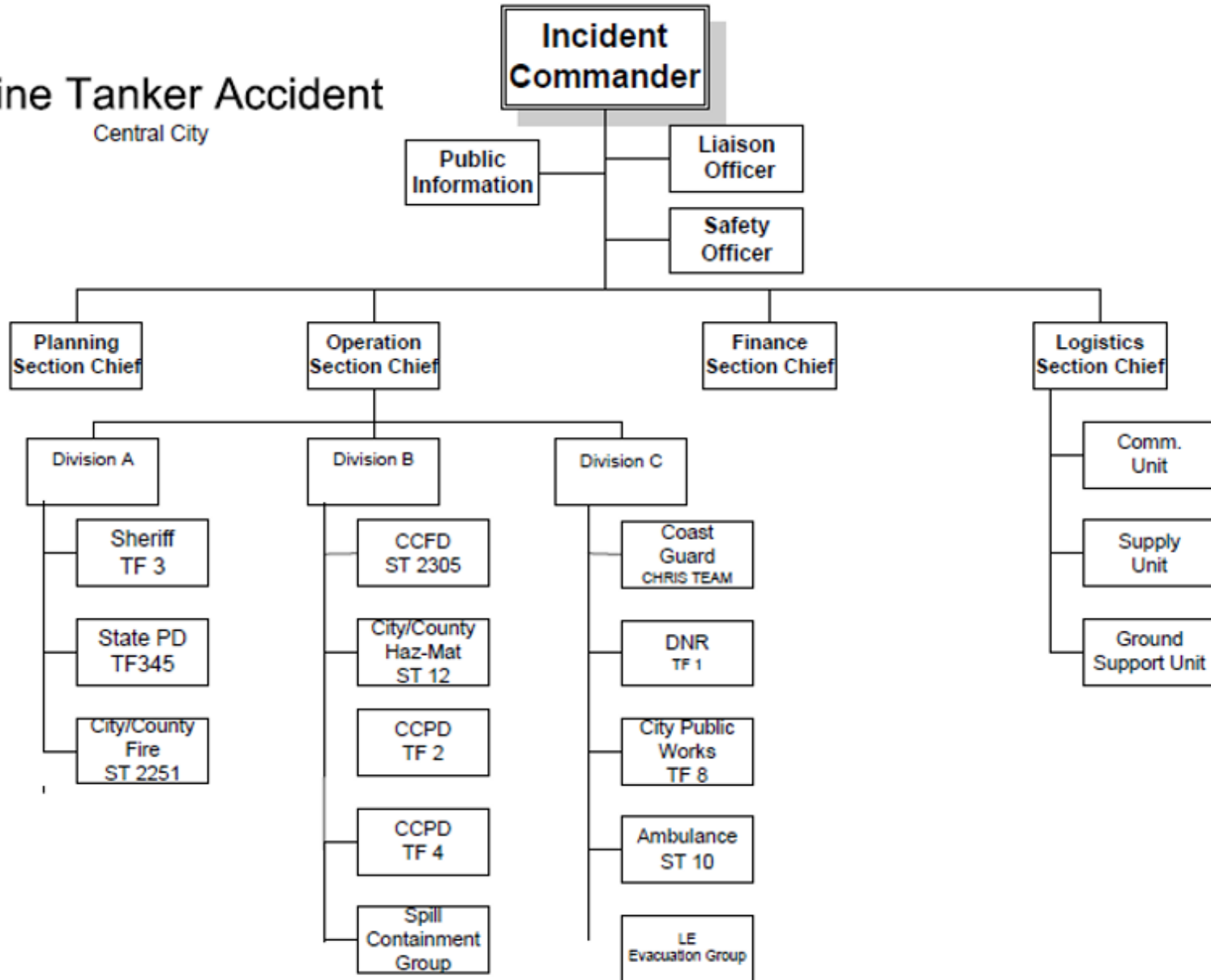
Activity 9.1 Schedule

Activity	Duration	Participation Type
Activity Introduction	5 minutes	Classroom
Instructor Briefing	5 minutes	Classroom
Complete ICS Form 205	20 minutes	Individually
Review with Instructor	15 minutes	Classroom

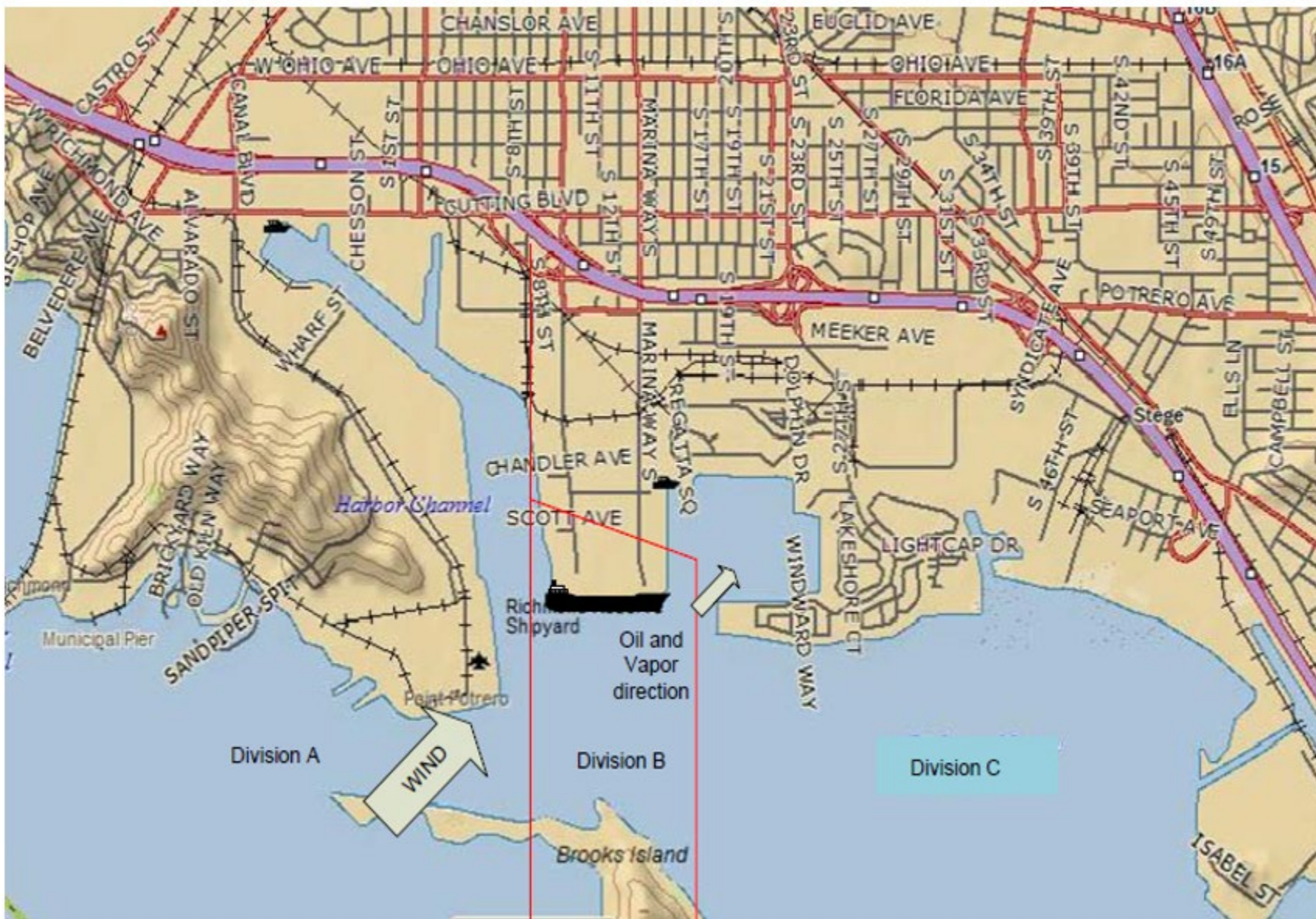
Refer to EL_969_ACT_9.1_ICs_Form_205.pdf

