

Find 'Em: A Guide for Planning the Missing Person Incident Response

Failing to Plan is Planning to Fail!

5th Edition

January 23, 2019

Willcox, Arizona, USA

Arizona Search and Rescue Coordinators Association, Ltd.
450 S Haskell Ave, Suite C
Willcox, AZ 85643, USA

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5th Edition

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Printed in the United States of America

John Marvin Bownds

This book is dedicated to the memory of John Bownds, April 22, 1941–May 24, 1993. John's enthusiasm, his lifelong commitment to saving lives, and his friendship and encouragement are a major reason that this book was written. May his efforts continue and grow more successful through the book's publication and use.

John's line of duty death was recognized by the Mountain Rescue Association at their annual conference on June 8, 2013 in Carefree, Arizona.

Recognition of John Bownds Search & Rescue Line of Duty Death Mountain Rescue Association June 8, 2013

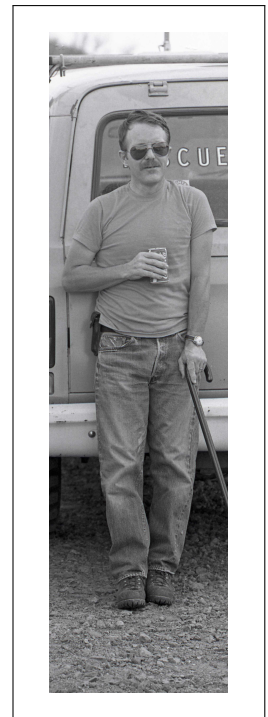
John Bownds joined the Southern Arizona Rescue Association (SARA) in March 1977. The state of Arizona experiences very high levels of search & rescue (SAR) activity and John was a dedicated responder to these missions.

On June 23, 1979, John Bownds responded to a Search & Rescue mission for a lost rock and mineral collector in the Sierrita Mountains, southwest of Tucson, Arizona. The search continued for several days and involved ongoing vehicular travel on dusty Sonoran Desert roads. The Valley Fever fungus thrives in Sonoran Desert soil and it is concluded that John's inhalation of airborne spores led to a fatal Cocci-Meningitis infection. After a prolonged illness, John died in 1993 at 51 years of age.

In addition to John's dedication as a SAR ground pounder, he contributed immeasurably to the development of search theory and management. As a Professor of Mathematics at the University of Arizona, he combined his mastery of probability theory with practical search insight and not only co-authored the Computer Aided Search Information Exchange (CASIE) software program but also introduced the important concept of Rest of the World (ROW) to the search community. Furthermore, he led the research and publication of two search helicopter effectiveness studies in both low elevation desert and high mountain terrain. These studies were published in 1981 and 1991 respectively.

In recognition of his SAR achievements, John received the National Association for Search & Rescue (NASAR) State Award in 1983 and the NASAR National Award in 1991. As a SAR ground pounder, John made hands-on contributions to the saving of lives and the reduction of human suffering. As a developer of search theory and management, his work continues to benefit mankind and remains in active use throughout North America, Australasia, and the United Kingdom today.

John was survived by the love of his life, his wife Lynne, who died in 2011. They are buried alongside each other in Huntsville, Alabama. They are survived by their two daughters, Jennie and Layne, and their son, Gabe.



Disclaimer

The purpose of this manual is to support a course in managing a missing person incident conducted by competent search, rescue or emergency response leaders. It does not in itself constitute training in searching, search and rescue (SAR), search management or incident management either in its original form or in a modified form. The Arizona Search and Rescue Coordinators Association, Ltd. cannot accept any responsibility for any outcome arising from the use of this manual. The Arizona Search and Rescue Coordinators Association, Ltd. may not be held liable in any way for any loss, cost, damage, liability or expense arising from the use of this manual. The Arizona Search and Rescue Coordinators Association, Ltd. cannot be held liable in any way for any occurrence in connection with an individual's use of the material contained in this manual that may result in injury, death or other damages.

Preface

This book is devoted to managing searches for missing persons, primarily in wilderness environments. It is designed to be used by prospective and experienced Planning Section Chiefs and their Unit Leaders. It forms the basis of a multi-day Search Planning Section Chief course.

A prerequisite for using this book is a knowledge and understanding of search management, as covered in such books as the National Association for Search and Rescue’s “Managing the Lost Person Incident” or the Arizona Search and Rescue Coordinators Association’s “Inland Search Management for AZ SAR Coordinators”; and a basic understanding of the Incident Command System.

The book is intended to be a work in progress, being continually revised. After one course ends, the book is updated with the latest information, so that the new edition can be printed in time for the next course. This version of the book is dated January 23, 2019.

Acronyms, Abbreviations, Terms, and Resource Names

There are numerous acronyms, abbreviations, terms, and resource names used in the Incident Command System, sometimes more than one for the same item. In the case of these conflicts, the authors use the expressions suggested by FEMA, http://www.fema.gov/pdf/plan/prepare/faatlist07_09.pdf and http://www.fema.gov/pdf/emergency/nims/508-8_search_and_rescue_resources.pdf. A summary of the corresponding terms used in this book can be found in the Glossary, Appendix B on page 304.

Style

When writing this book, a conscious decision was made to exclude all occurrences of “he/she”, and use the generic “they” in its place. Thus a sentence like “He/she sets the incident objectives” is replaced with the sentence “They set the incident objectives”. Sometimes this leads to slightly awkward phrasing, but not enough to warrant the use of “he/she”.

Items in brackets, such as Reference [Syrotuck], refer to the Bibliography on page 308.

Typeset

This book was typeset with MiKTeX, available from <http://miktex.org/>, using T_EXstudio as the front end, available from <http://texstudio.sourceforge.net/>. The flowcharts were created by MiKTeX using the TikZ graphical package, as were some of the other figures.

Photo Credits

Unless stated otherwise, the photographs and images are courtesy of

Roial Armstrong, John Leonard, Chuck McHugh, Jeff Newnum, Ken Phillips, Ursula Ritchie, Denise Sutherland.

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We would like to thank the following people for their valuable ideas, contributions, and support.

Don Ferguson, Roland Hamrick, Ken Hill, Brandon Latham, Denise Sutherland.

We wish to sincerely acknowledge the following individuals who read a preliminary draft version of this book checking for omissions, accuracy, inconsistencies, and clarity. Thank you. The check is in the mail!

Mike Ebersole, Dave Lattimore, Jay Lusher, Chuck McHugh, Ken Phillips, L.T. Pratt, Bill Romberg, Rick Toman, Bill Wade, Chris Young.

Finally, we would particularly like to thank the Arizona Search and Rescue Coordinators Association, Ltd. for permission to quote freely from their publication “Inland Search Management for AZ SAR Coordinators”, copies of which can be freely downloaded from <http://www.saraz.org/>.

Please email any corrections or suggestions to David Lovelock at dsl@math.arizona.edu.

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Hereford, Arizona, USA

Some Comments from the Readers of the Preliminary Draft Version

“The manual should strike a little fear into anyone’s heart who is contemplating becoming a PSC. I think that is a good thing. They need to approach that kind of decision very seriously.”

“I am very impressed with the manual. I think it flows nicely and gives direction to the use of ICS to its core.”

“An excellent piece of work. It’s gratifying to see how much progress has been made on all this in the past 40 years.”

“Congratulations to everyone for capturing, between two covers, how incredibly complex and demanding this position is.”

“I found the book to be well-organized and very thorough.”

“What you have put together is something I would love to incorporate into our Plans training.”

“I really like this document. I think this would have been helpful for the . . . group when we were over there. If their SAR folks had this as a reference I think it might have helped.”

“I’m excited to see the content and professionalism that’s gone into this. It’s heartwarming to see how search has progressed. John Bownds would be proud.”

“I was delighted to read the material. As an old SAR guy I was drawn to the content and found it highly interesting, practical for immediate implementation, and consistent with current incident management principles. The book reflects the highest level of professionalism. If my child was lost I’d hope the responders practiced these principles.”

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CHAPTER 1

Introduction

Section 1.1

Background

The Search for Megan Smith

On July 4, eight-year-old Megan Smith and her mother were enjoying the summer holiday along the Firth River in northern New Mexico. Megan told her mother that she was going to take a short walk around the nearby campground. When she had not returned an hour later, Megan's mother became worried and went looking for her. After several hours of searching by Megan's mother and numerous campers who volunteered to help, no sign of Megan was found. About 4 hours after Megan was last seen, Megan's mother reported her missing to the ranger at a nearby Ranger Station. The ranger took an initial report, and quickly initiated a hasty search with a few trained searchers. The hasty search continued throughout the night. A track was identified on a trail leading from the campground to the picnic area where Megan and her mother were picnicking, but because the tracks from the well-meaning, but untrained volunteer searchers in the campground destroyed all of Megan's tracks, it was not possible to follow them. As the sun rose on July 5, the Initial Response Incident Commander (IRIC)—the local ranger—called for help.

By the end of the day, over 100 trained and untrained searchers had responded to the call. They had combed the area with vehicles, on foot, and on horseback. Grid search of the area around the campground turned up no clues, and obliterated any reasonable possibility that clues might be found in that area. The IRIC had been up for over 36 hours, and was tired, frustrated, and overwhelmed by trying to manage the searchers. His plan was to continue searching the area of the campground in ever expanding circles until they found the young girl. At about 1800 hours the District Ranger and the local sheriff realized the dire circumstances they were facing, and requested a trained Incident Management Team (IMT). The team arrived at the campground at 2300 hours on July 5.

Upon arrival the IMT, consisting of an experienced Incident Commander (IC), an Operations Section Chief (OSC), a Planning Section Chief (PSC), and a Logistics Section Chief (LSC), were briefed by the Sheriff and District Ranger, and then by the IRIC, who by now was completely exhausted. He had written a few key items down on a yellow pad, but had not completed an Incident Briefing Form,



Figure 1.1. Megan Smith

ICS 201. He had no accurate count of the number and type of resources searching for Megan, nor where, exactly, they were searching. Dozens of volunteers were milling around the campground waiting for assignments, and receiving none, some chose to go search on their own.

The IMT assumed command of the incident at 0100 hours on July 6, quickly developed incident objectives and an initial strategy, and adjusted search operations for the night operational period. They then began gathering additional information and planning for the next operational period to begin at 0600 hours on July 6. The PSC assigned an Investigator from the Sheriff's Office, filled the Resources Unit Leader and Situation Unit Leader positions, and immediately implemented the formal incident planning process or "Planning P". At 0530 on July 6, the first Operational Period Briefing took place for the 75 available trained resources. By 0600 all resources were deployed to the field to accomplish their tactical assignments. As other resources arrived during the day, they were individually briefed, given specific tactical assignments, and deployed.

All of the resources from the night operational period were debriefed; each team submitted their ICS 214 Activity Logs; and all of the debriefing information was recorded in writing by the Situation Unit Leader. This information was analyzed, assessed, and fed directly to the PSC and the OSC for use in developing the tactics for the next operational period.

For the next two days this cycle continued. Segments were searched and researched. Finally on the fourth day, Megan was located by a ground search team. She was sheltering in thick brush nearly 3.2 miles from the place where she was last seen by her mother. She was hypothermic and unresponsive. She was located in a search segment that had been added to the original search area by the IMT because the original search area did not include all of the high probability search areas, and the original search area had been thoroughly searched. She was immediately treated and transported to a Santa Fe hospital. She survived.

Unlikely Scenario?

An unlikely scenario? Perhaps not. While many searchers and search managers, paid and unpaid, have over the years received extensive training in how to look for missing persons, few have in-depth training or experience in managing complex searches that last more than 24 hours. In fact, of the thousands of missing person searches that occur in the United States each year, about 85% are resolved in less than 12 hours, and approximately 97% in less than 24 hours. See Figure 1.2 on the next page.¹

Few jurisdictions experience more than one or two extended searches (more than 24 hours) annually, and most jurisdictions rarely, if ever, experience an extended search. Fortunately, the vast majority of missing persons are located quickly and safely. Unfortunately, if a missing person is not located within the first 24 hour period, there are few search professionals with the experience and expertise to effectively manage the extended incident.

When an IMT of search professionals is called to take over an extended incident, they often find that the initial response has not been organized well, documented properly, or adequately staffed with trained resources. They are forced to take over an incident that is disorganized, often chaotic, with a poorly established search area, and with inadequate documentation of what has been done, and by whom. It is at this point that the training and experience of the IMT is invaluable in gaining control of the emergency, the resources, and the flow of information to organize the chaos into a coherent, effective response that increases the possibility of finding the missing person alive.

¹ This graph was obtained from Reference [SAR], which summarizes the results of 3000 searches in the United Kingdom, Oregon, New Mexico, Alberta, British Columbia, and North Cascades NP. Used with permission. These times include investigation, driving time, and time after the subject is found needed for search resources to return from the field and drive home.

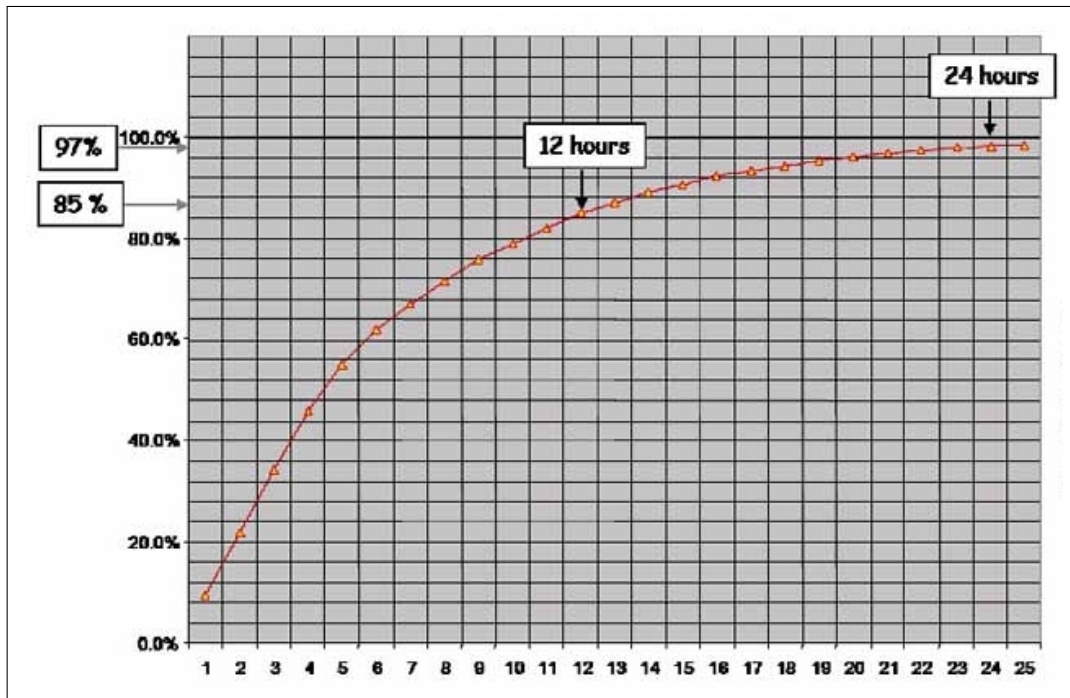


Figure 1.2. Resolution of searches versus length of search

Purpose of this Book

When lives are at stake, it is crucial that the responders have the best information and equipment, and are trained to use it properly. This book is written to help the PSC on large, complex search incidents perform the critical functions of their position and manage their section in the most professional, effective and efficient manner possible. It also helps the IRIC to “get off on the right foot” during the initial stages of an incident. Thus, if the IRIC follows the procedures described, and the missing person is not found during the Initial Response, the IRIC has the proper information to ensure a smooth transition to an IMT.

Effective search management is not just “looking for the lost subject”. The IMT must be able to manage the field operation for the current operational period effectively, while at the same time developing, documenting and articulating the plan for the next operational period. This is not an easy task, but it is essential for effective search management.

This book outlines the Planning Function in the Initial Response and the initial Transfer of Command process that usually occurs within the first 24 hours of the initial notice. It then describes the various responsibilities and tasks of the PSC who must mobilize, staff and manage the Planning Section appropriately. Each of the Units that can be established within the Planning Section are covered separately, along with detailed descriptions of their responsibilities.

The Search PSC is a critical position in managing an efficient and effective missing person search incident. This book explains the various tasks that must be performed in the Planning Section, including:

- Manage the Planning Section.
- Identify and track the status of all incident resources throughout the incident
- Collect, analyze and effectively use incident situation information.
- Develop alternative strategies for accomplishing the incident objectives and resolving the incident.
- Develop the Incident Action Plan.
- Conduct timely, accurate, efficient Operational Period Briefings using the Incident Action Plan (IAP) as the briefing document.

- Maintain current, accurate, complete incident files.
- Conduct efficient, effective debriefings of incident personnel.
- Develop the incident demobilization plan.
- Ensure that all of the incident documentation is complete, organized and turned over to the agency having jurisdiction over the incident.

To illustrate and discuss the responsibilities of the various Units within the Planning Section, all Incident Command System Planning Section positions are assumed filled, even though, in practice this seldom happens, and these responsibilities fall back to the PSC or even to the IC. For a review of the Incident Command System, see Appendix A on page 296.

Section 1.2 Categories of Searches

Searches primarily fall into three categories—Route and Location Searches, Area Searches, and Bogus Searches.

Route and Location Search

Route and Location Searches are searches where routes and specific locations are the primary focus of the search resources. Routes include all forms of travel aids, such as pathways, roads, game trails, railroad tracks, ridges, valleys, dry washes, drainages, streams, shorelines, clear cuts, power lines, vegetation lines, or any area that provides a sense of direction and a path of little resistance.

Route and location searches are characterized by the following:

- Specific routes and locations within the search area are identified and searched.² The entire search area may not be segmented, as is done in an Area Search.
- The subject has been missing a short time (generally less than 24 hours).
- Only a few local resources are used (ridge runners, trail runners, etc.) and only one or two agencies are involved.
- The subject may be moving or stationary (mobile or immobile).
- The subject may be responsive or unresponsive.
- There is a quick resolution—one way or the other.
- The media may be involved, but the search is generally not “on the front page”.

A Route and Location Search is usually the first type of search used during the initial response phase of a search. Such searches are called Hasty Searches. The purpose of a Hasty Search is to cover the most obvious places a subject might be in the least time possible. The term “Hasty” is used to stress the urgency and immediacy of the search—it indicates that the search is being conducted in a thoughtful, skilled and professional manner by highly trained search resources.

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Current search statistics indicate that most searches are resolved within 24 hours from the time the person was reported missing. Thus the majority of the searches that are performed in the United States

² Locations could include a building, a specific region in the search area, . . .

likely fall into the Route and Location Search category. If the subject is not found within 24 hours, and there is evidence that the subject is still mobile, then routes and locations remain the primary focus of the search. **Only when there is a reasonable certainty that the subject is immobile does the Route and Location Search transition into an Area Search.**

Area Search

Area Searches are searches where segments (areas) are searched, rather than routes and locations. These searches are preceded by the entire search area being segmented. Then a consensus determination of the probability that the subject is in each of the segments of the search area is conducted, based on the assumption that the subject is immobile.³ Only a small number of searches reach this stage, but when they do, they are memorable and instructive!

Area Searches are characterized by the following:

- The subject is assumed to be immobile.
- They involve several to many operational periods.
- Multiple trained resources, both paid and volunteer, not all local, are used (ground teams, canines, helicopters, fixed wing aircraft, horses, vehicles, climbers, infrared radar and others).
- Multiple agencies are often involved (Sheriff, Police, Highway Patrol, National Park Service, Forest Service, FBI, military).
- There are many search segments. The emphasis is on searching these segments rather than on searching routes and specific locations.
- Search Theory is used.
- There is extensive media coverage, both good and bad, with some “on the front page”.
- There is pressure and anxiety on the search managers, as well as criticism of their actions, or lack of action.
- There are many “spontaneous” untrained volunteers, second guessers, and experts who seem to come out of the woodwork.

In this category of search the primary search tactic used is some form of a grid search, in the broadest sense. This could include a helicopter using a creeping line search, a ground team using critical separation, or a handler using an air-scent dog. Hasty Search tactics such as sign cutting and tracking may also be used in Area Searches.

Bogus Search

A third category of search is called a **Bogus Search**. This occurs when, unknown to the searchers, the subject is not missing at all, or if the subject is missing, has left the search area and is now safe at home, at the movies, at a tavern, at someone else’s house, ...

³ While there are mathematical reasons for this assumption, intuition should suggest that there is little point in estimating the probability of the subject being in a search segment if they can then move into or out of that segment.

CHAPTER 2

The Planning Function in the Initial Response

Section 2.1 Overview

This chapter deals with those components of an Initial Response to a missing-person incident that are the responsibility of the Planning Section. However, during the Initial Response a Planning Section Chief (PSC) is rarely present, so these components are likely to be handled by the Initial Response Incident Commander (IRIC) until they are delegated to others.

There are some incidents where the Initial Response is managed by an Initial Response Unified Command¹—for example, in a search for an overdue hiker whose itinerary covered both National Park land and non-park lands, or in a child abduction incident where local law enforcement are unified with federal law enforcement. Consequently, wherever the term IRIC is used in this book, it refers to either the single IRIC or the Initial Response Unified Command, if it is established.

Section 2.2 The Initial Response

The Initial Report and the Lost Person Questionnaire

The Planning Function begins with the initial report of the missing person, and is the responsibility of the IRIC. All of the various duties within the planning function must be performed by the IRIC until they are delegated to others.

All of the various duties within the planning function must be performed by the IRIC until they are delegated to others.

These duties can be grouped into four major categories:

1. Gathering and analyzing information about the missing person and the search area and predicting the course of the incident.
2. Checking in and tracking the location and status of all personnel and equipment assigned to the incident.

¹ Unified Command (UC) is discussed on page 303.

3. Documenting the significant events occurring during the incident.
4. Preparing for and implementing incident demobilization.

The actions of the IRIC during the early hours of the search are crucial to resolving the incident quickly. These actions include:

- Initiating an effective investigation to gather information about the missing person and the time and location they were last seen.
- Identifying the Last Known Position (LKP) or the Place Last Seen (PLS).
- Accurately establishing and protecting the Initial Planning Point (IPP). Once established, the IPP does not change during the search, but the LKP and PLS may, and often do.
- Identifying the routes and locations that the missing person might have taken from the IPP.
- Determining the search urgency.
- Acquiring trained resources and applying them properly to contain and then locate the missing person or clues left by the missing person.
- Documenting all important information for the record, and briefing a new IC or incoming staff should one be assigned to take over the incident.

The actions of the IRIC during the early hours of the search are crucial to resolving the incident quickly.

In a typical search, the Planning Function is essential to the success of the Initial Response. The search normally begins when the IRIC is notified of the potential missing person incident either by a person initially reporting the incident, or by an agency dispatcher who has received that initial report. The first thing the IRIC must do is gather information from the dispatcher and/or the reporting party that helps answer the following questions:

1. Should a search be initiated, or should the investigation be continued before assigning searchers to the field?
2. How urgent is this search?
3. Where should searchers look for the missing person or clues, including likely spots and routes?
4. What should searchers be looking for (description of the person, clothing, equipment, physical and mental condition)?

LKP—Last Known Position. The last known location of the missing subject determined by physical evidence such as a vehicle, a discarded object, or a footprint.
PLS—Place Last Seen. The location where the missing subject was actually seen by another person.
IPP—Initial Planning Point. The first LKP or PLS.

Several tools are available to the IRIC to help answer these questions, and to ensure that no critical information is overlooked or forgotten. An initial report Lost Person Questionnaire (LPQ), sometimes known as a “Thumbnail Sketch”, is used by most agencies and organizations to gather and organize the initial report information. It is usually no more than one or two pages long, and focuses on that information critical to answering the searching and planning questions. See Figures 5.2 to 5.3 on pages 47–48 for an example. Later, a more detailed form of the LPQ can help the IRIC or investigator guide the follow-up or continuing investigation and focus on that information most helpful in resolving the search. There are numerous versions of LPQ’s in use across the country. Win CASIE III has examples of both short and long form LPQ’s that are quite complete and useful. See Section 7.7 on page 69. This initial information can be input into Win CASIE III as a part of the Initial Note.

Win CASIE III and the Initial Note

File Edit Tools Insert Add Resource

Date: Thursday, March 21, 2013
Time: 7:32 AM
Incident Commander:
Case Number:
Subject #1 Details:
Name:
Age:
Category:
Medical Condition:
Experience:
Equipment:
Description:

PLS/LKP/IPP:
UTM:
USNG:
Latitude:
Longitude:
Elevation:
Map Datum:
Time:
How reported missing:
Photo:
Weather:
Current Weather:
Temperature:
Wind (Speed and Direction):
Sky (% cover):
Cloud Height:
Precipitation and Type:
Pressure:
Trend:
Dew Point:
Weather Forecast:
Search Urgency:
Resources (available):
Resources (deployed):
Resources (requested):
CASIE Operator:

Win CASIE III is a free Windows software program geared towards Search and Rescue (SAR). It is a PSC's multi-purpose tool.

During the Initial Response, Win CASIE III can

- *Access and print many search management documents, such as ICS forms, Lost Person Questionnaire, Search Urgency Rating Chart, Clue Report, Clue Log,*
- *Provide summaries of Lost Person Behavior.*
- *Keep a complete record of planning decisions and actions using an Initial Note. This can include subject details, urgency rating chart, resources used, resources requested, ICS structure, LPB subject found details,*

An Initial Note is created using a very simple text Editor, built into Win CASIE III, which is specifically tailored to SAR incidents. This Editor is used at the beginning of a search incident and contains a number of templates ready to be completed, accessed with a click of a mouse. An example template (called "Details") is shown on the left, ready for the Win CASIE III operator to enter the required information. See Section 7.7 on page 69.

Other built-in templates include Clues (Description of Clue, Location of Clue, Team That Found Clue, Individual That Found Clue); Found Subject (Condition when found, Location, Distance from IPP, Found by, Evacuation details, Debriefing); Team Status (Team Name, Status, Location), Environment (Sunrise, Tides, Weather), and ICS positions. In each case the current date and time is inserted automatically.

If the subject is found during a Route and Location Search, then this text file documents everything that has been done. If the search progresses to an Area Search, then the Initial Note is routinely imported into the associated documentation.

Determine Search Urgency

Once the initial report details are collected, the information analysis phase begins. From this initial report information, the IRIC determines the Search Urgency by completing the Search Urgency Rating Chart shown in Chapter 21 on page 203. This chart can also be found in Win CASIE III, completed there, and imported into the incident documentation.

Remember, search is an emergency. Every incident requires an immediate response to save lives and minimize suffering. An immediate response reduces the size and complexity of the search. For a highly urgent search this immediate response may be applying well-trained, experienced resources to the search area. For a search of low urgency the immediate response may be to continue the investigation and gather more information before committing additional search resources to the field.

Search Urgency

A young child missing in a remote area with fast-moving streams, cliffs, and thunder storms moving into the area within a few hours requires sending searchers into the field immediately. Conversely, a well-equipped hiker who is on a marked and maintained trail, with proper equipment for the weather and terrain, and who is two hours overdue at the trailhead in good weather, may lead the IRIC to continue gathering information about the subject, and to wait at the trailhead for them to hike out on their own.

Assign an Investigator

Once the IRIC has enough information to answer the questions posed in the Initial Report section, the IRIC moves on to more operations-oriented functions. However, it is at this point in the Initial Response that the IRIC should consider delegating the investigation duties to another person or persons, the “Investigator(s)”, who continues gathering information or intelligence about the missing person and the circumstances under which they went missing. Investigation is covered in more detail in Chapter 5 on page 45.

Investigation should be staffed and operational throughout the remainder of the incident. In most search incidents, the Investigator is considered a “Technical Specialist” in the Situation Unit of the Planning Section. However, some IC’s prefer to assign the Investigator to the Operations Section. This is not recommended because of the potential information disconnect between the Investigator in Operations and the Situation Unit in Planning. In some incidents, including Urban Search, the IC may designate an Investigations/Intelligence Section as a part of the General Staff. Regardless of where this important position is assigned, it is imperative to assign a qualified person or persons early in the incident, and to ensure that it functions effectively throughout the remainder of the incident.

The Investigator position should be staffed and operational throughout the incident.

The Investigator should maintain contact with the reporting party. As clues develop the Investigator may need to be able to contact the reporting party to authenticate those clues. Additionally new questions arise as the investigation continues. Finally, notifications about the status of the search may need to be made (subject located healthy, injured, or dead; subject not located). Too many incidents have taken much longer than necessary to resolve because of an incomplete or inadequate investigation, or because important investigative information was not shared with the proper incident staff at the right time.

One investigator may not be adequate to handle a rapidly expanding search incident. In these cases, assign additional investigators as needed, and perhaps an Investigative Assistant to manage the clerical details associated with keeping the investigative documentation organized. The lead investigator may assume the role of Investigation Unit Leader.

The information that is gathered can be split into two overlapping groups, Planning Data and Searching Data, which are now discussed.

Gather Planning Data

Planning Data is information that helps the IRIC decide where to look for the missing person. Numerous questions in the LPQ provide useful planning data. For example, the person’s place and time last seen is a critical piece of planning data upon which many of the initial response actions are based. Human trackers, air-scenting and tracking dogs, and hasty search teams often start their search at or near the

PLS. In addition, the PLS or the LKP becomes the IPP for the remainder of the search, and is the location upon which statistical data for potential distance and direction traveled is based.

Other kinds of planning data include:

- Missing person's trip plans, including intended purpose, routes and destinations.
- Barriers to travel, such as rivers, cliffs, fence lines, a dramatic change in vegetation type or impenetrable vegetation.
- Locations within the area that might attract a missing person, such as waterfalls, overlooks, scenic vistas, lakes, and rivers.
- Weather—past, current, and predicted.
- Hazards that might exist within the area such as mine shafts, swift stream or river currents, cliffs and steep terrain.
- Terrain.
- History of prior incidents in the area.
- Lost Person Behavior (LPB) data.

All of this planning data is analyzed and used to determine the likely spots that might contain the subject or the likely routes the subject might have taken from the IPP. Looking in these places early in the search gives the IRIC the best chance of finding the missing person quickly.

Lost Person Behavior data provide general characteristics and distance traveled for many different categories of lost persons. See Chapter 20 on page 193.

Gather Searching Data

Searching Data is information that helps the searchers in the field find the missing person or identify clues that the missing person may have left as they traveled through the area. Searching data includes such information as:

- Name, age, physical description of the missing person.
- Nickname or name they respond to when called.
- Clothing the missing person was wearing and carrying at the time they were last seen.
- Footwear—make, model and size are critical to identifying the missing person's track among all of the other footprints in the search area.
- Medical and mental condition.
- Items they were carrying such as special equipment (tent, sleeping bag, stove), food, cell phone (get number), SPOT beacon or Personal Locator Beacon (PLB), satellite phone (get number).
- Other items that could become clues during the search.

All searching data should include enough descriptive detail (size, color, brand, quantity) to enable searchers and investigators to confirm whether or not items located in the search area belong to the missing person. Throughout the search, the Investigator should refine the descriptions and the amount of detail about the searching data. This information is provided to all of the search resources. In addition, it is used to develop a "Missing Person Flyer" that is distributed to the searchers, the media, the public in the area of the search, and posted in public places in and around the search area to ensure that everyone is aware that the search is going on, who the missing person is, and what to do if they see or hear anything that might be pertinent to resolving the incident. This Missing Person Flyer, see Figure 5.5 on page 53 for an example, is updated by the Situation Unit regularly throughout the search as new information is obtained.

Document the Initial Response

The initial hours of any incident are often stressful and confusing. The initial information about the subject and the incident is often vague, incomplete, and sometimes contradictory. Many things happen at once, and there are numerous competing demands for the IRIC's time and attention. Decisions made and actions taken in these initial hours determine the outcome and length of the incident.

If the missing person is not found in the first few hours, it is imperative that the IRIC plans for the expansion of the incident complexity, and orders additional trained resources and management assistance. Recording the early decisions and actions helps keep important information from getting lost, and facilitates information sharing when the IRIC transitions the incident to another IC, UC,² or to an Incident Management Team (IMT). ICS 201, Incident Briefing, see page 207, provides an organized, convenient tool for the IRIC to record this important information for the incident record, and is used to brief the incoming IC and IMT.

"The 'acid test' for the adequacy of documentation is whether the search managers, after the search is over, can describe all significant events that occurred during the incident from the documentation." Quoted from Reference [Armstrong].

The ICS 201, Incident Briefing Form, consists of four pages and is shown on page 207. The first page contains an incident map or a sketch of the major features of the incident. It also contains the initial situation summary and the important aspects of health and safety that need to be considered and communicated to oncoming incident personnel. The second page contains the initial incident objectives, both current and planned, and the current and planned actions, strategies, and tactics for resolving the incident during the initial response period. The third page contains a current ICS Organization Chart showing all of the ICS positions filled at the time the ICS 201 is completed. The fourth page contains a list of all of the resources ordered, en route, on scene, and their incident assignments.

After the IRIC briefs the incoming IC, the new IC gives the ICS 201 to the PSC who then gives a copy of pages 1 and 2 to the Situation Unit Leader (SITL). Copies of pages 3 and 4 go to the Resources Unit Leader (RESL). Planning Section staff then have the initial information they need to begin their work on an extended incident. See Figure 2.1.

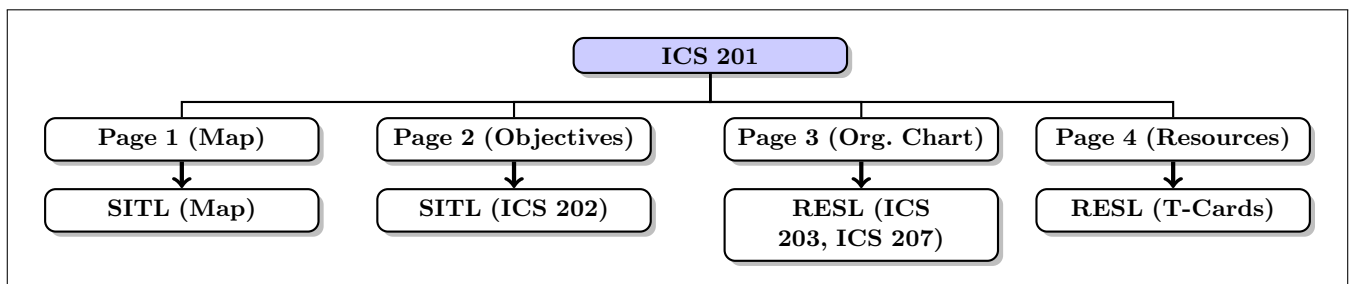


Figure 2.1. Distribution of ICS 201

The ICS 201 is the official documentation for the Initial Response to an incident. It can be supplemented by other information, including the LPQ, Initial Note, investigative notes, the Missing Person Flyer, a copy of the incident map showing the PLS, LKP, and/or the IPP, resource assignments, routes and places searched or planned to be searched during the Route and Location Search portion of the incident. All of this information should be collected by the IRIC or the PSC, and maintained in the official Incident Files.

² Wherever the term IC is used in this book, it refers to either the single IC or the UC, if it is established.

IRIC Duties and Responsibilities during the initial response phase of a search

1. Take the initial report.
2. Take command of the incident and announce this to all participants.
3. Issue a BOLO (Be On Lookout) or ATL (Attempt To Locate) for the missing person.
4. Document everything using Win CASIE III Initial Note or ICS 201.
5. Appoint an investigator to continue the investigation.
6. Gather additional information using a LPQ.
7. Determine Search Urgency.
8. Identify and protect the PLS or LKP.
9. Prepare and distribute a Missing Person Flyer.
10. Identify likely routes and locations the subject might have taken.
11. Size up the situation from all the information, and identify alternative scenarios.
12. Develop an appropriate response, including Initial Incident Objectives and Strategy. Be sure to include appropriate containment, as well as determining a direction of travel from the PLS/LKP for the missing person.
13. Order the necessary resources including sufficient supervision to stay within the span of control, and begin tracking them.
14. Assign the resources.
15. Brief the resources.
16. Communicate incident actions to the agency dispatcher as appropriate.
17. Monitor and direct tactical operations.
18. Deal with the family and media as needed.
19. Begin planning for the next operational period (OP) and the required transition to an expanded IMT.
20. Debrief tactical resources, and document significant events and actions.
21. Evaluate the success of the Initial Response efforts.
22. Brief the incoming IC and/or IMT.

Section 2.3

The Transition from the IRIC to an IMT

The initial response phase of a search should not exceed 16 (or at the very most 24) hours. Highly urgent searches may make some initial response periods much shorter than others.

After the initial response resources have been deployed to the field, the IRIC must begin to think about what needs to be done to expand the number of resources if the missing person is not found during the Initial Response.

Incident complexity grows exponentially during the initial response as additional search resources arrive, support needs increase, clues are found and the available information increases. To “keep ahead of the power curve”, the IRIC must also consider the need for, and plan for additional incident management resources. These resources may include individuals to fill Command and General Staff positions, or may be a full IMT. They should arrive at the incident sometime during the Initial Response (if possible), get appropriate briefings from the IRIC and the Agency Administrator,³ and finally assume management of the incident.

³ The “Agency Administrator” is an ICS term for the person with the legal authority to manage the incident.

The process of the incident management team getting briefings and assuming management of the incident from the IRIC is called the “Transition”. It is a crucial time during the incident. A well thought out Transition ensures continuity of leadership. A good Transition ensures that no crucial information is lost, and incident operations are neither disrupted nor delayed.

Indicators that it is Time to Transition to a Higher Qualified IC or IMT⁴

- *The IRIC's span of control is exceeded.*
- *Due to the number of resources assigned to the incident, there is a need for tactical supervisors (Division or Group Supervisor, etc.).*
- *The IRIC is experiencing tunnel vision.*
- *It is clear that the incident is going into another operational period.*
- *The IRIC is unable to step back from ongoing operations to plan for the next operational period or order resources.*
- *Most of the local resources are committed to the incident.*
- *Experience indicates that the nature of the incident or the hazard involved has required a higher qualified IMT in the past.*
- *Multiple incidents are occurring in the same jurisdiction.*
- *The IRIC is unable to provide logistical support for operational personnel.*
- *The IRIC is continually feeling overwhelmed.*
- *Incident communications are having an extended impact on regular operations.*
- *The IRIC recognizes that several kinds of resources are needed.*
- *Resources are not sure of their assignments due to inadequate briefings.*
- *There is a temptation to take shortcuts or ignore standard operation procedures, especially concerning safety.*

The Transition process includes:

1. Identifying the need for a new IC and/or IMT.
2. Briefing the Agency Administrator on this need and getting concurrence on bringing in an IMT.
3. Ordering the single resources/teams and providing a date, time, and location for them to arrive at the incident.
4. Helping the Agency Administrator identify the crucial information that a new IC and IMT require from them.
5. Setting a time and location for the Agency Administrator to meet and brief the incoming IC and the IMT and to prepare a Delegation of Authority. A Sample Delegation Of Authority can be found in Chapter 19 on page 190.
6. Setting a time and location for the incoming IC and IMT to brief with the IRIC.
7. Completing the ICS 201 and updating the Initial Note in Win CASIE III.
8. Coordinating/facilitating the briefings.
9. Setting a time that the incoming IC and IMT assume command of the incident.
10. Announcing that time and the names of the various personnel to the incident resources.
11. The new IC and IMT assuming command of the incident, and the formal Planning Process beginning, if it has not already been implemented.

To quote from http://www.ecy.wa.gov/programs/spills/hottopics/ics/ICS_WDOE_v6.docx, the ICS 201 is “*The End*, or just *The End of the Beginning*”.

⁴ Courtesy of David Lattimore, Yosemite National Park.

Agency Administrator Briefing

The “Agency Administrator” is an ICS term for the person with the legal authority to manage the incident, frequently the chief executive officer (or designee) of the agency or jurisdiction that has responsibility for the incident. However, in some cases, laws may specify other positions that have that responsibility. Some Agency Administrators may assign “Agency Advisors”, who have authority to make decisions on behalf of the agency. Usually the Agency Administrator is not on scene.