Marine Tanker Accident

Central City



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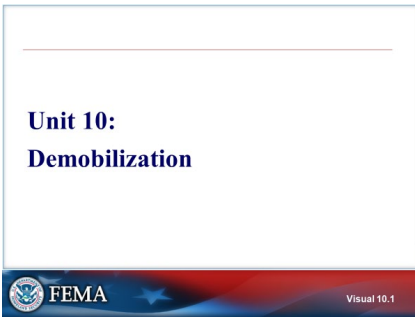


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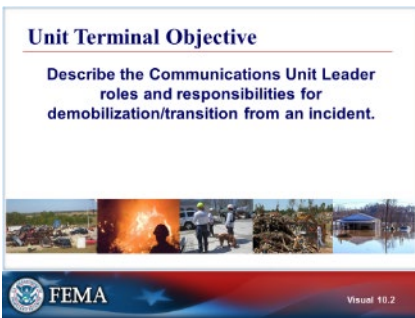
Unit 10: Demobilization

STUDENT MANUAL

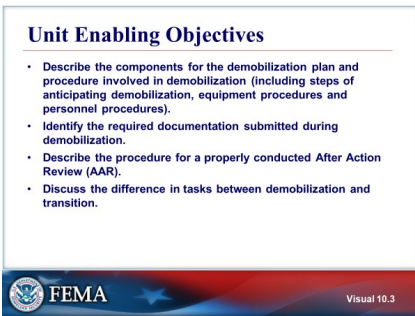
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Visual 10.1



Visual 10.2



Visual 10.3

UNIT 10: DEMOBILIZATION

UNIT TERMINAL OBJECTIVE

Describe the Communications Unit Leader roles and responsibilities for demobilization/transition from an incident.

UNIT ENABLING OBJECTIVES

- Describe the components for the demobilization plan and procedure involved in demobilization (including steps of anticipating demobilization, equipment procedures and personnel procedures).
- Identify the required documentation submitted during demobilization.
- Describe the procedure for a properly conducted After Action Review (AAR).
- Discuss the difference in tasks between demobilization and transition.



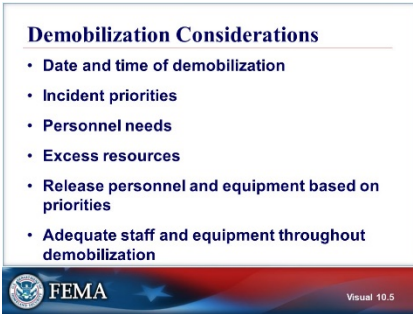
Visual 10.4

DEMOBILIZATION PLAN

The Communications Unit Leader is responsible for the orderly demobilization of the Communications Unit, equipment collected and accounted for, and all the Communications Unit documentation completed and turned in to the Planning Section.

Begin early and be diligent. Demobilization is a constant process, beginning at the front end of an incident. As you are ordering resources, including people, equipment or frequencies, begin planning how you will release those very assets. Plan on the requirements for rehabilitation of assets; that includes making sure personnel are properly rested before travel.

- It is not getting into your department-issued vehicle and driving off into the sunset
- Demobilization planning begins upon arrival
 - What Communications Unit resources are to be released?
 - When can the resources be released?
 - Remember deployed assets such as radios have to be collected from everyone else when they demobilize. Deployed repeaters etc. cannot be removed until comms on that net/frequency are closed.
 - Is the ICS Form 221 Demobilization Check-out ready for distribution?
- The Incident Commander establishes the date and time demobilization begins
- Demobilization starts well before arrival and includes equipment demobilization and rehabilitation plans designed in advance



Visual 10.5



Visual 10.6

DEMOBILIZATION CONSIDERATIONS

The Communications Unit Leader must:

- Know the exact date and time of the planned demobilization, and treat it as a deadline.
- Discuss incident priorities with other sections so that if demobilization occurs in a phased fashion the operations of other sections will not be affected.
- Know, through discussions with their supervisor, whether the Communications Unit personnel and equipment will be transitioning elsewhere, or if they will be released.
- Attempt to phase out of the incident by identifying supplies and personnel no longer required or in use, and release them accordingly.

DEMOBILIZATION AND CHECK-OUT

Upon receipt of the instructions to demobilize, which usually come from the Logistics Section Chief, the Communications Unit Leader must brief their staff on the demobilization procedure and the Communications Unit's responsibilities.


The Communications Unit Leader must post a copy of the Demobilization Plan, emphasizing adherence to work/rest guidelines, and establishing check in/check out procedures for crews and overhead personnel as they return their equipment and leave the incident.

The Communications Unit Leader must ensure that accurate inventory is maintained, communications equipment is prepared for demobilization, and equipment is stored properly in preparation for shipment.

Many pieces of communications equipment will have their own established process for demobilization, and the Communications POC will be able to help with identifying these procedures and releasing the equipment's frequencies. After these tasks have been accomplished, all documentation must be submitted to the Planning Section.

Equipment Demobilization

- Gateway deactivation requires an announcement the gateway is being terminated and confirmation from all units using the gateway they are returning to normal operating channels/ talkgroups.
- Announcements are made on shared channels that the incident is being terminated, to return to normal operating channels/talkgroups and acknowledged by units using the shared channel.



Visual 10.7

EQUIPMENT DEMOBILIZATION


Gateway deactivation requires an announcement that the gateway is being terminated and confirmation from all units using the gateway that they are returning to normal operating channels/talkgroups.

Announcements are made on shared channels that the incident is being terminated, to return to normal operating channels/talkgroups and acknowledged by units using the shared channel.

Equipment Demobilization (Cont.)

- All equipment is accounted for and returned to the appropriate agency
- Issues with lost or damaged equipment are resolved
- Equipment is rehabilitated and ready for the next assignment

What ideas do you have to ensure the return of issued communications equipment?



Visual 10.8


EQUIPMENT DEMOBILIZATION (CONT.)

Take the time to put everything in a ready state. You may be deployed again before you get home.

- The facility is prepared for departure and equipment is accounted for.
- Equipment demobilization:
 - The Tactical Interoperable Communications Plans (TICP) have SOPs for equipment return, accountability, and problem solving.
- Final documentation is completed and turned in to the appropriate location.

Equipment Demobilization (Cont.)

Radio #	Name	Home Base	Assignment	Fax Name	Division	Date	Blk Info
0245-01	Robb Kaye		Medical		KnoxCo	7/15	
0245-02	Returned						
0245-03	Chew Stewart	Phonetic			KnoxCo	7/17	
0245-04	Raymond Fox	Command Support			KnoxCo	7/17	7-19
0245-05	Robert Smith	Atlanta Fire			KnoxCo	7/16	E-200
0245-06	James Fisher	Springfield Fire	Talk Force One		KnoxCo	7/16	
0245-07	James Conrath	Colfax Fire			KnoxCo	7/16	E-200
0245-08	Mark Hodge	Over Fire			KnoxCo	7/16	E-200
0245-09	Returned						
0245-10	Carla Tompkins	ELM Phone			KnoxCo	7/16	0-11-53
0245-11	Paul Christian	Private	Utilities		KnoxCo	7/16	603-756-4512
0245-12	Stanford Engle				KnoxCo	8-202	
0245-13	Returned						
0245-14	At Grand Terrace						
0245-15	Returned						
0245-16	Returned						
0245-17	Levan Davis	Phonetic	Medical		KnoxCo	7/14	
0245-18	Jack Robertson	Fax Unit Leader			KnoxCo	7/14	
0245-19	Richardson	SAC			KnoxCo	7/14	
0245-20	Returned						
0245-21	Thom Stone		Fax Unit Leader		KnoxCo	7/14	
0245-22	Returned						



Visual 10.9

EQUIPMENT DEMOBILIZATION (CONT.)

In this visual example, caches are grayed out every 16 radios. This report can be run by name, agency, radio number, etc.


Always back-up electronic documentation with a paper system. A T-card system is the simplest to hand off to a replacement IMT who may not have the computer capabilities. Additionally, a T-card sign out system has the signature of the person who took the equipment for accountability.

Closing Incident vs. Transition

- Transition - New team arrives to replace current Communications Unit
- Closing Incident - Incident is scaling down, personnel and equipment sent back/reassigned accordingly

What documents should be included in a transition to a new COML?

Handout 10-1: Demobilization Plan (Example)
 Handout 10-2: Transition Plan East Zone (Example)
 Handout 10-3: Logistics AAR – Castle Rock (Example)



Visual 10.10

CLOSING INCIDENT VS. TRANSITION


Refer to Handout 10-1: Demobilization Plan (Example), Handout 10-2: Transition Plan East Zone (Example), and Handout 10-3: Logistics AAR – Castle Rock (Example).

There is a difference between transition and demobilization, though the majority of the procedures are identical. In a transition, a new team arrives to take the place of the current Communications Unit. Depending on whether this group brings its own equipment, this could entail much less demobilization of equipment than an actual demobilization.

When demobilizing or closing an incident, the incident itself is scaling down, and personnel and equipment are reassigned or released with eventual termination of the incident in mind.

IMT Supplemental Documentation

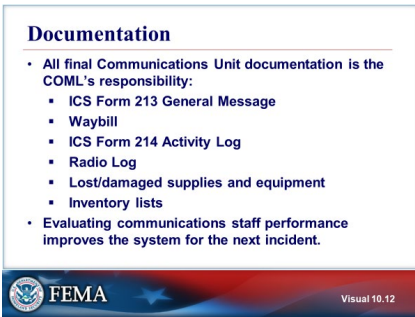
- Narrative:
 - Linear
 - Single-source perspective
 - Completely factual, little analysis or interpretations



Visual 10.11

IMT SUPPLEMENTAL DOCUMENTATION

The Communications Unit Leader may choose to expand this narrative by seeking feedback from subordinates and highlighting areas that could be improved on the next incident.

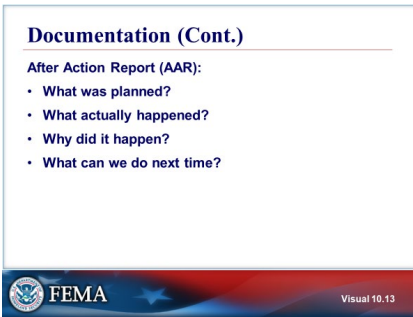


Visual 10.12

DOCUMENTATION

The Communications Unit Leader is responsible for the following documentation:

- ICS Form 205 Incident Radio Communications Plan
- ICS Form 213-RR Resource Order
- ICS Form 309 Communications Log
- ICS Form 213 General Message
 - A very versatile form, it can be used for tracking resources, releasing frequencies, maintaining contact with local dispatch for the release of aircraft frequencies, and the release of equipment and supplies
 - Although for the final function, a Waybill would also be sufficient
- Waybill
 - A type of FedEx form that serves as a manifest for a shipment (typically for radio cache equipment from the Wildland Fire resources in Boise)
 - It is ordinarily the Communications Unit Leader's responsibility to fill this out (the CURT Excel software will complete this form)
- ICS Form 214 Activity Log must be filled out as well
- Agency-specific forms
 - Used to document all lost or damaged equipment
- Equipment logs
- Transition notes



Visual 10.13

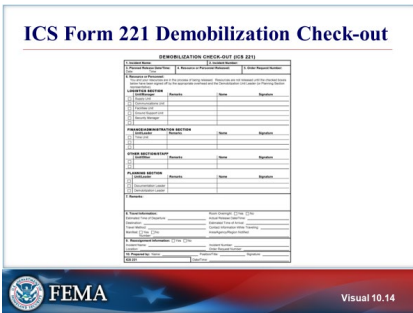
DOCUMENTATION (CONT.)

The Communications Unit Leader is usually required to submit some kind of narrative of their activities throughout the incident at demobilization.

When this occurs, it is often in the form of an After-Action Review. Originally taken from the military, the traditional format consists of a comparison of what was intended to occur, or what was planned to happen, to what actually happened. In this format, improvements and constructive criticism can be more easily expressed and particular things that “went wrong” or not according to plan can be highlighted for the next incident.

The AAR should be collaborative and instructive in nature. Feedback and comments from subordinates are highly encouraged.

The COML should conduct a ‘hot wash’ with Communications Unit staff before their release and combine this information into a report to be included in the After Action Report.

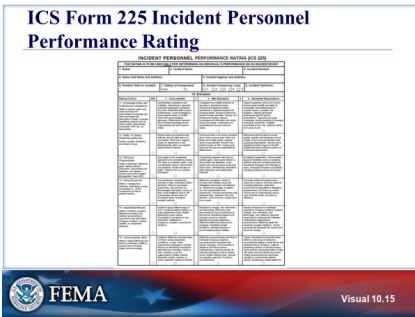


Visual 10.14

ICS FORM 221 DEMOBILIZATION CHECK-OUT

If the box is checked, the Communications Unit must sign off that all equipment has been returned.

- All personnel who leave the incident go by Communications to make sure they don't have any communications equipment checked out to them
- Personnel often must check in with the Communications Unit to attest they have checked in their equipment
- If equipment is given out by the Unit, plans need to be made with the Demobilization Unit (if it exists, or coordinated with the Incident Commander) to include an order for all demobilizing personnel to get a sign-off from the Communications Unit on the ICS Form 221.

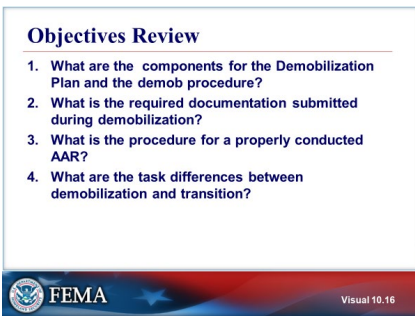


Visual 10.15

ICS FORM 225 INCIDENT PERSONNEL PERFORMANCE RATING

Evaluating communications staff performance improves the system for the next incident. Be fair and impartial. If you have a stellar performer, see that they are recognized. If you have personnel that are deficient, document that, as well as those steps you took to improve the behavior.

- Monitor individual job performance
- Evaluate and take corrective action as necessary
- Prepare position-specific performance evaluations
- Discuss evaluation with appropriate subordinate
- All trainees need an ICS Form 225 completed and possibly sign-off's in their Position Task Book (PTB)



Visual 10.16

OBJECTIVES REVIEW

Unit Enabling Objectives

- Describe the components for the demobilization plan and procedure involved in demobilization (including steps of anticipating demobilization, equipment procedures and personnel procedures).
- Identify the required documentation submitted during demobilization.
- Describe the procedure for a properly conducted After Action Review (AAR).
- Discuss the difference in tasks between demobilization and transition.

Supplemental Materials

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Handout 10-1: Demobilization Plan (Example)

Hurricane Katrina

Stennis Space Center

Demobilization Plan for Information Personnel

9-16-XX

Prepared by: _____ Date: _____

Approved By: _____ Date: _____

I. General Information

The following general information outlined in this Information Unit Demobilization Plan is tiered to the Official Demobilization Plan for Stennis Space Center OSA/LSA. No equipment or manpower will leave the incident until authorized to do so. The logistics section will arrange for all required transportation of released personnel and equipment.

Resources on this incident come from widely scattered locations, and long travel times may be involved. These general guidelines will be followed:

- A. No person will be released prior to obtaining a minimum of 8 hours rest, unless specifically approved by the IC.
- B. All resources must be able to arrive at their home base prior to 2200 hours.