The Agency Administrator delegates the authority to manage an incident to the IC. If the IC is not from the agency of jurisdiction, this delegation of authority should be written.

A Delegation of Authority is a set of written guidelines from the agency of jurisdiction to the Incident Commander establishing extent of authority, operational and fiscal constraints, and other important information. It is usually a one or two page memo addressing such issues as the formal authority for the IC to act for the Agency Administrator, the actual duties to be performed by the Command Staff, and the products expected from the IMT by the Agency Administrator, including the post incident products (final report, financial package, incident files package, After Action Review (AAR)).

The Delegation of Authority establishes limits for financial expenditures, and dealing with the media and family. It may also delineate purchasing procedures, resource protection requirements (no fires, no mechanized vehicles in sensitive areas), and agency investigative protocol requirements.

The Delegation of Authority is usually given to the IC during the Agency Administrator’s briefing, a short meeting among the Agency Administrator and selected staff, and the Command and General Staff of the incoming IMT. The briefing occurs upon arrival of the IMT at the incident, but prior to the IMT assuming control of the incident. At the briefing, the Agency Administrator should:

- Clearly articulate agency or jurisdiction policy.
- Identify agency priorities and objectives for the incident.
- Identify agency and IMT limitations and constraints.
- Identify incident information guidelines.
- Establish a schedule for regular briefings and updates to the Agency Administrator on incident status.
- Establish a process to ensure that the Agency Administrator is quickly notified of significant events or occurrences.
- Direct the IC to consult with the Agency Administrator prior to making policy decisions that affect the agency’s ability to achieve their mission.
- Direct the IC to obtain the Agency Administrator’s concurrence on a plan for dealing with external influences including family and media.
- Direct the IC to obtain Agency Administrator concurrence prior to suspending the mission (if suspension becomes necessary).

A suggested agenda for the Agency Administrator Briefing follows:

1. Welcome and Introductions.
2. Incident History.
3. Background of other activity or issues currently occurring in the vicinity that may influence this incident.
4. Overview of the selected strategy alternative.
5. Presentation of the agency administrator’s briefing package, and a discussion with the IMT on each element:
 - Incident Identification
 - Command Considerations
 - Safety Considerations
 - Operations Considerations
 - Planning Considerations
 - Logistics Considerations
 - Financial Considerations
6. Presentation of delegation of authority to the IC by the Agency Administrator.
7. Emphasis on Safety.
8. Questions and Answers.
9. Concluding Remarks.

If the IMT is from the agency of jurisdiction for the incident, the IC is already familiar with agency policy and SOP’s, thus neither the Delegation of Authority, nor the Agency Administrator briefing are usually necessary.

Transition between teams is one of the most dangerous times on an incident because of lack of understanding of the situation and hazards, the potential for confusion about operations underway, confusion regarding the command structure, and mis-communications.

Transition between teams is one of the most dangerous times on an incident.

CHAPTER 3

Organizing and Managing the Planning Section

Section 3.1 Overview

Introduction

The Planning Section of an Incident Management Team (IMT) is responsible for the collection, evaluation, dissemination and use of information about the development of the incident and the status of resources. The section checks resources into the incident, tracks them while they are at the incident, and demobilizes them. It works closely with the Operations Section and Safety Officer (SO) to prepare the Incident Action Plan (IAP) for each operational period. The section also gathers and analyzes data and other information and produces maps, displays and additional products as needed. It also uses that information to prepare predictions, including search probabilities, and develop the primary search strategies for the incident. And, finally, the section manages trainees assigned to the incident.

Leadership

The Planning Section Chief (PSC) is a member of the General Staff of the IMT and participates in that team's processes and functions. The PSC assists the IC in managing the team by keeping its activities on schedule and conducting Planning Meetings and Operational Period Briefings. The PSC may be delegated various tasks such as writing a draft set of incident objectives (although the IC is responsible for the final set of incident objectives), developing and evaluating alternative strategies, and developing contingency plans. Simultaneously, the PSC

- Manages the Planning Section.
- Determines which positions need to be staffed.
- Orders personnel, equipment and supplies.
- Supervises section personnel.
- Ensures the timely and adequate preparation of required products and information.

Organization

The Planning Section can have four primary units (each with a unit leader and, potentially, staff) and may include a number of technical specialists to assist in evaluating the situation and forecasting requirements for additional personnel and equipment. See Figure 3.1 on the next page.

The **Resources Unit** makes certain that all assigned personnel and other resources have checked in at the incident. This unit creates a system for keeping track of all resources and should maintain a master list of all resources at the incident. In addition, this unit is usually responsible for the preparation of key portions of the Incident Action Plan. The duties and responsibilities of the Resources Unit Leader (RESL) are described in detail in Section 3.3 on page 32.

The volume of work that needs to be done is one way to determine if subordinate positions need to be filled. For example, if a PSC is being overwhelmed with resource tracking, then the Chief needs to fill the RESL position. If the RESL cannot keep up with check-ins while also completing the other duties of the position, then the Leader needs to fill one or more Status/Check-In Recorder positions. In addition, the PSC could fill a Check-in Recorder position rather than filling the RESL position. In this case the PSC retains the responsibility to track the resources enroute and on scene.

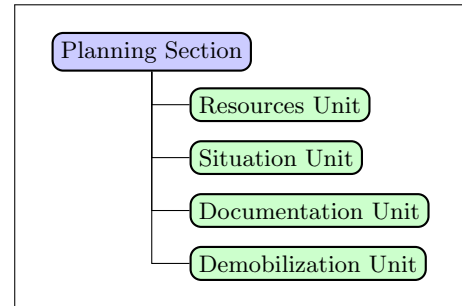


Figure 3.1. The Planning Section and its four primary units

The Window Shade Theory of ICS



At any time during any given incident, no matter how complex it is, one of the many functions of an ICS position may need to be completed. ICS is scalable, depending on the needs of the situation. Thus, during an incident with a smaller staff, the position that would normally complete the task(s) may not be filled. In that case, the task(s) rolls up (like a window shade) to the next higher position that is filled. For example, if a resource needs to be checked in to an incident, but the Status/Check-In Recorder position has not been filled, then the responsibility rolls up to the RESL, if that position has been filled. If it has not, then the task rolls up to the PSC or to the IC if there is no PSC.

The **Situation Unit** collects, processes, and organizes ongoing situation information; prepares situation summaries; and develops projections and forecasts of future events related to the incident. The Situation Unit also prepares maps and gathers and disseminates information and intelligence for use in the Incident Action Plan. The duties and responsibilities of the Situation Unit Leader (SITL) are described in detail in Section 3.4 on page 34.

The **Documentation Unit** maintains accurate and complete incident files, including a comprehensive record of the major steps taken to resolve the incident; provides duplication services to incident personnel; and files, maintains, and stores incident files for legal, analytical, and historical purposes. Documentation is part of the Planning Section primarily because this unit maintains many of the files and records that are developed as part of the overall Incident Action Plan and Planning Function. Documentation collection procedures need to be established at the very beginning of the incident. The duties and responsibilities of the Documentation Unit Leader (DOCL) are described in detail in Section 3.5 on page 35.

The **Demobilization Unit** develops an Incident Demobilization Plan that includes specific instructions for all personnel and resources that require demobilization. The unit also coordinates demobilization in accordance with the established plan. The duties and responsibilities of the Demobilization Unit Leader (DMOB) are described in detail in Section 3.6 on page 37.

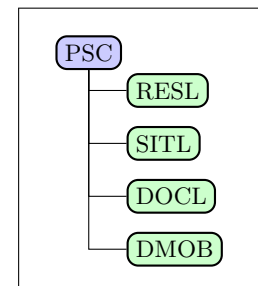


Figure 3.2. Planning Section acronyms

Although **Technical Specialists** can be assigned anywhere in the incident organization where their expertise is needed, they are most typically assigned to the Situation Unit. Technical Specialists that are associated with search incidents include:

- Search Probability Analyst—expert in the use of probabilities for determining search areas and evaluating search coverage.
- Clue Specialist—expert in identifying likely clues, assessing clues found in the field, and evaluating the potential significance of confirmed clues.
- Data Analyst—expert in obtaining and disseminating searching data (missing person description, potential clue descriptions, etc.) and in obtaining and analyzing planning data (missing person's planned activities, intended route, place last seen, time last seen, ...).
- Investigator—expert in collecting and analyzing information about the missing person and the circumstances involved.
- GIS Specialist—expert in using Geographic Information Systems that integrate hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
- GPS Specialist—expert in collecting tracks from resources' Global Positioning Systems.
- Photography Specialist—expert in collecting and reading high definition photographs.
- Cell Phone Analyst—expert in obtaining and analyzing cell phone data.
- UAS Operator—expert in the use of Unmanned Aerial Systems.¹

The Planning Section can also have a Training Specialist assigned to it. This position manages trainees assigned to the incident by reviewing the trainees' Position Task Books (PTB) and placing the trainees with personnel qualified in those positions. As opportunities present themselves, the trainees satisfactorily complete the tasks for that position and the qualified person records the successful completion in the PTB. PTBs for IMT members are available at <http://training.fema.gov/EMIWeb/IS/ICSResource/PositionChecklists.htm>.

The Planning Section can also have Human Resource Specialists assigned. These positions provide expertise in human relations and assist the IMT in responding to allegations of sexual harassment, discrimination, or other similar complaints.

The ICS Planning Process

The ICS Planning Process is a stepped process consisting of four major elements:

1. Mission.
2. Objectives.
3. Strategies.
4. Tactics.

The **mission** level concerns the very nature of the incident and can be determined by a written Delegation of Authority from an Agency Administrator (for very complex incidents) or by standard operating procedures and manuals (for less complex incidents). The mission is a statement of purpose and the desired outcomes. The mission level comes from officials with the legal authority to manage that kind of an incident.

Incident **objectives** define the conditions that exist when the incident is successfully resolved. They can be written as statements of work that have been accomplished or of desired future conditions that have been created. **Strategies** are the big picture plans that outline how the objectives are accomplished. **Tactics** are the listing of tasks that, when put together, carry out the strategies.

¹ An unmanned aerial system (UAS) is an unmanned aircraft with a ground operator (pilot).

An Example of the ICS Planning Process



The ICS Planning Process can be used for many activities. An example for a person wishing to improve his or her health might be:

- *Mission: To improve my health.*
- *Objective: Lose 100 pounds in a year.*
- *Strategy: Nutrisystem[®] (alternative strategies include Weight Watchers[®], Jenny Craig[®], or a personally determined weight-loss program).*
- *Tactics: Order food, eat food, and follow the program specifics.*

The Planning P

The “Planning P”, see Figure 3.3 on the next page, is a planning aid that puts the ICS Planning Process in the context of an actual incident. The stem of the “P” describes the activities that should take place once the incident has commenced. Then, the top of the “P” describes the planning cycle that occurs during each operational period. It is critical that the entire incident organization (not just the Planning Section) adheres to the process, the cycle, and the timeframes. The Planning P is more fully described in Chapter 11 on page 146.

Section 3.2

Duties and Responsibilities of the Planning Section Chief

Help Navigate the Planning P

The PSC assists the entire IMT in navigating the Planning P in a number of ways:

- Works with the IC to help develop incident objectives, as requested.
- Works with the IC and other Command and General Staff members to set a planning cycle schedule acceptable to all.
- Works with the IC and other Command and General Staff members to evaluate alternative strategies and select the best ones.
- Ensures that a member of the Planning Section attends each Tactics Meeting.
- Prepares for and conducts each Planning Meeting in accordance with the IC’s standards.
- Assembles, gets approval for, and produces an IAP for each operational period.
- Prepares for and conducts each Operational Period Briefing in accordance with the IC’s standards.
- Works with the IC and other Command and General Staff members to assess progress, validate or revise objectives or strategies (if needed) and prepare for the next operational period.
- Ensures that the Planning Section prepares information and products, used in the Planning Process, in an effective and timely manner.

Manage the Section

The PSC must effectively manage the Resources, Situation, Documentation, and Demobilization Units and any Technical Specialists not assigned to a unit. If one or more of these units is not established, then the PSC must personally take over those responsibilities. The PSC ensures that the Section is adequately staffed; has adequate working space and conditions; and has sufficient supplies, materials

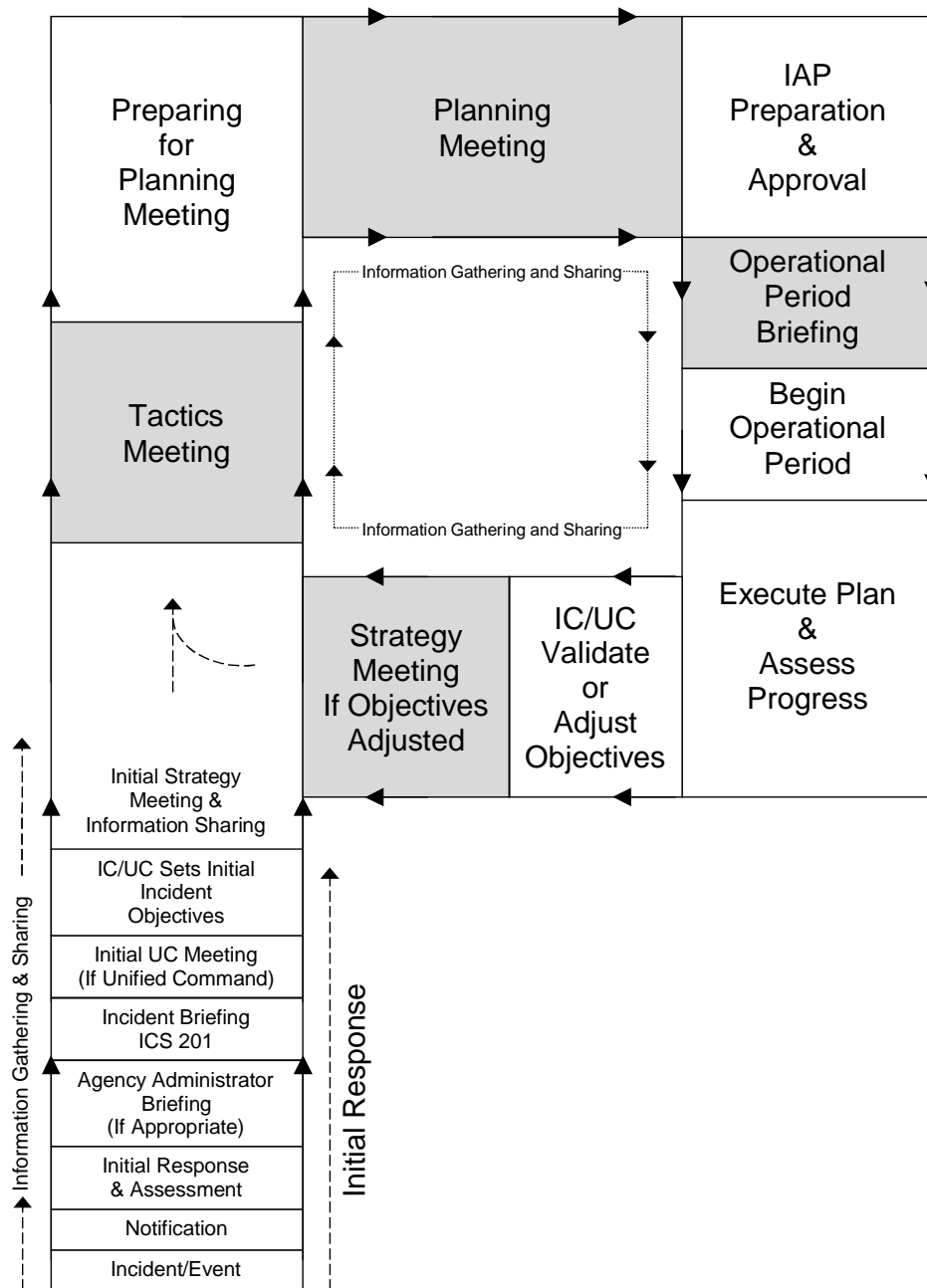


Figure 3.3. The Planning P

and equipment to carry out the functions. The PSC supervises unit leaders and other staff to ensure that performance is satisfactory and that all functions of the section can be accomplished.

Supervise the Preparation of the Incident Action Plan

The PSC assigns the specific preparation of components of the IAP to the appropriate section staff and coordinates with other members of the Command and General Staff to obtain other components. The PSC reviews (and may assemble) the IAP before presenting it to the IC for approval and signature. The PSC then ensures that the plan is appropriately copied and that the original of the plan is properly filed.

Situation Analysis

The PSC assigns the preparation of the Incident Status Summary (ICS 209, see page 231) to appropriate section staff. The PSC also ensures that search probability and information analysis is conducted in a timely and effective manner and that maps and other displays are current and available.

Contingency Plans

The PSC works with section staff and other General Staff members to develop needed contingency plans to properly manage anticipated situations or potential problems.

Expectations

The PSC is a key position on an IMT. Thus, team members have significant expectations from the position. A good PSC

- Attends all meetings and briefings on time and is fully prepared.
- Conducts all meetings and briefings in a professional and organized manner.
- Resolves all discrepancies and problems of a proposed plan prior to the Planning Meeting.
- Maintains the Planning Process on schedule even in the face of apparent chaos.
- Maintains a thorough overview of the entire incident to ensure that complete information is available.
- Considers alternatives to current thinking and actions.
- Displays a professional and positive demeanor that generates confidence in other personnel.
- Ensures the well-being of incident staff, whether in the Planning Section or elsewhere in the incident organization.
- Works cooperatively with all incident staff to resolve problems and enact the best solutions.

Interactions with Other IMT Members

Team Process

The proper management of an incident involves the entire IMT working together to accomplish the incident objectives. To that goal, the PSC interacts with the rest of the Command and General Staff in a coordinated fashion—see Figure 3.4. The major interactions are now described.

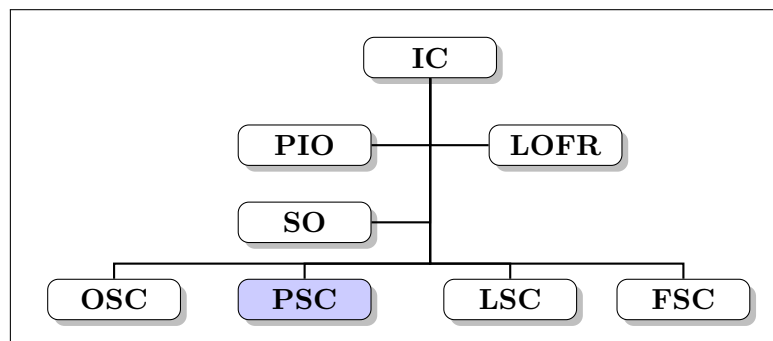


Figure 3.4. Incident Management Team and its acronyms

Incident Commander

The PSC interacts with the IC in the following activities:

- Obtains the approved incident objectives.
- Assists in the development of alternative strategies.
- Obtains approval for the planning cycle schedule.
- Obtains approval for Planning Meeting Agendas and Operational Period Briefing Agendas.
- Obtains approval for the IAP.
- Obtains approval for the Incident Status Summary (ICS 209).

Public Information Officer

The PSC interacts with the Public Information Officer (PIO) in the following activities:

- Provides Incident Summary Status and other situation information.
- Obtains information collected by the PIO.
- Obtains concurrence with the IAP.
- Coordinates the use of trainees.
- Coordinates demobilization.

Safety Officer

The PSC interacts with the Safety Officer (SO) in the following activities:

- Ensures that the Tactics Meeting includes a safety analysis (ICS 215A, see page 262).
- Ensures that the Planning Meeting Agenda includes a presentation by the SO.
- Obtains concurrence with the IAP.
- Obtains the Safety Message for the IAP.
- Obtains the SO's signature on ICS 206, Medical Plan, see page 226, prior to publication in the IAP.
- Ensures that the Operational Period Briefing includes a presentation by the SO.
- Obtains safety related information for the Incident Status Summary (ICS 209).
- Coordinates the use of trainees.

Liaison Officer

The PSC interacts with the Liaison Officer (LOFR) in the following activities:

- Obtains information regarding cooperating agencies and organizations.
- Obtains requirement and limitation information (for example, union requirements, dietary requirements, use of volunteer requirements, etc.) regarding resources assigned to the incident.
- Obtains concurrence with the IAP.
- Provides demobilization information as needed.

Operations Section Chief

The PSC interacts with the Operations Section Chief (OSC) in the following activities:

- Obtains tactics for each operational period.
- Provides resource information for each operational period.
- Provides a completed Operational Planning Worksheet (ICS 215, see page 259) for each Planning Meeting.

- Obtains debriefing information at the end of the operational period or as otherwise scheduled.
- Obtains current information for maps and displays.
- Provides specific contingency plan information and alternatives.
- Provides a complete and accurate IAP for each operational period.
- Provides accurate maps and displays.
- Obtains information regarding expected resource surpluses and coordinates demobilization.
- Coordinates the use of trainees.
- Coordinates demobilization.

Logistics Section Chief

The PSC interacts with the Logistics Section Chief (LSC) in the following activities:

- Obtains needed personnel, supplies and equipment by ordering through Logistics.
- Obtains facilities, food, transportation, communications and medical attention needed by section staff.
- Includes in Tactics Meeting, if requested.
- Provides resources needed information as required.
- Provides information about resources checking in.
- Obtains concurrence with the IAP.
- Obtains ICS 205, Communications Plan, see page 221, by the deadline for inclusion in the IAP.
- Obtains ICS 206, Medical Plan, see page 226, by the deadline for inclusion in the IAP.
- Obtains the Traffic Plan, if needed, by the deadline for inclusion in the IAP.
- Obtains incident personnel injury information for inclusion in the Incident Status Summary, ICS 209.
- Coordinates the use of trainees.
- Coordinates demobilization.

Finance/Administration Section Chief

The PSC interacts with the Finance/Administration Section Chief (FSC) in the following activities:

- Obtains daily cost information for the Incident Status Summary, ICS 209.
- Obtains information and recommendations regarding the cost of alternative strategies.
- Provides information regarding resources on the incident.
- Provides information regarding personnel injuries or other claims.
- Provides approved personnel time information for the section on a timely basis.
- Provides prediction and resource release information.
- Obtains concurrence with the IAP.
- Coordinates the use of trainees.
- Coordinates demobilization.

Section 3.3

Duties and Responsibilities of the Resources Unit Leader

Help Navigate the Planning P

The Resources Unit Leader (RESL) assists the entire IMT in navigating the Planning P in a number of ways:

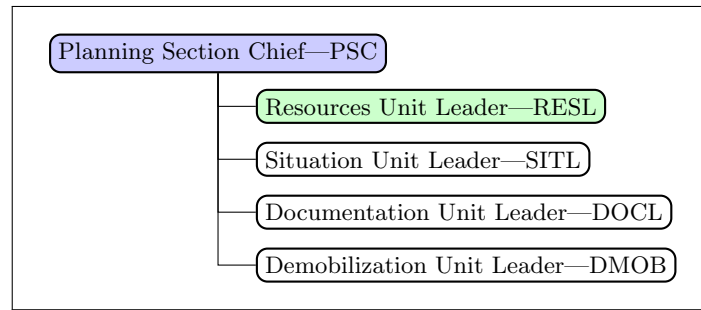


Figure 3.5. Resources Unit Leader

- Attends Tactics Meetings, as assigned, and prepares wall-sized ICS 215, Operational Planning Worksheet, for display during Planning Meetings.
- If assigned, after the plan has been approved at the Planning Meeting, prepares resource orders for resources identified as “needed” on the ICS 215 and submits them to the Supply Unit (on some IMTs, this is done by the OSC).
- If assigned, prepares the ICS 202, Incident Objectives, see page 213, and other components of the IAP.
- Prepares the ICS 203, Organization Assignment List, see page 216.
- Prepares the ICS 204, Assignment List, see page 219, for each Division and Group.
- If assigned, prepares electronic versions of ICS 205, Communications Plan, and ICS 206, Medical Plan, based on hand-written drafts from the Logistics Section.
- If assigned, physically collects and assembles the components of the IAP.
- Distributes IAPs at each Operational Period Briefing and, if requested, makes announcements regarding Resources Unit issues.

Supervise the Resources Unit

The RESL supervises unit staff (there may be one or more Assistant Resources Unit Leaders, Status Recorders, and Check-In Recorders) and ensures that the following functions are properly carried out:

- Establishes check-in procedures and ensures that all resources at the incident have been checked in.
- Maintains a master roster of all resources assigned to the incident.
- Maintains the location and status (assigned, available, or out-of-service) of all resources assigned to the incident.
- Coordinates check-in and status information with other Sections (with Operations for status; with Logistics to confirm the arrival of resources ordered; with Finance/Administration for time recording) and with the Demobilization Unit.
- Prepares and maintains displays, at the Incident Command Post (ICP) and other key locations, regarding the incident organization and the allocation of resources.
- Prepares the ICS 203, Organization Assignment List; ICS 204s, Assignment Lists; and other forms as assigned.
- Assists in assembling and distributing the IAP.
- Prepares the resources assigned section of the ICS 209, Incident Status Summary.

Interactions

The RESL is likely to interact with other IMT members:

- Safety Officer: obtains safety messages for the IAP and determines resource status (usually out-of-service/medical).
- Operations Section Chief: obtains the operational location and status of resources assigned.
- Logistics Section Chief: obtains the location and status of resources assigned; provides information regarding numbers of resources checked in and numbers expected.
- Supply Unit: orders supplies, equipment and personnel; provides information about resource arrival.
- Medical Unit: obtains ICS 206, Medical Plan, and obtains resource status information.
- Communications Unit: obtains ICS 205, Communications Plan.
- Ground Support Unit: obtains the Traffic Plan for the IAP; obtains resource status information regarding equipment (such as, out-of-service/mechanical).
- Finance/Administration Section Chief: provides the location and status of resources assigned.
- Time Unit: synchronizes check-in information.
- Compensation/Claims Unit: obtains resource status information.
- Situation Unit: obtains weather forecasts for the IAP; obtains maps and other displays for the IAP; provides resources assigned information for the ICS 209, Incident Status Summary.
- Documentation Unit: obtains copied IAPs for distribution.
- Demobilization Unit: provides check-in information for use in planning demobilization.

Section 3.4

Duties and Responsibilities of the Situation Unit Leader

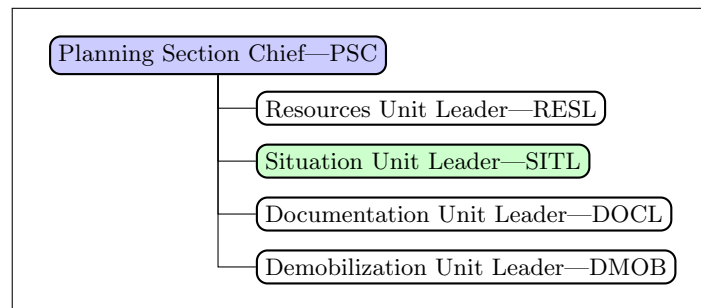


Figure 3.6. Situation Unit Leader

Help Navigate the Planning P

The Situation Unit Leader (SITL) assists the entire IMT in navigating the Planning P in a number of ways:

- Provides maps, displays, predictions and probability assessments for Tactics Meetings and Planning Meetings.
- Prepares maps, displays and other components, as needed, for the IAP.
- Prepares maps, displays and other information for Operational Period Briefings.
- If requested, provides weather forecasts at each Operational Period Briefing.
- If requested, makes other predictions and announcements at each Operational Period Briefing.

Supervise the Situation Unit

The SITL supervises unit staff (there may be one or more Assistant Situation Unit Leaders, Display Processors, Field Observers, Weather Observers, and Technical Specialists) and ensures that the following functions are properly carried out:

- Prepares weather forecasts for use at Tactics Meetings, Planning Meetings, and Operational Period Briefings.
- Prepares maps, displays and other media for use at Tactics Meetings, Planning Meetings, and Operational Period Briefings, and as requested.
- Prepares the ICS 209, Incident Status Summary.
- Gathers and analyzes investigation information and identifies potential scenarios.
- Gathers and analyzes search information and prepares current Missing Person Flyers.
- Gathers and analyzes planning information, such as route and destination of the missing subject, and makes location and route predictions.
- Debriefs searchers.
- Defines the search area, identifies search segments, and coordinates the assignment of search probabilities.)
- Tracks search progress; determines probabilities of detection, cumulative probabilities of detection and the effect those have on search area probabilities. These concepts are discussed in detail in Section 8.5 on page 88.
- Identifies clues and determines their relevance.
- Operates Win CASIE III, ArcGIS/MapSAR, GPS, and other technological systems, or supervises technical specialists assigned to operate these systems.

Interactions

The SITL is likely to interact with other IMT members:

- Operations Section Chief: obtains situation information; provides predictions, potential scenario information, and search probability information.
- Supply Unit: orders supplies, equipment, and personnel.
- Resources Unit: obtains resources assigned information for the ICS 209, Incident Status Summary.
- Demobilization Unit: projects incident progress and provides likely demobilization scenarios.

Section 3.5

Duties and Responsibilities of the Documentation Unit Leader

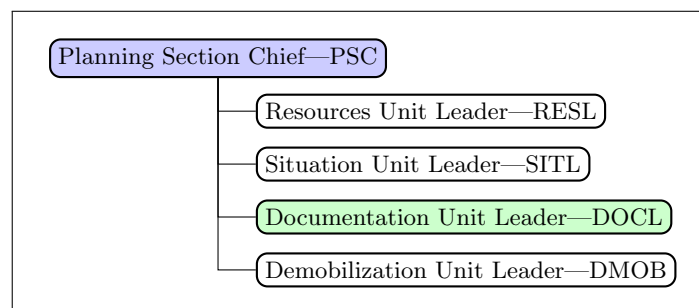


Figure 3.7. Documentation Unit Leader

Supervise the Documentation Unit

The Documentation Unit Leader (DOCL) supervises unit staff (there may be one or more Assistant Documentation Unit Leaders and Filing Clerks) and ensures that the following functions are properly carried out:

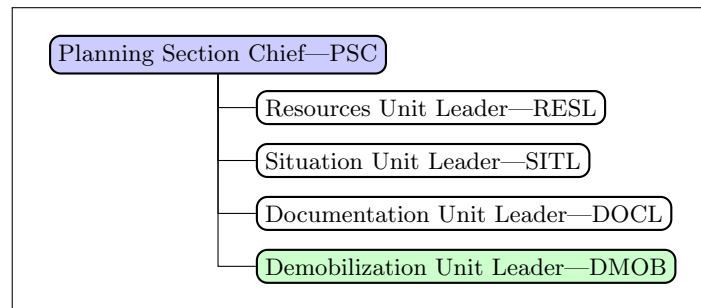
- Establishes an incident filing system that meets agency requirements, including procedures to safeguard critical original documents (such as Delegations of Authority and signed IAPs) and procedures to retrieve and check-out documents needed by other incident personnel.
- Files all official forms, reports and other documents in accordance with the established filing system.
- Establishes duplication services and responds to duplication requests in a timely manner.
- Reviews records for accuracy and completeness; informs the appropriate incident personnel of errors or omissions.
- Retrieves and provides filed documentation as requested.
- Prepares files for post-incident storage.

Interactions

The DOCL is likely to interact with other IMT members:

- Incident Commander: provides coordination of documentation requests made by various stakeholders and response partners with the approval of the IC for release. Maintains daily status reports files (ICS 209) with the documentation package. These documents are reviewed by Agency Representatives and the IC on a daily basis.
- Public Information Officer: provides copies of the IAP to various persons identified by the PIO and may establish and maintain E-Mail mass mailing lists to facilitate the dissemination of these materials.
- Liaison Officer: establishes and maintains mass mailings lists of the IAP to response partners identified by the LOFC.
- Operation Section Chief: provides copies of the current operational period IAP to incoming unassigned resources to provide operational picture. Maintains Air Branch documentation in the documentation package.
- Planning Section Chief: attends all meetings to act as a scribe as directed by the PSC. Responsible for duplicating the ICS 215 Operational Planning Worksheet from the wall chart to have a hard copy for the documentation package.
- Demobilization Unit: ensures the collection of all appropriate checkout paperwork as submitted and collected by resources being released from the incident.
- Resources Unit: obtains information regarding the number of IAP copies needed; provides IAP duplication services.
- Logistics Section Chief: responsible for the requests to order from the supply unit all filing and duplication supply needs and in larger more extended incidents, coordinates the order, receipt, and placement of contracted copy services.
- Finance/Administration Section Chief: reviews and approves invoices for supplies ordered and for invoices submitted by the contracted copy services.
- All Functional areas: most IMT members understand their specific responsibilities as it relates to paperwork, use of proper forms, and the timely delivery to the DOCL. The DOCL is ultimately responsible for the compiling and filing of the incident's documentations. Therefore, the DOCL finds they interact with all functional areas to ensure the paper work is getting done and collected and placed into the final records of the incident.
- All other IMT members: provides duplication services as requested; provides file retrieval as requested; notifies of potential errors and omissions.

Section 3.6

Duties and Responsibilities of the Demobilization Unit Leader**Figure 3.8.** Demobilization Unit Leader**Supervise the Demobilization Unit**

The Demobilization Unit Leader (DMOB) supervises unit staff (there may be one or more Assistant Demobilization Unit Leaders) and ensures that the following functions are properly carried out:

- Establishes a system for the emergency demobilization of incident resources for injury, family emergencies, etc.
- Works with the Command and General Staff of the IMT to develop a Demobilization Plan that meets the safe demobilization needs of the incident.
- Coordinates the implementation of the Demobilization Plan with the involved IMT members.
- If needed, establishes procedures for arranging travel with local dispatch and coordination centers.
- Monitors the resource needs of all incident elements (Command Staff and sections).
- Works with other IMT members to identify current and future surplus resources.
- Coordinates with the Resources Unit and local dispatch/coordination centers to reassign resources if they have appropriate qualifications and are available.
- Obtains approval from the IC for all planned demobilizations.
- Coordinates demobilization planning with Logistics Section and local dispatch/coordination centers to arrange rides, common carrier transportation, and other details.
- Manages the demobilization process, ensuring that demobilized resources leave rested in accordance with agency work/rest guidelines, return all assigned supplies and equipment, and leave with the proper timekeeping and other paperwork.

Interactions

The DMOB is likely to interact with other IMT members:

- Incident Commander: obtains approval of the Demobilization Plan; obtains approval for specific, planned demobilizations.
- All other IMT members: develops Demobilization Plan; implements Demobilization Plan; identifies current and future surplus resources; reassigns resources as appropriate; obtains cooperation in managing the demobilization process.
- Ground Support Unit: arranges transportation to common carrier terminals as needed.
- Time Unit: coordinates demobilization schedules to ensure proper rest for departing resources.

CHAPTER 4

Tracking Incident Resources—The Resources Unit

Section 4.1

Overview

Introduction

The functions discussed in this Chapter are primarily the responsibility of the Resources Unit.

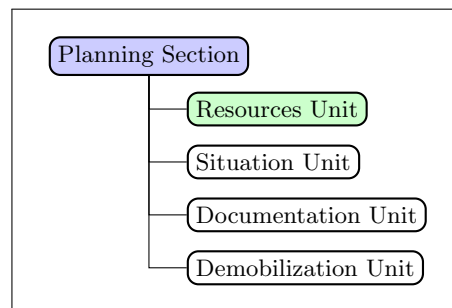


Figure 4.1. Resources Unit

The Resources Unit is responsible for carrying out a number of functions for the Planning Section and the entire (IMT), including:

- Checking in all resources arriving at the incident.
- Tracking all resources while assigned to the incident.
- Participating in the Tactics Meeting and completing the wall-size ICS 215, Operational Planning Worksheet, see page 259, for use in the Planning Meeting (if so assigned).
- Preparing the ICS 203, Organization Assignment List, see page 216; the ICS 204s, Assignment Lists, see page 219, and other portions of the IAP, as assigned; assembling the draft IAP for review by the PSC and, ultimately, the IC, if so assigned.
- Preparing the resource section of the ICS 209, Incident Status Summary, see page 231.

A Resources Unit Leader Job Action Sheet can be found on page 278.

Unit Staffing

The Resources Unit Leader (RESL) is responsible for determining the unit's staffing needs, in conjunction with the PSC. In addition to the RESL, the Resources Unit staffing can include one or more Assistant Resources Unit Leaders and one or more Status/Check-In Recorders.

Section 4.2 Tracking Systems

Tracking System Options

IMTs and ICs have several options for tracking resources at an incident. The major systems include:

- The traditional tracking system using ICS forms, T-Cards and T-Card holders.
- The electronic I-Suite system.
- The SAR T-Cards software.

Many SAR resources are volunteer groups and may have their own resource tracking system. RESLs have the option of using those systems by including knowledgeable personnel from their groups in the unit.

Traditional System

When the traditional system is used, resources are checked-in using an ICS 211, Check-In List. See Figure 4.2 on the next page. Instructions for completing this form can be found on page 255. After check-in, the information regarding each resource is transcribed onto an ICS 219, Resource Status Card, also known as a T-Card. See Figure 4.3 on the next page. These cards have a larger top (thus, the T-like shape) and can be put in a T-Card rack or apron. See Figure 4.4 on the next page. The cards are arranged on the rack/apron in a manner that shows where they are located and their status. As resources change assignments or status, the cards can be moved to reflect the new condition.

I-Suite

I-Suite is an incident information automation tool that integrates information used by the Resources, Time, Supply, and Cost Units at an incident. The system was developed by the wildland fire community, but is applicable to all incidents. The system generates a check-in form for each resource. Once the information from the form is put in the system, it is available to all units. Thus, the Time Unit can generate Personnel Time Reports from that information without the resource having to stop in person at the Time Unit. The Supply Unit knows that a resource that was ordered has checked in and can update the dispatch system. The Cost Unit knows of the resource's costs and generates accurate cost reports.

The system is free and available to all incident responders. Information about the system and the download can be found on the internet at <http://isuite.nwcg.gov/index.html>.

SAR T-Cards Software

SAR T-Cards is a free Windows software program geared towards SAR. It can be downloaded from <http://WWW.SARAZ.ORG>.

SAR T-Cards is designed so that the Resources Unit can track resources during an incident in an organized and efficient manner. Although SAR T-Cards was designed for SAR incidents it can be used in any incident, large or small.

INCIDENT CHECK-IN LIST (ICS 211)																		
1. Incident Name:			2. Incident Number:			3. Check-In Location (complete all that apply): <input type="checkbox"/> Base <input type="checkbox"/> Staging Area <input type="checkbox"/> ICP <input type="checkbox"/> Helibase <input type="checkbox"/> Other					4. Start Date/Time: Date: _____ Time: _____							
Check-In Information (use reverse of form for remarks or comments)																		
5. List single resource personnel (overhead) by agency and name. OR list resources by the following format:								6. Order Request #	7. Date/Time Check-In	8. Leader's Name	9. Total Number of Personnel	10. Incident Contact Information	11. Home Unit or Agency	12. Departure Point, Date and Time	13. Method of Travel	14. Incident Assignment	15. Other Qualifications	16. Data Provided to Resources Unit
State	Agency	Category	Kind	Type	Resource Name or Identifier	ST or TF												
ICS 211		17. Prepared by: Name: _____ Position/Title: _____ Signature: _____ Date/Time: _____																

Figure 4.2. ICS 211, Check-In List, used in the traditional system



Figure 4.3. Examples of T-Cards



Figure 4.4. Example of T-Card display apron

The objects on the right of Figure 4.5 on the next page represent the different kinds of T-cards that can be created. These contain the seven traditional T-Cards found in the Incident Command System (ICS), supplemented with SAR-specific resources, namely, ATV/Snowmobile, Command, Ground Searcher, Ground Vehicle, Horse Patrol, K9, and Water Searcher.