II. Responsibilities

The Information Officer is responsible for:

- A. Submitting a general message for personnel that may need to be demobilized early due to emergencies.
- B. Ensuring that all documentation is complete, including the Legacy Document and the information component of the Transition Plan.
- C. Inventorying all substantial supplies and reporting to Supply Unit Leader.

Items identified to date:

- HP DeskJet 5740
 - 25' yellow extension cord
 - 5 power strips
 - HP LaserJet 3350 Fax/copier/scanner
 - Brother IntelliFAX 775 fax machine
 - Wilson Jones LV250HS Laminator
 - Phone
 - Radios
 - Nextel phones
- D. Completing personnel evaluations (ICS Form 225) including identification of personal development completed and training needed. Advise home unit of performance.

The Information Unit will package up all records and ICS forms and deliver to the Documentation Unit. All Packages should be labeled with name, date, and contents.

III. Release Priorities

Length of Assignment – Employees will be released based on their length of duty. Those who have been on duty for 10-14 days without a day off will be released first. Employees will follow normal demobilization procedures for the area in conjunction with the National Mobilization Guide and Interagency Incident Business Management Handbook. For extensions beyond 14 days, follow the procedures in the Mob. Guide and in the guidelines from the National MAC Group 9-9-XX and the US Forest Service Southern Region 9-6-XX.

Extensions beyond original 14 days:

- 5 days, with arrival at home unit on the 21st day
- An additional 2 weeks (See attached request for extension form)

Days of RR

After first 14 days, 2 days of paid RR, if those days fall on regularly scheduled work days.

If extended additional 5 days, 2 days of RR come on the 22nd day, if those days fall on regularly scheduled work days.

Those extended to an additional 14 days will receive 2 days RR after their first 2-week work period is complete.

IV. Release Procedures

Use Tentative Release List, ICS Form 223(see attached), to notify Planning of personnel that can be released.

Follow procedures on the Demobilization Checkout Form 221 (see attached), and have each section sign off.

V. Incident Directory

Demobilization Unit Leader Robert Trickle, NCFS.

He will be demobed until 9-23-XX

Phone Number 228-813-7520

Fax Number 228-813-7533

No cell phone, no radio, no Nextel until further notice.

Days of RR

After first 14 days, 2 days of paid RR, if those days fall on regularly scheduled work days.

If extended additional 5 days, 2 days of RR come on the 22nd day, if those days fall on regularly scheduled work days.

Those extended to an additional 14 days will receive 2 days RR after their first 2-week work period is complete.

VI. Release Procedures

Use Tentative Release List, ICS Form 223 (see attached), to notify Planning of personnel that can be released.

Follow procedures on the Demobilization Check-out Form 221 (see attached), and have each section sign off.

VII. Incident Directory

Demobilization Unit Leader Robert Trickle, NCFS.

He will be demobed until 9-23-XX

Phone Number 228-813-7520

Fax Number 228-813-7533

No cell phone, no radio, no Nextel until further notice.

Handout 10-2: Transition Plan East Zone (Example)

The East Zone Complex currently has three Command repeaters C2, C3, C9, one Logistics repeater L3, one Crossband Link Kit, and an air to ground link (air/link) to provide radio communication coverage to the fire. There are some dead spots, due to ridges and drainages which are mitigated by human repeaters or sat. phones. Three command repeaters are on the fire. One is located on Williams Peak (C2) located approx. 2 miles southeast of the Zena fire. Another repeater on Burgdorf Summit (C-3) approx. 5 miles southwest of the Rains fire. And a third repeater on North Loon Mountain(C-9) is located approx. 5 miles southwest of the Loon fire. These three repeaters provide communications to the three fires on the complex. The Logistics repeater located approx. 11 miles northeast of the ICP on Nick Peak is a UHF hub used to link each of the command repeaters. A Crossband Link Kit located at the ICP allows Operations personnel with a VHF radio to communicate with fire fighters on the fire line from the ICP.

The air to ground link (air/Link) co-located on Nick Peak with the Log repeater provides communications between Helibase and aircraft supporting the fire.

Our last repeater and air link battery change is planned to occur on 7-24. The batteries have been changed approx. every 4 days with 8 batteries in each of the five repeater/air-link kits. All repeater sites are fly in sites. Communications has been distributing approx. seven cases (flats) of "AA" batteries daily to fire personnel and crews.

Personnel will be timing out from July 28. Currently there are no replacement people on order. The last workday for current personnel are as follows.

- O-35 Cynthia Bourgeois, INCM, 7-28
- O-34 Janice Gardner, RADO (t) 7-28

There are currently 19 phone lines and one DSL line being used at the East Zone Complex ICP. There are five lines and one DSL located at the Copeland Helibase. Cell coverage in the ICP and at the Helibase is good. Around the fire area there is little if any Cell phone coverage. There are three iridium satellite phones in the field in Divisions Raines, Zena, and at the jet boat launch point. One additional phone is located in communications available for issue.

The 4 iridium satellite phones should be demobed though Leeann Johnston at expanded dispatch.
Cell Phone: 208-634-9244

The Helibase has the following items of NIFC communications equipment: 3 sections of antenna mast used to support the Helibase wind sock, 1 UHF Yagi antenna, and 1 UHF mag mount antenna, and 2 UHF Handheld Radios. The radios are checked out though the communications unit.

Equipment on the Fire:

- | | | |
|-------------------------------------|---|--------------------------------------------------|
| • 4381 Command Tac Kits | 4 | |
| • 4244 Log radio's kits | 3 | |
| • 4330 Remote Kits | 1 | |
| • 4312 Command Repeaters Kits | 3 | |
| • 4248 UHF Repeater Kits | 1 | |
| • 4360 Iridium Satellite Phone Kits | 0 | – Starter Kit item not needed; Returned to Boise |
| • 4281 Crossband Link Kit | 1 | |

- 9505A Iridium Satellite Phones 4

Aircraft Frequencies:

- Air to Air AM 122.425
- Air/Ground 169.200
- Deck 168.050
- Air Link 417.300 UHF VHF 122.425
- Initial Attack AM 118.875
- McCall Tower 120.850

Equipment Locations and frequencies:

- C-2 N45° 01.12' W115° 39.75 (Williams Peak Lookout.) Rx170.4500/Tx168.1000
Link: L3
- C-3 N45° 18.92' W115° 35.71 (Burgdorf Summit) Rx170.4250/Tx168.0750 Link: L3
- C-9 N45° 06.79' W115° 51.89 (North Loon Mtn.) Rx 165.2500/Tx 170.0125 Link: L3
- L-3 N44° 56.32' W115° 52.17' (Nick Peak) Rx 411.500/Tx 415.500
- Air Link N44° 56.32' W115° 52.17' (Nick Peak) 122.425/417.300

Handout 10-3: Logistics AAR – Castle Rock (Example)

Critical Issue: Placing and Filling Duplicate Orders from Fireline

Section: Logistics

What happened	Why it Happened	Recommendation
Duplicate orders for supplies and sustenance received from the fireline.	Orders for supplies and sustenance were submitted by different levels of supervision and/or submitted to different order receipt sites.	Orders for supplies and sustenance should be placed from a specified level of supervision, e.g., DIVS or OPBD, and placed to a specified order receipt site, e.g., Communications.

Critical Issue: Automatic UTF and/or slow fills of Logistics Section personnel

Section: Logistics

What happened	Why it Happened	Recommendation
The Operations Section was able to expand much more quickly than the Logistics Section.	Qualified Logistics Section personnel are a shortage category within the system.	Allow Type 1 & 2 Teams to carry more positions in the Logistics Section, e.g., BCMG, ORDM, RCDM, INCM, EQPM, FEMT and RADO to ensure that appropriate, qualified personnel are available to appropriately and safely support the Operations

Critical Issue: Consistent challenges with bears.

Section: Logistics

What happened	Why it Happened	Recommendation
Consistent challenges with bears in the ICP, Incident Base, spike camps and coyote	The incident caused tactical and support activities to be performed in bear habitat. These activities resulted in large quantities of Food and garbage to be introduced into bear habitat.	Regional and/or local forest caches should stock bear resistant containers for use on incidents in bear habitat.

Critical Issue:

Section:

What happened	Why it Happened	Recommendation

Critical Issue:

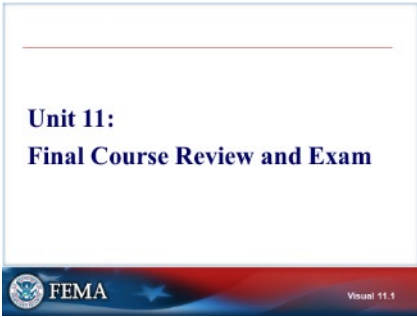
Section:

What happened	Why it Happened	Recommendation

Unit 11: Final Course Review and Exam

STUDENT MANUAL

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Visual 11.1

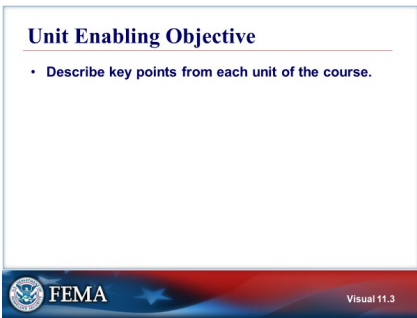
UNIT 11: FINAL COURSE REVIEW AND EXAM



Visual 11.2

UNIT TERMINAL OBJECTIVE

Demonstrate mastery of the key concepts presented in the course.



Visual 11.3


UNIT ENABLING OBJECTIVE

- Describe key points from each unit of the course.

Course Objectives Review

Has the All-Hazards COML course met the following course objectives?

1. Identify course objectives and position-specific resource materials for the position of COML.
2. Describe the function and components of the Logistics Section and the Communications Unit within the context of the Incident Command System (ICS).
3. Describe the function and components of the Communications Unit and qualification process for the COML.
4. Identify methods for the application, coordination, and use of interoperable communications.




Visual 11.4

Course Objectives Review (Cont.)

Has the All-Hazards COML course met the following course objectives?

5. Identify methods and standards relating to frequency regulations and usage.
6. Describe the COML responsibilities in establishing an incident radio communications system.
7. Create a properly constructed ICS Form 205 Incident Radio Communications Plan and a Form 217A Communications Resource Availability.



Visual 11.5

COURSE OBJECTIVES REVIEW

Has the All-Hazards COML course met the following course objectives?

- Identify course objectives and position-specific resource materials for the position of COML.
- Describe the function and components of the Logistics Section and the Communications Unit within the context of the Incident Command System (ICS).
- Describe the function and components of the Communications Unit and qualification process for the COML.
- Identify methods for the application, coordination, and use of interoperable communications.

COURSE OBJECTIVES REVIEW (CONT.)


Has the All-Hazards COML course met the following course objectives?

- Identify methods and standards relating to frequency regulations and usage.
- Describe the COML responsibilities in establishing an incident radio communications system.
- Create a properly constructed ICS Form 205 Incident Radio Communications Plan and a Form 217A Communications Resource Availability Worksheet.

Course Objectives Review (Cont.)

Has the All-Hazards COML course met the following course objectives?

8. Identify COML responsibilities in establishing an Incident Communications Center (ICC) as well as manage all incident communications needs, personnel, and the ICC.
9. Describe requirements of personnel management.
10. Describe the COML roles and responsibilities for demobilization/transition from an incident.
11. Demonstrate mastery of the key concepts presented in the course.




Visual 11.6

Review Course Expectations





Visual 11.7



Final Activity:

**COML Tasks –
Initial Arrival to Demobilization**

Allotted time: 1 hour 30 minutes



Visual 11.8

COURSE OBJECTIVES REVIEW (CONT.)

Has the All-Hazards COML course met the following course objectives?

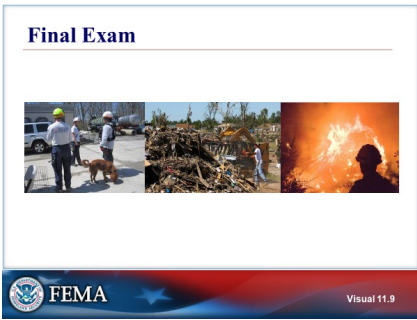
- Identify COML responsibilities in establishing an Incident Communications Center (ICC) as well as manage all incident communications needs, personnel, and the ICC.
- Describe requirements of personnel management.
- Describe the COML roles and responsibilities for demobilization/transition from an incident.
- Demonstrate mastery of the key concepts presented in the course.

REVIEW COURSE EXPECTATIONS

FINAL ACTIVITY

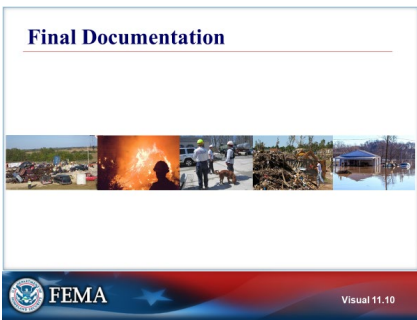
The instructor will explain the Final Activity.

You will have an hour and 30 minutes to complete the activity.



Visual 11.9

FINAL EXAM



Visual 11.10

FINAL DOCUMENTATION

END OF COURSE

Supplemental Materials

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Final Activity: COML Tasks – Initial Arrival to Demobilization

Unit 11 - Final Activity COML Task – Initial Arrival to Demobilization

Purpose

The purpose of this activity is for students to synthesize and apply all of the information they have learned in the course in a hands-on setting.

Objectives

Students will:

- Complete the tasks of a COML on an incident from initial arrival through demobilization.

Activity Structure

This activity uses a new incident scenario, a tornado that hits Central City. Based on this information, you will discuss the significance of the information received and what conclusions to draw as you utilize appropriate forms to request resources, and document Communications Unit activities. You will develop a Communications plan for the 2nd operational period, to support at least one Command channel and tactical talkgroups supporting Fire, Law, EMS and other responders that you would expect with this magnitude of an event. You will also evaluate staff and prepare for demobilization. The activity is scheduled to last approximately 1 1/2 hours, including 1 hour of hands-on practice and 1/2 hour of guided debrief.

You should have the following materials:

- LSC Briefing / Incident Overview
- Map of Central City
- Plot plans of Nick Dunn HS and Emily Paige Community Center
- ICS Form 213s, three for each group
- ICS Form 214s, one per student
- Form 217A, use the completed Central City one used throughout the course
- ICS Form 205, one per student
- ICS Form 225, one per student
- Blank easel chart paper as appropriate
- Assortment of colored markers
- T-cards: 25 equipment and 10 overheads per group

Rules, Roles, and Responsibilities

Participants will work in groups, led by the instructor. Following are the specific activities / instructions for your participation in the activity:

Following are the specific activities/instructions for your participation in the activity:

1. Review the information provided.
2. Complete ICS Forms 213, 214, 205, and 225 and develop a demobilization plan based on the Central City, Tornado scenario and updated information.
3. Make corrections according to the Instructor's feedback.

Instructors moderate discussions, answer questions and provide additional information as required.