Ideally, well before an incident is in progress, files are created that contain resources. Then, as the incident unfolds, these resource files are imported into the T-Card Window. Multiple resources files can be created ahead of time and populated with resources that are commonly requested. For example, there could be one for SAR ground volunteers, another for NPS personnel, another for K9 units, and another for law enforcement, etc. Also, resources responding to an out-of-jurisdiction incident, could

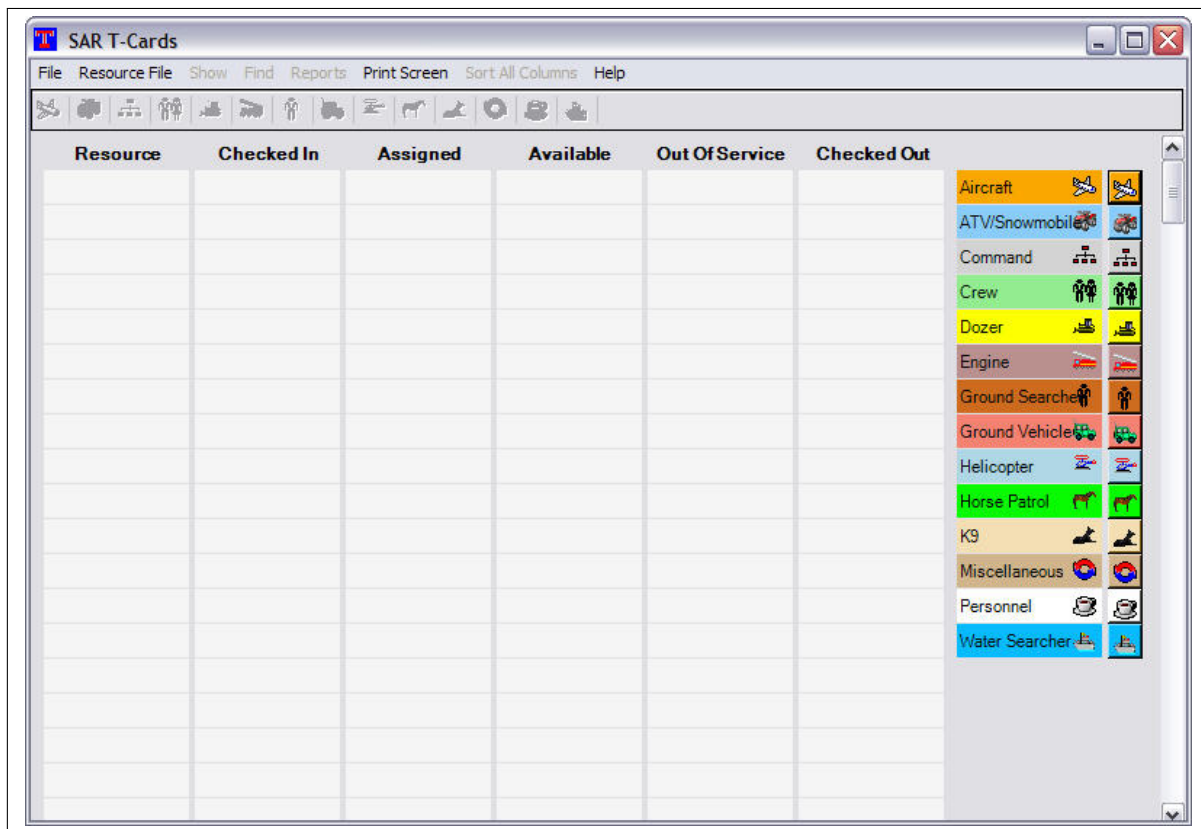


Figure 4.5. The SAR T-Cards opening screen

have their own resource files on a thumb drive to be imported into SAR T-Cards on arrival. This could be part of a pre-plan.

Section 4.3 Check-In

Information Gathering

No matter which tracking system is in use, the Resources Unit collects specific information from each resource upon check-in. This information includes:

- **Resource identifier information.** The identifier information includes the agency or organization that has supplied the resource. Some agencies participate in the interagency unit identifier system (see https://www.nifc.blm.gov/unit_id/Publish.html). If so, then that identifier should be used. These are generally written as two letters (for the state from which the resource has come) followed by three letters that identify the agency. For example, CA-YNP is the identifier for Yosemite National Park; AZ-PPD is the identifier for the Payson, Arizona Police Department.

Most resources arrive as single resources (Single), but some may arrive as pre-assembled strike teams (ST) or task forces (TF). This is noted during check-in. The Kind of resource refers to the very nature of it; such as search dog or technical rescue team. The Type of resource refers to the capabilities of the resource. The identification number or name is that assigned to the resource; such as “Liberty County Search and Rescue Team”.

- **The order/request number.** Generally the incident or dispatch center assigns a number for each resource order generated by the incident and then allots that number to the resource designated to fill that order. Various dispatch systems may have differing protocols for order numbers.

- **The total number of individuals attached to the resource.** This may be only one (as in the case of an overhead person) or may have several, such as a search team. The leader should be included in this number.
- **Home base, departure point, method of travel.** These are self-explanatory and are generally gathered for demobilization planning purposes.
- **The resource's assignment at the incident.** Gathered for tracking purposes.
- **The resource's other qualifications, if any.** Gathered for reassignment purposes.

Once this information is gathered, copies are filed in the Resources Unit and notifications are made to the Supply Unit (to confirm the arrival of ordered resources) and the Time Unit (to start time recording for each resource). The information is also available to the Demobilization Unit as needed.

Section 4.4 Tracking Resources

Assignment Locations

The Resources Unit must know where each resource is assigned at the incident. Generally this is done by tracking the organizational element to which the resource is assigned. For example, a resource may be assigned to Division A or to the Rescue Group in the Operations Section. Or, a resource may be assigned to the Facilities Unit in the Logistics Section. In each case, if the Resources Unit needs to reach the resource, it can do so by contacting the appropriate supervisor (who should know the specific physical location of the resource). In some cases, such as in high-risk situations, other systems may be in use to track the exact physical location of resources at all times.

Resource Status

The Resources Unit must know the status of each resource at all times. Three status conditions apply: assigned, available, or out-of-service. Assigned resources are those that are in the field or incident base and working. Available resources are those that are staged for assignment; they must be ready to move in three minutes or less. Out-of-service resources are those not available for assignment. They may be in required rest periods, they may have medical problems, they may have mechanical problems or, in the case of some resources, they may not have adequate staffing to meet standards. Incident supervisors are responsible for advising the Resources Unit of any change of status for their assigned resources, using the chain of command.

Section 4.5 Tactics Meetings

Attends Tactics Meeting

If requested by the PSC, the RESL usually attends the Tactics Meeting. This meeting is held during the planning cycle for each new operational period as shown in the Planning P on page 29. At this meeting, the OSC describes how operations are organized, both functionally and geographically, and lists the tactics that are to be used during the next operational period. Finally, the OSC lists the kinds and types of resources that are needed during the next period to successfully complete the tactics.

The RESL transcribes this information in the appropriate locations on the wall-size ICS 215, Operational Planning Worksheet. This form, and instructions on how to complete it, are shown on page 259. A sample of a completed ICS 215 is shown in Figure 4.6 on the next page. An entry with numbers in parentheses, such as “1 (10)”, represent one team of 10 people.

OPERATIONAL PLANNING WORK SHEET										1. Incident Name <i>Smith Search</i>		2. Date Prepared <i>May 3, 2013</i> Time Prepared <i>1410</i>		3. Operational Period (Date/Time) <i>May 3, 2013</i> <i>1800-0600</i>										
4. Division/ Group or Other Location	5. Work Assignments	Resource by Type (Show Strike Team as ST)																		6. Reporting Location	7. Requested Arrival Time			
		<i>Confined Team</i>				<i>Air Seat Days</i>		<i>Hand Crews</i>		<i>SAR Team</i>		<i>Amberance</i>		Air Tankers		Other								
		Req	1	2	3	4	Req	1	2	Req	1	2	Req	1	2	3	4	Req	1	2	3			
A	Maintain confinement at Lee Hwy and AT. Conduct air scent dog search of segments 2 and 3	Req	1					2																
		Have	1					1																
		Need	0					1																
B	Maintain confinement at Rte 603 and AT.	Req	1																					
		Have	0																					
		Need	1																					
Rescue Group	Respond to requests for rescue	Req									1 (10)		1 (2)											
		Have									1 (10)		1 (2)											
		Need									0		0											
Total Resources - Single		Req	2					2			1 (10)		1 (2)									3		
	Have	1					1			1 (10)		1 (2)									2			
	Need	1					1			0		0									1			
Total Resources - Strike Teams		Req																						
	Have																							
	Need																							
																						Prepared by (Name and Position) <i>Sarah Lee RES</i>		

Figure 4.6. Sample of a completed ICS 215

Section 4.6 Preparing the Incident Action Plan

The Resources Unit is responsible for preparing various parts of the Incident Action Plan.

ICS 203, Organization Assignment List

The ICS 203, Organization Assignment List, is prepared for each IAP. The names of personnel assigned to overhead positions are placed in the appropriate blocks on the form. Positions not filled are left blank.

ICS 204, Assignment List

An ICS 204, Assignment List, is prepared for each Division or Group that is working during the Operational Period. The lists appear in the IAP immediately after the ICS 203, Organization Assignment List. The Assignment Lists are ordered by their letter (in the case of Divisions). If geographic branches (identified by Roman Numerals) are in use, then the lists are ordered by branch and then division within the branch.

Other Forms

The Resources Unit may be asked to prepare electronic versions of other forms, with the information for those forms coming from the appropriate incident personnel. For example, for the ICS 202, Incident Objectives, the unit would get the incident objectives from the IC. the weather forecast from the Situation Unit and the safety message from the SO. The information for the ICS 205, Incident Communications Plan, would come from the Communications Unit and the information for the ICS 206, Medical Plan, would come from the Medical Unit. Although not a part of the IAP, the Resources Unit may also be asked to prepare an ICS 207, Incident Organization Chart.

Assembling the Plan

Often the Resources Unit is asked to obtain all of the components of the IAP and assemble the plan in order. It is then brought to the PSC for review; the PSC brings the plan to the IC for approval. Each of these steps may result in revisions and corrections to the plan. After the plan is approved, it is brought to the Documentation Unit for duplication. Sometimes, the Resources Unit is asked to assist in copying the plan and, if there is no Documentation Unit, the Resources Unit may be responsible for copying it. Finally, the Resources Unit usually distributes the plan at each Operational Period Briefing.

Section 4.7

Preparing the Resource Section of the ICS 209

Most of the ICS 209, Incident Status Summary, is prepared by the Situation Unit, see Section 7.6 on page 68. However, the Resources Unit is responsible for preparing Page 4 of the ICS 209, the resource summary (see Figure 23.29 on page 234), following the instructions on page 252. This summary has a matrix that shows the number of resources assigned by kind and by agency, so it is easy to see which agencies have provided what kinds of resources. The ICS 209 is usually forwarded to the local dispatch center (and other entities as required by local protocols or requested by the Agency Administrator) at least once each day.

CHAPTER 5

Investigation

Section 5.1 Overview

The PSC in a search and rescue (SAR) operation is no doubt familiar with the traditional definition of “ICS” as Incident Command System but should also think of “ICS” as Investigate, Contain, Search. Investigation is a critical component to search management and should never be overlooked in the effort to get searchers out the door to conduct a response.

Think of ICS as Investigate, Contain, Search.

A search is an unknown emergency at an unknown location and as such the more information that can be gathered at the outset and during the operation should aid in the successful resolution of the incident. The investigation can have a significant impact on the search tactics used. While not a common occurrence some incidents of overdue or missing persons are either bogus reports or criminal activity. Good investigation at the outset may reveal that the search is a bogus search (a search that is not necessary) and resources do not need to be deployed. Other times the initial investigation reveals that there may be criminal activity involved and that can prompt a different response.

The investigation starts with the initial report and continues throughout the incident until the incident is resolved. If the search is suspended the investigation may continue in an effort to develop new clues that could trigger new active searching.

The investigation starts with the initial report and continues throughout the incident until the incident is resolved.

The Investigator is a critical position in search management. Search strategy and tactics are influenced by the information that is generated through the investigation. Clues found by searchers and authenticated by the Investigator and clues discovered by the Investigator have significant impacts on the focus and direction of the search.

Section 5.2

Location of Intelligence/Investigations in the ICS Structure

In ICS the Intelligence/Investigations (I/I) function can be placed in several different locations. I/I can be an Officer in the Command Staff, a Branch or Group in the Operations Section, a Unit in the Planning Section, a Technical Specialist in the Situation Unit, or its own I/I Section. In Search and Rescue it is common to have the I/I function as a unit in the Planning Section. For the remainder of this text the I/I function is assumed to be a Technical Specialist housed within the Planning Section, as shown in Figure 5.1.

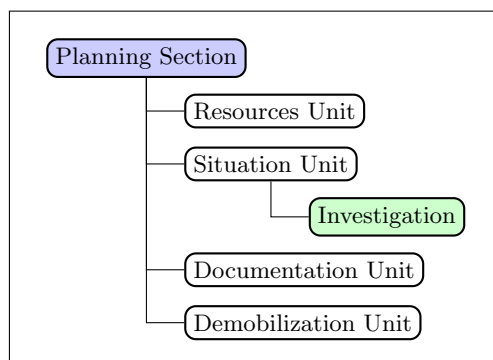


Figure 5.1. Assumed location of Investigation function in this book

If the scope of the investigation is so large that the IC decides to establish an I/I Section as a part of the General Staff, additional functional information, as well as an I/I Function Field Operations Guide, can be found at http://www.fema.gov/media-library-data/1382093786350-411d33add2602da9c86_7a4fbcc7ff20e/NIMS_Intel_Invest_Function_Guidance_FINAL.pdf. If an I/I Section is created then the IC may be responsible for eight positions, which is out of the span of control. Under these conditions the IC needs to appoint a Deputy to oversee some of these positions, possibly the Command Staff.

Section 5.3

Staffing Intelligence/Investigations

The Investigator is often the first responding law enforcement officer or the IRIC. As the search progresses it is usually sensible to assign a dedicated investigator or investigations unit to continue the investigation. The purpose of the investigation is to gather as much information about the lost or overdue person as possible and what may have happened to cause the incident. It is helpful for the Investigator to be familiar with SAR and search management in order to develop information that is the most useful to searchers and planners. If a detective is assigned as an investigator and that detective does not have a SAR background, then assigning an assistant—who may not be a law enforcement officer but has significant SAR experience—to that detective is wise.

Section 5.4

Conducting the Investigation

The investigation starts with the information relayed in the initial report to the SAR authority and continues with the completion of a Lost Person Questionnaire (LPQ) (see Figure 5.2 on the next page and Figure 5.3 on page 48 for an example of an LPQ).

The LPQ is completed early in the incident while interviewing the reporting party. The investigator should develop a rapport with the reporting party and maintain that contact throughout the incident.

Search and Rescue Report

Investigator

Date	Time	Department Report Number	Incident Number	Reporting Officer

Source of Information

Name		Address				Town	St
D.O.B.	Social Security Number	Age	Sex	Height	Weight	Hair	Eyes
Relationship to Subject				Phone Number		Second Phone	
How / Where to Contact Now				How / Where to Contact Later			
What Reporting Party Believes to Have Happened							

Subject Information

Name		Age	Sex	Nickname(s)		
Home Address		Town			St	Zip
Local Address		Town			St	Zip
Home Phone	Local Phone	D.O.B.	Social Security Number			
Cell Phone	Cell Phone Carrier	Email Address:				

Physical Description

Identification		Clothing / Style		Color	Size	Health	
Height:		Shirt / Sweater:				Overall Health:	
Weight::		Pants:				Physical Condition:	
Age:		Outer Wear:				Medical Problems:	
Build:		Inner Wear:				Psychological Problems:	
Complexion:		Head Wear:				Medication:	
Distinguishing Marks:		Rain Wear:				Amounts:	
Eyes:		Gloves:				Consequences of Loss:	
Hair Color:		Extra Clothing:				Eyesight w/o Glasses:	
Hair Style:		Footwear:				Medic-Alert:	
<input type="checkbox"/> Beard <input type="checkbox"/> Mustache <input type="checkbox"/> Sideburns <input type="checkbox"/> Glasses		<input type="checkbox"/> Jewelry <input type="checkbox"/> Photo Available? <input type="checkbox"/> Return Photo? <input type="checkbox"/>		<input type="checkbox"/> Sole Sample Available <input type="checkbox"/> Scent Articles Available <input type="checkbox"/> Scent Articles Secured <input type="checkbox"/> Clothing Visible from Air?		<input type="checkbox"/> Smoker <input type="checkbox"/> Alcohol <input type="checkbox"/> Drugs <input type="checkbox"/> Gum <input type="checkbox"/> Candy <input type="checkbox"/> A Leader <input type="checkbox"/> A Survivor <input type="checkbox"/> Legal Problems <input type="checkbox"/> Personal	
<input type="checkbox"/> Hitchhiker <input type="checkbox"/> Religious <input type="checkbox"/> Educated <input type="checkbox"/> Local Hero <input type="checkbox"/> Extravert <input type="checkbox"/> Introvert <input type="checkbox"/> Loner <input type="checkbox"/> Depressed <input type="checkbox"/>							
<input type="checkbox"/> Youth / Child <input type="checkbox"/> Afraid of Dark <input type="checkbox"/> Afraid of Animals <input type="checkbox"/> Afraid of Strangers <input type="checkbox"/> Cry When Hurt <input type="checkbox"/> Cry When Scared <input type="checkbox"/> Hides When Afraid <input type="checkbox"/> HUG-A-TREE Trained <input type="checkbox"/> Has a Safety Word		<input type="checkbox"/> Pack <input type="checkbox"/> Tent <input type="checkbox"/> Sleeping Bag <input type="checkbox"/> Ground Cloth <input type="checkbox"/> Fishing Gear <input type="checkbox"/> Climbing Gear <input type="checkbox"/> Liquid Container <input type="checkbox"/> Fire Starter		<input type="checkbox"/> Stove <input type="checkbox"/> Fuel <input type="checkbox"/> Compass <input type="checkbox"/> Map <input type="checkbox"/> Food <input type="checkbox"/> Knife <input type="checkbox"/> Camera <input type="checkbox"/> Light Source		<input type="checkbox"/> Skis <input type="checkbox"/> Snowshoes <input type="checkbox"/> Money <input type="checkbox"/> Credit Cards <input type="checkbox"/> Other Documents <input type="checkbox"/> Rope <input type="checkbox"/> Camp Tools <input type="checkbox"/> Sat Phone	
						<div style="text-align: right; font-weight: bold; font-size: 1.2em;">Continue ➡</div>	

Figure 5.2. An example of a Lost Person Questionnaire—Page 1

ICS SAR 201B CCSO Version ICS Form 3/2008

Place Last Seen

Date	Time	Common Name / Description
Description		Additional Comments
Subject Last Seen by:		
Talked to Subject About::		
Weather Since:		
Subject's Direction of Travel:		
Subject's Attitude:		
Subject's Condition:		

Subject's Trip Plans

Itinerary	Transportation	Additional Comments
Started At:	Transported By:	
Date:	Vehicle Location:	
Time:	Make / Model:	
Destination:	License:	
By Way of:	Vehicle Location Confirmed By:	
Purpose:	Time Confirmed:	
Length of Stay:	Additional Vehicles at Scene:	
Size of Group:	Alternate Plans / Routes:	
Has Subject Made This Trip Before:	Discussed With:	

Subject's Outdoor Experience

General Experience	Additional Comments
<input type="checkbox"/> Familiar With Area <input type="checkbox"/> In Area Recently <input type="checkbox"/> Formal Outdoor Training <input type="checkbox"/> Medical Training <input type="checkbox"/> Scouting <input type="checkbox"/> Military <input type="checkbox"/> Overnight <input type="checkbox"/>	<input type="checkbox"/> Travels Alone <input type="checkbox"/> Stays on Route <input type="checkbox"/> Travels X-C <input type="checkbox"/> Lost Before <input type="checkbox"/> Will Stay Put <input type="checkbox"/> Keeps on Move <input type="checkbox"/> Climber <input type="checkbox"/> Athletic

Contacts Upon Reaching Civilization

Name of Person That Subject Would Contact	Relationship	Phone	Who Is There Now

Overdue Groups

Description	Group Characteristics
Kind of Group:	Personality Clashes:
Leader:	Actions if Separated:
Experience of Group / Leader:	Competitive Spirit:
Local Point of Contact:	Intragroup Dynamics:

Actions Taken So Far

By Family / Friends	By Others

ICS SAR 201B CCSO Version ICS Form 10/04/01

Figure 5.3. An example of a Lost Person Questionnaire—Page 2

The LPQ likely prompts more questions and areas to investigate. One of the goals in the initial investigation is to determine the nature of the incident. Not every missing person report requires a SAR response. Some cases can be resolved through the initial investigation. For example, there have been cases where a hiker is reported overdue by a third party. During the initial investigation local hospitals were checked for the subject or any unidentified persons matching the description and as a result of those inquiries missing/overdue persons have been located in the hospital suffering from a medical condition.

Not every missing person report requires a SAR response. Some cases can be resolved through the initial investigation.

As soon as possible after the report of a lost or overdue person is taken the subject of the search should be entered into the National Crime Information Center computer (NCIC) as a missing/endangered person as required by law.

Law enforcement investigators often have access to investigative databases, such as NCIC, Off-Line Local and FBI searches, and TLOxp[®]—a database for background research on people, assets, and businesses—among others, which can aid in developing background information about the lost or overdue person. The objective is to develop an accurate profile of the subject of the search and what may have happened.

There are many valuable sources of investigative material available to the investigator. Staying abreast of new investigative tools allows the Investigator to gather important information about the search subject that can inform strategy and tactics that aid in locating the subject. Interviews are often the most valuable source of information and can be used to confirm clues as well as generate additional leads to follow-up on. There are a variety of electronic clues available for investigators to utilize. These include, but are not limited to,

- Cell Phone Location Information.
- Vehicle Based Satellite Services (OnStar, mbrace2, SYNC[®]).
- License Plate Readers.
- Surveillance Camera Footage.
- Social Media accounts.
- Internet Search Engines (which can aid in locating additional contact information or images).
- Credit card/debit card transactions.

Investigative Tasks

The Investigator should be creative in developing sources of information that aid in providing background information about the subject as well as information that assists in locating the subject. A list of investigative tasks was developed by some experienced SAR personnel in Arizona. It is included in Win CASIE III and is reproduced here.

- *Complete LPQ*
 - *Photo*
 - *DMV/Motor Vehicle Photo and Physical Identifiers/Registered Vehicles*
 - *Local photographic studios and cameras for images*
 - *Internet (Social Sites, GOOGLE search engine)*
 - *Footwear Investigation*
 - *Missing in the past/circumstances*
 - *Cash/credit cards on person?*

- *On medication? If so, name of doctor.*
- *Leave note/keep diary?*
- *English speaking?*
- *Afraid of someone in a uniform?*
- *Afraid of water?*
- *Complete Missing Person Flyer*
 - *Release to Public*
- *Cell Phone*
 - *Which one?*
 - *Carrier?*
 - *Tracking capability?*
 - *Know how to call home?*
- *GPS/PLB/SPOT?*
 - *ID/Provider*
- *Email*
- *Check Public Transportation*
 - *Road: Buses, Coaches, Taxis, Car rental centers*
 - *Rail: Trains*
 - *Air: Aircraft*
 - *Water: Ferries*
 - *Interchanges*
- *Access to a vehicle, bicycle, horse, boat, airplane, ATV, snowmobile?*
- *Notify Adjacent Agencies*
- *Background/Criminal History of subject*
- *Background/Criminal History of reporting party*
- *NCIC/State Crime Information Center Entry*
- *Offline Search*
- *Financial records*
 - *ATM*
 - *Credit/Debit Cards*
 - *Tax liens*
 - *Video surveillance footage from business*
- *Computer: Home/Work/Library/School*
- *Reverse 911*
- *If subject is child*
 - *Issue Amber alert*
 - *Check SORT (Sex Offender Registration & Tracking System)*
 - *Contact <http://www.achild dismissing.org>*
 - *Stop trash pick-up in area so receptacles can be checked easily*
 - ◇ *Have landfill separate recently picked up trash from rest of landfill*
 - ◇ *If assistance is needed in landfill search, contact National Center for Missing & Exploited Children (NCMEC)—1-800-THE-LOST*
 - *The school they attend and the names of teacher and school administrator.*
- *If subject is elderly*
 - *Check for nametag, ankle bracelet transmitter*
 - *Contact <http://www.achild dismissing.org>*

- If subject is disabled, or college student, contact <http://www.achild dismissing.org>
- If subject is 21 or younger call NCMEC
- If foul-play is suspected, stop trash pick-up in area so receptacles can be checked easily
- Contact Friends/Family/School teachers/Classmates/Business associates/Family physician/Recreation associates
- Check Subscription Database, such as Autotrack
- Check whether at Facility (if not there leave description of subject, in case admitted later)
 - Hospitals
 - Mortuaries
 - Jails
 - Lodgings
 - Care centers
 - Mental health facilities
 - Detox centers
 - Battered women's shelters. These facilities may or may not be able to provide information.
 - Homeless shelters
 - County Protective Services
 - Photos/security camera footage of subject at facility
- All family pets accounted for?
 - What type of pet is missing? Pet's name?
 - Could pet pose a threat to searchers?

Investigative Lead Tracking List

As investigative leads are uncovered, it is important to keep track of them. One way to do this is to use a spreadsheet. See Figure 5.4 for a possible layout.

Investigative Lead Tracking Sheet V3								
Date	Lead #	Location	Clue, Lead, Investigative Action	Person Assigned	Status	Results	Follow Up Action	Comments

Figure 5.4. Possible Investigative Lead Tracking List

The columns are completed as follows.

- **Date.** The current date.
- **Lead #.** Use this column to number the leads. Numbers should not be repeated. This number is used to identify the lead. Typically numbers are sequential, starting from “1”.
- **Location.** The location or origin of the lead. For example, “32.1161° N, 110.9411° W” or “Subject’s mother”.
- **Clue, Lead, Investigative Action.** If the item is a Clue, for example, a note left in the subject’s vehicle, then it should be described briefly, with a cross-reference to the appropriate clue log sheet, where full details are found. If the item is a Lead, for example, the mother stated that the subject has a cell phone, then full details should be entered in this column. If the item is an Investigative Action, for example “Re-interview mother reference Lead #1.”, then details need to be supplied.
- **Person Assigned.** The person assigned to follow up on the lead.

- **Status.** The current status of the lead. For example, “Being investigated” or “Resolved”.
- **Results.** The result of the lead. For example “Unrelated” or “Cell phone not answered”.
- **Follow Up Action.** The recommended action to be taken, For example, “None”, or “Re-interview mother”.
- **Comments.** Any additional information.

Clues

When an investigator finds a possible clue its details should be immediately transmitted to the IC, OSC, and the SITL. The IC and OSC usually decide whether and how to collect clues. The SITL is responsible for the storing, cataloging, authentication, and analyzing of clues, and is discussed on page 64.

Missing Person Flyer

The information from the LPQ can be used to generate a Missing Person Flyer (see Figure 5.5 on the next page), which can be distributed to media outlets, given to searchers to use when contacting other persons in the search area, and for posting at trail heads and other locations where the public may see it. This is a good way to gather additional investigative information about the lost or missing person.

Once a Missing Person Flyer is released there may be many tips that come in from the public. If that is the case adding staff to the I/I function may be necessary to parse through and prioritize the information for follow-up to determine what is relevant and what is not.

Section 5.5

Gathering Essential Searching and Planning Information

Searching and Planning information was discussed on page 18. There the emphasis was on the Planning Section. Here the emphasis is on Investigation. Searching information is the information that is of most use to the searchers in the field. Planning information includes other information that assists in planning appropriate strategy and tactics for the search as well as information that is of assistance in forecasting the future of the search. Much of the Searching Information and Planning Information can be gleaned from the LPQ. The LPQ often sparks additional questions that are useful for searching and planning. Some of the critical information for searching and planning includes

- Reporting Party information.
- Subject(s) of the search information.
- Physical description.
- Equipment carried.
- Medical or behavioral conditions.
- Place Last Seen (PLS) or Last Known Position (LKP).
- Subject(s) trip itinerary.
- Subject(s) outdoor experience or training.
- Lost Person Behavior (LPB) category.
- Other contacts the subject(s) might make.
- Actions undertaken by friends/family or others.

Additionally the following information is helpful in searching and planning.

- Weather conditions during the time of the outing.
- Search history in the area.

COCONINO COUNTY SHERIFF'S OFFICE
1-800-338-7888

MISSING PERSON

DATE: 04/19/07

CASE#: S07-01132



Name: REINHARD KIRCHNER

Age: 61

Height: 5' 10"

Weight: 160 pounds

Eyes: BROWN

Hair: BROWN/GRAY

Complexion: MEDIUM

Ethnicity: WHITE/GERMAN

**Possible Clothing: EARTH TONE HIKING PANTS AND SHIRT (GREEN
AND TAN POSSIBLY)**

**Equipment: HE MAY BE CARRYING A DAY PACK, A HIKING STICK,
AND A CAMERA IN A BLACK CAMERA CASE**

The Coconino County Sheriff's Office is seeking any information regarding the whereabouts of Reinhard Kirchner. Mr. Kirchner's vehicle was located in the Hellhole Bend area along the Little Colorado River Gorge in the beginning of April 2007. He failed to meet a friend in Las Vegas, NV on April 9, 2007 and was reported missing at that time. Mr. Kirchner is an avid hiker and has done extensive hiking in the Colorado Plateau area. A search was initiated in the area by the Coconino County Sheriff's Office and the Navajo Police Department on April 12, 2007. As of the date on this flyer he has not been found.

Anyone with information about this incident or Mr. Kirchner is asked to call the Coconino County Sheriff's Office at 1-800-338-7888 and ask for the Search and Rescue Coordinator or the Criminal Investigations Division.

Figure 5.5. An example of a Missing Person Flyer

- Effective search techniques for the area.
- Lost Person Behavior information including distance traveled.
- Permits issued by land management or game management agencies.

The initial information collected is often from the reporting party. The Investigator should seek out other persons to interview that have knowledge of the lost person. It is not uncommon for family members to be reluctant to divulge potentially sensitive embarrassing information about the lost person. Other sources such as co-workers, friends, and hiking companions may provide different perspectives about the lost person that are valuable for searching and planning.

It is not uncommon for family members to be reluctant to divulge potentially sensitive embarrassing information about the lost person.

When investigating permits issued by land management or game management agencies it is important to not only seek out the permit issued to the lost person but also seek out permits for others that would have been in the area at the same time as the lost person. Those other permit holders should be contacted and interviewed to determine if they have any information that would be useful for the search or investigation. All efforts should be made to interview the employee that issued the permit to determine if any advice was given or if any of the conversation between the permittee and the permit issuer would provide clues about the subject's whereabouts.

Determining the LPB category is an important outcome from the investigation. There are a variety of lost person behavior sources available to be consulted. The best source is local data if available. If local information is not available, there are sources of lost person behavior information included in Win CASIE III and reproduced in Chapter 20 on page 193. Regardless of which source is used it is a good practice to document the source of the data consulted.¹

Lost Person Behavior

The LPB category of the subject is an important piece of searching and planning information. LPB provides general characteristics and distance traveled for many different categories of lost persons. This information is valuable for considering where to place containment and where to search. It can also inform search strategy and tactics based upon previously observed and documented behaviors for the lost person categories. The strategy and tactics for searching for an Autistic child is likely to be different from searching for a hiker. Reviewing the LPB with the IMT and the searchers is important with the caveat that the person being searched for is not part of the statistical data set yet and may do something entirely different than would have been predicted by the LPB data. Caution should also be exercised when using LPB data that has a small sample size.

The person being searched for is not part of the statistical data set yet and may do something entirely different than would have been predicted by the LPB data.

Local LPB data is the best source if it is available. If not already in place local or state agencies should develop a method for collecting and analyzing lost person data from area response agencies.

¹ Other sources of data are "The U.K. Missing Person Behaviour Study, March 2011" by Dave Perkins, Pete Roberts, and Ged Feeney available from http://www.searchresearch.org.uk/www/ukmpbs/report_archive; and "Lost Person Behavior" by Robert Koester, dbS Publications, 2008, <http://www.dbs-sar.com/LPB/lpb.htm>. A comparison of these data sets can be found in "The ISRID statistics and UK missing person incidents" by Dave Perkins, available from http://www.saraz.org/documents/ISRID_and_UK_incidents.pdf.

Collecting Local LPB Data

LPB data that should be collected at a minimum includes:

- *Lost Person category.*
- *Initial Planning Point (IPP) location and elevation.*
- *Location found and elevation.*
- *Distance between IPP and location found (“As the crow flies”).*
- *Individual or group?*
- *If a group, did they stay together or separate?*
- *Successful search tactics used (route/location search, K9, trackers, aircraft, etc).*
- *Detectability. (Did the subject(s) respond to searchers?)*
- *Subject actions (signal for help, build a shelter, no self-help).*
- *Subject preparedness (equipment and training).*
- *Medical condition when found.*
- *Subject residency. (Where were they from?)*

The accurate collection of that information provides useful searching and planning information and its importance to future efforts should be stressed to agencies that are engaged in SAR in the area. If the quality of the information collected is poor then the resulting statistics generated from the data is poor, which recalls the old adage of “Garbage In, Garbage Out”. If a piece of data was not collected do not manufacture something to complete the form.

Section 5.6

Interacting with other ICS and Incident Staff

The Investigator must regularly interact with the staff of the Planning Section, especially the Situation Unit; the Operations Section; and the Command Staff. The information being gathered and analyzed affects resource selection and assignments. Participation in the Tactics Meeting and Planning Meeting is important to share information with the rest of the IMT.

The OSC and the Investigator should be in close consultation as the information gathered during the investigation may influence the tactics that the searchers are using or should not use.

For Investigators that are unfamiliar with ICS or search management there might be a tendency to withhold information while additional investigation is conducted. That behavior can hamper search efforts. It is possible that sensitive information could be uncovered during the investigation that could be of a criminal nature or could be embarrassing to the subject or subject’s family. The IMT should be briefed that the information shared is confidential and should be used for search planning only.

Some of the information developed by the Investigator may be appropriate for public release and some may not. The Investigator should work closely with the PIO to disseminate information that may generate more clues and also discount rumors that may arise. The PIO may also be monitoring information on social media and other websites that could generate leads for the Investigator to follow-up on.

Investigators may develop information that indicates that the subject of the search may have staged a disappearance, be a victim of a crime, or be otherwise unresponsive or undetectable. This information needs to be carefully considered before sharing it with the searchers. If this type of information reaches searchers before it is confirmed it may have a negative impact on searcher morale and effectiveness. If searchers believe that the subject of the search is not in the area or may be dead they may consciously or unconsciously put less effort into the search.

CHAPTER 6

Scenario Analysis

Section 6.1

Overview

Scenario Analysis is an attempt at analyzing what the missing person might have done after leaving the IPP.¹ The analysis starts with developing several plausible scenarios and ends with analyzing and prioritizing each of the them.

Scenario Analysis, like investigation, begins during the Initial Response and ends when the subject is found.

Scenario Analysis begins during the Initial Response and ends when the subject is found.

Scenario Analysis is not a one-time exercise—it is an ongoing activity that must be conducted throughout the incident. For example,

- In the Initial Response phase of a search.
- In the transition to an Area Search.
- Every time a new clue is located.
- After searching for some time without locating any clues.

Conducting a Scenario Analysis is the responsibility of the Situation Unit Leader (SITL), with contributions from others, such as the PSC, the OSC, the IC, the Investigator, and other experienced search management personnel. These people should brainstorm the “What If?” scenarios that suggest what the missing person might have done after leaving the IPP.

Before developing scenarios, the PSC, I/I, and SITL should provide a briefing to the rest of the scenario team about the subject and the known circumstances surrounding the incident.

A timeline can be helpful including the subject’s activities, the weather, the subject’s itinerary if known, and any other significant events such as any communications made by the subject (cell phone, social media, ...).

¹ Scenario Analysis is based on the work of Dave Perkins and Pete Roberts, see Reference [Perkins 2].

Section 6.2

Developing and Analyzing Scenarios

There are three components to good scenario construction.

1. Get the facts.
2. Make reasonable assumptions.
3. Fit the facts and assumptions together.

These components are considered in turn.

1 Get the facts

- a) The missing person's profile. Who is the subject of the search? What kind of person are they, their age, background, and health? This information is contained in the LPQ.
- b) The incident history. What did the missing person set out to do and what were they doing when last seen? This is contained in the investigative report.
- c) Map analysis. What kind of terrain is the subject in? Where are the hazards and what are they? What might act as a barrier or a likely spot (magnet)? Are there any well-defined routes that they might have followed? This involves local knowledge (so if possible involve someone who knows the area) and understanding and interpreting topographic maps.
- d) LPB information. Having decided on the category of the missing person then LPB information provides the following:
 - The type of behavior that people in this category have exhibited.
 - The location in which they were found. Most categories of missing person tend to favor certain types of locations. By matching these with the map, likely places for the missing person can be identified.
 - The “as the crow flies” (straight line) distance they were found from the IPP. This gives an idea of the possible size of the search area.

2 Make reasonable assumptions

- a) To paraphrase Syrotuck in Reference [Syrotuck, page 21]: “*Put yourself in the subject's shoes*”. “*If you were that age, that height, that frame of mind, and in that situation, what might you do?*”
- b) Activity or purpose. What might the missing person have done to take them away from the IPP?
- c) Direction of travel. Which direction would that activity take them from the IPP, bearing in mind any barriers, likely spots (magnets), and routes identified on the map?
- d) Destination. This could be a place that they set out to travel to, or a location from LPB information that is consistent with their direction of travel.

3 Fit the facts and assumptions together

- a) The scenario should be consistent with the known facts—these are contained in the missing person's profile, the incident history, and features on the map.
- b) The scenario should be realistic. It should be consistent with the LPB information for this kind of person and this type of terrain rather than involving external agencies and chance events.
- c) It is perfectly acceptable to have scenarios that take the missing person out of the immediate vicinity, for example they might have gone home or they might have had an accident and be in the hospital.
- d) Routes and Locations: Visualize the scope of the problem by drawing the scenarios on a map.

- i. Mark any travel aids such as trails, streams, ridges or gullies, that the scenarios suggest the missing person might have followed. Remember that there may be more than one route to get from the IPP to a possible destination.
- ii. Mark any locations and hazards suggested by these scenarios. These can be specific, for example a particular building, a well-known viewpoint; or they may be general, for example the edge of a wood, a dry wash, a cliff face, or the shore of a lake.

The preferred Scenario Analysis method is to generate a number of scenarios rather than relying on one. At least three scenarios should be generated. With fewer scenarios, some perfectly reasonable possibilities may be missed.

Good scenarios include a direction of travel, a route, and a likely location. It may be that a number of scenarios cover a range of possibilities that appear to contradict each other, but this is perfectly possible—discount nothing, accept anything that is “reasonable”, and avoid fantasy.

Having constructed reasonable scenarios, two things need to be done.

1. Record the details of each scenario.
2. Assign a priority to each scenario. Deciding where to search, what tactics to use, and where to assign resources is based on where the missing person is most likely to be. “Where the missing person is most likely to be” comes from these scenario priorities.

Scenarios constitute an important part of the incident and must be documented. See the following table for a suggested Scenario Record Sheet.

Scenario Record Sheet

Incident Name:

Scenario Details	Priority
A.	
B.	
C.	
D.	
E.	
F.	
Prepared by: Name: _____ Position: _____ Signature: _____ Date: _____ Time: _____	

Instructions for completing Scenario Record Sheet

1. Scenario Details. Write down any scenarios that may describe what happened to the missing person. Write them in any order. Include the assumed state of the subject: mobile, immobile, responsive, unresponsive.
2. Priority. Give each scenario some indication of the likelihood that it describes what actually happened. Base the priorities on what is known about the missing person, information obtained from the map, local knowledge, and information from LPB characteristics. Use numbers to indicate priority (1 for the highest, 2 for next highest, and so on, although the numbers need not be consecutive). Equally likely scenarios are given the same priority number.

Some final thoughts about Scenario Analysis

- Without scenarios the IMT is doing little more than guessing where the missing person might be.
- All four information sources needed to create scenarios must be used—missing person profile, incident history, map analysis, and LPB information. If one is omitted the picture is incomplete.
- Generating scenarios needs to be an established and ongoing part of the incident management procedure.

An example of a completed Scenario Analysis form is demonstrated in the next section.

Section 6.3 Demonstration

Background Facts

On a Sunday in July at about 0800 hours, Mrs John Fairbrother called 911 to report that her husband, a white male aged 50 years, and two other men left Phoenix early Saturday to search for the fabled Lost Dutchman Gold Mine. They should have returned the same evening, but they did not, and Mrs Fairbrother has heard nothing from her husband. John's vehicle was discovered at the First Water trail head in the Superstition Mountains at 0900 hours. See Figure 6.1 on page 61. John had searched for the mine often, and was very excited about going back this time, more so than any time in the past. The men were not prepared to spend the night in the wilderness. John weighs 300 pounds, has a heart condition, and routinely carries large amounts of cash. The other two men are Ben Duang (a male of Cambodian descent, aged 70 years, in good physical shape, friends with John for 30 years, unmarried), and Helmut Grässer (a white male aged 60 years, speaks with a German accent, unmarried, suffers from asthma, smokes Camel cigarettes, met John and Ben for the first time at a bar a week ago). Temperatures in the area are in the triple digits. Historically, searches for seekers of the Lost Dutchman Gold Mine resulted in most subjects being found off trail, but with no discernible location pattern.

Scenario Analysis

Because of John's physical condition they would not have gone far, perhaps less than a mile, and because they were searching for the Lost Dutchman Gold Mine, they could be off trail.

Possible Scenarios that can reasonably account for the men's disappearance:

1. All three subjects are alive and well. Initially they took either Dutchman's Trail or Second Water Trail. They became disoriented. They have either decided to sit in the shade and wait to be rescued or to try to find their own way back. They are mobile and responsive.
2. At least one subject is unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail at least one of them was injured or

died. One of the healthy ones is hiking out for help. The others are waiting to be rescued, in which case they are immobile and at least one is responsive. The person hiking out is mobile and responsive.

3. All subjects are unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail all three were injured or died. If all three are dead, they are immobile and unresponsive. If any are alive and conscious, they are immobile but responsive.
4. All three subjects are alive and well. They found Lost Dutchman Gold Mine, and are so excited they have lost all track of time. They are mobile and responsive, although they may be evasive.
5. All three subjects are alive and well. They found Lost Dutchman Gold Mine, but are trapped inside. They are immobile and responsive.
6. Some or all are the object of foul play, either by someone within the party, or by unknown subjects.

Possible prioritization of scenarios:

Scenario Record Sheet

Incident Name:

Scenario Details	Priority
A. <i>All three subjects are alive and well. Initially they took either Dutchman's Trail or Second Water Trail. They became disoriented. They have either decided to sit in the shade and wait to be rescued or to try to find their own way back. They are mobile and responsive.</i>	1
B. <i>At least one subject is unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail at least one of them was injured or died. One of the healthy ones is hiking out for help. The others are waiting to be rescued, in which case they are immobile and at least one is responsive. The person hiking out is mobile and responsive.</i>	1
C. <i>All subjects are unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail all three were injured or died. If all three are dead, they are immobile and unresponsive. If any are alive and conscious, they are immobile but responsive.</i>	3
D. <i>All three subjects are alive and well. They found Lost Dutchman Gold Mine, and are so excited they have lost all track of time. They are mobile and responsive, although they may be evasive.</i>	10
E. <i>All three subjects are alive and well. They found Lost Dutchman Gold Mine, but are trapped inside. They are immobile and responsive.</i>	10
F. <i>Some or all are the object of foul play, either by someone within the party, or by unknown subjects.</i>	5
Prepared by: Name: _____ Position: _____ Signature: _____ Date: _____ Time: _____	

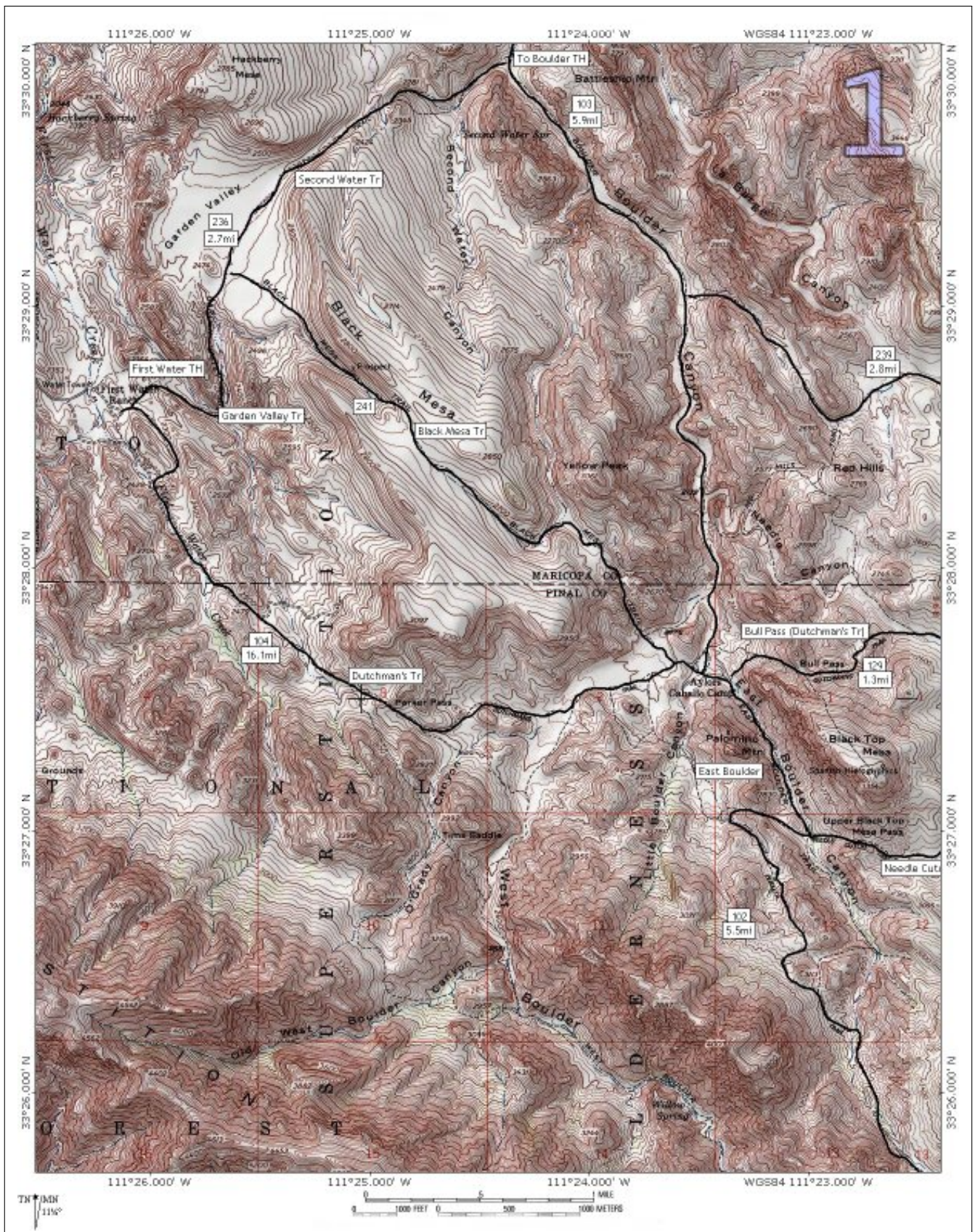


Figure 6.1. Superstition Mountains

CHAPTER 7

Gathering, Analyzing, and Using Incident Information: the Core of Search Planning—Route and Location Searches

Section 7.1 Overview

The Situation Unit, like the White House Situation Room, is where nearly all of the incident information is received, processed, analyzed, and displayed to aid in decision making. The information about area searched, clues found, weather affecting the incident, and other vital information is collected and displayed. Information or the lack thereof greatly impacts the incident. When an incident map is shown on the evening news it may be the product of the Situation Unit. Producing quality informational products helps instill confidence in the Incident Management Team (IMT) and allow for good decision making.

Information drives the incident and the Situation Unit is the focal point for gathering, analyzing, and distributing that information to the rest of the incident. Maintaining situational awareness is not only critical for personnel in the field but is also critical for the IMT.

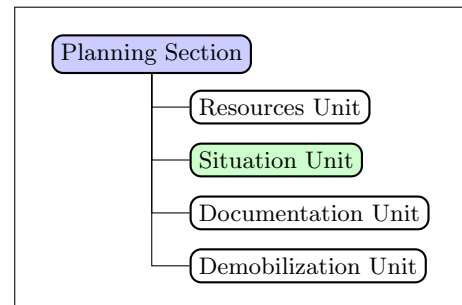


Figure 7.1. Situation Unit

Information drives the incident and the Situation Unit is the focal point for gathering, analyzing, and distributing that information to the rest of the incident.

The Situation Unit should also be cognizant of other incidents occurring in the region. These incidents may not be other SAR operations but could be any all-hazard incident that might compete for resources that are needed on a search. Other incidents and activities can have a significant impact on the future of the incident being managed.

During the Initial Response phase of the SAR incident the Situation Unit is not likely to be staffed but staffing it early in an incident is a good practice.

A Situation Unit Leader Job Action Sheet can be found on page 280.

Section 7.2

Staffing the Situation Unit

The Situation Unit is supervised by the Situation Unit Leader (SITL). When the SITL arrives at the incident it is critical that they receive a briefing from the PSC about the status of the incident, the objectives, the potential for the incident to grow, the meeting schedule, and the ICS 201, Incident Briefing, see page 207, or written IAPs. Starting out with good information helps to ensure success. Within the Situation Unit there are several subordinate positions that may be filled depending upon the nature of the incident. Evaluating staffing needs is another important step for the incoming SITL. The subordinate staff may include

- Display Processors (DRPO)/Geographic Information System Specialists (GISS): Responsible for preparing displays, maps, photographs, and other visual aids for the incident based on information gathered by personnel in the field and the Investigator.
- Field Observers (FOBS): Responsible for conducting field observations of the incident operations and making note of incident facility locations such as camps, helispots, helibases, etc.
- Weather Observers (WOBS): Responsible for monitoring weather around the incident and providing the observations to the SITL, the incident meteorologist, or the local National Weather Service station providing forecast information.
- Technical Specialists : Technical Specialists may be used to provide a specialized skill or operate special equipment, for example: a Win CASIE III operator, a Photography Specialist, a Clue Specialist, an Investigator.

In SAR operations it is critical to debrief the search teams as they complete assignments. The Debriefers also work in the Situation Unit. It is important to gather accurate information from the teams in the field about the quality of their search. Search teams need to report the region that they searched, how well they searched it, hazards found, communications problems, clues found, and recommendations for future search efforts. That information must be documented and analyzed for use in planning future search assignments. This is discussed in more detail in Chapter 14 on page 165.

Section 7.3

Situation Unit Work Space

As the nature of the Situation Unit is collecting, processing, and displaying information the work space must be suitable for those tasks. Ideally the work space should include computers, printers (color printers and plotter printer), copy machine, internet access, phones, various office supplies including paper, ink, pens, pencils, acetate overlays, white boards, and a computer projector. Workspace must also include wall space and a map table for displaying and working on incident maps. There is a lot of activity in the Situation Unit so selecting the right area to work is important. If possible the Situation Unit should be located near the Operations Section to facilitate efficient and unimpeded information flow between the Operations Section and the Situation Unit. This can be challenging in SAR operations that occur in remote areas. The Situation Unit may need to work remotely with some staff on site to conduct debriefings and gather information to be fed back to the rest of the Situation Unit. A mobile command vehicle with computers, satellite internet capability, printers, satellite and/or cellular phones, and some office supplies may suffice.

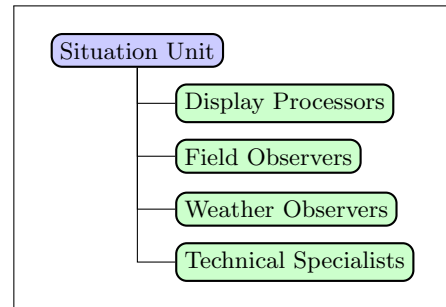


Figure 7.2. Situation Unit positions

Section 7.4

Analyzing Current Tactics and Resource Assignments

Once the information about the lost or missing person is gathered and considered, tactics for searching for the person can be developed and the appropriate resources deployed. The ICS 201, Incident Briefing, or the Initial Note in Win CASIE III are the appropriate places for recording this information during the Initial Response. Alternative tactics and plans for certain situations, such as a Rescue Plan in the event the subject is located, should be formulated while the initial tactics are being carried out. As the incident progresses the information about resource assignments and tactics should be documented in a written IAP as well as in Win CASIE III.

It is important to realize that initial information collected may prove to be inaccurate as additional investigation is conducted. As new information is developed about the subject of the search it may indicate a need for a change in tactics and resources. It is sometimes easy to fall into the mindset trap and only “hear” new information that supports existing scenarios, strategy, and tactics but it is an important role of the Situation Unit and the Investigator to receive and analyze new information and critically assess its implications for the current strategy and tactics. This is discussed further in Section 10.6 on page 143.

Clues

Clues come in a variety of forms:

- **Physical** clues include foot tracks, a blood trail, an abandoned vehicle, a campsite, dropped clothing or equipment, a candy wrapper, a note, a dog alert, a trailhead register,
- **Electronic** clues include cell phone data, email, web site visits, other computer forensic information, satellite emergency notification devices (SEND) information, other emergency beacons, permit information,
- **Witness reports** are also very important clues and should be evaluated by a trained interviewer. If the family or witnesses do not speak English as a first language, it is important to use an interpreter to prevent misunderstandings and miscommunication of critical information.
- **Investigative information** can also be considered clues and include use-permit information from a land management agency, financial information, criminal history, law enforcement database information, medical history,

A clue is usually found either by a resource in the field or by an investigator. A clue’s details should be immediately transmitted to the OSC, and possibly to the IC, who usually decide how to process the clue. In some cases it may be acceptable for the searcher to document a physical clue with a photograph and the exact location and leave the clue in place. Other times it may be prudent to have an Investigator or other law enforcement official respond to the location to process the clue. In still other cases it might be acceptable to have the searcher collect the clue and bring it into the Incident Command Post (ICP) when they complete their assignment.

Then all clues become the responsibility of the Situation Unit which

1. Stores all clues.
2. Documents all clues.
3. Authenticates all clues.
4. Checks for unresolved clues.
5. Analyzes the clue for its impact on the search.
6. Advises PSC and OSC of the clue status.
7. As appropriate—either at the end of search or if needed as evidence in court—passes on clues to the agency of jurisdiction (law enforcement) for final storage.

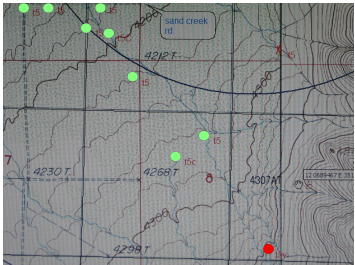
Clues, once reported, are generally documented individually on a Clue Report form and then entered collectively on a Clue Log form. See Figure 7.3.¹

[illegible]

Figure 7.3. Clue Report and Clue Log forms

Pattern of Clues

The image on the left shows the location (in green) of clues that were found while searching for a missing person in rural New Mexico. In the Clue Log these clues gave little indication of the direction of travel, but they clearly did when plotted on a map. The red dot indicates the location of the subject, who was found alive by following the direction of travel.



One concern with clue forms is that there may be many clues developed and, if there is no good accounting system in place, then a clue may be overlooked or lost. Each clue could be the clue that cracks the case, so investigating every clue is important. Large searches, such as the Fossett Aircraft search,² generated thousands of clues and it was a challenge to manage all that information.

Each clue could be the clue that cracks the case, so investigating every clue is important.

¹ These forms, available in Win CASIE III, were designed by the Bay Area Search and Rescue Council (<http://www.basarc.org>).

² See Reference [Fossett].

Don't be misled! Maintain a healthy suspicion about a clue until the validity of that clue is verified. Confirm the validity before taking irreversible actions based upon that clue. In search operations, expect many 'false clues'.

Maintain a healthy suspicion about a clue until the validity of that clue is verified.

The free Windows software program, Clue Manager, is very helpful in keeping track of clues and other investigative information. With Clue Manager the status of each clue can be monitored and sorted so that important clues are not overlooked.

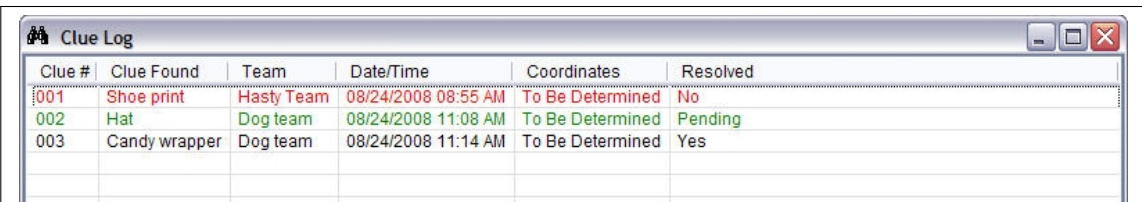
Clue Manager

Clue Manager is a free Windows software program geared towards SAR. It is designed to keep track of the clues found during a search. Clue Manager can be downloaded from <http://WWW.SARAZ.ORG>.

Clue Manager starts a new collection of clues for each incident. The program assigns a number to each clue and has fields to record the following information:

- *Date and Time Located*
- *Operational Period*
- *Paperwork Cross Reference*
- *Team that Located the Clue*
- *Person that Located the Clue*
- *The Type of Clue Found*
- *Clue Location/Coordinates*
- *Detailed Clue Description*
- *Photo and Photographer*
- *Image Location*
- *Instructions to Team*
- *Action Taken*
- *Clue Resolved*
- *Authenticity of Clue*
- *Prepared By*
- *Date and Time Prepared*

After clues have been entered, a Clue Log can be generated, where it is easy to see which clues are resolved, which are pending, and which are, as yet, unresolved. In this way, no clues are overlooked. The Clue Log can be printed and so be made a part of the documentation of the incident. It can also be saved as a CSV text file, where the fields are separated by commas. CSV files can be imported into a spreadsheet, where they can be massaged, manipulated, and printed.



Clue #	Clue Found	Team	Date/Time	Coordinates	Resolved
001	Shoe print	Hasty Team	08/24/2008 08:55 AM	To Be Determined	No
002	Hat	Dog team	08/24/2008 11:08 AM	To Be Determined	Pending
003	Candy wrapper	Dog team	08/24/2008 11:14 AM	To Be Determined	Yes

Figure 7.4. The Clue Log in Clue Manager

Photos can also be manipulated, to enhance details. For example, a photograph of a footprint in snow is better viewed as the negative ("inverting the colors") of the original photo.

As the search progresses the strategy and tactics being employed should constantly be evaluated for their effectiveness. If clues are being located by searchers that may be an indication that the tactics are working. If no clues are being located that may indicate a need for a change in tactics or for further investigation to ensure that the search is being conducted in the right location. It is important to remember that the absence of clues is also a significant clue.

It is important to remember that the absence of clues is also a significant clue.

Debriefing Resources

Debriefing resources allows for the evaluation of the strategy and tactics. The weather, vegetation, and topography significantly impact searchers. When using aviation resources the penetration of the vegetation canopy to the ground is a very important consideration and should be covered in the debrief. If during an assignment the weather was poor with low visibility then that should be addressed in the debrief with a note that the area may need to be searched again under different weather conditions. Sometimes the actual topography is more complex than it appears from a topographic map. The ground searchers should be asked about the actual conditions to determine if they match what was envisioned by the IMT when the assignments were made.

During the debriefing of resources as they complete assignments an effort should be made to collect GPS track logs for those resources. See Figure 7.5. Most searchers have their own GPS and instructions can be given at the beginning of an assignment to clear the track log in the GPS units and collect a track log for their assignment. If a resource does not have a GPS some agencies may have a cache of GPS units that can be issued out for this purpose. Search dogs often wear a GPS as well, so their tracks can be downloaded. Aircraft may carry a GPS for this purpose or they may have other tracking equipment such as Spidertracks, for flight following and the track log made by that equipment may be available for an overlay on a map.

The value of downloading the track log data is that it allows for confirmation that the resource searched the area that they were assigned to search and may identify gaps in the search area (Figure 7.5). If the resource was also marking locations on their GPS such as the location of clues, hazards, or attractions, those waypoints can also be downloaded.

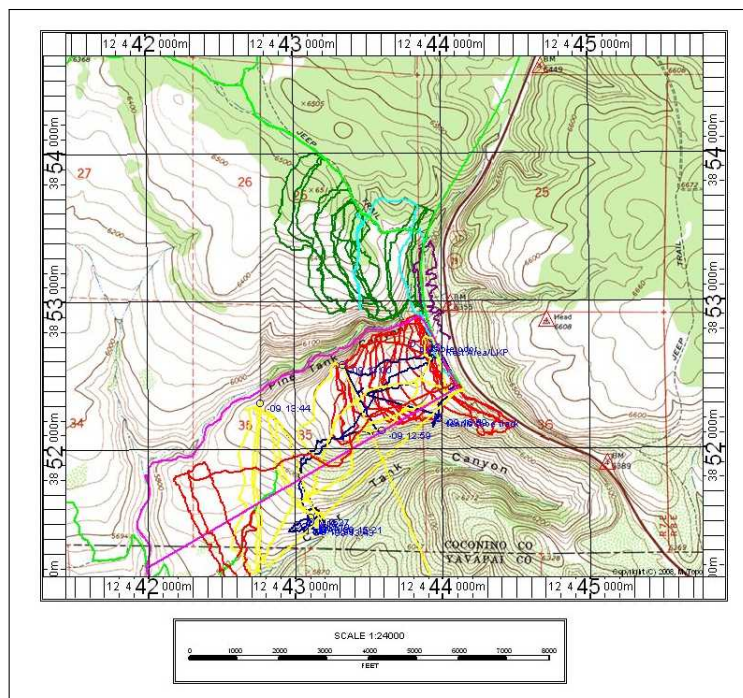


Figure 7.5. An example of GPS track logs collected and displayed on Terrain Navigator Pro

There are a variety of mapping software and Geographic Information System (GIS) packages available. These range from the relatively less complicated but powerful consumer grade mapping software (MyTopo Terrain Navigator Pro, DeLorme Topo, National Geographic Topo! and iGage All Topo Maps) to the more complicated and more powerful professional grade GIS applications (ArcGIS, Global Mapper). These are discussed in more detail in Section 9.2 on page 110.

Mapping software allows for a connection to a GPS to download tracks and waypoints from the GPS for display on a map in the software. Conversely information can be uploaded from the software to a GPS if assignments or locations are prepared on the software prior to a resource being deployed. The tracks and waypoints can be edited in the software to identify who made them and what the assignment was.

A freely available software package from the Minnesota Department of Natural Resources³ called DNRGPS allows for collection and manipulation of GPS information including converting between points, lines, and areas, and exporting information in a variety of file types including the popular .gpx, .shp, .kml, and .gml files. DNRGPS can also be used with ArcMAP from Esri to do realtime tracking when a GPS is connected to a laptop computer.

Collecting the GPS information is not a terribly hard task but it is preferable to have someone familiar with the software and an assortment of GPS units to conduct this task. That person needs a variety of GPS cables to connect to GPS units. Searchers may be asked to supply their own cables when they report for debriefing.

Section 7.5

Projecting Incident Progress: Providing Crucial Planning Information for Operations and Planning

Forecasting the future of the incident is an important component of what the Situation Unit does. Not only should the current tactics and resources be evaluated but the future of the incident should be studied. Many “What If?” questions should be considered and discussed by the members of the IMT. It is easy to get caught up in the “now” of a situation and not look ahead.

During the Initial Response, triggers may need to be established to help determine when to transition from the Initial Response and Route and Location Search to an Area Search. The point at which it is believed that the search subject is immobile is generally the trigger to switch from a Route and Location Search to an Area Search. There may be occasions where it is impractical to conduct an Area Search and Route and Location Search techniques are continued, but it is important to consider these triggers carefully. It is often tempting to avoid switching to the different phases of a search and think that given a little more time the subject is going to be found. The Situation Unit should be providing information and analysis so that the IMT does not fall behind the curve and then has to struggle to catch up.

When projecting incident progress it is often helpful to engage Technical Specialists who can assist in forecasting the incident. In a search these may include meteorologists, investigators, geographical information specialists, lost person behavior specialists, and others whose input may be valuable in shaping a picture of the future of the incident. This information helps in the Planning Process to determine tactics and resources needed to carry out the search.

Section 7.6

Preparing the ICS 209

The ICS 209, Incident Status Summary (see Section 23 on page 231), is used for reporting information on significant incidents. It is designed to provide a “snapshot in time” to effectively move incident

³ <http://www.dnr.state.mn.us/mis/gis/DNRGPS/DNRGPS.html>

decision support information where it is needed. The information to complete Page 4 of the ICS 209 is provided to the Situation Unit by the Resources Unit. The ICS 209 is prepared by the Situation Unit, following the instructions starting on page 235. The ICS 209 is usually forwarded to the Agency Administrator and the local dispatch center at least once each day.

Section 7.7

Using Win CASIE III During a Route and Location Search

Running Win CASIE III and clicking on the menu item “Initial Resources” displays Figure 7.6. These are some of the options available during a Route and Location Search.

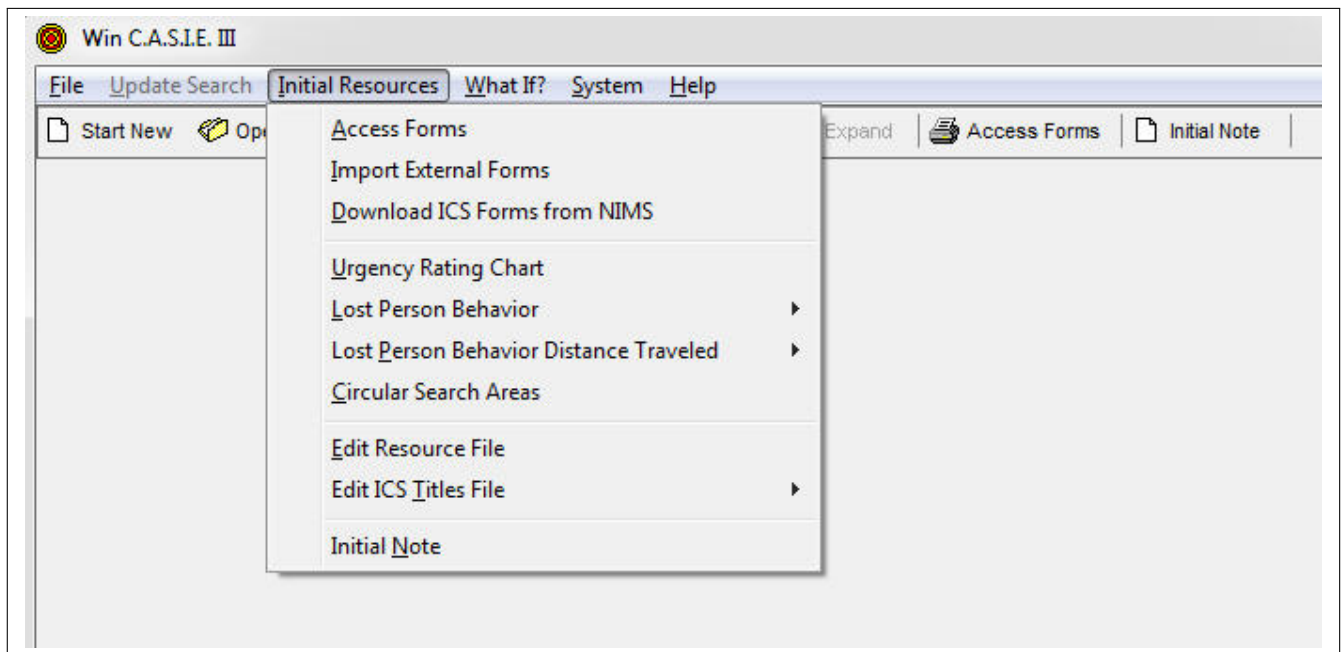


Figure 7.6. The Initial Resources menu item in Win CASIE III

- *Access Forms*, which can also be accessed from the Toolbar, leads to various forms that fall into two categories.
 1. Forms that are generated within Win CASIE III—such as *Consensus Forms* and *Influence of Clue* Forms. These can be printed or saved to a thumb drive and printed elsewhere.
 2. Preexisting forms and documents (*txt*, *pdf*, *doc*, *docx*) that can be opened and printed. Examples of these are
 - Various ICS forms.
 - Several LPQs, such as those mentioned on page 16.
 - “Interviewing a Subject Found Alive”. This document suggests ways of conducting a post-incident interview with the found subject.
 - “Investigative Task Checklist”. This is a checklist of items to be considered by the Investigator to make sure nothing is missed. This is reproduced on page 49.
 - “Questions for Self-Reporting Subject”. With the increased usage of cell phones, more and more subjects are reporting themselves lost via a cell phone. Interviewing these subjects requires a different mind set from interviewing a typical reporting party. This document suggests questions to ask a lost subject who self-reports by cell phone.

- “Searching for Subjects with Autism”. The National Autism Association has compiled a SAR checklist when the missing subject is autistic, as has the Autism Safety Project. Their suggestions are summarized in this document.
 - Win CASIE III Manual. This document is about 150 pages long. In addition to explaining all the Win CASIE III menu items in detail, it also has many exercises (with answers at the back), and a number of table-top exercises.
- *Import External Forms* allows the user to import *txt*, *doc*, *docx*, and *pdf* documents, which can then be opened or printed under *Access Forms*. This menu item is unavailable if the Application Folder—the folder which contains Win CASIE III—cannot be written to.
- *Download ICS Forms from NIMS* allows the user to open the default web browser at the National Incident Management System (NIMS) website, if the user is connected to the internet, and download Incident Command System forms.
- *Urgency Rating Chart* allows the user to complete an Urgency Rating Chart, described in Chapter 21 on page 203, and then copy it to the clipboard for pasting into the Initial Note.
- *Lost Person Behavior* allows the user to read about the typical behavior of a lost person, based on various characteristics for subjects in the UK, and in the USA/Canada. This is reproduced in Section 20.1 on page 193.
- *Lost Person Behavior Distance Traveled* shows the distances traveled for various categories of lost persons in Arizona and Nova Scotia. This is reproduced in Section 20.2 on page 199.
- *Circular Search Areas* calculates the area between two concentric circles and then copies it to the clipboard for pasting into the Initial Note.
- *Edit Resource File* allows the user to edit the resource file, *Resource.txt*. This menu item is unavailable if the Application Folder cannot be written to. The file *Resource.txt* contains a list of resources that Win CASIE III recognizes.
- *Edit ICS Titles File* allows the user to edit the ICS title files. This menu item is unavailable if the Application Folder cannot be written to.
- *Initial Note*, which can also be accessed from the Toolbar, allows the user to create a text file that contains information about the Route and Location Search. This is the file referred to on page 16.

CHAPTER 8

Gathering, Analyzing, and Using Incident Information: the Core of Search Planning—Area Searches

Section 8.1 Overview

The functions discussed in this Chapter are primarily the responsibility of the Situation Unit.

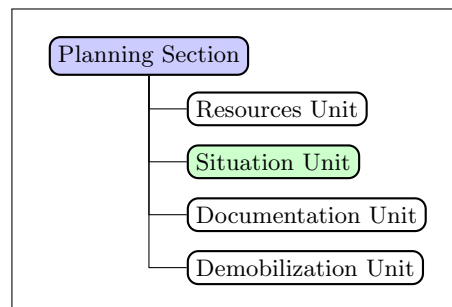


Figure 8.1. Situation Unit

While the Route and Location Search progresses, actions should be undertaken in case this search is unsuccessful, and a transition to an Area Search is indicated. **These actions assume that the subject is immobile** and include

- Establishing the Search Area.
- Segmenting the Search Area.
- Conducting an Initial Consensus.

In theory, these actions seem relatively easy to perform. However, in practice, they are not.

The transition from a Route and Location Search to an Area Search is a critical time in the search and if not handled carefully can cause the IMT to fall behind the curve in terms of good search management. Anticipating additional staffing—including IMT members and search resources—needs to be considered and ordered if necessary. If the ICS structure is not in place at this stage, maintaining control of the operation will be difficult.

If the ICS structure is not in place at this stage, maintaining control of the operation will be difficult.

Section 8.2

Establishing The Search Area

Most searches are over within 24 hours, see Figure 8.2,¹ which “includes investigation, driving time, and time after the subject is found needed for search resources to return from the field and drive home.” The graph shows the percentage of searches ended as a function of time. So, according to this graph, 85% of these searches were over within 12 hours, and 97% within 24 hours. If at this stage there is no evidence that the subject is moving, it is time to consider transitioning from a Route and Location Search to an Area Search.

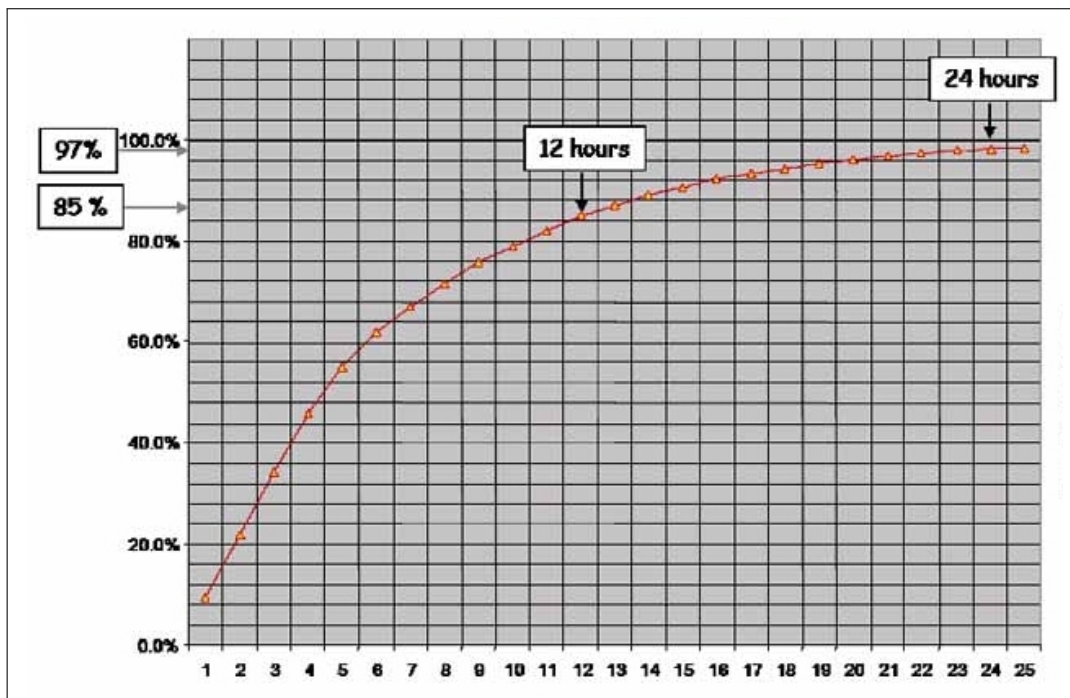


Figure 8.2. Resolution of searches versus length of search

One of the first actions in this transition is establishing the search area. This is a critical action and, like other components of search planning, should not be done alone. Staffing key roles in the incident management team, such as the PSC (discussed on page 298) and the OSC (discussed on page 299), are also extremely important as they need to have input into this process. The establishment of the search area sets the stage for the rest of the transition actions.

If a suitable ICP for an extended operation has not yet been selected it must be done at this point because much map and paper work needs to be completed during the transition. It is more comfortable and efficient to have a suitable space for this than it is to continue working off the hood of a truck, as suggested by Figure 8.3 on the next page.

¹ This graph was obtained from Reference [SAR], which summarizes the results of 3000 searches in the United Kingdom, Oregon, New Mexico, Alberta, British Columbia, and North Cascades NP. Used with permission.



Figure 8.3. Establishing the search area on a map

At this stage it is assumed that during the Route and Location Search a PLS or LKP was determined and identified as the IPP. It is pointless to develop a search area if there is no IPP to base the search on.

It is pointless to develop a search area if there is no IPP to base the search on.

When establishing the search area it is critical that quality maps of the region are available. Generally 1:24,000 scale topographic maps are used for this process, which are either in paper format or on a computer mapping or Geographic Information System (GIS) program. Other specialty maps, including orthophoto maps,² may also be helpful in interpreting the area especially if those maps have been in the possession of the search subject. Increasingly aerial photographs and internet based programs, such as GOOGLE Earth™ and Microsoft® Bing, are used to supplement topographic maps during this process. If paper maps are being used it is also helpful to have clear mylar or acetate for overlays and a variety of permanent and dry-erase markers available. The map selected for use in defining the search area needs to be reproduced for the IAP that is distributed to search resources once the search area has been identified and segmented. Key locations should be marked on the map such as the IPP, ICP, together with other incident facilities and important reference points.

When establishing the search area consideration of LPB, information collected from the LPQ, an analysis of the terrain and weather, and an examination of potential scenarios that led to the subject going missing, are critical factors.

There are four common methods of establishing the search area,³ assuming the location of the IPP is known.

1. **Theoretical.** Based on the time elapsed, how far could the subject have traveled?
2. **Statistical.** What have others in the missing subject's category done?
3. **Subjective.** What are the natural or manmade features that could limit or direct the movement of the subject?

² Paraphrasing <http://en.wikipedia.org/wiki/Orthophoto>, An orthophoto is an aerial photograph geometrically corrected such that the scale is uniform: the photo has the same lack of distortion as a map. Unlike an uncorrected aerial photograph, an orthophoto can be used to measure true distances, because it is an accurate representation of the Earth's surface, having been adjusted for topographic relief, lens distortion, and camera tilt.

³ See Reference [Setnicka, page 85].

4. **Deductive Reasoning.** What does the IMT believe happened?

Each of these methods determines a region that is plotted on the map. The area common to all four regions determines the boundary of the search area. These methods should be applied in the order presented: Theoretical, Statistical, Subjective, Deductive.

The identification of the search area should be done by the Situation Unit in close collaboration with the Operations Section.

Theoretical Method

The Theoretical Method attempts to estimate the maximum distance the search subject could have traveled from the IPP since they went missing. This involves some mathematics, and usually results in a fairly large circular search area, centered at the IPP.

In order to determine the Theoretical Search Area two numbers need to be estimated.⁴

- The time elapsed since subject was last known to be at the IPP.
- How fast the subject can travel away from the IPP—the speed of the subject radially.⁵

Once these numbers are known the Theoretical Search Area can be determined using the formula for calculating the area of a circle, πr^2 , where $\pi = 3.14$ and r is the radius of the circle. The radius of the circle can be determined by multiplying the time elapsed by the speed that the subject can travel radially. The area of the circle, or Theoretical Search Area, can then be determined by squaring r and multiplying it by π .

Theoretical Search Area Example

For example, if the subject has been in the field for 8 hours and is able to walk at 2 miles per hour radially, then the radius of the Theoretical Search Area is

$$\begin{aligned} \text{Radius of Theoretical Search Area} &= 2 \text{ miles per hour} \times 8 \text{ hours} \\ &= 16 \text{ miles,} \end{aligned}$$

and its area is

$$\begin{aligned} \text{Theoretical Search Area} &= \pi \times \text{Radius}^2 \\ &= 3.14 \times 16^2 \\ &= 804.25 \text{ square miles.} \end{aligned}$$

A circle, centered at the IPP, with radius 16 miles, is then drawn on the map to identify the Theoretical Search Area. The Theoretical Search Area is often too large to search efficiently.