Final Activity Schedule

Activity	Duration	Participation Type
Activity Introduction	5 minutes	Classroom
Review of Incident Overview	10 minutes	Individually
Complete ICS Form 213	10 minutes	Individually
Complete ICS Form 205	15 minutes	Small Group
Complete ICS Form 225	5 minutes	Individually
Develop Demobilization Plan	10 minutes	Small Group
Complete ICS Form 214	5 minutes	Individually
Review with Instructor	30 minutes	Classroom

Incident Overview

- At approximately 1400 hours on April 26, 20XX an F-3 Tornado touched down in Central City. The path of destruction began in the area of 9th Ave paralleling Hwy 79 and continued northeast across the center of town through the downtown area of the city and into the rural area before dissipating.
- The current time is 1900 on April 26, 20XX.
- There are several incidents involving fires and gas leaks throughout the tornado's path.
- The fire water mains have been disrupted by numerous water breaks and a loss of pumping capacity due to city-wide power outage.
- There are significant hazardous materials involved.
- More than 10,000 people are directly affected by blown out windows, and power outages.
- The local Emergency Management Agency in Central City, is reporting overwhelming severe damage to homes and businesses. The local hospitals are exceeding their capacity. City services have been rendered non-operational, there is a water contamination advisory, and power is out for most of the city.
- There are additional reports of tornadoes that have touched down 45 miles farther to the east. The rain has continued to fall, causing flooding throughout the region surrounding Central City. The rainfall has reached an alarming amount and the local rivers and streams have become swollen; the rainfall has caused a serious impact and is expected to continue through the week.

Specific Information:

- Students should assume they are planning for the second operational period, as the COML.
- On site they have a COMT, INCM, a THSP for data systems and a THSP for telephone.
- The city ordered a gateway and satellite trailer during the first operational period and they are at the COML's disposal.
- The City of Central City is paralyzed, particularly because the master site for their trunking system was heavily damaged by an explosion. There are two remaining sites operational in site trunking mode, but with much more limited capacity. Reduced coverage is affecting the operations at the rail yard and immediately adjacent areas.
- Participants should keep in mind this is likely to be a long event and day-to-day operations need to continue in Central City. Using the ICS Form 217A, develop an ICS Form 205 to support at least one Command channel and tactical talk groups supporting Fire, Law, EMS and other responders that you would expect with this magnitude of an event, including NTSB, Railroad, HazMat teams from several agencies, Red Cross for temporary housing, EPA, FBI, etc.
- The Nick Dunn High School at W. 13th Ave and S. Redbud St in Central City is being made available for communications use, but no facilities have been established. The

school population is 600 students when in session. It has a combination of fixed facilities including a pool, stadium- type football field, several softball/baseball fields, soccer field, and bus repair facilities. There is an adjacent open field, which is owned by a private property owner having approximately 55 acres of flat land.

- The Emily Paige Community Center has also been made available. It has a gym with 200 person bleachers, bathroom facilities, a pool, 3 meeting rooms with 50-, 70-, and 100-person capacities respectively, a kitchen service buffet line, and a 300-person auditorium. The community center is located at 1105 S. Walnut St. between W. 3rd Ave and W. 4th Ave in Central City.
- The Central City EOC is not functional, but the Columbia County EOC is open and operational.
- The Central City Memorial Hospital is a 200-bed facility and is at maximum capacity from normal operations prior to the incident and with self-presenters.
- All city departments are actively operating and attempting to secure the city services and get a status report on the effects and impact of the destruction.

Weather:

- Due to a tropical depression gaining strength in the Gulf, there are thunderstorm watches in effect for the Central City area and surrounding counties. (See extended weather forecast.)

Weather

NWS Forecast for: LOCAL AREA

Issued by: National Weather Service

This Afternoon: Scattered showers and thunderstorms. Chance of precipitation is 40%. Mostly cloudy, with a high around 88. Windy, with a southeast wind between 15 and 20 mph.

Tonight: Scattered showers and thunderstorms before 8 p.m., then a slight chance of showers. Chance of precipitation is 40%. Mostly cloudy, with a low around 76. Southeast wind between 10 and 15 mph.

Thursday April 27, 201X: A slight chance of showers, then showers and thunderstorms likely after 8 a.m. Chance of precipitation is 60%. Mostly cloudy, with a high around 89. South-southeast wind between 10 and 15 mph.

Thursday Night: Showers and thunderstorms likely, mainly before 8 p.m. Chance of precipitation is 60%. Partly cloudy, with a low near 76. Southern wind between 10 and 15 mph.

Friday April 28, 201X: Scattered showers and thunderstorms before 8 a.m. Scattered showers and thunderstorms after 2 p.m. Chance of precipitation is 50%. Partly cloudy, with a high near 90. South- southwest wind between 10 and 15 mph.

Friday Night: Scattered showers and thunderstorms before 2 a.m. Chance of precipitation is 50%. Partly cloudy, with a low around 75. South-southwest wind between 5 and 15 mph.

Saturday April 29, 201X: Scattered showers and thunderstorms after 2 p.m. Chance of precipitation is 30%. Partly cloudy, with a high around 90. Southwest wind between 5 and 10 mph.

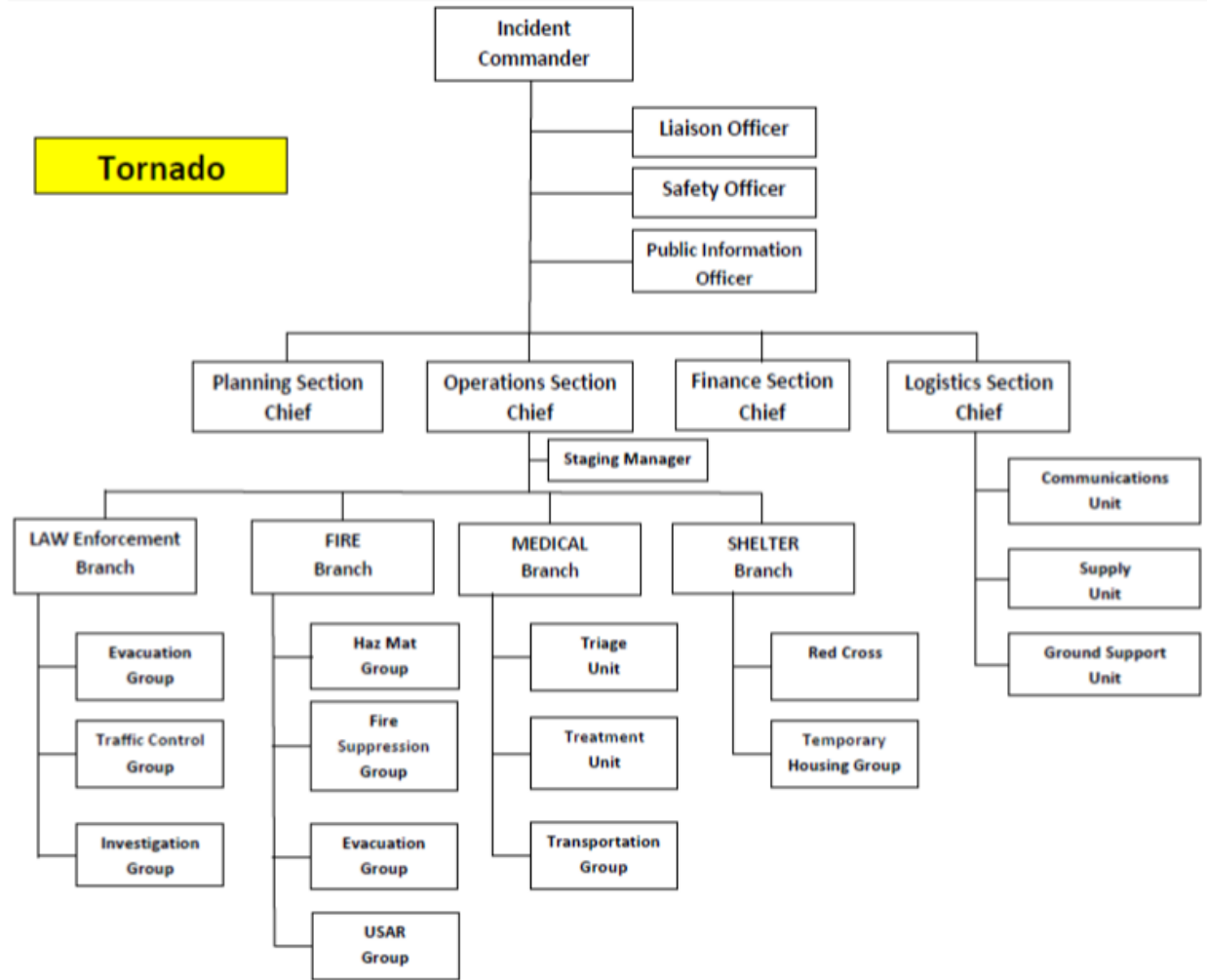
Saturday Night: Scattered showers and thunderstorms, mainly before 8 p.m. Chance of precipitation is 30%. Partly cloudy, with a low around 74. West-southwest wind between 5 and 10 mph.