Delaying the response to an overdue person situation adds more time to the subject being in the field, and so causes the Theoretical Search Area to increase dramatically. In the previous example, if the response is delayed by one hour (so the subject had been in the field for 9 hours instead of 8), the radius of the search area is 18 miles, and the area is 1017.88 square miles. So that hour delay adds an extra 213 square miles to the Theoretical Search Area.

Delaying the response to an overdue person situation causes the Theoretical Search Area to increase dramatically.

⁴ Usually the distance is measured in miles and the speed in miles per hour, giving a radius in miles and an area in square miles.

⁵ A subject travels away from the IPP at an estimated speed, and that speed times the time is the radius of the circle.

Statistical Method

The Statistical Method also determines circles centered at the IPP, but relies upon LPB analysis. It is most helpful if the lost person behavior information is collected locally, such as data from a particular county or state, rather than globally. If local information is not available then there are other sources of lost person behavior including works by Syrotuck, see Reference [Syrotuck], and Hill, see Chapter 20 on page 193. Hill's data is also included in Win CASIE III.

It is important that the LPQ be completed as thoroughly as possible so that the appropriate LPB category can be selected for the search subject. The LPB data is then used to refine the search area based upon the historical behavior of other subjects in the same category. This data generally provides statistical zones and the median⁶ and maximum distance that subjects in the selected category were found from the IPP.

The statistical zones, such as the 25%, 50%, and 75% zones correspond to the distance from the IPP that contained 25, 50, and 75 percent of the search subjects in that category. Each of these distances generates a circle on the map centered at the IPP. It is typical to use the 75% statistical zone during the establishment of the search area because it excludes some of the extremes in the data and contains the majority of the subjects in that category.

Statistical Search Area Example

For example, Table 8.1 shows the entry for the Hikers category from Table 20.2 on page 199. There were 430 people in this category. Of these, 25% of them were found within a circle of radius 0.87 miles centered at the IPP, 50% were found within a 1.66 mile radius, 75% within a 3.56 mile radius, and 100% within a 43.84 mile radius. None were found within 0.04 miles of the IPP. Remember, for example, that if there is a 75% probability that the subject is within a specific distance of the IPP, then there is a 25% probability that they are not.

Table 8.1. Distances Traveled (miles) by Lost Persons in Arizona, USA

<i>Category</i>	<i>Cases</i>	<i>Min</i>	<i>25%</i>	<i>50%</i>	<i>75%</i>	<i>100%</i>	<i>Mean</i>
<i>Hiker</i>	<i>430</i>	<i>0.04</i>	<i>0.87</i>	<i>1.66</i>	<i>3.56</i>	<i>43.84</i>	<i>2.94</i>

The maximum distance from the IPP found from LPB data may be useful in developing a containment strategy particularly if passive confinement is being used, such as flyers or signs.

Be wary of LPB data when the number of cases is small. It is also important to note that the subject of a search is not yet part of the data set and may do something entirely different than would have been predicted by the LPB data.

Be wary of LPB data when the number of cases is small.

When the Statistical Method is used following the Theoretical Method the search area should be trimmed.

⁶ The median distance from the IPP is the distance at which 50% of the cases are inside that distance and 50% of the cases are outside that distance. This is not the average (mean) distance from the IPP.

Probabilities

We often speak of events and their chance, or probability, of occurring. Chance, or probability, is often used when the outcome of an event is not known exactly in advance.

Probability is a part of our lives. Everyday we make judgments based on probability.

- *There is a 90% chance that the Wildcats will win their game tomorrow.*
- *There is very little chance of winning the lottery.*
- *There is a 20% probability of rain today.*
- *There is a 90% probability the subject is in the search area.*
- *If the subject is in my assigned search area, then I had a 60% chance of finding him.*

Probability is a measure of how likely it is for an event to happen. Mathematically, probabilities apply to events and are numbers between 0 and 1. However, for everyday purposes, probabilities are often converted to percentages, so $0 = 0\%$ and $1 = 100\%$. In spite of what people say (“I am 110% sure it will happen”), probabilities cannot exceed 100%.

If the probability of an event happening is 0%, then that event is guaranteed not to happen. For example, the probability that a person will be younger tomorrow than today is 0%, or the probability that the sun will not rise tomorrow is 0%.

If the probability of an event happening is 100%, then that event is guaranteed to happen. The probability that the sun will rise tomorrow is 100%.

Table 8.2 shows verbal cues for other probabilities.

Table 8.2. Probabilities by Verbal Cues

<i>Probability</i>	<i>Meaning</i>
100%	<i>Guaranteed to happen. A certainty.</i>
90%	<i>Highly likely to happen</i>
80%	
70%	<i>Likely to happen</i>
60%	
50%	<i>Even chance of happening</i>
40%	
30%	<i>Unlikely to happen</i>
20%	
10%	<i>Highly unlikely to happen</i>
0%	<i>Guaranteed not to happen. An impossibility.</i>

The chances of winning the Arizona Lottery is 1 in 195,249,054, which is a probability of about 0.0000005%. So that event is very, very, very, unlikely to happen, but not an impossibility, because the probability is not 0%. After all, people do win the lottery.

Notice that the statements in the first paragraph of this sidebar could also be written.

- *There is a 10% chance that the Wildcats will not win their game tomorrow.*
- *There is very high chance of not winning the lottery.*
- *There is an 80% probability of no rain today.*
- *There is a 10% probability the subject is not in the search area.*
- *If the subject was in my assigned search area, then I had a 40% chance of not finding him.*

So if P , as a percentage, is the probability of an event occurring, then $100 - P$ is the percentage probability of that event not occurring.

Subjective Method

The Subjective Method takes into account the physical environment and any clues that may have been found during the Route and Location Search. This method relies on an analysis of terrain or other physical barriers to travel, weather, clues, “hotspots”, physical and mental health of the subject, gut feelings, and any other factors that may impact the subjects movement through the area.

Often an analysis of the terrain eliminates parts of the search area as they are inaccessible or impossible to negotiate without specialized equipment. The weather can also be a significant limiting factor to subject travel. In many parts of the country, very hot temperatures at one extreme and deep snow at the other routinely affect the ability of a subject to move through an area.

Deductive Reasoning Method

The Deductive Reasoning Method relies upon the IMT to evaluate all of the information available about the situation to develop a most likely scenario about what happened to the search subject. This should include any investigative material available about the subject. Coupled with the other methods this method continues to refine the search area and is generally the last method employed in the series. It is helpful if at least some of the personnel involved in using this method are familiar with the area and its history.

Final Steps in Establishing the Search Area

Once the four methods for establishing the search area have been employed the initial search area must be drawn on the map by the Situation Unit. Everything outside the search area is identified as the **Rest of the World (ROW)**. The search area is likely to be too large for a single resource to search in one operational period. The search area then needs to be divided into smaller units, called segments, that can be searched in an operational period (about 6 to 8 hours of active searching) by a search team.

Challenge to Defining a Search Area

On occasion SAR responders are notified about an overdue person many days after they were due out of the field or should have checked in with someone. In these cases the most useful methods for defining a search area are the Statistical, Subjective, and Deductive Reasoning. It is a balance between the time elapsed since the subject went into the field and a reasonable analysis of what may have happened to make the subject overdue, so that the search area is neither too small nor too large. A search area that is too small limits the possibility of success as SAR personnel may not search appropriate areas and it could cause conflict with the family members of the search subject. A search area that is too large also creates problems in that it is difficult to search all of the area with limited resources, so time and effort may be focused on areas that are unimportant.

Section 8.3 Segmentation

Segmentation is the process of slicing the search area into manageable regions called Segments. Segmentation is performed by the Situation Unit, in collaboration with the Operations Section, for various reasons.

- To ensure that no part of the search area is ignored.
- To effectively manage the deployment of resources.
- To help set tactics that can be accomplished during an operational period.

- To track resources' tasks for the duration of the search.
- To have a means of quantifying the search effort in an understandable way (using *POD* and *CPOD*, discussed in Section 8.5 on page 88).

Segmentation looks easy, but it is not. It takes practice, patience, and thought.

Segmentation looks easy, but it is not.

Segmentation can be very difficult and is truly an art. When segmenting the search area it is critical to have

- Good map reading skills to interpret the topographic information.
- An understanding of the vegetation in the area.
- The ability to estimate the area of the segment.

Segment Boundaries

Segment boundaries are very important considerations so that the search teams on the ground can identify where their segments begin and end. Having a mixture of terrain and vegetation types in the same segment should be avoided. Good segmentation improves search efficiency and maintains or improves the morale of the searchers.

Segmentation should be practiced like any other search skill and feedback should be solicited from the searchers assigned to segments to determine if improvements are needed. If there are unknown caves, mines, sinkholes, lakes, or other features that require specialized resources to search, then these features are in the ROW until they are discovered and made into their own segments.

Segmentation is a two-step process.

1. First, identify all regions that are not to be searched, that is, the ROW. Start with the area whose outer boundaries have been established by the techniques of this section. Within that area exclude regions such as places where the subject could not have reached (because they are out of range, because the subject could not get there due to the terrain or vegetation, etc.) and those regions that are not reachable by live subjects (such as under the surface of a lake), unless those regions are specifically identified as being of interest. The region that remains is the Search Area—it often looks like Swiss cheese, with holes in it.
2. Second, divide this remaining region, the search area, into clearly-identified, non-overlapping, segments that cover the entire search area, using the principles discussed in the rest of this chapter. Whereas establishing the search area is based on factors that affect the subject, segmenting the search area is based on factors that affect the searchers.

In relatively flat, sparsely-vegetated terrain, it is common for the final search area to look like a distorted checker board, with no gaps in it, which is how most people imagine a segmented search area. In mountainous terrain, some segments might look like pieces of ribbon, being trails with strips of land on either side bordered by the ROW, leaving the search area pocked with disconnected regions that are in the ROW. So typically, a search area does not look like a distorted checker board—it has gaps in it.

A typical search area does not look like a distorted checker board—it has gaps in it.

The PSC and other IMT members should ensure that the IC is prepared to answer questions from the family and stake-holders concerning the fact that there are gaps in the search area. It may be necessary to explain to family and stake-holders that the subject could not reach some areas and thus those areas are not included in the search area.

Ideally segmentation should be performed by a segmentation team—typically the Situation Unit with input from the PSC and OSC—rather than an individual, preferably the same team that performs the consensus. Some members of the segmentation team must have a very good understanding of map reading in order to know which features make good segment boundaries and which features do not. Members with a personal knowledge of the area are invaluable.

When identifying segments, the segmentation team must consider the following points.

- **The Size of the Segment.** This is important because the size of the segment must be searchable by a typical resource in one operational period. This includes being briefed, transported to the segment, finishing their assignment, transported from the segment, and being debriefed. See Figure 8.4.



Figure 8.4. It takes time to get resources into the field

The size of the segment is dictated by the resource that is expected to be used, the terrain, and the vegetation. A rule of thumb is to make the size searchable by a typical search team in about 6 hours. If the segment is to be searched by ground resources (air-scent dogs, grid searchers, etc.) then a segment size of about 0.25 square miles is often quoted as being an appropriate size. The dimensions of various rectangles with area 0.25 square miles are shown in Table 8.3.

Table 8.3. Dimensions of rectangles with area 0.25 square miles

Length (miles)	0.5	1	2	3	4	5
Width (yards)	880	440	220	147	110	88

On a 1:24,000 topo map, a little more than 1.25 inches represents 0.5 miles while the width of a dollar bill represents about 1 mile. However, the area estimated on a map is almost always smaller than the area on the ground, unless the terrain is flat and horizontal.⁷

Making search segments too large is a common mistake.

- Doing so causes searchers to rush to complete their assignments resulting in poor coverage and missed clues.
- Searchers who do not rush, search only part of their segment, resulting in the segment having to be split, and the un-searched segment re-searched during a later operational period.

⁷ An overlay tool that helps estimate areas can be downloaded from <http://maptools.com/pdf/AreaEsts/BigArea.pdf>. When printing this file, ensure that the printer does not resize the image.

- Not completing their assignments because the segment is too large causes poor morale.

Making search segments too large is a common mistake.

- **Uniform Terrain and Vegetation.** The terrain and vegetation within the search segment should be relatively uniform. It is often helpful to consult an orthophoto map of the search area when segmenting to ensure that the vegetation and terrain are actually uniform. A resource cannot use consistent tactics, nor estimate a single *POD* (a measure of the efficiency of the resource, discussed in detail in Section 8.5 on page 88) for a segment, if the terrain or vegetation vary considerably.
- **Segment Boundaries.**
 - Segment boundaries have to be identifiable by resources in the field. Ridge lines, rivers, cliffs, canyon bottoms, fences, power lines, railroad tracks, roads, dry washes, etc., make good boundaries because they are easily identifiable in the field. Good boundaries are essential to ensure that search teams assigned to different segments neither leave gaps nor overlap in their coverage.
 - Flagging may be used for segmenting long washes or canyons where the sides of the segment are clearly defined by the terrain but the bottom needs to be broken into shorter lengths. Once flagging is in place, it should remain there for the remainder of the search. Ribbon-like segments that follow very long trails could be segmented in this way.
 - Using GPS or UTM grid lines is strongly discouraged, but if they are used it must be with extreme caution to avoid gaps in coverage and overlaps with adjacent segments. Sometimes there is no choice but to use grid lines as segment boundaries by flagging them. For example, flat featureless terrains need to be flagged so that teams can identify their segments. See Figure 8.5.



Figure 8.5. Segment boundary flagged

- If the subject's dwelling is to be searched, then it would be natural to include this as its own segment.
- When drawing boundaries, it is not good practice to have resources crossing streams, highways, chasms, and other natural barriers. This endangers the resources and distracts them from their assignments.
- **Individual Segments.** Regions such as trails, lakes, rivers, dry washes, should be treated as individual segments. This helps to ensure complete coverage for the whole trail within the search area or complete coverage for the lake, not just the shoreline. However, many trails may have been

searched during the hasty search phase, or may be used as transportation corridors, so treating them as a separate segment may be unnecessary. They are automatically searched, but a note should be made that this was a conscious decision and not an oversight.

- **2-Dimensional Map.** The map that is being used to segment is 2-dimensional, whereas the search area is 3-dimensional. This means that segments drawn on maps represent the surface of the search area, not underneath the surface. For example, a lake or a snowfield may be a segment, but, unless specifically stated otherwise, the segment is the surface of the lake or snowfield, and includes nothing below the surface.
- **Shape.** A uniformly-shaped segment is desirable, but not always possible.
- **ROW.** Fast flowing rivers are always in the ROW, because the subject, if in it, would be mobile.
- **Identify Segments.** All segments must be identified with a unique number, and the ROW must be clearly marked.

Practical Matters

There are two possible maps that might be available for segmenting: paper and software.

Paper. When segmenting using a paper map it is best to draw the segments using pencil first in the event that minor changes need to be made during the process. After the segmentation is finalized the pencil lines should be made permanent with an ink pen. Acetate overlays can then be used to document search activity. The segment boundaries can be traced onto the acetate overlay and then any other shading or documentation added to that overlay. It is helpful to tape the overlay to the map so that it does not slide around. Additional overlays can be added on top of previous ones to indicate the status of the search during subsequent operational periods.

Software. If GIS software is available then the initial segments can be drawn by creating polygons on the map. As the search progresses, attributes can then be applied to that polygon to show how well the segment has been searched or the type of resource used to search. Different layers can be turned on or off in the software to show just the segments, just clues, or any other attribute that is of interest. This method is likely to be the way of the future and allows for better data management. Many agencies have a GIS department which may be able to assist in the field. This method requires computer hardware, GIS software, a large format printer (plotter), and an experienced GIS operator.

How to Segment

1. Draw the outer boundary of the search area on a map which is of the same type that is used by all resources. Label the region outside this area “ROW”.
2. Identify all regions inside the area that are in the ROW, and label those with “ROW”.
3. Identify regions that are of the same terrain and vegetation.
4. Segment those regions into sizes that can be searched by a typical resource in one operational period. These regions are called Segments. Use numbers⁸ to label these segments, starting from “1”. Label the segment containing the IPP as Segment 1 so that, whenever Segment 1 is mentioned, everyone knows they are talking about the IPP segment.
5. Identify all mine shafts, caves, dwellings, etc., and give them their own segment and number them.
6. Identify any segments that are “under” the map that are to be searched. For example, below the surface of a lake, or under snow. Distinguish between these segments and their surfaces.
7. Make sure that every part of the search area is in one—and only one—segment.

Depending on the incident, the number of segments could run from about 10 to well over 50. Some searches have ended with as many as 150 segments. An example of a segmented search area is shown in Figure 8.6 on the next page.

⁸ Using letters causes problems when there are more than 26 segments, and when a segment has to be split.

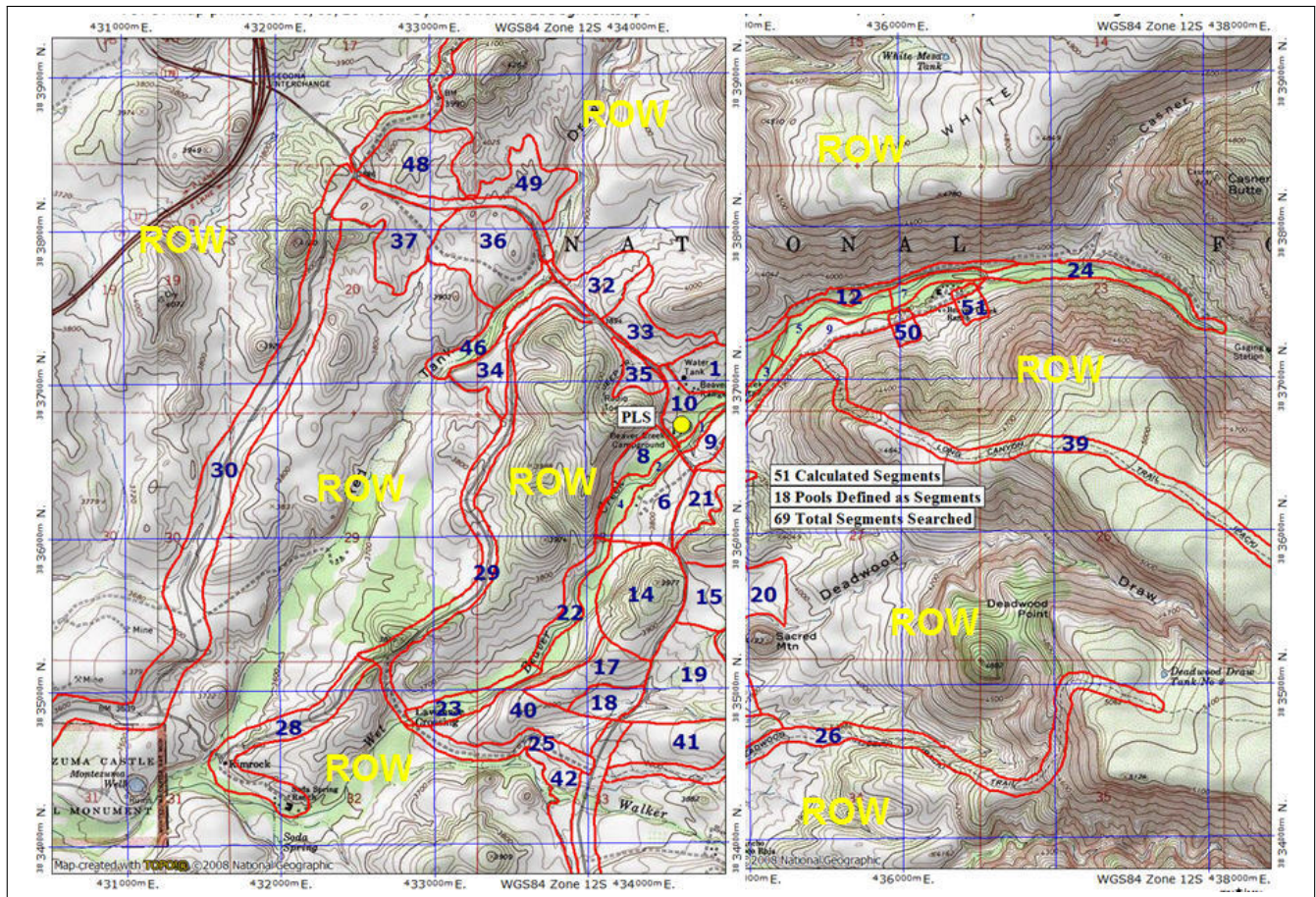


Figure 8.6. A segmented search area

Sometimes it is very difficult to segment a search area if the subject is reported missing many days after they actually disappeared. For example, there was a search in Coconino County, Arizona, where first notice of the incident was received about two weeks after the subject left his camp. Incidents like this create a special challenge since the theoretical search area is huge and subject behavior investigation may indicate that the subject can travel long distances based on their physical condition and past history.

The initial search area and its segmentation are not set in stone. During the course of the search, a segment may need to be split because a resource was unable to complete its assignment, or more segments may need to be added as the search area grows.

Finally, if a particular locality is often the region of a search, then it may be prudent to spend time pre-segmenting it to prepare for future incidents.

Organizing Segments into Divisions

When the number of segments gets large, the OSC may create Divisions, non-overlapping geographic regions of the search area. A Division consists of contiguous segments, and is identified by a letter (A, B, C, ...). There is no upper or lower limit to the number of segments that can be assigned to a Division, but a segment must be contained entirely within a single Division.

Each Division has a Division/Group Supervisor (DIVS), whose primary responsibility is to brief the resources assigned to search the segments in their Division, based on the “Work Assignments” section of an ICS 204. The DIVS supervises all resources in their Division, and may adjust assignments

or make additional tactical assignments as needed to accomplish the incident objectives pertaining to that Division.

Section 8.4 Initial Consensus

After the search area has been identified and segmented, the third and final step before embarking on an Area Search, is to decide which segments are “hottest”, that is, having the highest probability of containing the subject.

Ideally this is done by a small team of three to five experts with local knowledge and expertise (for example, the IC, PSC, the OSC, and any others who have pertinent knowledge). Before making any decisions, the consensus team is apprised of all the facts in an extensive briefing where different possible scenarios are thoroughly discussed. These scenarios can be generated using the Scenario Analysis process described in detail in Chapter 6 on page 56.

Then, each expert independently and subjectively estimates the probability that the subject is in each of the segments and the probability that the subject is outside the search area, that is, in the ROW, Rest of the World.

According to Mattson, quoted in Reference [Blehm, page 76], it is “*best to do this privately because it will insure [sic] that even the meeker individuals will be able to express their opinion without being intimidated by the more vocal members of the group.*”

Before taking a consensus the experts must realize that this process involves the following five assumptions.

1. The search area is well defined and segmented into reasonably-sized segments.
2. There is a positive probability that the subject is in any one of the segments.
3. There is a positive probability that the subject is not in the search area.
4. All search segments are very familiar to the consensus team members and contain **no unknown features**.
5. If the subject is in the search area, then **the subject is immobile**.

There are a number of consequences of these assumptions.

- Experts must not assign a probability of 0% or 100% to any of the segments or to the ROW.
- Unless specifically included in the original search area when the consensus is taken, regions such as beneath soil, beneath snow, or beneath water, are not in the search area, but are in the ROW. Thus, the search area is more 2-dimensional than 3-dimensional.
- If an item, such as a cave, mine-shaft, or dwelling, is discovered in a search segment that was unknown to the consensus team members at the time of the initial consensus, then that item is in the ROW. Had the experts known of this item at that time, then that item would have been given its own segment and its own initial probability. To include this item in the search area at this stage, the search area must be expanded.
- Any regions searched that were initially in the ROW, must be included by expanding the search area. For example, an investigator searches the subject’s home, which was not included in the initial search area, without finding the subject. The search area must be expanded to include the home.
- The assumption that “If the subject is in the search area, then the subject is not moving” carries with it an important corollary, namely, “If the subject is moving then the subject is not in the search area, but in the ROW”. Thus, rivers that flow fast enough to transport the subject are not in the search area but in the ROW. A similar comment applies to the abduction of a child being transported in a vehicle.

- The assumption that “If the subject is in the search area, then the subject is not moving” carries with it another important consequence, namely, **if it is believed that the subject is moving in the search area, then the experts should not be doing a consensus.**

If it is believed that the subject is moving in the search area, then the experts should not be doing a consensus.

Consensus Methods

There are at least three different methods for performing a consensus.

1. The Mattson Method.
2. The O’Connor Method, AKA the Modified Mattson Method.
3. The Proportional Method.

However, they all have the same objective—to identify the hot segments. Each of these methods is discussed in turn.

Mattson Method

In the Mattson Method,⁹ every expert independently estimates the chance (between 0% and 100%, excluding 0% and 100%) that the subject is in each segment, including the ROW. The sum of each expert’s chances must total 100%. Then these numerical values are averaged.

For example, if there are only two segments and three experts in the consensus team,¹⁰ then Paul, Aaron, and Greg, might make the subjective estimates shown in Table 8.4.¹¹

Table 8.4. Paul, Aaron, and Greg’s estimates

Segment	Paul	Aaron	Greg
ROW	10%	10%	10%
1	55%	45%	50%
2	35%	45%	40%
Total	100%	100%	100%

According to this table, Paul thinks there is a 10% chance the subject is out of the search area, a 55% chance the subject is in Segment 1, and a 35% chance in Segment 2. If someone says that Aaron thinks that there is an equal chance of the subject being in Segments 1 and 2, are they correct?¹²

Notice that all three columns total 100%, which is essential because the subject is either in or out of the search area. There is a subtle but important point here: a subject who is under the search area is not “in” the search area. This point is often overlooked when the subject’s body is found “in” the search area, months after the search has been suspended.

A subject who is under the search area is not “in” the search area.

⁹ Robert Mattson, a retired U.S. Air Force colonel, published this method in 1976.

¹⁰ Having only two segments in the search area is unrealistic, but it is used here to fix ideas and to make the arithmetic transparent.

¹¹ Probabilities are decimal numbers between 0 and 1, but they are frequently converted to percentages in every-day life. For example, $0.5 = 50\%$ and $0.01 = 1\%$. To convert a number from decimal to percentage, multiply the number by 100. To convert from percentage to decimal, divide the number by 100.

¹² Yes, because Aaron has assigned the same probability of 45% to both Segments 1 and 2.

The Initial Consensus is obtained by averaging each of Paul, Aaron, and Greg’s estimates, as shown in Table 8.5.

Table 8.5. Calculate Initial Consensus

Segment	Paul	Aaron	Greg	Consensus
ROW	10%	10%	10%	$(10\% + 10\% + 10\%)/3 = 10\%$
1	55%	45%	50%	$(55\% + 45\% + 50\%)/3 = 50\%$
2	35%	45%	40%	$(35\% + 45\% + 40\%)/3 = 40\%$
Total	100%	100%	100%	100%

The Initial Consensus is shown in Table 8.6, which shows that the consensus team believes that there is a 10% chance the subject is out of the search area, a 50% chance the subject is in Segment 1, and a 40% chance in Segment 2. Which is the “hottest” segment?¹³

Table 8.6. Initial Consensus

Segment	Consensus
ROW	10%
1	50%
2	40%
Total	100%

The Initial Consensus represents the best guess about where the subject might be found, based on the experience and subjective “hunches” of the consensus team.

The probability that a subject is in a particular segment is called its Probability of Area, denoted by *POA*. Thus, the initial *POAs* are $POA(1) = 50\%$, $POA(2) = 40\%$, and $ROW = 10\%$.

But while ideal in theory, in practice the Mattson method has limitations, based on the fact that some experts just cannot add very well—they have trouble making their probabilities total 100%. For training purposes a Mattson Consensus is often simulated using four or five search segments. In this case it is fairly easy to assign *POAs* that total 100%. In real searches, however, there may be 10 or more segments that need to be evaluated. The greater the number of segments, the greater the potential for a wrong total. When the total is not 100%, the expert then concentrates on where to add (when the total is less than 100%) or where to subtract (when the total exceeds 100%) the difference, and frequently the ROW is used as an easy target. Thus, instead of concentrating on distributing 100% based on the search, it is based on arithmetic.

O’Connor Method, AKA the Modified Mattson Method

To circumvent the problems that some experts have with the Mattson Method, Dan O’Connor introduced an alternative method, based on a scale of relative values.

Instead of assigning a numerical percentage value to each segment, the expert specifies a letter corresponding to the likelihood that the subject is in a particular segment. Specifically each expert independently estimates the chance that the subject is in the ROW as a percentage between 0% and 100%, while the segments are estimated using the verbal cues shown in Table 8.7 on the next page.¹⁴ Then an algorithm is used to convert these letters to numerical percentage values.¹⁵

For example, Paul, Aaron, and Greg, might use the O’Connor Method to make the estimates shown in Table 8.8 on the next page.

¹³ Segment 1, because $50\% > 40\% > 10\%$.

¹⁴ If the ROW is permitted to have a verbal cue, then the *ROW* depends on the number of segments inside the search area. The *ROW* must be independent of how the search area is segmented.

¹⁵ This algorithm is built into the software package Win CASIE III.

Table 8.7. O'Connor verbal cues

Letter	Meaning
A	Very likely in this segment
B	
C	
D	
E	Even chance
F	
G	Unlikely in this segment
H	
I	Very unlikely in this segment

Table 8.8. O'Connor Method

Segment	Paul	Aaron	Greg
ROW	10%	10%	10%
1	A	B	C
2	C	C	C

The algorithm then converts the letters to the numerical values shown in Table 8.9.

Table 8.9. Numerical values using O'Connor Method

Segment	Paul	Aaron	Greg
ROW	10.00%	10.00%	10.00%
1	67.50%	60.00%	45.00%
2	22.50%	30.00%	45.00%
Total	100%	100%	100%

By averaging the numerical values, this leads to the consensus shown in Table 8.10.

Table 8.10. Consensus by O'Connor Method

Segment	Consensus
ROW	10.00%
1	57.50%
2	32.50%
Total	100%

This table is then used in the same way as Table 8.6 on the previous page.

Proportional Method

There is another method, called the Proportional Method, that circumvents the Mattson Method. This is a numerical counterpart of the O'Connor Method.

In this method, each expert independently estimates the chance that the subject is in the ROW as a percentage between 0% and 100%. Then the segments are each assigned a positive number, which is not a percentage, but a proportion.¹⁶

For example, if one segment has the number 100 assigned to it and a second the number 100, then this is interpreted as saying that the subject is equally likely to be in these segments. On the other hand, if one segment has the number 20 assigned to it and a second the number 10, this is interpreted

¹⁶ If the ROW is permitted to have a proportion rather than a percentage, then the ROW depends on the number of segments inside the search area. The ROW must be independent of how the search area is segmented.

as saying that the subject is twice as likely to be in the first segment as the second. Finally, if one segment has the number 3 assigned to it and a second the number 1, this is interpreted as saying that the subject is three times as likely to be in the first segment as the second.

An algorithm is used to convert these numbers to numerical percentage values.¹⁷

For example, Paul, Aaron, and Greg, might use the Proportional Method to make the estimates shown in Table 8.11.

Table 8.11. Consensus by Proportional Method

Segment	Paul	Aaron	Greg
ROW	10%	10%	10%
1	100	20	3
2	100	10	1

The algorithm then converts the letters to the numerical values shown in Table 8.12.

Table 8.12. Numerical values using Proportional Method

Segment	Paul	Aaron	Greg
ROW	10.00%	10.00%	10.00%
1	45.00%	60.00%	67.50%
2	45.00%	30.00%	22.50%
Total	100%	100%	100%

By averaging the numerical values, this leads to the consensus shown in Table 8.13.

Table 8.13. Consensus by Proportional Method

Segment	Consensus
ROW	10.00%
1	57.50%
2	32.50%
Total	100%

This table is then used in the same way as Table 8.6 on page 85.

Comments

Each individual Consensus form (which can be printed from Win CASIE III) should be collected and entered into Win CASIE III to identify the initial hot segments. This phase is where the transition from the Win CASIE III Initial Note to the Win CASIE III Full Incident takes place.

1. Members of the consensus team do not have to use the same consensus method. They can “mix and match”.
2. All consensus team members should submit their estimates in writing.
3. Software, such as Win CASIE III, has been specifically designed to calculate the initial *POAs* from the consensus members’ estimates.
4. After a segment is searched unsuccessfully the initial *POAs* are updated. The *POA* of the searched segment decreases and the *POAs* of all other segments (including the *ROW*) increase. Win CASIE III does these calculations, which depend on estimating how well the resource searched the segment, its Probability of Detection, *POD*, discussed on the next page.
5. The *ROW* can be used as a barometer of the search in two different ways.
 - a) If the *ROW* exceeds 50% there is more chance that the subject is out of the search area than in. It may be time to expand the search area.

¹⁷ This algorithm is built into the software package Win CASIE III.

- b) When the *ROW* gets very high, it may be time to expand the search area or to suspend the search.
6. A consensus is performed only once per incident. If a clue is discovered just as the consensus is completed, do not redo the consensus, but use the *Influence of Clue* option in Win CASIE III, described on page 108.

A consensus is performed only once per incident.

Section 8.5 Determining Probability of Detection

The **Probability of Detection**, *POD*, is the probability of a resource detecting the subject in a segment, assuming the subject is in that segment and is immobile.¹⁸ It is a measure of the effectiveness of the resource searching the segment.

When a resource finishes its assignment—and assuming the subject has not been found—part of the debriefing process is to estimate a *POD* for the segment searched. The *POD* should be reported for the object of the search, whether it be a person, an evidence search, or a clandestine grave. Even though clues are important, they are usually not the object of the search, so reporting a *POD* for a clue, when searching for a subject, is irrelevant.

The POD should be reported for the object of the search. Reporting a POD for a clue, when searching for a subject, is irrelevant.

In addition, the reported *POD* must be for the segment as it was at the time of the consensus. For example, if there was no snow on the ground at the time of the consensus, but by the time a team searches that segment a foot of snow has fallen, then the team must estimate a *POD* for the original segment, that is, for one foot below the current surface of the segment.

The POD must be for the segment as it was at the time of the consensus.

Factors affecting *POD*

The *POD* is affected by many different factors, including

- The terrain in the segment. The *POD* for a flat segment is likely to be higher than for an uneven, crevice-pocked, or hilly segment.
- The weather. The *POD* during good weather conditions is likely to be higher than during poor weather conditions.
- The vegetation. The *POD* for sparse vegetation is likely to be higher than for dense vegetation.

¹⁸ While there are mathematical reasons for this assumption, intuition should suggest that there is little point in obtaining a *POD* for a segment if the subject can then move into or out of that segment.

- The detectability of the subject. Subjects dressed in bright colors are more likely to be detected than subjects in colors that blend in with the background, such as camouflage,¹⁹ or a white aircraft downed in snow. See Figure 8.7.²⁰
- The lighting conditions. Sometimes bright, sunny conditions are a disadvantage, because the subject may be in the shadows and difficult to detect, compared to a cloudy day when there are no shadows. See Figure 8.8 on the next page and Figure 8.9 on the next page.
- The capability of the resource. Experienced, fresh resources are likely to be more efficient than inexperienced, tired resources.
- The segment/team size. A small team in a large segment is likely to be less efficient than a large team in a small segment.



Figure 8.7. Aircraft crash site. Where is the plane? See Figure 8.10 on page 91.

While there are general guidelines for estimating *PODs*, there is no one formula that can be used. However, it is always best to err on the side of caution by using lower *POD* estimates rather than higher ones. Over-estimating *PODs* means that the *ROW* grows artificially, contributing to the search being suspended prematurely.

Over-estimating PODs means that the ROW grows artificially, contributing to the search being suspended prematurely.

Inexperienced resources (as well as experienced resources) may tend to overestimate their *PODs*. Proficient search planners should know the relative effectiveness of various resources in the search terrain and be prepared to adjust *PODs* if they seem to be overestimated.

¹⁹ There is evidence that color-blind individuals have an advantage over those with normal color vision when detecting subjects dressed in camouflage. See Reference [Morgan].

²⁰ Photo, taken over Beartown State Forest, MA, courtesy of Rick Toman.



Figure 8.8. Cloudy Day—Where is the subject?



Figure 8.9. Sunny Day—Where is the subject? See Figure 8.11 on the next page.



Figure 8.10. Aircraft crash site. There is the plane.



Figure 8.11. Sunny Day—There is the subject.

POD and Coverage

Coverage is another way of measuring the effectiveness of a resource. *POD* and Coverage both measure the efficiency of a resource but in different units. In the same way that temperature can be measured in either units of Fahrenheit or Celsius, so the efficiency of a resource can be measured in either units of *POD* or Coverage.

POD and Coverage both measure the efficiency of a resource but in different units.

Estimating the Coverage of a resource for its segment is affected by the same factors as estimating *POD*.

The graphical relationship between *POD* (expressed as a percentage) as a function of Coverage is shown in Figure 8.12.

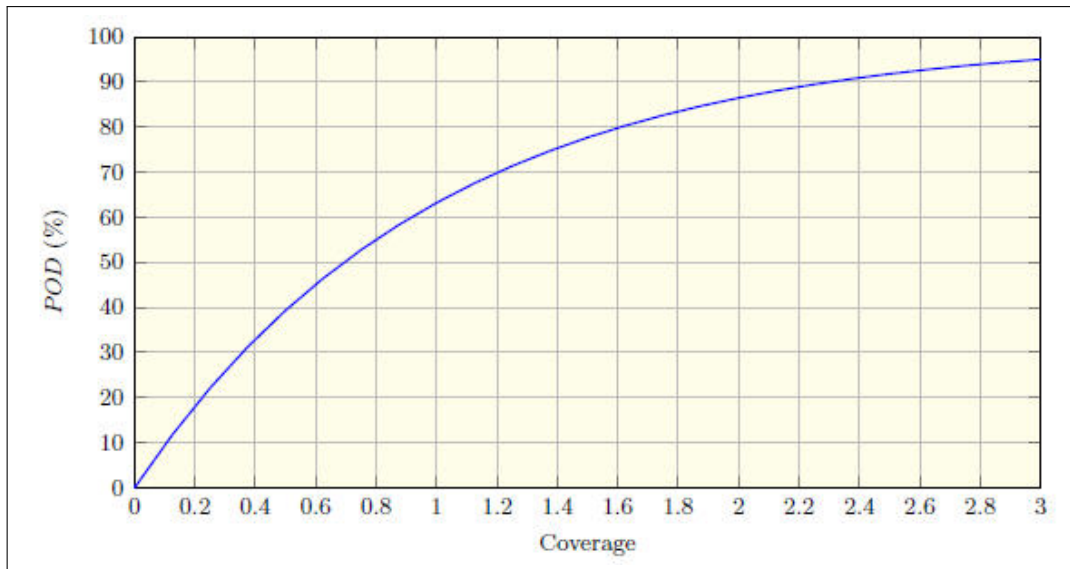


Figure 8.12. *POD* as a function of Coverage

The important thing to realize is that this curve passes through the origin, but it is not a line. If it were a line through the origin, then doubling the Coverage would double the *POD*. It does not. A Coverage of 1 corresponds to a *POD* of about 63%, while a Coverage of 2 gives a *POD* of about 86%. So doubling the Coverage from 1 to 2 does not double a *POD* from 63% to 126%.

What is the advantage of changing units? In the case of temperature, it is more a difference of culture than anything else. However, in the case of the efficiency of a resource, there is more than culture involved. Coverage is a direct measure of the efficiency of a resource; *POD* is not.

*Coverage is a direct measure of the efficiency of a resource; *POD* is not.*

Demonstration—Converting Coverage to POD

Estimate the team's POD if they reported a Coverage of 0.67.

Answer

There are many different, but equivalent, ways to estimate the POD from this information. Here are two.

1. Using Figure 8.12 on the previous page, a Coverage of 0.67 gives a POD of about 48%. This is obtained by locating 0.67 on the horizontal axis (Coverage)—about half-way between 0.6 and 0.8—then drawing a vertical line until it meets the curve, and finally drawing a horizontal line, crossing the vertical axis (POD) between 40 and 50.
2. Win CASIE III has the capability of converting Coverage to POD, which requires no ability to understand graphs. With Win CASIE III running, select the menu items “What If?”, “POD And Coverage”, enter 0.67 for the “Coverage”, and finally click the “Accept” button. See Figure 8.13, where the POD is 48.83%.

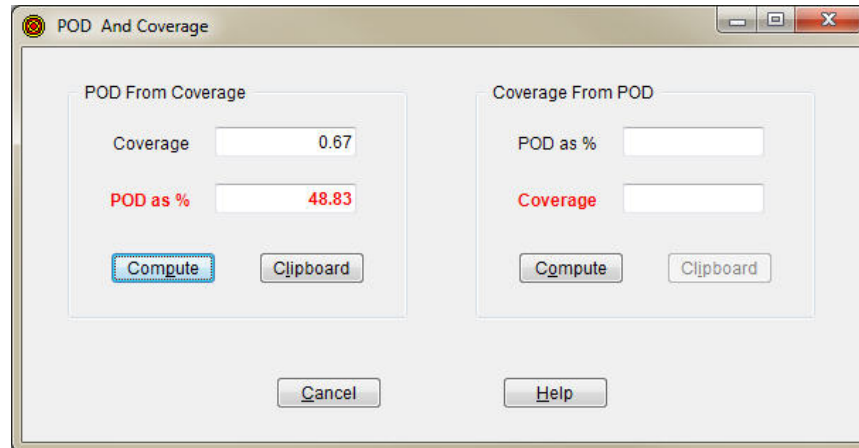


Figure 8.13. Coverage/POD from Coverage

Clearly using Win CASIE III requires no mathematical skills of the reader, so henceforth, Win CASIE III is used whenever possible to do any mathematical calculations.

Effective Sweep Width

If the Coverage can be estimated then the *POD* can be determined. To estimate Coverage, the concept of Effective Sweep Width needs to be introduced.

The **Effective Sweep Width** (ESW) is the distance two searchers must be apart, as they search in a grid pattern for an object (assumed to be similar in detectability as the object being searched for), that results in a Coverage of 1, that is, a *POD* of approximately 63%.

At present, there are three different ways to estimate ESW experimentally.

1. The first way to estimate ESW is to experimentally find the average distance from a searcher's track, at which the number of non-detections of an object inside that distance equals the number of detections outside that distance, and then double that distance. It is believed that this results in an estimate of 1 ESW.
2. The second way to estimate ESW is to use Average Maximum Detection Range. AMDR is the average of 8 distances that an object can just be detected in the environment being searched. It is believed that this results in an estimate of ESW between 1.5 AMDR and 2.0 AMDR.

3. The third way to estimate ESW is to use Critical Separation (CS) discussed next. CS is the average distance the team members are apart after walking in different directions from an object in the environment being searched, until each searcher can just detect the object. It is believed that this results in an estimate of ESW between 0.5 CS and 0.7 CS. Thus,

$$ESW = a \text{ CS},$$

where the number a is between 0.5 and 0.7. If the searchers also use the tactic of “purposeful wandering” discussed next, it is believed that ESW is approximately equal to 1 CS:

$$ESW \approx 1 \text{ CS}.$$

The first and second methods are impractical in the field, and are not discussed further. The third is discussed now.

Critical Separation

The Critical Separation (CS) method was developed by Dave Perkins and Pete Roberts, see Reference [Perkins 1]. This is a relatively fast way to determine searcher spacing that generates a *POD* of about 50%, and should be conducted in a representative piece of terrain that is similar in topography and vegetation to the segment to be searched.

To determine the spacing an object similar to the object being searched for is placed on the ground in the representative piece of terrain and the members of the search team move away from the object in different directions keeping it just barely in sight. The distance from the object to each searcher is then measured and all the distances are averaged. This average distance represents 0.5 CS since the searcher would be scanning an area equal to the distance to the object both to the left and right of the searcher. See Figure 8.14 on the next page. One CS is equivalent to twice the distance from the searcher to the object.

One CS is equivalent to twice the distance from the searcher to the object.

Searchers assigned to a segment space themselves at 1 CS apart and then make sweeps through the segment attempting to keep the original spacing. To boost the chances of finding the search subject Perkins and Roberts introduced the idea of Purposeful Wandering to the Ground Sweep Search that uses Critical Separation. Purposeful Wandering allows the searchers on a segment search that are spaced according to Critical Separation to deviate from their straight line track to look at objects that attract their attention or may conceal the subject such as bushes, rocks, and trees, before returning to the place where they left their centerline. See Figure 8.15 on the next page. In general the Critical Separation should be maintained as the sweep progresses through the segment.

Often when a Segment Search is conducted searcher spacing of 1 CS is requested but other distances are possible.

Coverage, Spacing, Track Spacing, and ESW

Spacing and *Track Spacing* mean the same thing, but are often used in different contexts: “Spacing” is typically used to describe the distance between ground searchers as they move in parallel along a constant heading or “track”. The term “Track Spacing” is typically used to describe the distance between parallel search tracks conducted by one or more aircraft. Track Spacing, however, can be properly used to describe the fixed distance between any set of parallel sweeps by a resource or multiple resources, including gird searchers, aircraft, and even air-scent K9 teams.

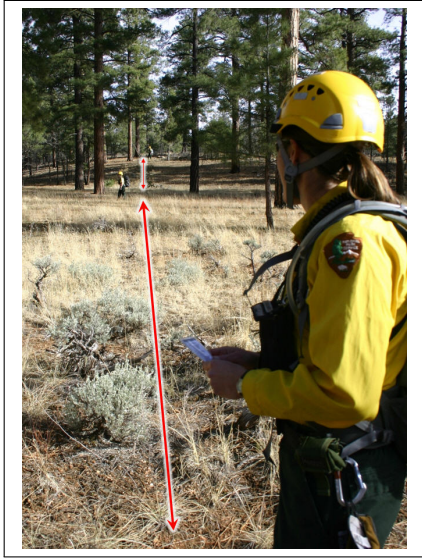


Figure 8.14. Critical Separation

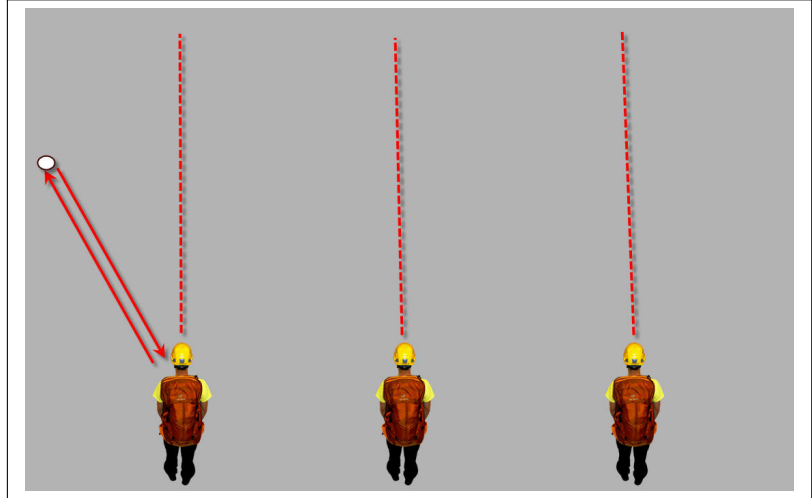


Figure 8.15. Purposeful Wandering

Lateral Range is one-half of the Track Spacing and is the distance that an observer would need to sweep on either side of their track.

The relationship between Coverage, Spacing, and Effective Sweep Width, ESW, is

$$\text{Coverage} = \frac{ESW}{\text{Spacing}}.$$

Thus, an estimate for ESW (from Critical Separation) and Spacing (how far apart the team members are when they search), gives an estimate of Coverage, and so an estimate of the *POD*.

The second of these formulas indicates the important point about Coverage. Imagine the number of searchers in a grid team is doubled, thereby halving their Spacing and doubling the Coverage. So doubling the search effort doubles the Coverage, showing that Coverage is a direct measurement of the search effort, whereas *POD* is not.

*Coverage is a direct measurement of the search effort, whereas *POD* is not.*

Demonstration—Estimating POD

From on-site trials, a grid search team estimates its CS as 20 feet for their segment. Estimate the team's POD if they do not use purposeful wandering and are separated by 30 feet.

Answer

Here $CS = 20$ feet, $Spacing = 30$ feet, and because there is no purposeful wandering, ESW is between $0.5 CS$ and $0.7 CS$ feet. Win CASIE III is used to estimate the POD from this information. With Win CASIE III running, select the menu items “What If?”, “Coverage/POD And Spacing”, and “Coverage/POD From Spacing”, make sure the “Critical Separation” radio button is selected, and enter 30 for the “Spacing” and 20 for “CS”, and finally click the “Accept” button. See Figure 8.16, which shows the POD is between about 28% and 37%, depending on whether ESW is approximated by $0.5 CS$ or $0.7 CS$.

	ESW: 0.5 CS	ESW: 0.6 CS	ESW: 0.7 CS
Coverage	0.3333	0.4000	0.4667
POD %	28.35	32.97	37.29

Figure 8.16. Coverage/POD from Spacing

Cumulative Probability of Detection—CPOD

The **CPOD, Cumulative Probability of Detection**, is the probability of multiple independent resources detecting the subject in a segment, assuming the subject is in that segment and is immobile. In other words, if a segment has been searched multiple times, then the **CPOD** measures how well it has been searched in total.²¹ It is not uncommon for a search objective to specify a required **CPOD** for a specific segment by the end of an operational period.

There are various ways to calculate **CPOD**, all of which give the same answer, but using Win CASIE III requires no mathematical skills.

For the mathematically inclined, the **Cumulative Probability Of Detection, CPOD**, of a Segment after being searched m times with probabilities of detection $POD_1, POD_2, \dots, POD_m$, is given by

$$CPOD = 1 - (1 - POD_1)(1 - POD_2) \cdots (1 - POD_m).$$

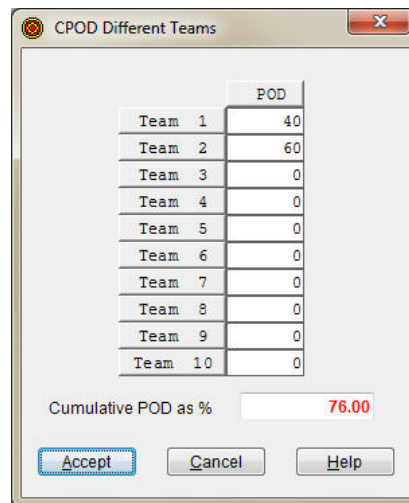
²¹ The **CPOD** is of little use if the subject is mobile.

Demonstration—Calculating CPOD

A helicopter searches a segment with a POD of 40% and a grid-search team searches it with a POD of 60%. What is the CPOD for the segment after these two searches?

Answer

Use Win CASIE III, which has this capability built in. With Win CASIE III running, select the menu items “What If?”, “Cumulative POD”, and “Different Teams”, and enter 40 for the first team and 60 for the second. Finally click the “Accept” button. See Figure 8.17, where the CPOD is 76%.



Team	POD
Team 1	40
Team 2	60
Team 3	0
Team 4	0
Team 5	0
Team 6	0
Team 7	0
Team 8	0
Team 9	0
Team 10	0

Cumulative POD as % **76.00**

Accept Cancel Help

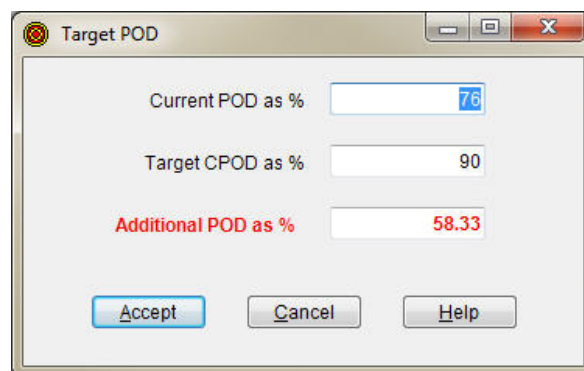
Figure 8.17. CPOD

Demonstration—Calculating CPOD

The IC wants to see all the high probability areas searched to a CPOD of 90% before the search is suspended. Two searches done so far in a particular segment gave a CPOD of 76%. At what POD must a third resource search that segment to achieve a CPOD of 90%?

Answer

Use Win CASIE III, which has this capability built in. With Win CASIE III running, select the menu items “What If?” and “Target POD”. Enter 76 for the Current POD and 90 for the Target POD. Finally click the “Accept” button. See Figure 8.18, where the additional POD required is 58.33%.



Target POD

Current POD as % **76**

Target CPOD as % **90**

Additional POD as % **58.33**

Accept Cancel Help

Figure 8.18. Target POD

Estimating *PODs*

Although Critical Separation is a valuable tool for teams searching in a grid pattern, estimating *PODs* is more of an art than a science. Nevertheless, for some resources there are useful aids.

Helicopters

In the 1980's a series of experiments were performed in Pima County, Arizona, attempting to measure the effectiveness of helicopters in both desert and mountainous environments.²² In all cases the helicopters used were Bell Helicopters Type HH-1H (Iroquois), widely known as “Hueys”, shown in Figure 8.19.



Figure 8.19. An air rescue crew of Detachment 1 37th Aerospace Rescue and Recovery Squadron searching the desert area east of Ragged Top Peak, near Tucson, Arizona. Note the scanner's superior visibility through the open cargo door.

Desert Searches

These experiments, see Reference [Bownds 1] for full details, were conducted north-west of Tucson in Sonoran desert terrain, as characterized by Figures 8.8 and 8.9 on page 90. A typical helicopter crew consisted of a pilot (who devoted his full attention to flying and maintaining the “creeping line” search pattern²³), a co-pilot, and 2 to 4 scanners located midway on each side of the aircraft to scan at right angles to the flight path through open cargo doors. The average speed was about 60 knots, the average altitude about 175 feet, and the average track spacing was about 0.25 miles.

One experiment was performed where the subjects were in the open, waving. All were found, giving an experimental *POD* of 100%. That experiment was not repeated.

Five other experiments were completed—3 on bright sunny days and 2 on overcast days—where all subjects were immobile, under cover, and unresponsive. On bright, sunny days 7 of the 24 subjects were found, giving an experimental *POD* of about 30%. On overcast days, 11 of the 16 subjects were found, giving an experimental *POD* of about 69%. The reason for this dramatic change can be understood by examining Figures 8.8 and 8.9 on page 90.

²² These experiments were the joint effort of the Pima County Sheriff's Department, the United States Air Force Detachment 1 37th Aerospace Rescue and Recovery Section, and the University of Arizona Mathematics Department.

²³ A creeping line search pattern is where the helicopter flies a non-overlapping back-and-forth pattern moving deeper into the search area with each successive leg, until the entire search area is covered.

Experimental PODs for subjects in the Sonoran desert.

- *For subjects in the open, waving.*
 - *The experimental POD was about 100%.*
- *For subjects immobile, under cover, and unresponsive.*
 - *On bright, sunny days the experimental POD was about 30%.*
 - *On overcast days the experimental POD was about 69%.*

Mountain Searches

These experiments, see Reference [Bownds 2] for full details, were conducted north-east of Tucson in the Santa Catalina Mountains where the elevations are between 6000 and 7904 feet. See Figure 8.20. A typical helicopter crew consisted of a pilot, a co-pilot, and 2 or 3 scanners.



Figure 8.20. Typical vegetation in search area in Santa Catalina Mountains.

Nine experiments were conducted. Five experiments were conducted where the subjects were in an upright and waving position. Three experiments were conducted where the subjects were lying in a prone spread-eagle position. The final experiment was conducted where the subjects were immobile, under cover, and unresponsive.

Experimental PODs for subjects in the Santa Catalina Mountains.

- *For subjects in the open who were*
 - *Upright and waving the experimental POD was about 60%.*
 - *Prone in a spread-eagle position the experimental POD was about 81%.*
- *Immobile, under cover, and unresponsive.*
 - *The experimental POD was about 0%.*

Air-Scent Dogs

At present, there are no definitive ways to estimate *PODs* for air-scent dogs conducting grid searches. However, Hatch Graham has proposed a methodology that might be helpful, which is described in Reference [Graham]. His proposal depends on the following factors.

- Estimating the surface wind speed in mph. This can be done using the Beaufort Wind Scale, modified by Graham, shown in Table 8.14.

Table 8.14. Beaufort Wind Scale

Speed	Observations
1–3 mph	Tree leaves don’t move, smoke drifts slowly, sea is lightly rippled.
4–7 mph	Tree leaves rustle, flags wave slightly, small wavelets or scale waves.
8–10 mph	Leaves and twigs in constant motion, small flags extended, long unbreaking waves.
11–14 mph	Wind raises dust and loose paper.
15–25 mph	Small branches move, flags flap, waves with some whitecaps.

- Deciding whether it is day or night. In this context, night occurs from 1 hour before sunset to 1 hour after sunrise.
- Assessing the cloud cover.
- Estimating the shadow length (in feet) of a 6-foot vertical pole.
- Estimating the distance between successive grid sweeps.
- Reading Table 8.15 on the next page for teams separated by 100 meters (110 yards) and otherwise Table 8.16 on the next page.²⁴

²⁴ Compared to Graham’s original table, in Table 8.15 on the next page, the two columns under “NIGHT” have been interchanged to make them consistent with the order of the columns under “DAY”.

Demonstration—Estimating POD for Air-Scent Dogs

A dog team searches a segment on a cloudless day, where the wind speed is 6 mph on average, and the shadow of a 6 foot staff is 5 feet. Estimate the PODs if

1. The team uses parallel 110 yard sweeps.
2. The team uses parallel 55 yard sweeps.

Answer

Looking at Table 8.15, the relevant column occurs under “DAY”, “Clear”, “3.5—8.5” (because $3.5 < 5 < 8.5$). The relevant row is “4—7 mph” (because $4 \text{ mph} < 6 \text{ mph} < 7 \text{ mph}$). The column and row intersect in “B 10—30”.

1. Because the track spacing is 110 yards, the estimated POD is between 10% and 30%.
2. Because the track spacing is 55 yards, the estimated POD in Table 8.15 is not applicable. The letter “B” comes into play, and, from Table 8.16, the estimated POD is read off as 55%, by identifying where the column headed “55 yards” and the row named “B” intersect.

Table 8.15. Graham’s POD Estimator, excluding handler

SURFACE WIND SPEED	DAY									NIGHT	
	Clear or ≤ 50% Cloud or Any High Clouds			> 50% Low and Mid-level Clouds			> 50% Low Clouds			Clear or < 50% Clouds	≥ 50% Clouds
	6-foot vertical standard shadow length (in feet)										
	< 3.5	3.5-8.5	> 8.5	< 3.5	3.5-8.5	> 8.5	< 3.5	3.5-8.5	> 8.5		
1-3 mph <i>POD</i>	A 5-25	A-B 7-27	B 10-30	A-B 7-27	B 10-30	D 80-85	B 10-30	D 80-85	D 80-85	- -	- -
4-7 mph <i>POD</i>	A-B 7-27	B 10-30	C 35-45	B 10-30	C 35-45	D 80-85	C 35-45	D 80-85	D 80-85	F 95-96	E 90-92
8-10 mph <i>POD</i>	B 10-30	B-C 20-40	C 35-45	B-C 20-40	C 35-45	D 80-85	C 35-45	D 80-85	D 80-85	E 90-92	D 80-85
11-14 mph <i>POD</i>	C 35-45	C-D 55-65	D 80-85	C-D 55-65	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85
15-25 mph <i>POD</i>	C 35-45	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85	D 80-85

Table 8.16. Estimated PODs for dog, excluding handler

Category	100 m	50 m	25 m	12.5 m
	110 yards	55 yards	27 yards	14 yards
A	5%	50%	75%	87%
B	10%	55%	77%	89%
C	35%	67%	86%	93%
D	80%	90%	95%	97%
E	90%	95%	97%	99%
F	95%	97%	99%	99%

Some comments follow about this technique.

- It would be helpful if scientific field trials were conducted to confirm that this technique generates reasonable *PODs*. Until this exists, caution should be exercised in blindly accepting these *PODs*.²⁵
- Some important variables that this technique does not include are humidity and temperature. It is unlikely that dogs perform as well in an environment with a temperature of 110 °F and a humidity of 5% as they would in an environment with a much lower temperature and a much higher humidity.
- A segment must be “aired” of previous teams’ scents before air-scent dogs are used in that segment.
- The dog handler is also searching at the same time, so their *POD* should also be accounted for, bearing in mind that while they are paying attention to the dog they are not searching.

Section 8.6

Using Win CASIE III During an Area Search

The purpose of this section is to illustrate the use of Win CASIE III when transitioning from a Route and Location Search to an Area Search by creating a consensus and then updating the *POAs* after a segment has been searched.

Creating a Consensus

Once the search area has been segmented the initial *POAs* need to be created using the consensus processes described starting on page 83. *Consensus Forms* can be generated by Win CASIE III as mentioned on page 69 and then completed individually by the respondents.

To enter this information, open Win CASIE III and click the *Start New* icon at the left-hand end of the toolbar. This opens a dialog box where the Incident Name, Filename, Number of Segments, and Number of Respondents can be completed. (Pressing the *Help* button supplies detailed instructions.) See Figure 8.21 on the next page as an example. Notice the files are to be saved on the Desktop—the default location. Parenthetically, normally there are considerably more than three segments, but the principle is the same.

Having completed this form, *Accept* opens a window in which the consensus can be entered. See Figure 8.22 on the next page.

Clicking on any of the three column headers allows the user to name the responder, select the specific consensus method, and enter the consensus itself, as shown in Figure 8.23 on page 104.

Here, Paul used the Mattson method. Aaron used the O’Connor method assigning 10% to the ROW, and the letters A, C, and E to Segments 1, 2, and 3 respectively. Greg used the Proportional method, assigning 10% to the ROW, and the number 3, 2, and 1 to Segments 1, 2, and 3 respectively. Win CASIE III then converts Aaron and Greg’s entries to percentages. The percentages are averaged on the right-hand column, which is the Consensus.

Selecting *Accept* creates a folder named “Smith” on the Desktop and optionally moves the Initial Note into this folder. Then the main screen opens, as represented by Figure 8.24 on page 104. The left-hand pane shows the current state of the incident. The right-hand pane shows everything we have done so far—the Audit Trail.

The “Update Search” menu item is now available, part of which is shown in Figure 8.25 on page 105. These items are used once resources return from the field.

- *Add Completed Search Assignment* is used after a search resource or team has returned and been debriefed.
- *Remove/Edit Completed Search Assignment* allows the user to remove or edit a previously added search assignment.

²⁵ To quote Graham: “*I don’t hesitate to add that the system has never undergone rigorous, scientific field trials.*”

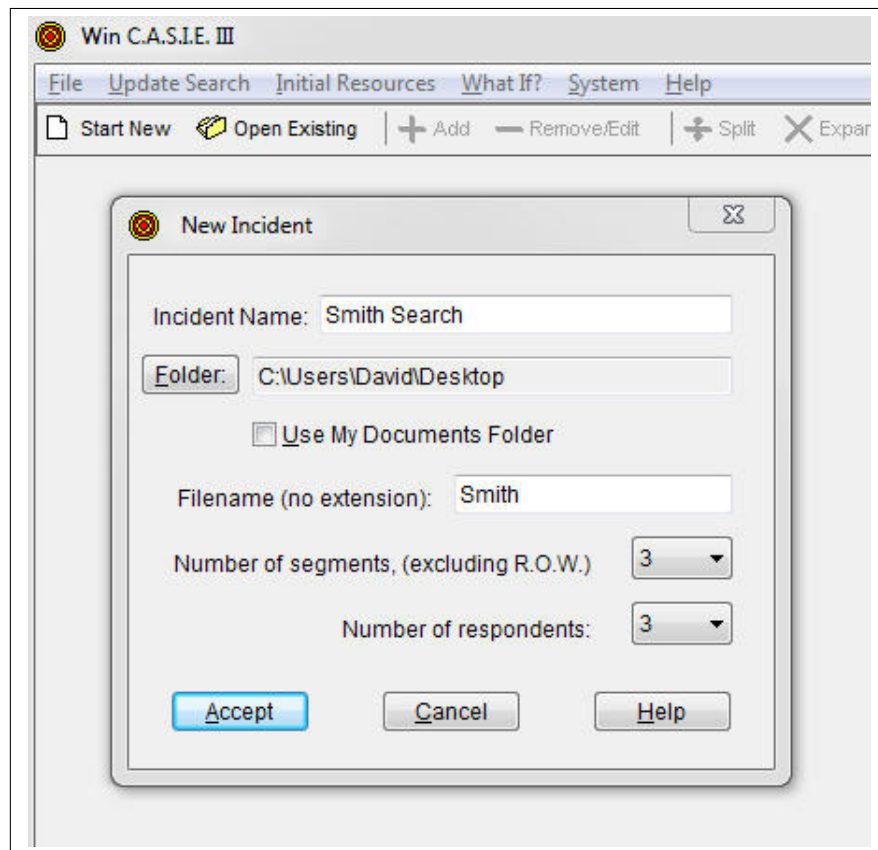


Figure 8.21. Beginning a new Area Search using Win CASIE III

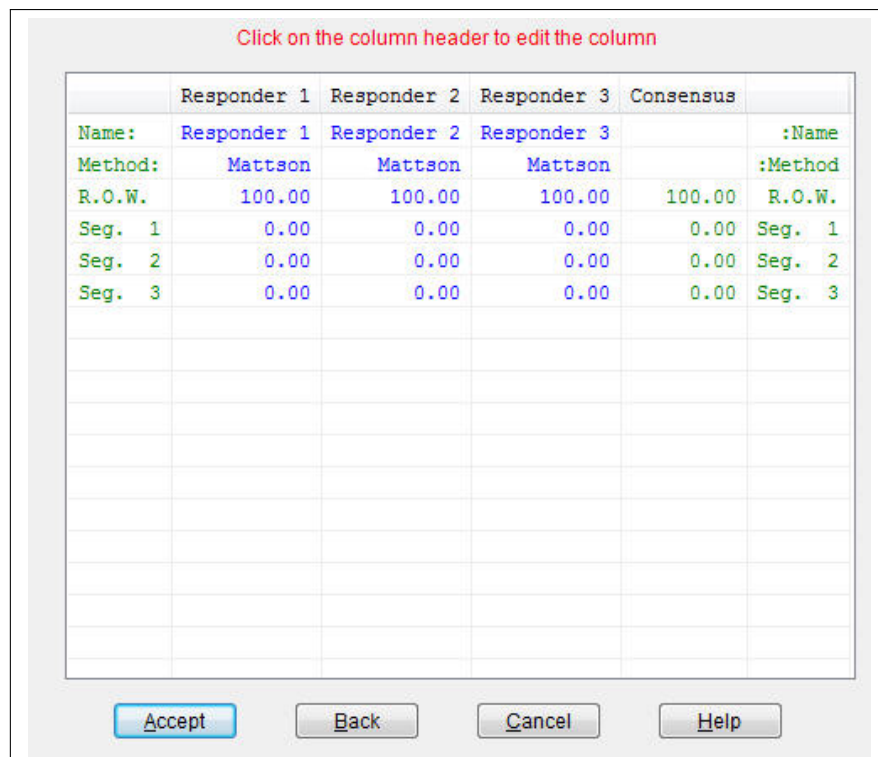


Figure 8.22. Entering a consensus in Win CASIE III

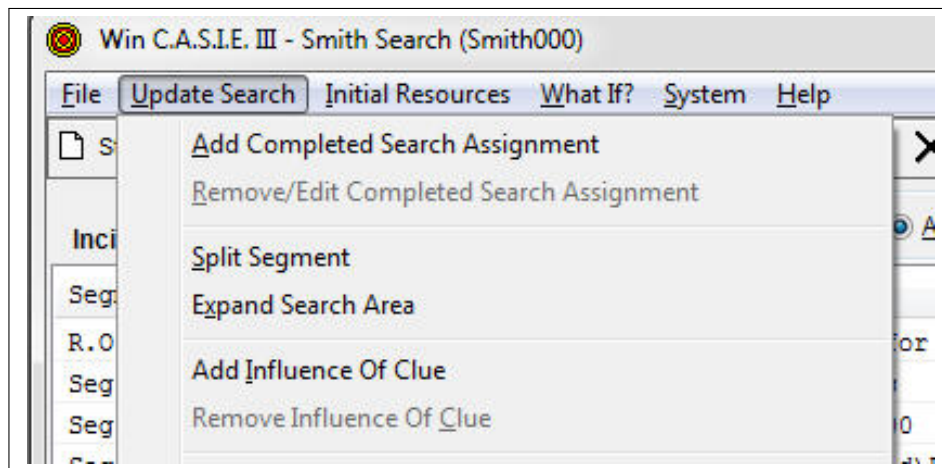


Figure 8.25. Part of the “Update Search” menu item in Win CASIE III

- *Split Segment* is used when a search team is only able to search part of an existing segment. That segment has to be split and the current *POA* redistributed.
- *Expand Search Area* is used when there is a belief that the subject is not in the current search area, but in the ROW. This could occur, for example, when a previously unknown object such as a mine shaft or a dwelling is discovered in a segment, and therefore is in the ROW, but now should be included in the search area.
- *Add Influence Of Clue* allows the user to take into account a clue.
- *Remove Influence Of Clue* removes a previously added clue.

The following section deals with the *Add Completed Search Assignment* menu item. For details of the other menu items, see the Win CASIE III manual.

Updating the *POAs*

Imagine, in the current scenario, it is determined that, after debriefing, a resource—a helicopter—is assigned a *POD* of 50% for its search of Segment 1 during OP 1. This paperwork, identified by a cross-reference to “DSL01”, is passed to the Win CASIE III operator. Selecting the *Add Completed Search Assignment* menu item, or by selecting “+ Add” on the toolbar, opens a screen to enter this information. See Figure 8.26.

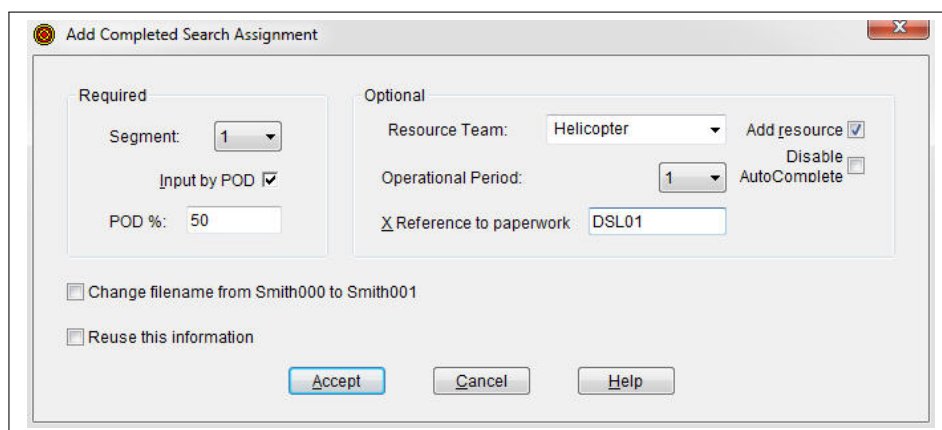


Figure 8.26. Add Completed Search Assignment in Win CASIE III

Clicking “Accept” returns the user to the updated Main Screen shown in Figure 8.27.

Segment	POA	CPD	Action
R.O.W.	12.90%	0.00%	001 Audit trail started for "Smith Search". (04/13/2013 11:52 .
Seg. 1	29.03%	50.00%	002 Created new consensus (04/13/2013 11:52 .
Seg. 2	38.71%	0.00%	003 New filename: Smith000
Seg. 3	19.35%	0.00%	004 Path: C:\Users\David\Desktop\Smith
			005 Number of segments (excluding ROW): 3
			006 Number of responses: 3
			007 Mattson Consensus Paul: R.O.W.: 10.00%, 1: 40.00%, 2: 30.00%, 3: 20.00%
			008 O'Connor Consensus Aaron: R.O.W.: 10.00%, 1: 50.00% (A), 2: 30.00% (C), 3: 1
			009 Proportional Consensus Greg: R.O.W.: 10.00%, 1: 45.00% (3), 2: 30.00% (2), 3
			010 POA R.O.W. : 10.00%
			011 POA Segment 1: 45.00%
			012 POA Segment 2: 30.00%
			013 POA Segment 3: 15.00%
			014 Operational Period 1 (04/13/2013 2:11 P
			015 Saved Status: IncidentStatus001.txt at start of Operational Period 1 (04/13/201
			016 Added search of Segment 1: POD 50.00%, OP 1, Helicopter, (XRef: DSL01) (04/13/2

Figure 8.27. Updated Main Screen in Win CASIE III

Notice that item “014” in the Audit Trail indicates that the data belongs to OP 1, while item “016” gives the completed search assignment information. On the left-hand side, the Incident Status has been updated. The *CPD* for Segment 1 is now 50%, and all the *POAs* have been updated (“shifted”) according to specific mathematical formulas. The *POA* for Segment 1, the searched segment, has decreased, whereas the *POAs* for all the other segments, including the ROW, have increased. This can be seen more easily by looking at Figure 8.28. The left-hand table is the current status. The right-hand side is the previous status. For example, the *ROW* has increased from 10% to 12.90%, whereas the *POA* for Segment 1 has decreased from 45% to 29.03%.

Incident Status		
Segment	POA	CPD
R.O.W.	12.90%	0.00%
Seg. 1	29.03%	50.00%
Seg. 2	38.71%	0.00%
Seg. 3	19.35%	0.00%

Incident Status (IncidentStatus001)		
Segment	POA	CPD
R.O.W.	10.00%	0.00%
Seg. 1	45.00%	0.00%
Seg. 2	30.00%	0.00%
Seg. 3	15.00%	0.00%

Figure 8.28. Current and previous status

As more resources return, their *PODs* are entered in the same way. The helicopter searches Segment 2, as shown in Figure 8.29, and a grid team searches Segment 1, as shown in Figure 8.30.

Figure 8.29. Add a second Completed Search Assignment in Win CASIE III

Figure 8.30. Add a third Completed Search Assignment in Win CASIE III

Figure 8.31 shows the updated *POAs* and *CPODs* (on the left) together with the initial *POAs* (on the right).

Incident Status			Incident Status (IncidentStatus001)		
Segment	POA	CPOD	Segment	POA	CPOD
R.O.W.	20.41%	0.00%	R.O.W.	10.00%	0.00%
Seg. 1	18.37%	80.00%	Seg. 1	45.00%	0.00%
Seg. 2	30.61%	50.00%	Seg. 2	30.00%	0.00%
Seg. 3	30.61%	0.00%	Seg. 3	15.00%	0.00%

Figure 8.31. Current and previous status

Updated (“Shifted”) POAs

For the mathematically inclined, here are the formulas used to update the POAs after Segment x has been searched and Segments s have not. For further details see the Appendices in the manual included with Win CASIE III.

If the current POA of Segment x is $POA_{old}(x)$, then the updated POA of Segment x after it has been searched with a probability of detection $POD(x)$ is

$$POA_{new}(x) = \frac{(1 - POD(x))POA_{old}(x)}{1 - POD(x)POA_{old}(x)}.$$

If the current POA of Segment s is $POA_{old}(s)$, then the updated POA of Segment s , that has **not** been searched, is

$$POA_{new}(s) = \frac{POA_{old}(s)}{1 - POD(x)POA_{old}(x)}.$$

If the current ROW is ROW_{old} , then the updated ROW is

$$ROW_{new} = \frac{ROW_{old}}{1 - POD(x)POA_{old}(x)}.$$

Accounting for Clues

If a clue is found at any time during an Area Search—including immediately following the Initial Consensus discussed on page 83—then Win CASIE III can assess the impact of that clue on the segment POAs and ROW. This is a two-stage process.

1. First, taking the attitude that the clue is completely authentic, the significance of the clue for each of the search segments and for the ROW is estimated by selecting one of the letters A through I from Table 8.17 for each segment and the ROW.

Table 8.17. Significance of Clue

A	Clue strongly suggests subject is in this segment
B	
C	Clue suggests subject is in this segment
D	
E	Clue suggests nothing about the subject being in or out of this segment
F	
G	Clue suggests subject is not in this segment
H	
I	Clue strongly suggests subject is not in this segment

2. Second, the authenticity of the clue is estimated from the choices in Table 8.18 on the next page.

This can be entered into Win CASIE III by selecting *Add Influence of Clue* under the *Update Search* menu item, after which a window, similar to Figure 8.32 on the next page, opens.

After the information is entered, and *Accept* is selected, the existing POAs and ROW are updated to reflect this information.

Table 8.18. Authenticity of Clue

Almost surely authentic
Probably authentic
Even chance authentic/not authentic
Probably not authentic
Almost surely not authentic.

Add Influence of Clue

Instructions

The R.O.W. and each segment requires a letter according to the following scheme:

- A - Clue strongly suggests subject is in this segment
- B
- C - Clue suggests subject is in this segment
- D
- E - Clue suggests nothing about the subject being in or out of this segment
- F
- G - Clue suggests subject is not in this segment
- H
- I - Clue strongly suggests subject is not in this segment

Description:

Authenticity:

X Reference to paperwork:

☒ Change filename from Finch005 to Finch006

☒ Transfer Incident Status To Audit Trail

Relative importance of clue

R.O.W.	Relevance
	C
Seg. 1	A
Seg. 2	B
Seg. 3	C
Seg. 4	C
Seg. 5	I
Seg. 6	G
Seg. 7	H
Seg. 8	F
Seg. 9	F
Seg. 10	E
Seg. 11	E
Seg. 12	E

Figure 8.32. Add Influence of Clue

CHAPTER 9

Gathering, Analyzing, and Using Incident Information: the Core of Search Planning—Available Resources

Section 9.1 Overview

There are a number of resources available to the Planning Section—do not overlook them. These include

- Mapping software.
- GPS tracking.
- Acquiring and using Unmanned Aerial Systems for Aerial Search.
- High-resolution photography.
- Using Cell Phone information.

Each of these is discussed in turn.

Section 9.2 Mapping Software

Maps are the heart of a search incident, and, as the saying goes, “*a picture is worth a thousand words*”.

A picture is worth a thousand words.

It is often easier to understand and explain the status of the incident with visual aids rather than text, especially when dealing with family members and agency administrators who may not have extensive search management knowledge. Visual aids are also invaluable to the search incident management staff and the searchers in order to quickly see what has happened and what is happening (see Figure 9.1 on the next page). Much of the search planning done involves terrain analysis so maps and aerial photos are very useful.

Basic software programs

At the start of a search incident a map is one of the first items consulted in the search planning process. The IPP is immediately added to the map (using the letters “IPP-PLS” or the letters “IPP-LKP”,



Figure 9.1. Map on hood of Incident Commander’s vehicle at the scene of a search

depending on how the IPP was determined). As the search progresses the locations of many other items are added—incident facilities, clues, segments, hazards, communication sites.

Traditionally paper maps, primarily topographic maps and aeronautical charts, are used to manage search operations. Increasingly, mapping software programs are being used to manage search incidents. There are several software programs available including SARTopo and MyTopo Terrain Navigator Pro among others.

SARTopo is becoming widely used in the SAR community and has been designed with that community in mind. SARTopo can be used in both online and offline modes. More features are available with the online version (www.sartopo.com). One key feature of SARTopo is the ability to create geo-referenced PDF maps which can then be imported into the Avenza app on a smartphone or tablet for responders to use in the field.

SARTopo, when used online, allows for open source layers to be added to the map including open street map information, wildland fire activity, weather information, stream gauge data, and SnoTel information.

Additionally, SARTopo allows for easily sharing the map with other users who may be in geographically dispersed locations via the internet.

These basic programs allow the user to visualize USGS topographic maps on the computer and place a variety of symbols on the map that can then be printed for field searchers or used in presentations to media, families, or agency briefings, with minimal training and experience with the software. These programs are extremely useful for SAR personnel and easily transportable on a laptop computer.