Sunday April 30, 201X: A 30% chance of showers and thunderstorms after 2 p.m. Partly cloudy, with a high around 89. Western wind around 5 mph becoming south.

Sunday Night: A 30% chance of showers and thunderstorms, mainly before 8 p.m. Partly cloudy, with a low near 73. Southern wind around 5 mph.

Monday May 1, 201X: A 30% chance of showers and thunderstorms after 2 p.m. Partly cloudy, with a high around 89. South-southeast wind around 5 mph.

Monday Night: A 30% chance of showers and thunderstorms before 8 p.m. Partly cloudy, with a low around 73. East-southeast wind around 5 mph.



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Emergency Resources On-Scene

CENTRAL CITY FIRE DEPARTMENT

The local emergency resources are overwhelmed and handling numerous incidents throughout the city. Central City Fire Department has 5 fire stations, with approximately 30 personnel on duty every day covering 5 Engines, 1 Ladder Truck, 2 Squads, 1 Battalion Chief, and 3 Staff Chief Officers. Total CCFD staffing is 102 personnel.

City Population: 87,000

LIBERTY COUNTY FIRE DEPARTMENT

The Liberty County Fire Department has 4 Fire Stations with daily line staffing of 25 personnel & 88 personnel department-wide, with 4 Type 1 Engine Companies, 1 Type 1 Ladder Truck, 1 Patrol Squad, 1 Battalion Chief and 2 Staff Chief Officers. They have sent limited resources to the City of Central City and are handling the reported smaller structure fires, natural gas leaks, light rescues, and medical assistance.

County Population outside of Central City: 71,000

McKee AMBULANCE SERVICE:

McKee Ambulance Service is a contract service provider and has 3 ambulances serving the City and County. It has 1 ambulance in reserve status and is unstaffed.

3 Type 1 Ambulances with 1 Paramedic and 1 EMT on each.

LAW ENFORCEMENT:

City Police Department

12 Officers on Duty; 75 Agency Total

Liberty County Sheriff's Office

8 Officers on Duty; 45 Agency Total

Law Enforcement Staffing:

1 Officer per patrol vehicle

*All on-duty Central City Police, EMS, and Fire resources are committed to the tornado Incident. Emergency call back has been initiated and is in effect although it is anticipated that 20% of the respective service organizations will report back for duty.

Definitions

Law Enforcement Squad – An organized element of a platoon consisting of 11 officers and a supervisor (sergeant), 12 total personnel in a minimum of 3 patrol vehicles.

Type 2 Ambulance Strike Team – 5 Type 2 ambulances (ALS w/no HAZMAT), 2 persons per ambulance.

Type 2 FEMA IST – 22 persons

USAR TF – 70 persons

DMAT – 30 persons

National Guard Platoon – 66 persons

Fire Staffing:

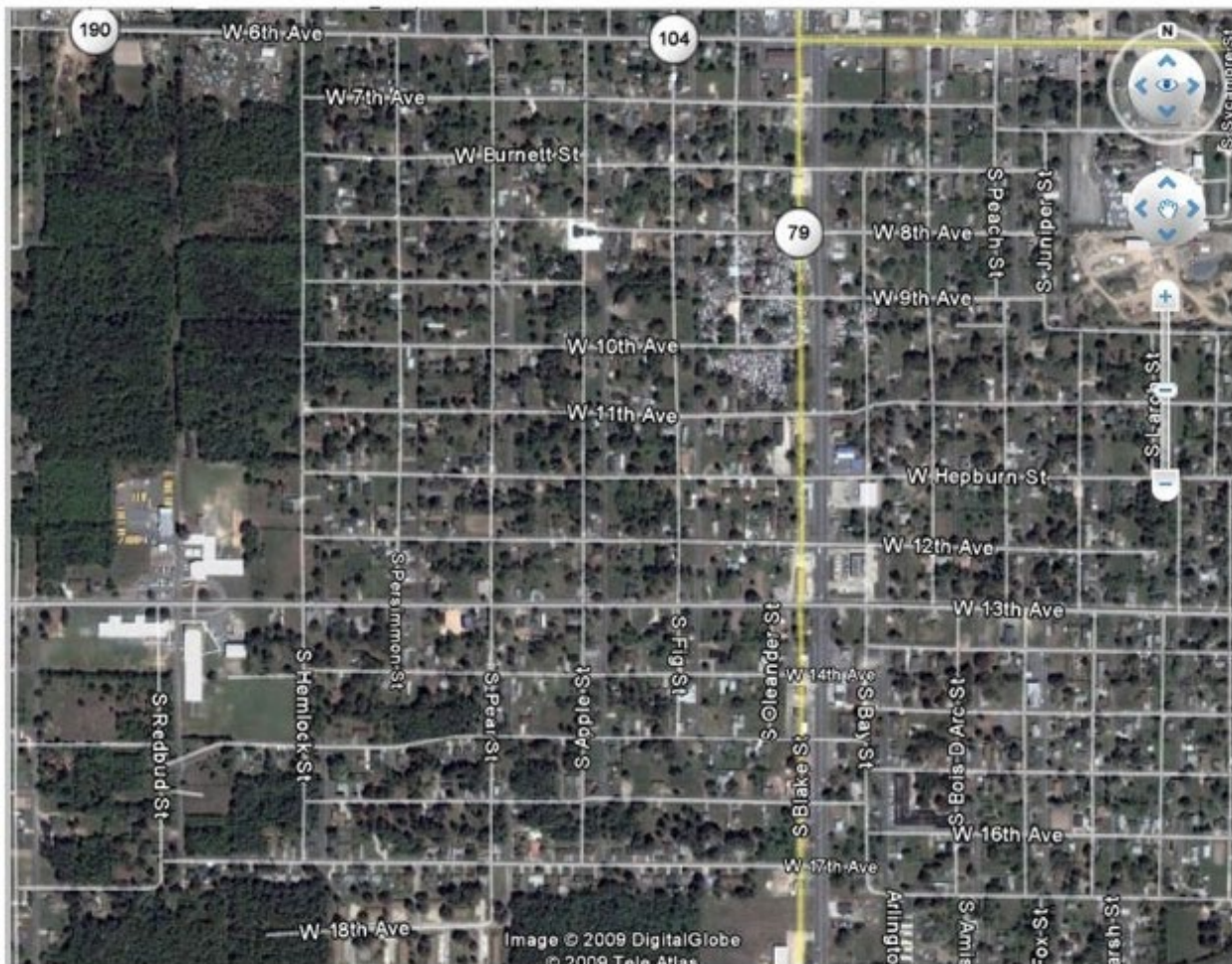
5 Type 1 Engines 4 firefighters on each

1 Type 1 Ladder Truck 5 firefighters on each

2 Squads 2 firefighters on each

Command Vehicle 1 Chief Officer

Central City, Map 1



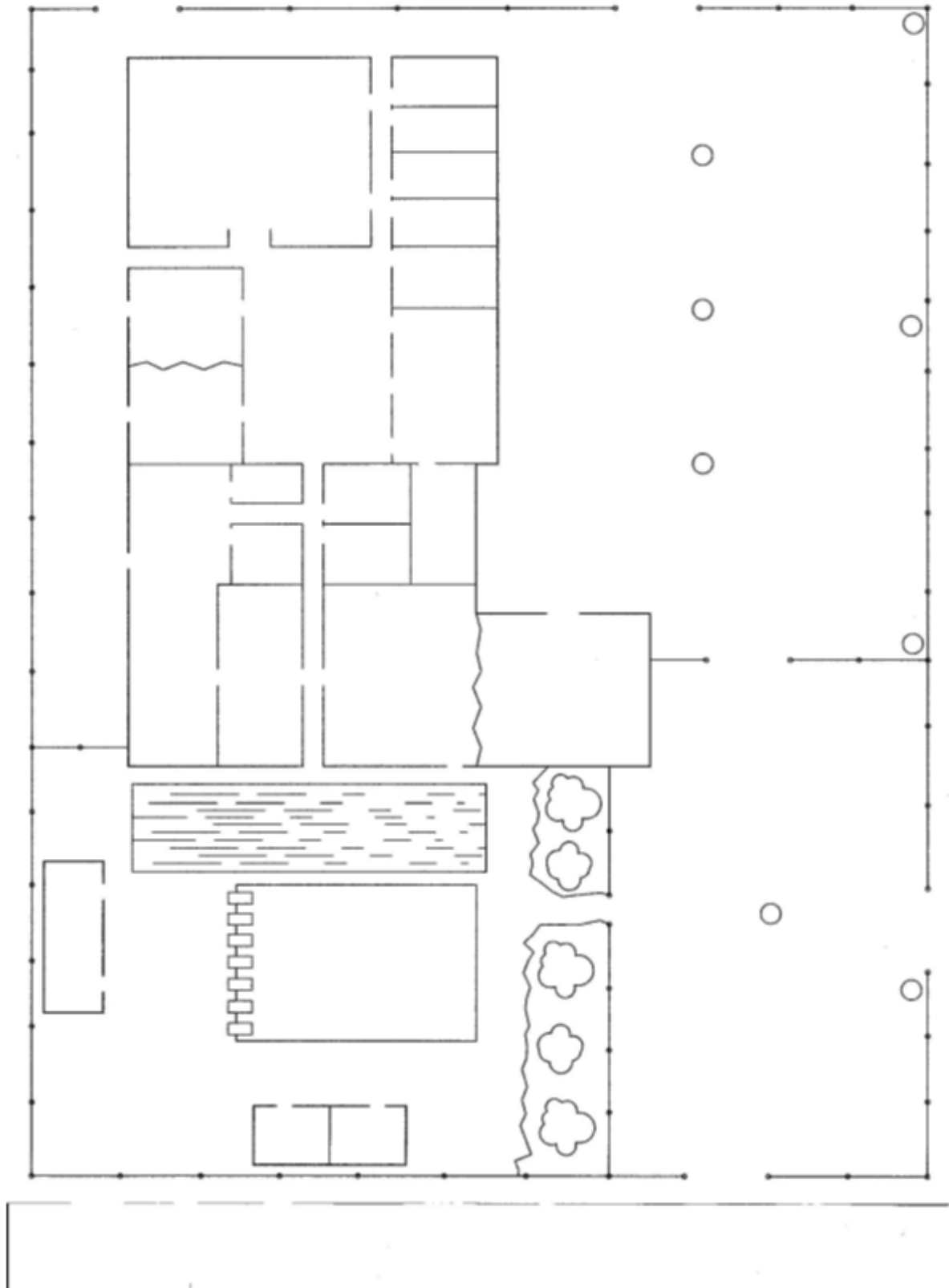
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Central City, Map 2



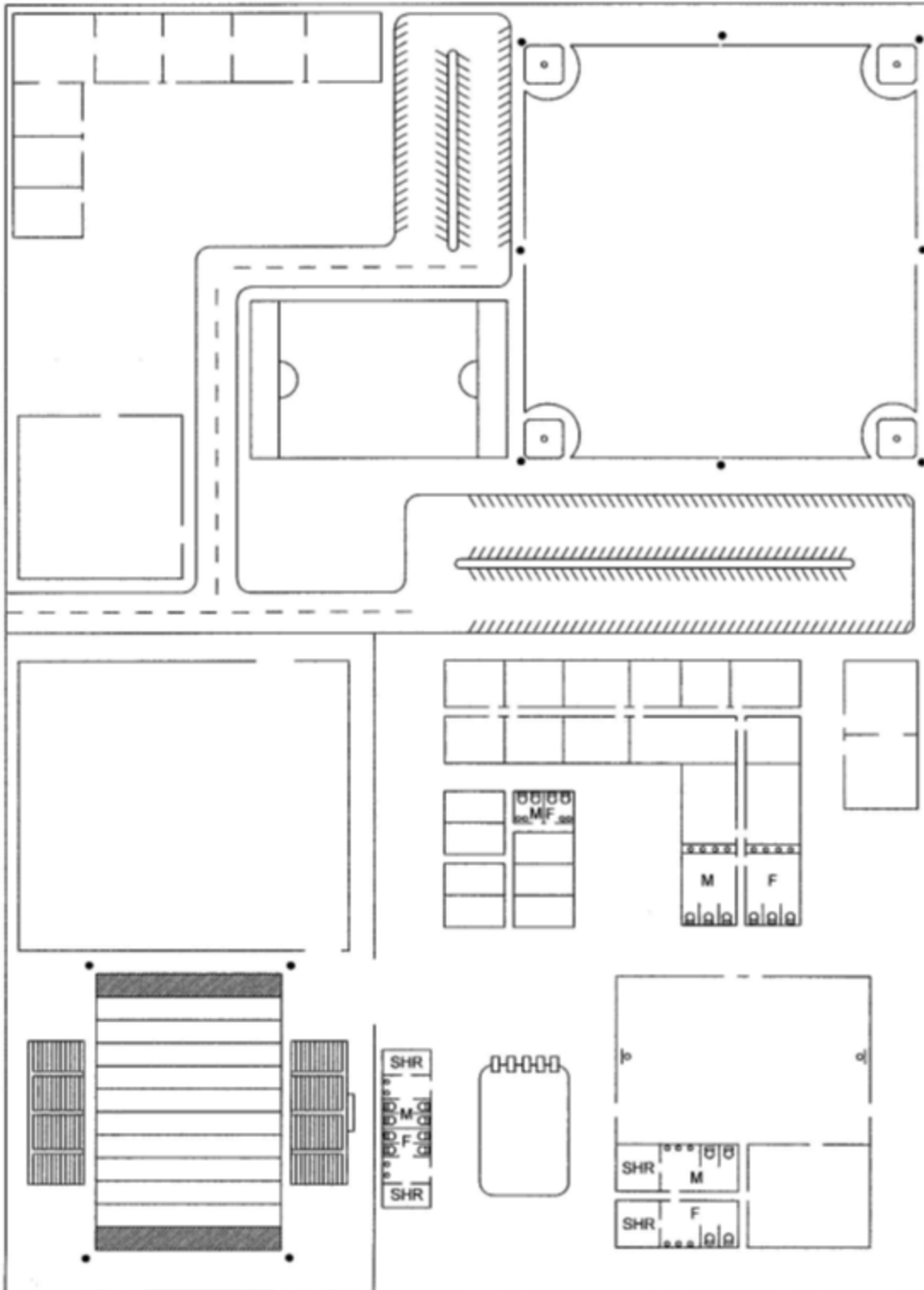
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Emily Page Community Center



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Nick Dunn High School



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ICS Form 205 Incident Radio Communications

Refer to EL_969_FACT_11_ICs_Form_205.pdf

ICS Form 205A Communications List

Refer to EL_969_FACT_11_ICs_Form_205a.pdf

ICS Form 213 General Message

Refer to EL_969_FACT_11_ICs_Form_213.pdf

ICS Form 214 Activity Log

Refer to EL_969_FACT_11_ICs_Form_214.pdf

ICS Form 225 Incident Personnel Performance Rating

Refer to EL_969_FACT_11_ICs_Form_225.pdf

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