Advanced software programs

More complex and powerful Geographic Information System (GIS) programs like ArcGIS and Global Mapper, are increasingly being used in search management. There are some free open-source GIS programs available, including Geographic Resources Analysis Support System (GRASS). These systems, whether commercial or free, require a highly-trained operator.

In addition to the topographic map sources there are other sources of geographic information that are becoming increasingly popular including GOOGLE Earth™ (see Figure 9.3 on the next page) and Microsoft® Bing Maps. These sources provide aerial or satellite imagery that can be helpful in planning a search operation because topographic coverage may be out-of-date and reflect erroneous information for planning (for example, recent fire activity burned through an area, housing development, road realignment, etc.).

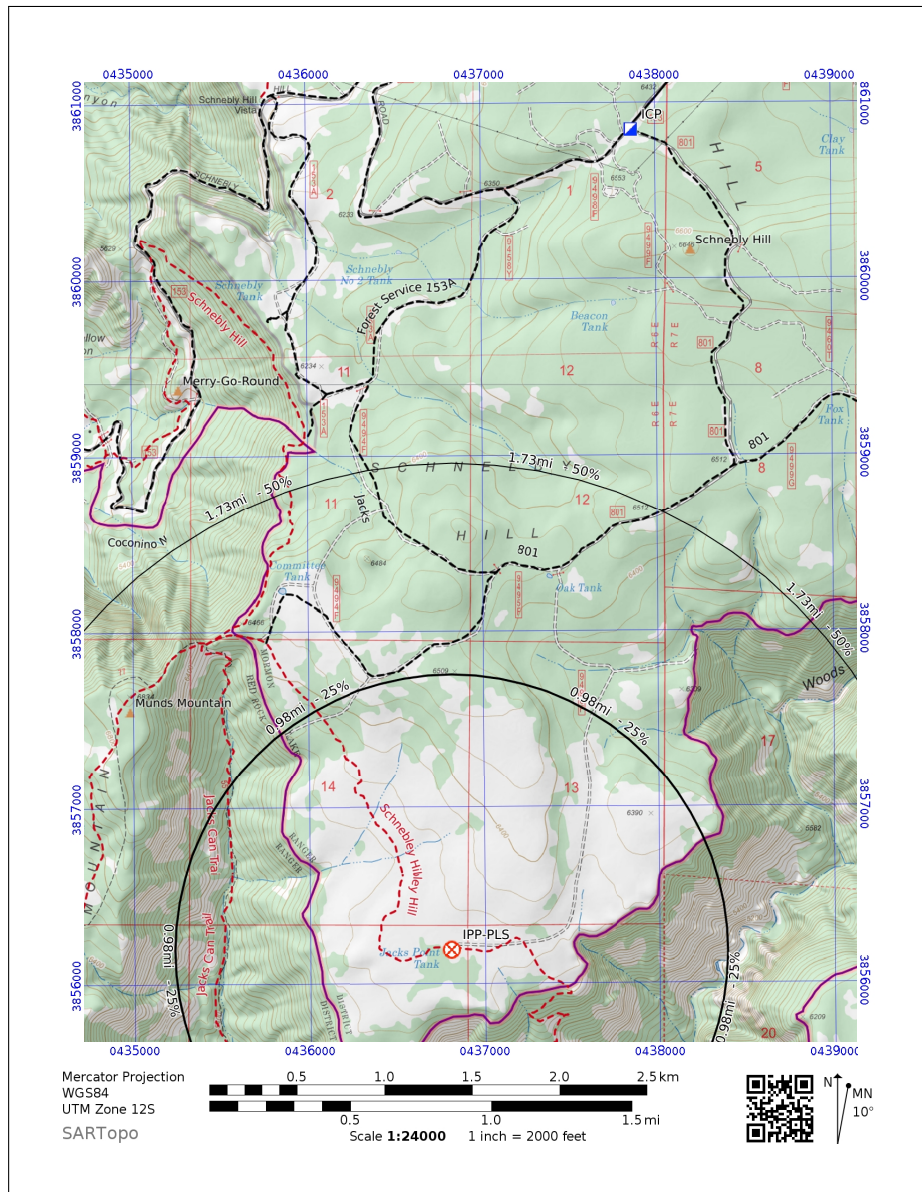


Figure 9.2. Map generated with SARTopo



Figure 9.3. GOOGLE Earth™ image of Fort Valley near Flagstaff, Arizona

Geographic Information System Specialist

During the initial response phase of a search, the Initial Response Incident Commander (IRIC) likely deals with the maps, either using software, such as , MyTopo Terrain Navigator Pro, or traditional paper maps.

As the incident grows, a Technical Specialist could be assigned these duties, usually called a GIS Specialist—an expert in using Geographic Information Systems that integrate hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

As this technology is increasingly used in SAR and other emergency operations there may be opportunities to recruit for this specific skill for a SAR team. Many wildland fire incident management teams carry a GIS specialist on their staff and those persons may be interested in using those skills in the wildland fire off season. GIS degree and certificate programs are abundant at community colleges and universities and students in those programs may be looking for ways to gain experience before entering the job market.

Pre-planning

Many government agencies have a GIS department that may be able to supply a technical expert for the incident to prepare and analyze geographic information using software such as ArcGIS/MapSAR. However, using this software requires a considerable amount of pre-planning. This includes

- Making sure that the data can be exported from the IRIC's software and imported into the GIS Specialist's software, with no loss of information.
- Making sure that the GIS Specialist has a working knowledge of the terms and procedures used by SAR personnel.
- Obtaining essential digitized datasets required by ArcGIS, including a map of the search area; the location of roads, trails, streams, bridges, and watershed boundaries; contour and elevation details; 3D and satellite imagery; georeferenced trail, recreation, and brochure maps; and any other pertinent data.
- Gaining experience using ArcGis/MapSAR, which is a free module integrated with ArcGIS. The MapSAR interface is different from the corresponding ArcGIS interface. The ArcGIS tools that are used most often in SAR are put onto one toolbar, and all the other tools are hidden. Consequently an experienced ArcGIS user may be initially confused by this unfamiliar interface.

MapSAR is specifically aimed at creating team assignment sheets.

Figure 9.4 on the next page shows an example of a Team Assignment Map generated by MapSAR. MapSAR, in conjunction with Esri, the company that created ArcGIS, have produced two manuals to help learn MapSAR:



“Using GIS for Wildland Search and Rescue” and *“MapSAR User’s Manual”*. These can be downloaded from <http://www.mapsar.net/ebooks/index.html>. The use and development of GIS technology for search incidents is changing rapidly. One way to keep up to date is to join a GIS user group specifically aimed at SAR personnel, such as “Using GIS in SAR and Emergency Services” (AKA “Using GIS in WiSAR”) at <https://groups.google.com/forum/?fromgroups#!forum/sar-and-gis>. One of their central goals is to make GIS techniques and technologies more accessible to non-specialists.

Section 9.3

GPS Tracking of Search Effort

A challenge for search planners has been accurately determining the areas that had been searched by searchers during their assignment. In the past planners relied upon maps shaded in by searchers

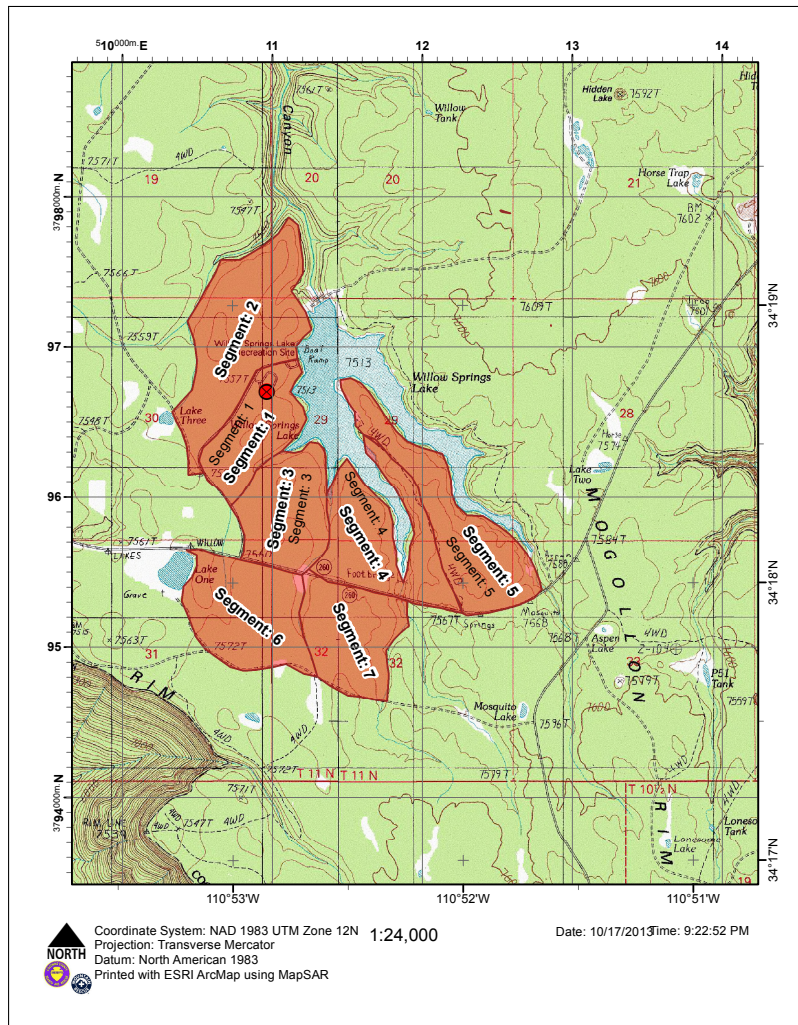


Figure 9.4. Team Assignment Map generated by ArcGIS/MapSAR

during the debriefing following an assignment. This method has a high potential for error and those errors could impact the planning for subsequent operational periods. The use of Global Positioning System (GPS) receivers has dramatically improved the way search coverage can be measured because the actual path the searcher traveled can be recorded. While this is very helpful, this data collection does not indicate how well the searcher actually searched the area. It just identifies where the searcher has been.

This data collection does not indicate how well the searcher actually searched the area but just identifies where the searcher has been.

Track log

GPS receivers generally can maintain a track log. The track log settings can be modified to collect data in a variety of different ways including by time or distance traveled. In SAR, setting the track log to collect at specified time intervals seems to be the best practice. The time interval for collection can be modified depending on the activity. If a searcher is flying in an aircraft and needs to collect information on the aerial search setting the time interval for collection of data to a short time period

might be wise since the aircraft is covering large distances in a short period of time. A ground searcher may want to set the collection interval for a longer period since that person is covering less distance over a period of time. The more data points collected provide a greater level of accuracy, but that must be balanced with the memory capacity of the GPS unit. Some SAR dog handlers also have GPS units for their dogs, which can also be collected.

GPS units that are collecting track data in different units or time intervals can show some discrepancy when they have covered the same area. In Figure 9.5 one GPS unit (the blue track) was collecting data every 10 seconds while the other (the red track) was collecting data every 60 seconds. Both GPS units were carried at the same time by the same person walking a short path. In other words, a downloaded track may differ from the actual track.

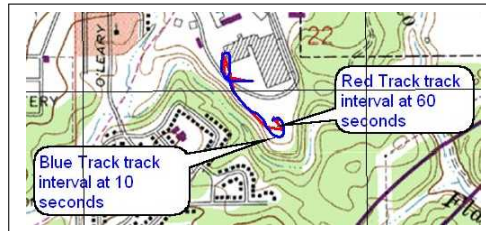


Figure 9.5. GPS tracks collected with 2 different GPS units at same time but with different track log collection intervals

A downloaded track may differ from the actual track.

The GPS data can be downloaded from the GPS to a variety of GIS, Garmin Basecamp (for Garmin GPS units only), or other computer based map software such as Google Earth, MyTopo Terrain Navigator Pro (see Figure 9.6) and through a freely available software program called GPSTabel, which is freely available at <https://www.gpsbabel.org/index.html>. In order to download this information the proper cables are needed to connect the computer to the GPS unit. It is beneficial if the individual searcher keeps their own cable with them to allow for the Planning Section to download tracks and other information at the completion of the assignment. Some units keep a collection of common GPS cables with a computer for this purpose. Still other units keep a cache of GPS units to be issued to searchers for collecting track logs. The advantage to this system is that the issued GPS units can be set by the Planning Section for the appropriate settings and the required cables are known and on hand.

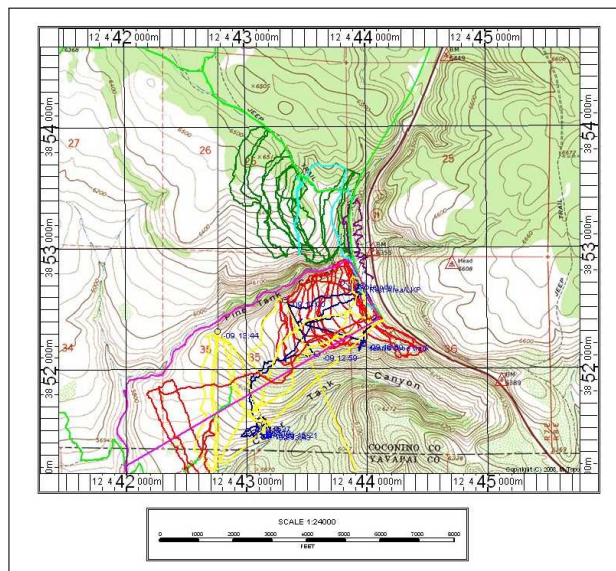


Figure 9.6. GPS tracks collected on a search mission

GPS receivers can also be connected to laptop computers or tablets and used for real time navigation with mapping or GIS software. This can be very helpful in confusing or complex terrain and in situations where roads are indistinguishable such as in winter when there is heavy snow cover.

There are some other devices, generically referred to as SEND units (satellite emergency notification devices), that utilize GPS information that can also be used to quantify search coverage. Many search aircraft have satellite tracking systems on board (for example, Spidertracks, TracPlusTM) for their home agency or company to monitor the location of those aircraft. That track information may be available for download from the company or agency. Some ground teams or vehicle teams may be using similar technology. For example, the Coconino County Sheriff's Office Search and Rescue Unit in Arizona has a NAL Shout nano satellite communicator as well as Garmin InReach devices. These devices allow for the transmission of satellite text messages and can be used to monitor the location of teams carrying the devices through the use of websites or apps on a computer, smartphone, or tablet. That track information is available through software provided by TracPlusTM in the case of Coconino County.

It is useful to save the GPS track logs in a file with other incident documentation. The track logs should be labeled in such a way that it is easy to determine the resource they were from and the assignment they were working.

It is critical that a navigation briefing be done and that the map datum and preferred coordinate format be briefed to the responders. When receiving information from various assets the map datum should be verified to avoid datum shift errors resulting in inaccurate plotting of tracks, clues, or other important locations.

Section 9.4 Acquiring and Using Unmanned Aerial Systems for Aerial Search

Unmanned Aerial Systems (UASs) are increasingly making their way into the public safety market after extensive use by the military. A UAS includes an unmanned aerial vehicle and a pilot stationed on the ground to control the vehicle. Most people have heard of UASs—they are often erroneously referred to as drones. The

most common image of a drone is of larger Predator or Reaper drone that has been used extensively in military operations. There are also smaller UASs that are more portable and hand launched. UASs come in several different configurations including fixed wing or rotor wing, and gas or electric motors.

Both the larger and smaller UASs have potential value for SAR operations. The larger UASs, like the Predator, are very expensive and unlikely for a non-military or non-federal agency to own. The small UAS, DJI products for example, are more affordable and have already been deployed by many emergency response organizations including search and rescue teams.

An Unmanned Aerial System consists of two components, an Unmanned Aerial Vehicle (UAV) and a ground operator—its pilot.

Benefits of UASs in SAR

A UAS has many benefits for SAR. UASs can be used in areas and in weather that might prevent other aviation assets from being deployed. It is often the case that the weather at a SAR mission site is acceptable for flying but the weather between the mission site and the aviation unit base prevents an aviation asset from responding. In other cases the terrain may inhibit manned aviation resources but a small UAS could be used. Most UASs can be equipped with a variety of optical sensors that can be controlled and monitored by a ground station. These optics are generally mounted on a gimbal—a

¹ Reproduced with permission from <http://www.falcon-uav.com/>.



Figure 9.7. Launching a Falcon UAV¹

pivoted support that allows rotation about a single axis—and depending on the sensors can provide coordinates of locations from the camera. The imagery can be transmitted to the ground control station in realtime but terrain can inhibit that transmission. There has been discussion of having some radio relay capability on small UASs that would allow for monitoring of teams in the field that might be out of communication with the ICP, for example conducting a mission in a slot canyon. Since UASs are unmanned the risk to humans is reduced.

Limitations of UASs in SAR

There are several limitations of UASs for SAR. Most obvious is the cost. While the small UASs are relatively affordable, a commercial grade UAS with high quality sensors is likely to cost between \$50,000 and \$250,000 or more. Training for the operators is also critical to protect the investment and to effectively utilize the system. The small UASs with electric motors have a relatively short flight time (15 to 60 minutes usually) so searching a large area with small UAS may require many batteries. Annual maintenance is another cost to consider. A hurdle to UAS use in public safety is the concern of the public about surveillance and privacy. SAR units wishing to develop a UAS program would be wise to invest some time in developing good governing policy for their use as well as some public engagement to promote the advantages and benefits of UASs in SAR operations.

Currently, public safety agencies have two options for operating a UAS on missions. The first option is to fly under the FAA Part 107 rules. The Part 107 option requires that the pilot in command complete a knowledge test to acquire a Remote Pilot Certificate from the FAA. Part 107 operators are limited to flying in Class G airspace, flying up to 400 feet above ground level, maintaining line of sight with the UAS, not flying over non-participants, among other limitations. Flights in Class B, C, D, and E may be possible with Air Traffic Control permission. For further information on the Part 107 rules see https://www.faa.gov/uas/media/Part_107_Summary.pdf.

The second option is for public safety agencies to obtain a Certificate of Authorization (COA) from the FAA. The COA requires a lengthy application but can allow for more flexibility in flight operations than the Part 107 offers.

Waivers to provisions of Part 107 or an existing COA during an emergency can be applied for through the FAA. This waiver process is called the Special Governmental Interest (SGI) process and is only available to current Part 107 certificate holders or agencies with a COA. More information about the SGI process can be found at https://www.faa.gov/uas/advanced_operations/emergency_situations/.

There have also been several bills introduced in state legislatures that limit the use of UASs in those states. There are some public safety agencies that have received a COA and are operating UASs, the first being Mesa County Sheriff's Office in Colorado. The National Park Service has also acquired a COA for operations in the National Parks. Currently there is a robust small unmanned aerial system (sUAS) program in operation at Grand Canyon National Park.

Mesa County Sheriff's Office UAS Program

The Sheriff's Office obtained the 2 pound Draganflyer X6 unmanned helicopter through a mutual agreement with Draganfly Innovations Inc. in the fall of 2009, for free. This unique partnership allowed us to navigate the Federal Aviation Administration (FAA) process and test the potential law enforcement capabilities without extensive financial costs. At the time, the UAV programs in law enforcement across the Country were less than five agencies, so this was really a pilot program for us. After nearly twelve months of working with the FAA to gain approval for a COA—Certificate of Authorization, we tested the Draganflyer X6 in a one square mile area at our County Landfill (per the restrictions of the FAA/COA). The Draganflyer X6 flies for about 15 minutes and carries a still camera, a color video camera or an Infrared camera. All providing realtime viewing on the ground by the pilot.

By the fall of 2010, we had modified our COA agreement with the FAA to allow us to fly our UAV system anywhere in Mesa County, Colorado, during daytime hours. This greatly extended our testing ability, as well as allowed us to use these systems operationally, and we were able to assist the Colorado State Patrol with fatality crashes (aerial photos), the Grand Junction Fire Department with the White Hall fire (hot spot sensing and aerial photos), suspect apprehension and more.

In January 2012, we tested a fixed wing UAV product—the Falcon UAV. This product was the result of a partnership with a Colorado company, Falcon UAV, who ultimately only charged us for the materials to make the system. The Falcon has a much longer flight time (1hr) and we see potential in using it for SAR missions, wildland fire monitoring and broad area suspect searches.

To date our program has flown more than 35 missions with a combined 160 flight hours. We are beginning to implement UAS into day to day operations. It appears, at this time, that this new technology will work with law enforcement similar to a K-9 unit in that we are training current staff to operate these systems and allow them to carry the equipment in the back of their patrol car, not requiring the addition of new staff. Each pilot then shares the patrol car, UAV included.

Reproduced with permission from <http://sheriff.mesacounty.us/template.aspx?id=10164>, August 28, 2013.

Other Options

There may be options for SAR units to utilize UASs without having to purchase and maintain a program of their own. Many states have Air National Guard units that are operating UASs and they may be willing to use their UASs for SAR. Along the U.S. international borders the Department of Homeland Security is operating UASs for border security operations and they might be willing to utilize their UASs for SAR. These options still require that a COA be developed for the area of use. If your state has these options it might be worth exploring and developing a relationship with the agencies already using UASs and then applying for a COA in the areas that would be of interest for UAS use. Conducting training missions is also a good idea to better understand the capabilities and limitations of the UAS that might be available to you. There may be resource ordering guidelines established in

various jurisdictions. For example in Arizona in order for a SAR coordinator to request an Air National Guard UAS the request must first be made to the Arizona State Search and Rescue Coordinator.

The FAA Modernization and Reform Act of 2012 instructed the FAA to fully integrate UAS into the national airspace by 2015. That resulted in the Part 107 process. The FAA Modernization and Reform Act of 2018 continues the integration including improving the SGI process.

“Sir, I am an unmanned aircraft”

A few years ago I was assigned to Air-Ops while working a search for a missing 5-year-old blond girl in the mountains south of Tucson, Arizona. Our air assets were out of service so we requested assistance from U.S. Customs who have helped us many times in the past with their Blackhawk or A-Star Helios. Shortly thereafter I was advised via radio from the air they had located a small blond child walking downstream from my location. I requested they land and check her welfare. I was surprised at the response . . . “Sir, I am an unmanned aircraft”. After a pause I returned with “Copy that”. She was returned to her family unharmed and I learned of a valuable new resource.

Sgt. Eric Johnson, Pima County SAR.

Section 9.5

High-Resolution Photography as a Search Methodology²

Using High-Resolution Photography for Searches

With the advent of High-Resolution Photography and advanced color recognition software, it is possible to effectively and efficiently search large areas of hazardous, open terrain, such as cliffs, snowfields, high altitude mountains, desert, and perhaps other topography by taking a series of high-resolution photographs from a fixed-wing aircraft or helicopter flying over the area. High-Resolution Photography can also be used to cover key sections of the search area before weather conditions change (snowfall), or physical changes (avalanches) occur within the search area, obliterating potential clues. The photographs are then taken to the ICP where Technical Specialists in the Situation Unit can either run them through color recognition or other software, or actually display the individual photos on a large format, high resolution computer monitor and visually search the photo for the missing person or clues.

In most cases, high-resolution photography is not meant to take the place of ground personnel, but to help aid the search effort as one of many types of search resources. Typically in an aerial search there is only a short window of time given to search a particular area due to rapid aircraft movement and the need to cover other terrain. Capturing the search area in aerial photographs allows trained photo specialists to spend as much time as necessary to thoroughly search the area in the relative comfort of the ICP.

While high-resolution photography can be used for searching in any type of terrain, as the terrain becomes increasingly congested with leafy trees, big boulders, and dense brush, it is more difficult to effectively inspect photos for people, objects, or other anomalies foreign to the environment.

Through the use of photo manipulation programs, such as Photoshop[®], a photograph analyst can use different effects or layers to help better define specific colors or objects. For example, searching in a snow covered rocky environment a searcher in a helicopter may not see a small piece of colored material sticking out of the snow next to a rock due to the amount of time they have to scan a certain area, but with a photo the same area can be analyzed on a computer for any length of time. By using

² This section is based on a contribution from Brandon Latham, Denali Mountaineering Ranger with the National Park Service.

a photo manipulation program the analyst can manipulate color gradients to help colors of foreign objects stand out from the surrounding environment.

A Search in Alaska

In 2009, high-resolution photography was used to search for a missing solo climber above 17,200 feet on Mt. McKinley in Denali National Park, Alaska. Because of the extreme cold and high altitude it was difficult and dangerous to put ground searchers in that environment for any extended period of time. Both fixed-wing aircraft and helicopters were used in order to cover a larger search area in a shorter time period, thus reducing exposure time. Searchers equipped with high-resolution digital cameras aboard each aircraft took photos for subsequent analysis.

While scouring images for clues, a photo analyst at the ICP detected a small patch of red color, which was foreign to the snow and rock environment. The photo had been taken within a quarter mile of the object, at approximately 19,000 feet elevation on a 50° slope distant from any established climbing route. A helicopter with trained searchers was sent back to the location for closer inspection and to take more photos. With the more targeted photos, it was discovered that the red color was part of a jacket worn by one of two Japanese climbers who went missing the year before and whose bodies had not been found. It is noteworthy that during the extensive 2008 search for the Japanese climbers, the use of high-resolution photography as a search tool was in its infancy, and the searchers did not have professional quality high-megapixel cameras. See <http://www.nps.gov/dena/parknews/photoanalysis.htm>.



Figure 9.8. Location of Japanese climbers' bodies



Figure 9.9. High-resolution photograph identifies one of the subjects. Note the red jacket.

Equipment Considerations

'Prosumer' or professional quality digital single-lens reflex (DSLR) bodies and lenses are recommended for this type of search method. The image quality from the higher-end equipment is much better than that from cheaper cameras with a lower megapixel count. "High resolution" and "image quality" are the two key requirements. Higher-end DSLR bodies with 20 or more megapixels combined with a professional quality lens, as opposed to a kit lens, satisfies both of these requirements. Any type of digital camera can be used, but results vary depending on the camera's resolution. A high-megapixel

camera has a higher pixel density leading to a higher resolution image. A higher resolution image enables the searcher to zoom in closer to objects while maintaining focus and clarity at the same time.

Camera bodies and lenses can be purchased online through photography specialty businesses. This equipment may also be available through the State SAR Coordinator, or through the Air Force Rescue Coordination Center.

High-resolution computer monitors that have been color calibrated also increase image quality during the physical scanning process. While a monitor's quality is not as important as the quality of image from the camera, it could have an effect on the overall color and clarity of the image being analyzed.

Using High-Resolution Photography on a Search

To use high-resolution photos on a search there must be a predetermined work process for storing, downloading, and organizing what can be potentially thousands of photos. To start, assign a Technical Specialist for photography in the Situation Unit—a Photography Specialist—or create a Photography Unit in the Planning Section. See Figure 9.10. All file creation, storage, and image downloads flow through this position. The Photography Specialist or Photography Unit Leader creates a folder for each flight/mission. The mission folder should include information such as, search area, time of search, aircraft used, camera used, and searcher/photographer. Within each mission folder set up three main folders, “Original”, “Working”, and “Clues”.

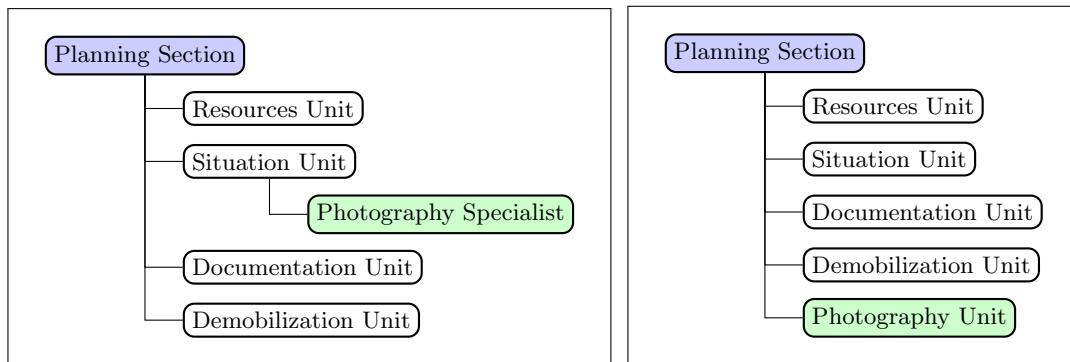


Figure 9.10. Location of Photography Specialist and Photography Unit

High-resolution images create large files, so it is recommended to use at least an 8 GB memory card in the camera to capture and store images. This ensures that there is enough space for photos taken on a given mission. After the photos are taken, the memory cards are given to the Unit Leader at the ICP. When the images are downloaded they are put into the “Original” folder and a copy is placed in the “Working” folder.

Next, the Photography Specialist or photo analysts assigned to the Photography Unit go into the “Working” folder and search the photos one by one. Individual photos are searched by zooming in to different areas and manipulating the photo using a photo program if needed. If a clue is found in a photo it can be put into the “Clues” folder for closer analysis after all other photos have been searched. The photos in the “Original” folder should not be moved or altered in any way. The “Original” photos can be copied and the copies moved to the “Working” folder if another image needs to be manipulated for analyzing. Within the “Working” folder, a sub-folder entitled “Reviewed” is helpful in keeping track of the images that have already been examined.

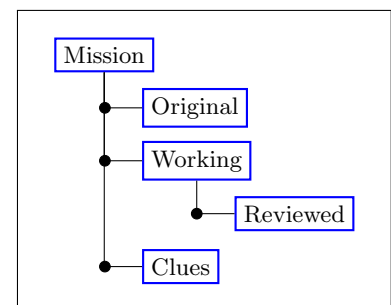


Figure 9.11. Photography folder structure

The Unit Leader then brings images with clues or potential clues to the PSC to help determine the needs for the next operational period. Responding to these clues may require the insertion of a ground team or another aircraft mission to try to take more photos from a closer vantage point.

Capturing High-Resolution Photos to Analyze at the Incident Command Post

Using this type of photography on a search does not require a PhD in photography, but it does require a basic understanding of the camera used, camera movement, and amount of available light. Each camera is a little different and it is important to know how to operate it properly on the ground before going into the field. Key elements in capturing a good image from an aircraft include using fast shutter speeds and lenses with a built in image stabilizer.

Use the camera's "Program" or "P" function when shooting. This allows the user to select a faster shutter speed while the camera automatically adjusts the F-stop. It is also useful to set the camera shooting mode to "Burst", so there are multiple photos taken each time the shutter release button is depressed. However, using the "Burst" function consumes more space on the memory card in a shorter amount of time, another reason to have an 8 GB or larger capacity card.

The Photography Specialist or Photography Unit Leader must provide a good briefing on the camera's functions and settings before searchers go into the field. Taking test shots during the briefing allows the searchers to ask questions and resolve any issues on the ground before carrying out their assignment.

Pros and Cons of Using High-Resolution Photography for Searching

Pros

- *Can reduce or eliminate ground search time in higher risk, difficult terrain.*
- *An area that was searched quickly once or twice by air can now be searched more thoroughly anytime. Analysis of the enlarged and enhanced images enables the IC to focus a concentrated and effective search effort on the ground.*

Cons

- *Camera must be operated properly to capture usable images.*
- *The proper camera equipment can be cost prohibitive for some programs.*
- *There must be an organized workflow to keep track of potentially hundreds of photos.*
- *Searchers must be in an aircraft, which comes with its own risks (unless the camera is mounted in an Unmanned Aerial System).*

Section 9.6

Using Cell Phone Information

The cell phone has dramatically changed SAR.

1. First and foremost the change is seen in how incidents are reported. While it used to be that SAR incidents, particularly overdue people, were reported by a third party, more and more the incidents are being reported by the individual involved via cell phone.
2. Secondly and as important is the ability to use cell phone data to aid in the location of a subject.
3. Finally the cell phone has added another communication tool for SAR personnel and many cell phones now have integrated cameras so photos of evidence or conditions can be sent between field teams and the ICP almost in real time.

This section focuses on the use of cell phones to locate a person. In some areas the 911 center may be Phase II compliant which means that a cell phone GPS location can be transmitted from the phone to the 911 center or PSAP (Public Safety Answering Point). In other areas that information may not be available and other techniques may need to be used to aid in locating the cell phone. This generally involves determining the cell phone provider and the target cell phone number for the search subject. The cell phone carrier can be usually be determined by checking the number on the website <http://www.fonefinder.net>. A check can also be made to determine if the phone number has been ported to a new carrier by checking the number with NPAC administered by iConnectiv (an agency must register for an account at <https://lawenforcement.numberportability.com/>). A law enforcement agency can call the cell phone carrier's law enforcement assistance unit and request some information that can aid in the location of the cell phone.

A Public Safety Answering Point is a call center responsible for answering calls to an emergency telephone number for police, firefighting, and ambulance services.

Cell phone service may be needed by the IMT in areas where there is limited service. Most major cellular service providers have portable cellular towers called Cell on Wheels (COW) or Cell on Light Truck (COLT) that can be requested by the IMT to be brought to the area of an incident. It is worthwhile to develop relationships with local representatives of these companies to see the available types of equipment and services.

Obtaining Data from Cellular Providers

The Communications Assistance for Law Enforcement Act of 1994 (CALEA) defined the statutory obligation of telecommunications carriers to assist law enforcement in executing electronic surveillance pursuant to court order or lawful authorization. As a result the National Domestic Communications Assistance Center (NDCAC) was formed. Law enforcement personnel can apply for access to the NDCAC website (<https://ndcac.fbi.gov/le-portal>) which has many investigative resources. Cellular providers can disclose communications information to law enforcement without a warrant or subpoena “...if the provider, in good faith, believes that an emergency involving danger of death or serious physical injury to any person requires the disclosure without delay of communications relating to the emergency.” (18USC2702). The provider may disclose customer records “to a governmental entity, if the provider reasonably believes that an emergency involving the immediate danger of death or serious physical injury to any person justifies the disclosure of the information.” (18USC2702).

In the case of a missing person in a SAR event it can often be assumed that the person is in danger as the nature of the problem and the location of the problem is unknown. When the cellular carrier is contacted the technician asks for the nature of the incident and the target phone number. The carrier often faxes an Emergency Information Request form that needs to be completed and asks for the type of information requested. Not all cellular carriers truly “ping” the GPS in the cell phone. In fact, only Sprint actually sends a message to the cell phone to have it report its GPS location if the GPS can see a minimum of 4 satellites. Other companies use Time on Arrival triangulation or can provide tower, distance, and sector information based on the last call or SMS activity. The non-GPS location information will likely have a confidence level associated. Again, these locations should be treated with some suspicion especially if the confidence is other than High.

The major cell phone carriers are used to receiving these requests and are generally very helpful. There are some smaller carriers that do not receive these requests as often and it may take some time to find the right person to talk to in order to receive the information. It is useful to know what cell phone carriers have towers in each jurisdiction and establish a relationship with them before an emergency so that the 24-hour contact information is confirmed prior to an emergency.

Cell phones from one carrier may roam onto another carrier's network through agreements between the companies. This may create complications generating location information. If it is known that a cell

phone call was made by a search subject but the call transaction is not appearing on the subject's cell phone carriers logs it may be that the phone roamed onto a different network. The home carrier may be able to provide information about roaming agreements so that those other carriers can be contacted.

911 only phones are also problematic. Often domestic violence shelters will collect used cell phones that are no longer associated with a cellular service provider for distribution to domestic violence victims. Even phones that are not associated with a cellular account must attempt to connect to 911 if that number is dialed. Since the 911 only phone is not associated with a cellular provider account, the phone is likely not being used with any applications that would require the GPS to activate within the phone. When the GPS is not used frequently the Almanac data within the GPS can become out of date and provide degraded location information. It is also extremely difficult, if not impossible, to identify the transaction with any particular carrier to get location information since there is no phone number associated with the phone.

Useful Information From Cellular Carriers

- *Cell phone status (on or off).*
- *Time of last activity.*
- *Last cell tower used (street address and Lat/Long).*
- *Sector on tower (many towers are tri-sector towers).*
- *Azimuth of the center of the tower sector (if a tri-sector tower, the azimuth is the center of the sector and the boundaries of the sector are 60 degrees on either side of that azimuth).*
- *Distance from the tower (this can often be determined by the signal strength).*
- *Any other location information related to the cell phone (this is a good statement to add to the Emergency Information Request form).*

Using Cellular Data

The information received can be plotted on a topographic map to help determine an area to search for the subject. It should be noted that the preferred Lat/Long format for most cellular carriers is decimal degrees (hddd.ddddd). As with any information it should not be relied upon solely especially if it conflicts with other investigative information. The MapSAR program which runs with ArcGIS has a tool that can help analyze where a phone could be to make contact with a known tower location. This information can be helpful in narrowing down the search area.

At the outset of a search it is a good practice to call the cell phone number of the search subject as well as sending a text message to the phone to initiate some activity with the phone. Following that activity the query of the cellular carrier may provide some important information. Periodically checking with the cellular carrier about any updates to location information is also a good practice.

One problem that has complicated some search missions, generally bogus missions or searches for suicidal subjects, is text messaging over WiFi. For example, if an iOS (Apple) user is communicating with another iOS user using the iMessage feature (frequently blue or grey text bubbles as opposed to green text bubbles on an iOS device) and they are connected to a WiFi network the transaction is not traveling through the cellular network so no location information will be available from the cellular provider.

Cellular Forensic Analysis

More sophisticated cell phone forensic analysis is available through the Civil Air Patrol (CAP) and some other law enforcement agencies such as the U.S. Marshals Service. The Civil Air Patrol's cellular forensic

team can be activated through the Air Force Rescue Coordination Center. The analysis provided by the CAP includes more sophisticated interpretation of signal strength and what area can be “seen” by the cell tower to determine high probability areas to search. The U.S. Marshals Service and other law enforcement agencies may have cell phone locating equipment that allows the tracking of a particular cell phone and the ability to communicate with that phone.

Cell Phone Data Analysis

On June 28th, 2013 the Coconino County Sheriff’s Office received a cell phone call to 911 from a subject who indicated he had rolled his UTV and was seriously injured. He was not able to provide his exact location and some of his description of where he thought he was located was contradictory. The general location was near Tusayan just south of the Grand Canyon South Rim.

Sheriff’s Office patrol deputies and Fire and EMS personnel responded to the general area and began to search forest roads for the accident. A Department of Public Safety helicopter was also dispatched to aid in the search, as was the Sheriff’s Office SAR Unit.

The SAR Coordinator identified the cell phone carrier for the caller’s cell phone and initiated contact with that carrier to start to determine the location of the phone. The cell phone had utilized a cell phone tower that was located approximately 40 miles to the southeast. With that distance the arc created by the boundaries of the sector was very large.

The SAR Coordinator determined that a more sophisticated cell phone data analysis would be of use to narrow down the locations that the cell phone could be communicating with the cell phone tower. A request was made through the Arizona Division of Emergency Management’s State SAR Coordinator for assistance from the CAP Cellular Forensics Specialist.

The CAP Cellular Forensics Specialist was provided with the cell phone number and the case number from the carrier that was generated from the first contact between the carrier and the SAR coordinator. In a short period of time several Google Earth maps were prepared and emailed to the SAR coordinator by the CAP with likely locations for the cell phone.

Search efforts were adjusted based on that new data and shortly after the adjustments a NPS Ranger assisting on the search located the accident scene and the subject alive but in need of medical treatment. EMS resources were routed to the scene and the patient was flown by helicopter to the hospital.

Without the cell phone data analysis the search may very well have been prolonged.

Documentation

It is important to document the cell phone investigation including any case numbers assigned by the cell phone company. This provides some continuity in the investigation and minimizes confusion if the investigation is passed off to CAP or some other agency or personnel for follow-up.

A SAR Coordinator who intends to use these techniques should keep a copy of a contact list for the various cellular carriers such as the Law Enforcement Telephone Investigations Resource Guide which is a Law Enforcement Sensitive document published by the U.S. Department of Justice.

If the incident which started out as a search becomes a criminal matter it is important to involve a law enforcement investigator and seek search warrants for the cell phone records as these may be important in court proceedings. A preservation letter may be sent to the cell phone carriers while a search warrant or subpoena is being obtained.

Smart Phone Apps

The proliferation of smart phones has made locating some subjects who are self-reporting by cell phone easier since no interaction with the cell phone carrier is needed. Most smart phones have some location services available which can display the coordinates from an internal GPS. For example on the Apple iPhone, if location services are activated, the compass page in the Utilities shows the latitude and longitude of the cell phone. There are many other GPS applications that can be downloaded to smart phones that can also display location information, including the website www.findmesar.com. A smartphone user can be directed to go to this website and allow the location to be displayed. If possible the phone user can take a screen shot of the location screen and text that back to a member of the IMT or the coordinates could simply be read off the screen to a member of the IMT. Additionally there are programs that allow cell phone users to share their location with other users. It is helpful to know a little about the common smart phone platforms (Apple and Android) so that a lost subject can be talked through finding the location information.

There are other apps, including Snapchat, Facebook, and Twitter, which may make determining the location of an individual more difficult. If a situation exists where there is a threat to life or serious bodily injury, and the individual is communicating via Snapchat, the Law Enforcement Emergency form at <https://lawenforcement.snapchat.com/emergency>, can be completed and a location may be available if the user has location enabled on the wireless device. The law enforcement request form from Twitter can be found at https://legalrequests.twitter.com/forms/landing_disclaimer. The law enforcement request information for Facebook can be found at <https://www.facebook.com/safety/groups/law/guidelines/>.

If the missing subject has sent photos that they have taken from their phone there is a possibility that the location can be extracted from the metadata associated with the photo. To do this, get the photo file and open it in <http://metapicz.com/#landing> to examine the metadata. GPS coordinates may be included in that data along with what type of device took the photo and the time and date of the photo.

Cell Phone Pinging

Early one morning, an inexperienced hiker went on a solo hike in the Santa Catalina Mountains, north of Tucson, Arizona. She called her husband around 1030, reporting being lost and off trail. He gave her some directions and tips and she continued. At 1140 she called her husband again reporting that she had fallen in very rugged terrain and was seriously injured—depressed skull fracture, compression fracture of T-11, tibia fracture, onset of rhabdomyolysis, and multiple soft-tissue injuries.

Authorities worked with the subject's cell phone provider and obtained a number of possible coordinates, which ultimately led to her being found alive by a search helicopter. Following a number of surgical procedures, her prognosis is excellent. Had she not been found when she was, the outcome would have been vastly different.

Text Messaging

Text messaging is often a good way to communicate with a search subject who is using a cell phone because it takes less bandwidth and often goes through when voice calls do not. Currently only very few 911 centers can receive 911 text messages but this capability is beginning to expand. SAR personnel should become familiar with the capabilities of the their 911 call centers.

Cell Phone Pinging

In Tucson, Arizona, on a Monday in 2013, a person reported that a co-worker had not come in to work that morning. According to the reporting party, the missing subject is an avid rock climber and certainly went out this weekend, possibly to Mt. Lemmon (30 miles north of Tucson), to the Homestead (near Winkelman, 70 miles north of Tucson), to the Dragoons (60 miles east of Tucson), or to the Chiricahuas (120 miles east of Tucson). The reporting party had checked the subject's house and regional hospitals, with no success. The subject did not answer his cell phone. The reporting party then contacted the authorities.

The authorities contacted the subject's cell-phone provider who pinged his cell phone. The GPS coordinates placed the phone near Mt. Hopkins (60 miles south of Tucson), where the subject was found, on rope, midface, deceased, covered in bee stings. Although the ending could have been better, it does illustrate the power of the cell phone in a search incident.

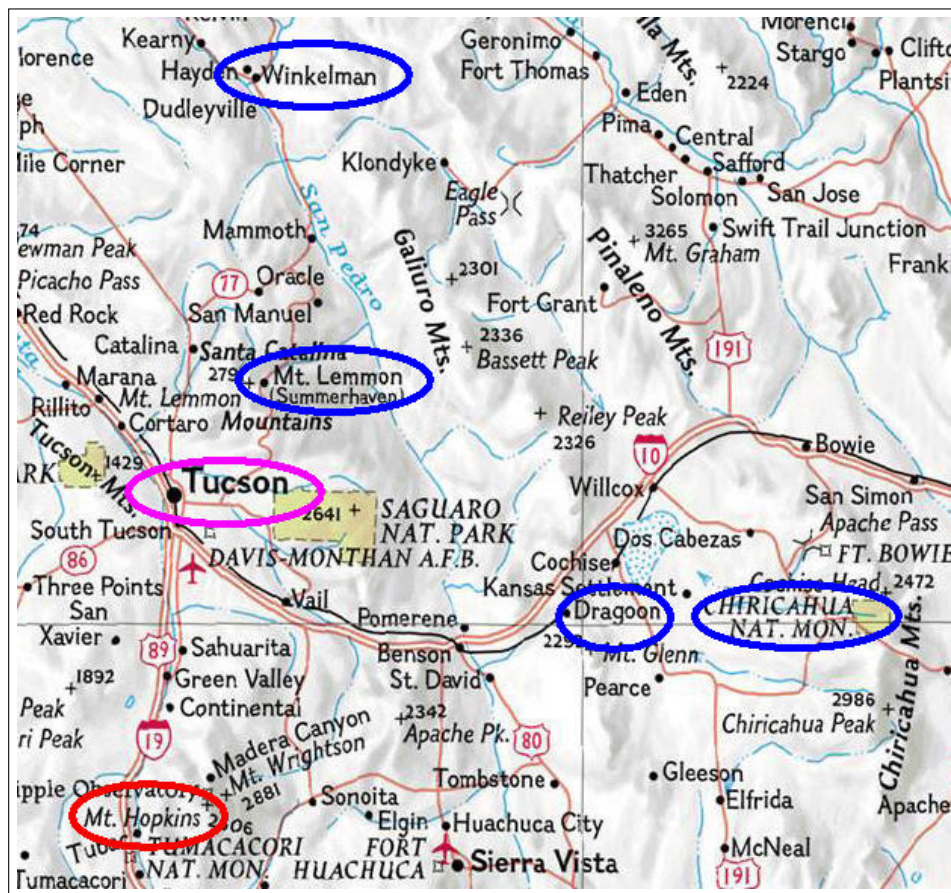


Figure 9.12. Blue—possible subject locations. Red—actual subject location.

CHAPTER 10

Developing and Selecting Incident Strategy

Section 10.1 Overview

Developing the best strategy to accomplish the incident objectives is an important element of good incident management. Coordinating development of strategy is the responsibility of the Planning Section Chief, PSC. The PSC works with the IC and the OSC to develop and evaluate a reasonable number of strategy alternatives soon after the incident objectives are written. Choosing the preferred strategy from among the alternatives is the IC's responsibility, and must be done before the tactics can be developed for the IAP.

Choosing the preferred strategy from among the alternatives is the IC's responsibility, and must be done before the tactics can be developed for the IAP.

Once a strategy is chosen it is followed until either a change in objectives dictates that another strategy be followed, or the selected strategy is not working well to achieve the objectives in which case the IC may choose to modify or replace the strategy without changing the objectives.

This chapter explores the process of identifying and evaluating Alternative Strategies, and selecting a Preferred Strategy for a search incident, and how these strategies translate into the tactics selected to carry out a search.

Before strategy is discussed in more depth, it is important to define exactly what is to be discussed. Three closely related elements are fundamental to a successful incident response plan. **Incident objectives** are the goals that must be accomplished to successfully resolve the incident. They are often written as conditions that exist when the incident is successfully resolved. **Strategies** are the big picture plans that outline how the Objectives are to be accomplished. **Tactics** are the physical and mental tasks that are performed by the incident resources to carry out the strategies and accomplish the objectives. So Objectives drive Strategy, Strategy drives Tactics, and Tactics drives Resources.

Objectives drive Strategy, Strategy drives Tactics, and Tactics drives Resources.

Objective, Strategy, and Tactics Example

Objective: Find the missing person by 1800 hours today.

Strategy: Identify the IPP and protect it; determine a direction of travel; search all likely routes and locations by 1800 hours today. Contain the search area.

Tactics:

- Investigator determines, through interviews, the IPP.
- Tracking team cuts for sign around the IPP, and determines the direction of travel by finding the missing person's tracks leading from that point. Follows the tracks.
- Hasty teams search the trails within 3 miles of the PLS looking for clues, and for the missing person.
- Containment team sets up trail block at junction of Trail 101 and Trail 120.

Section 10.2

Initial Response Strategy

Components of the Initial Response Strategy

The initial response strategy for most searches is concise and direct. While there may be slight variations in the strategy depending upon the type, location and urgency of the search, these five strategy components must be addressed:

1. Locate the PLS or LKP and protect it.
2. Determine the missing person's direction of travel.
3. Determine initial search area (routes and locations).
4. Establish containment.
5. Quickly and efficiently search the high probability routes and locations.
6. Gather more information about the subject and situation to use in additional planning.

Each of these strategy components lend themselves to specific tactical assignments for the initial responding resources. Properly executed, these strategies and tactics result in a timely and effective resolution to the search. The process of developing these initial response strategies follows.

Process to Develop Initial Response Strategy

• Gather information

The IRIC first takes the initial missing person report from the reporting party or agency dispatcher. The IRIC fills out the available, essential information about the missing person and the situation on the LPQ.

• Analyze the available information

After gathering as much pertinent information as is possible in a short time about the missing person and the situation, including weather, terrain, hazards, and trip plans, the IRIC determines the search urgency, and consults the LPB data (see Chapter 20 on page 193, or consult Win CASIE III). The category of the missing person contains LPB history from many actual missing person cases. Having determined the category of the missing person, the data can provide:

- The type of behavior that people in this category have exhibited.
- The location in which they were found. Most categories of missing persons tend to favor certain types of locations. This information can help the IRIC predict likely places to look for the missing person.

- The “straight line” distance between the IPP and the location where they were found. This helps understand the possible size of the search area.

The IRIC must then make assumptions based upon their analysis of what the missing person might have done. In addition, the IRIC must consider a number of other factors before deciding where to look, and how to most effectively look there. Evaluating a set of assumptions and the implications of each on the missing person’s behavior and current condition, and then prioritizing which assumptions are most likely and least likely can help ensure that all of the strategy possibilities are identified before resources are deployed in the field.

- **Make assumptions about the missing person**

There are four basic assumptions that the IRIC could make about the condition of the missing person:

1. Mobile—the subject is uninjured and is moving around trying to locate familiar sights, objects, or routes to get reoriented.
2. Immobile—the subject is not moving for any one of a variety of reasons—tired, sick, injured, deceased.
3. Responsive—the subject is alert and responds to the call of a searcher’s voice, a whistle, a siren, or other attractant.
4. Unresponsive—the subject does not respond to an attractant, either because they are injured and cannot hear or see it; they are unconscious or deceased; because they have been conditioned not to respond to strangers; or they are trying to hide from searchers.

Every missing person exhibits a combination of two of these assumptions at any given time. The missing person could be:

- | | |
|---------------------------|-----------------------------|
| ◦ Mobile and responsive | ◦ Immobile and responsive |
| ◦ Mobile and unresponsive | ◦ Immobile and unresponsive |

When evaluating assumptions, the IRIC should carefully consider these four different combinations. Analyzing the implications of these assumptions gives the IRIC a better foundation for making decisions about where to look (routes and locations), and how to look there (tactics). For example, a subject that is mobile and responsive likely requires that the IRIC contain the search area quickly to keep it from growing larger as the missing person moves away from the IPP. A moving person also leaves many clues as they pass through the search area. A responsive subject may try to help the searchers find them by responding to calls from searchers. Responsive subjects are generally more quickly and more easily found than unresponsive subjects who must be seen to be found.

A mobile and unresponsive subject may be very difficult to find. Small children who have been taught by parents not to respond to strangers, dementia patients, persons who do not want to be found and are hiding from searchers, all fall into this category. Fugitives often fall into this category as well. Containment is important. Attraction may not work well, and thorough searching is likely required.

Assuming a subject is immobile and responsive lessens the priority for establishing containment, since the subject is not moving and the search area is not getting bigger over time. An immobile and responsive subject does not leave additional clues scattered within the search area as long as they are not moving. However, they may provide clues such as mirror flashes, fires, shouts, or other signals that could be detected some distance away by searchers.

Searching for an immobile and unresponsive subject often requires more thorough, more resource-intensive searching. Containment and attraction are not likely to be effective. While deceased persons fit this assumption, it is important to remember that a missing person who fits this assumption may be in severe physical and/or mental distress and may need medical help quickly.

While the IRIC could spend considerable time developing and evaluating these assumptions, time is usually of the essence in the Initial Response, and these initial evaluations should be done quickly with only enough detail to inform the initial objectives, strategies and tactics.

Colin Powell's 40–70 Rule

“My own experience is that you get as much information as you can and then you pay attention to your intuition, to your informed instinct. Sometimes what my analytical mind says to me is not what I’ll do. Generally you should act somewhere between P40 and P70, as I call it. Sometime after you have obtained 40 percent of all the information you are liable to get, start thinking in terms of making a decision. When you have about 70 percent of all the information, you probably ought to decide, because you may lose an opportunity in losing time.”

Quoting Colin Powell from <http://www.egonzehnder.com/the-focus-magazine/leaders-dialogue/other/politics-and-society/interview-with-general-colin-powell.html>.

- **Set the initial incident objectives**

The IRIC sets the initial objectives based upon their analysis of all available information, and the urgency of the search. These initial objectives are usually concise, and are often focused on the initial response period.

- **Develop the strategies and priorities to achieve the objectives**

Once the initial incident objectives are determined and recorded on the Incident Briefing, ICS 201 page 1 or 2, or in the Win CASIE III Initial Note, the IRIC quickly develops strategy to meet the objectives. As discussed previously, that initial strategy often includes:

- Continue the Investigation.
- Identify the IPP and protect it.
- Determine a direction of travel.
- Contain the search area.
- Search all likely routes and locations quickly.

The IRIC then determines the initial response tactics, and orders and assigns the appropriate resources to implement the strategy and resolve the incident.

At this point the IRIC needs to consider what to do if the missing person is not located by the initial response resources. The IRIC should consider ordering additional search resources, as well as an IMT to manage the growing incident. One or more Section Chiefs, including the PSC should be ordered to help prepare for the next phase of the incident.

Section 10.3

Prepare Alternative Strategies for the First Operational Period

PSC Initial Actions to Prepare for the First Operational Period

When the PSC arrives on scene and receives a briefing from the IRIC or IC, the Planning Function must be brought up to date. Although the PSC may have to help plan the immediate strategy for the current operation—the Initial Response—they should quickly begin planning for the first full operational period, Operational Period 1.



The IC informs the PSC whether the Route and Location Search is to continue beyond the initial response period, or whether they should transition to an Area Search. In the latter case, the PSC must ensure that the following are done to prepare for developing the IAP for the first operational period:

- A new Scenario Analysis is conducted, based upon current assumptions and the updated subject behavior information.
- Search area is defined and drawn on a map.
- Search area is segmented.
- *POA* for each segment and the entire search is developed.
- Initial Response search efforts are documented on the map, and in Win CASIE III Initial Note, or on the ICS 201, Incident Briefing.

The PSC should first review the existing incident objectives and strategies. These can be found on the ICS 201, Incident Briefing, the Win CASIE III Initial Note, or on the ICS 202, Incident Objectives. If none of these forms have been completed, the PSC should get the incident objectives directly from the IC, and ensure that they are written down in the appropriate location.

Incident Objectives

While not the direct responsibility of the PSC, every member of the IMT should know how to recognize good incident objectives.

The incident objectives are determined by the IC, and are not limited to a single operational period but cover the entire incident. The incident objectives should be such that when all of them are accomplished the IC should either have found the lost subject or should seriously consider suspending the mission.

Incident objectives must allow flexibility in strategy so that the OSC has great latitude in deciding the tactics to achieve the objectives over the course of the incident. Any objective that specifies the strategy or tactics to be used during a specific operational period is not an incident objective. Any objective that is always the responsibility of an ICS position is not an incident objective. For example “Provide timely and accurate public information to agency, family members, and the media in each operational period.” is not an incident objective, because it is a task that is the responsibility of the PIO and should always be performed.

Good incident objectives should also have the following SMART characteristics.

1. **Specific.** *The wording must be precise and unambiguous in describing the objective.*
2. **Measurable.** *The design and statement of the objectives should make it possible to conduct a final accounting as to whether objectives were achieved.*
3. **Action Oriented.** *The objective must be an action that describes the expected accomplishments.*
4. **Realistic.** *Objectives must be achievable with the resources that the agency (and assisting agencies) can allocate to the incident, even though it may take several operational periods to accomplish them.*
5. **Time Sensitive.** *The time-frame should be specified.*

Here are some examples of good incident objectives that follow the SMART characteristics.

- *Provide for the safety of all incident personnel and the public during each OP.*
- *Search all likely routes and locations with a high POD by the end of Operational Period 1.*
- *When located, assess, treat and immediately evacuate the subject by the most appropriate method.*
- *Establish containment at the junction of trails 123 and 456 by 1400 hrs on May 2, XXXX, and maintain throughout the incident.*
- *Maintain normal operations on Mount Lemmon highway throughout the incident.*

As soon as the incident objectives are finalized and approved by the IC, the PSC should begin preparing Alternative Strategies to accomplish these objectives. The PSC likely leads this effort, but consults with the IC, with the OSC, with the Investigator, and with others who have expert knowledge of the missing person, the circumstances surrounding the incident, or the search area.

Write up the Possible Strategies

Once the PSC has conducted the Scenario Analysis, finalized the Incident Objectives and developed the evaluation criteria, the strategy alternatives are developed.

The PSC, along with the OSC or other experts brainstorms 3–5 strategies for each incident objective that could realistically accomplish that objective. These strategies are written down, and the potential effectiveness and efficiency of each strategy are evaluated against the evaluation criteria below. Once that is complete, the PSC further develops the two or three strategies that address the most likely scenarios, and that meet most or all of the evaluation criteria.

See “Possible Strategies, Preferred Strategy, and Alternative Strategy” in the Demonstration on page 135.

Evaluation Criteria

There are a number of criteria against which each potential strategy should be evaluated to ensure that the most effective and efficient strategies are selected. For example:

- **Meets Incident Objectives:**
 - How effective is this strategy at meeting each Incident Objective?
 - How many other objectives does it meet or assist in meeting?
- **Scenario Analysis:**
 - Does this strategy address the top Scenario or Scenarios?
- **Logistics:**
 - What logistical problems might affect the strategy and the ability to implement it?
 - How difficult is it to move search resources into and out of the area?
 - Can searchers quickly drive to the search area, or does it require a long walk or helicopter ride which can delay getting the resources into and out of the field?
 - Will resources likely have to camp (and be supported) in the search area, or can they be camped and supported at the Incident Base?
 - What, and how many of the right resources are available for assignment?
- **Terrain:**
 - How is the strategy affected by the terrain?
 - How effectively does the strategy deal with the terrain? Heavy vegetation, steep or rocky terrain reduce the effectiveness of certain search resources.
- **Weather:**
 - What is the projected weather, and how does that affect both subject behavior and searcher effectiveness?
- **Agency constraints:**
 - What are they?
 - How well does the strategy comply with them? For example, some agencies, by law or policy, cannot allow motorized equipment in certain areas. Others may have to get approval at a higher level for certain activities to occur on Wilderness lands or sensitive areas.
 - What authority is required to search on private property, and who has the authority to approve searching on private property?
- **Probability of success for the incident and this strategy:**

- Is this strategy sound or does it need to be modified?
- How likely are this strategy and tactical operations to succeed in finding the missing person in the short term?
- **Economics:**
 - Is the strategy cost effective? Does the strategy meet agency fiscal constraints?
 - Are there ways to mitigate the financial impacts or to minimize the costs of the search to meet these constraints?
- **Political or media interest:**
 - How is the strategy affected by this interest?
 - How does the strategy affect the political or media interest?

There may be other evaluation criteria that the PSC must consider in developing the Alternative Strategies for a specific incident. These criteria can be determined by talking with the Agency Administrator or the IC.

See “Evaluation Criteria” in the Demonstration on the next page.

Combine the “best” or most effective strategies into a cohesive overall strategy that will accomplish the Incident Objectives. Do the same for the next best strategies which will become the “Alternate Strategies”.

Prepare the Alternative Strategies for Presentation

Working with the OSC, the PSC identifies the number and kind of resources required to implement each of the top two or three strategies. The OSC develops the general tactics for each strategy and the resources required to implement those tactics. The PSC, working with the RESL, determines whether there are adequate resources on-scene to implement those tactics. If not, they identify what additional resources need to be ordered. They also determine whether those resources are available to respond in a reasonable timeframe, and at a reasonable cost.

The PSC then makes a list of the two or three strategy alternatives. The SITL makes maps of each strategy alternative and predicts completion times and expected *CPOD* and *POAs*. The PSC presents the Alternative Strategies for review by the IC and the Agency Administrator, who select the preferred alternative. This is often done in the Strategy Meeting identified in the Planning P diagram on page 29.

Prepare a Backup Plan

In addition, the Planning Section should develop a backup plan that can be implemented quickly if the preferred alternative does not work, or if changes in the situation dictate.

Operational Period Strategy Review

The IC and the IMT review the preferred strategy each operational period, along with the incident objectives, the assumptions and Scenario Analysis, and the Evaluation Criteria to ensure they are still valid and effective. If not, they are revised, and the tactics for the next operational period are developed in accordance with the revised strategy.

The “Litmus Test”

Once incident objectives are determined and written down on an ICS 201 or ICS 202 it is helpful to do a “litmus test” using those objectives to ensure that resources in the field are working toward accomplishing an objective or to determine that an additional objective may need to be added. This is especially important during the initial response where many resources may have responded to an incident and are conducting operations. Once the initial incident objectives are written down on the ICS 201 and the “litmus test” is performed it may become clear that there are resources conducting operations that are not leading toward the accomplishment of an objective and those resources may need to be redirected. The test should be conducted by the Planning Section and the Operations Section.

A convenient way to conduct the “litmus test” is to identify each objective with a number or letter and then review the resources operating in the field and match them to an objective by writing the number/letter of the objective next to the resource. Resources that do not have a number/letter next to them at the end of the test are resources that are conducting operations that do not necessarily match up with an identified incident objective.

In an operational period with a written IAP the “litmus test” can be used to verify that the tasks identified on the ICS 215 and translated to the ICS 204s are also meeting an established incident objective.

The “litmus test” concept was taught at the TEEX Enhanced Incident Management/Unified Command Course (<http://www.teex.org/teex.cfm?pageid=USARprog&area=USAR&templateid=1859>).

Section 10.4

Demonstration

This demonstration uses the same scenario described in the Scenario Analysis on page 59, which is repeated here.

Background Facts

On a Sunday in July at about 0800 hours, Mrs. John Fairbrother called 911 to report that her husband, a white male aged 50 years, and two other men left Phoenix early Saturday to search for the fabled Lost Dutchman Gold Mine. They should have returned the same evening, but they did not, and Mrs. Fairbrother has heard nothing from her husband. John’s vehicle was discovered at the First Water trail head in the Superstition Mountains at 0900 hours. See Figure 6.1 on page 61. John had searched for the mine often, and was very excited about going back this time, more so than any time in the past. The men were not prepared to spend the night in the wilderness. John weighs 300 pounds, has a heart condition, and routinely carries large amounts of cash. The other two men are Ben Duang (a male of Cambodian descent, aged 70 years, in good physical shape, friends with John for 30 years, unmarried), and Helmut Grässer (a white male aged 60 years, speaks with a German accent, unmarried, suffers from asthma, smokes Camel cigarettes, met John and Ben for the first time at a bar a week ago). Temperatures in the area are in the triple digits. Historically, searches for seekers of the Lost Dutchman Gold Mine resulted in most subjects being found off trail, but with no discernible location pattern.

Scenario Analysis

This was developed on page 59, which gave rise to the following Scenario Record Sheet.

Scenario Details	Priority
A. <i>All three subjects are alive and well. Initially they took either Dutchman's Trail or Second Water Trail. They became disoriented. They have either decided to sit in the shade and wait to be rescued or to try to find their own way back. They are mobile and responsive.</i>	1
B. <i>At least one subject is unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail at least one of them was injured or died. One of the healthy ones is hiking out for help. The others are waiting to be rescued, in which case they are immobile and at least one is responsive. The person hiking out is mobile and responsive.</i>	1
C. <i>All subjects are unwell or died accidentally. Initially they took either Dutchman's Trail or Second Water Trail. In scrambling off trail all three were injured or died. If all three are dead, they are immobile and unresponsive. If any are alive and conscious, they are immobile but responsive.</i>	3
D. <i>All three subjects are alive and well. They found Lost Dutchman Gold Mine, and are so excited they have lost all track of time. They are mobile and responsive, although they may be evasive.</i>	10
E. <i>All three subjects are alive and well. They found Lost Dutchman Gold Mine, but are trapped inside. They are immobile and responsive.</i>	10
F. <i>Some or all are the object of foul play, either by someone within the party, or by unknown subjects.</i>	5

Incident Objectives

1. Find the missing persons no later than 1800 hours on Tuesday based upon survivability, equipment, and medical conditions.¹
2. Provide for searcher and public safety throughout the incident.
3. Contain the search area to keep it from growing larger.
4. Obtain an 80% *CPOD* for the hazard areas, likely spots and high probability segments by 1800 hours on Monday.
5. Search the defined search area with a 90% *CPOD* by 1800 hours on Tuesday.
6. When found, assess, stabilize, treat and evacuate the missing persons.

Possible Strategies

Objective 1. Find the missing persons by 1800 hours on Tuesday.

Strategy 1. Assume missing persons are mobile. Use passive search techniques to draw them to the searchers.

Strategy 2. Assume missing persons are immobile. Search the high probability areas first, obtaining a high *CPOD* with multiple searches using various resources. Move to other segments as resources and accomplishments allow.

Strategy 3. Assume missing persons are responsive. Search segments by sound search using limited resources.

¹ Some ICs prefer to not use an objective that starts with "Find the missing persons . . .", because it may be unrealistic and unattainable. If the incident is suspended, then this objective is not accomplished and it suggests that the IMT has failed. More importantly, it causes a negative reaction from the searchers when they do not accomplish their objectives. A possible replacement for this objective could be "With available resources, provide the missing subject the best opportunity possible to be located no later than 1800 hour on Tuesday.". Whether or not to use "Find the missing persons . . ." as an objective is the IC's responsibility, and is beyond the scope of this book.

Strategy 4. Locate LKP, determine direction of travel and follow the tracks until the missing persons are found.

Objective 2. Provide for searcher and public safety throughout the search.

Strategy 1. Use only highly trained and skilled resources in the search.

Strategy 2. Close the search area to the public for the duration of the incident.

Strategy 3. Provide safety orientation to all search resources before they are sent to the field.

Strategy 4. Use only air search in the hazardous terrain areas. Do not apply ground resources unless clues or the subjects are spotted in those hazardous areas.

Objective 3. Contain the search area to keep it from growing larger.

Strategy 1. Contain the entire perimeter of the search area.

Strategy 2. Contain the search area at those locations where the missing persons are likely to exit it, considering that 46% of hikers follow a trail and all travel aids intersect a trail at some point in the area.

Strategy 3. Contain the search area at those locations the missing persons are likely to exit with trail blocks while confining the remainder of the perimeter with patrols and by helicopter.

Strategy 4. Use attraction at selected locations along with containment.

Objective 4. Obtain an 80% CPOD for the hazard areas, likely spots and high probability segments by 1800 hours on Monday.

Since all trails have already been covered by multiple resources multiple times by hasty searching, and by searchers entering and exiting the search area, the search should concentrate on hazardous cliff areas, remaining likely spots off trail, and those highest Initial *POA* segments.

Strategy 1. Visitors in the area should be given the Missing Persons Flyer and asked to report anything unusual.

Strategy 2. Resources moving into or out of the search area on trails should be reminded to keep their eyes and ears open for the missing persons or any clues that might be present.

Strategy 3. Search all cliff areas from the air, and by ground along their bases. Identify and search sheltered areas from the ground.

Strategy 4. Apply most highly qualified resources to the high probability segments using multiple searches to achieve the 80% *CPOD*. Move resources to other segments as these *CPOD*'s are reached.

Objective 5. Search the defined search area with an 90% CPOD by 1800 hours on Tuesday.

Strategy 1. Use binary search to eliminate lower probability areas, and then use multiple ground and air resources on those areas with the higher *POA*.

Strategy 2. Use multiple resources with high predicted *PODs* in individual segments to achieve required *CPOD*, targeting those areas with the highest *POAs*.

Strategy 3. Use closed grid search that can reach 90% *CPOD* in a single pass in each segment.

Objective 6. When found, assess, stabilize, treat and evacuate the missing persons.

Strategy 1. If mobile, treat injuries and walk them out to the trailhead.

Strategy 2. If immobile, treat injuries and carry them out to the trailhead.

Strategy 3. If immobile, treat injuries and transport by helicopter.

Evaluation Criteria

The PSC then selects the “best” or most effective strategy for each Incident Objective by evaluating each strategy against the Evaluation Criteria.

- **Meets Incident Objectives:** Each proposed strategy contributes directly to meeting one or more incident objective.
- **Scenario Analysis:** The top two scenarios include subjects that are mobile, and likely responsive. Containment is crucial if one of these scenarios is true. Using more than one type of containment strategy will be important here. Since it has been many hours since the subjects went missing, it is important to carefully assess where good containment locations might be. If subjects are immobile, then area search will be required to find them.
- **Logistics:** The search routes and likely spots are within a mile or at most less than two miles from the First Water Trailhead; moving search resources in and out of the search area on foot should not be a problem. If a helicopter is available, it can land at numerous locations throughout the probable search area with little difficulty. Water is not available within the search area, so it must be carried or transported and cached for the searchers. Other than containment and lookouts, the majority of searchers can reasonably camp at the Trailhead rather than in the search area, so supporting them is not a factor. Search teams, dogs, mounted patrols, two helicopters with FLIR, human trackers and trained overhead are available locally. Additional resources are available from surrounding counties, and can likely arrive on scene within 6 hours of notification.
- **Terrain:** The environment is steep, rocky, dry, and brushy. Loose talus, poisonous snakes and other reptiles, mountain lions and heat are serious environmental threats to searchers. Only experienced climbers with appropriate safety equipment should be assigned to cliffs and other steep areas. All search resources must be properly trained and equipped to work in rough desert terrain and high temperatures.
- **Weather:** Hot and dry, and is expected to remain so for the coming week. Heat exhaustion, dehydration and heat stroke are serious concerns for the missing subjects as well as the searchers.
- **Agency Constraints:** The Maricopa Sheriff’s SAR Coordinator is the IC on-scene and is working together with the Pinal County Sheriff’s SAR Coordinator on the incident. Within the USFS Superstition Wilderness mechanized equipment is prohibited unless a waiver is granted by the Forest Service Ranger in charge. The prohibition of using the helicopter and landing in Wilderness has already been waived. There is no private property within the search area.
- **Probability of Success for the incident and the current Strategy:** The search is currently focused within the first two miles of the First Water Trailhead. Teams are conducting hasty searches of the trails in the area. No containment has been established. If nothing is found by current resources by 1800 hours today, the off-trail areas need to be searched within the two mile radius of the Trailhead, and serious consideration should be given to expanding the size of the search area. The search urgency, already moderately high, dictates an expanded effort with significant additional resources in the next operational period.

- **Economics:** The sheriff would like to limit the resources used to those locally available in Maricopa and surrounding counties. Because the helicopters are an expensive resource, the sheriff would like to use them as effectively as possible for searching only.
- **Political:** There is currently little media or political interest, although local interest in the Phoenix media is likely to increase if the missing persons are not located today.

The PSC combines the most effective strategies into a cohesive overall strategy that will meet the Evaluation Criteria. This is the Preferred Strategy. The PSC then chooses the next most effective strategies and combines them into Alternative Strategies.

Preferred Strategy

1. Contain the search area at those locations the missing persons are likely to exit with trail blocks while confining the remainder of the perimeter with patrols and by helicopter. Use attraction at selected locations along with containment.
2. Assume missing persons are immobile. Using only highly skilled, trained and experienced resources, search the high probability areas first, obtaining a high *CPOD* with multiple searches using various resources. Move to other segments as resources and accomplishments allow.
3. Search all cliff areas from the air, and by ground along their bases. Identify and search sheltered areas from the ground. In addition, apply the most qualified resources to the high probability segments using multiple searches to achieve the 80% *CPOD*. Move resources to other segments as these *CPOD*'s are reached.
4. Use binary search to eliminate lower probability areas.
5. When found, assess and treat injuries, then either walk or transport to the trailhead by helicopter.

Alternative Strategy

1. Contain the search area at those locations where the missing persons are likely to exit it, considering that 46% of hikers follow a trail and all travel aids intersect a trail at some point in the area.
2. Assume missing persons are responsive. After providing a full safety briefing for all incident personnel, before they are deployed, search all segments at the same time with a sound search calling the names of the missing persons, and listening for a response. Simultaneously, locate LKP, determine direction of travel and follow the tracks until the missing persons are found.
3. If no response is received in the sound search, use closed grid search at spacing that can reach 90% *CPOD* in a single pass in each segment.
4. When missing persons are located, assess injuries, treat and then walk or carry the missing persons to the nearest trailhead.

Section 10.5

Using Win CASIE III while Developing Alternative Strategies

The use of the tools in the “What If?” menu in Win CASIE III can be of great value to the Situation Unit in making recommendations and analyzing possible outcomes. See Figure 10.1 on the next page.

- *What If Initial POAs Are Changed?* is where the user can perform a “what if” analysis. The user enters their own initial *POAs*. Then the existing cumulative *PODs* for each segment are used to

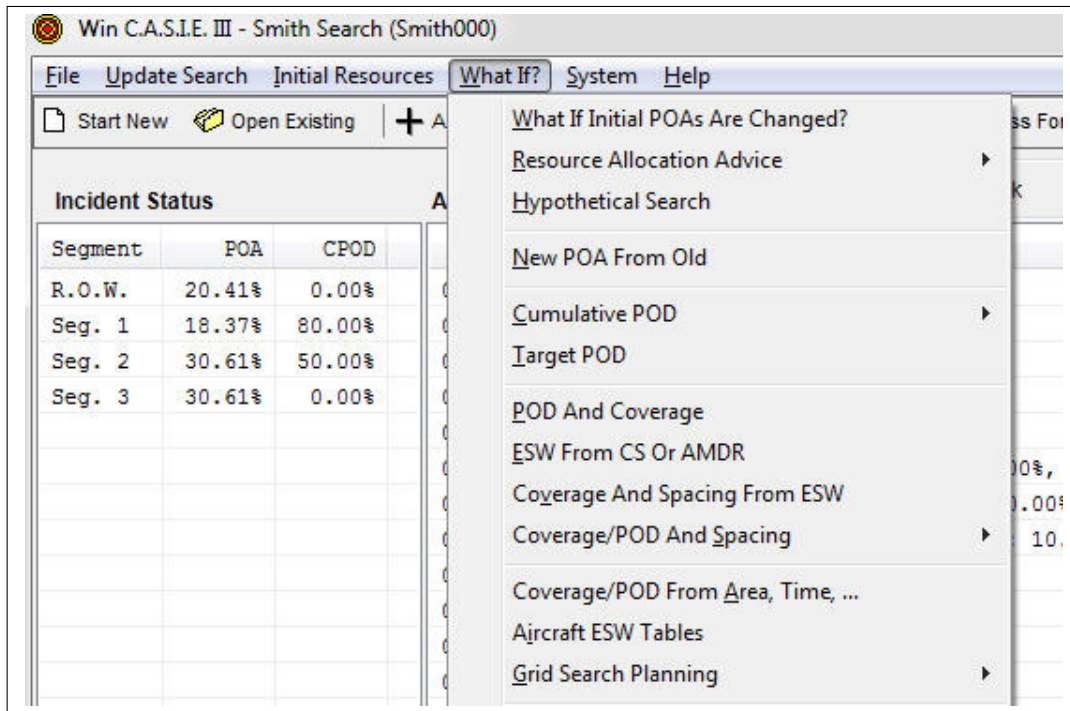
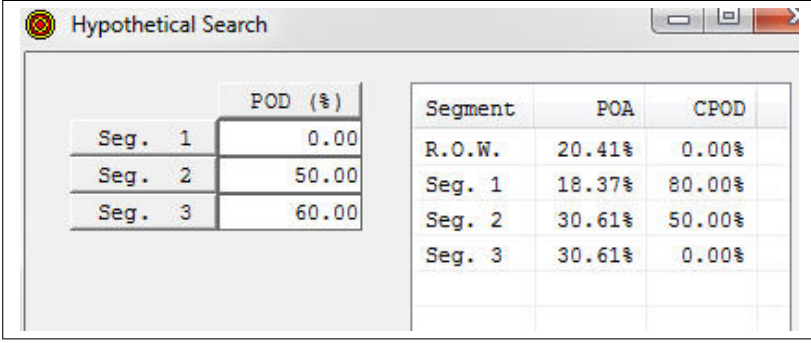


Figure 10.1. The “What If?” menu in Win CASIE III

generate the “what if” updated *POAs*. After these are displayed the “real” situation is restored. Nothing of the “what if” analysis is retained. This is useful if someone wants to know the updated *POAs*, had the search started with a different set of initial *POAs*.

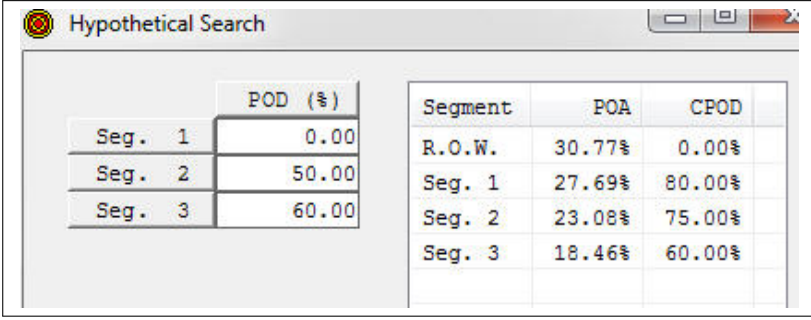
- *Resource Allocation Advice* gives advice on the allocation of resources to optimize the chances of finding the subject in the next OP. To use this option, the *PODs* (or Coverages) of every resource must be estimated for each segment in advance.
- *Hypothetical Search* is where the user can perform a hypothetical search using the existing data. The user selects the segments to be searched and estimates the associated *PODs*. Then the existing cumulative *PODs* and *POAs* for each segment are used to generate the updated, but hypothetical, *POAs*. This can be repeated for different segments. Upon completion, the “real” situation is restored. Nothing of the hypothetical search is retained. This option can be used in two different ways.
 1. To see now where the search will be at the end of the next OP, if the resources currently deployed are unsuccessful. This can be used to plan future operational periods. For example, imagine that the current status of an incident is the one shown in Figure 8.31 on page 107. Segments 2 and 3 have just been assigned to two teams where it is anticipated that the estimated *POD* for the team in Segment 2 is 50%, whereas that in Segment 3 is 60%. See Figure 10.2 on the next page, where the *POAs* and *CPODs* are the current values. Figure 10.3 on the next page shows the projected *POAs* and *CPODs*. These can be used to decide where to place the search emphasis in the next OP, assuming the subject is not found during this OP.
 2. To test various scenarios to see which one generates the highest *ROW*. This can be used to optimize the allocation of resources. This advice is based on the following principle: **To maximize search effectiveness, maximize the *ROW* for the next OP.** This is equivalent to maximizing the Probability of Success.
- *New POA From Old* is where the user can calculate a segment’s updated *POA* from its previous *POA*, if a resource with a known *POD* searches that segment.
- Under *Cumulative POD* there are two choices:



The screenshot shows a window titled "Hypothetical Search". It contains two tables. The left table shows the current POD (%) for three segments. The right table shows the current POA and CPOD for the same segments.

	POD (%)
Seg. 1	0.00
Seg. 2	50.00
Seg. 3	60.00

Segment	POA	CPOD
R.O.W.	20.41%	0.00%
Seg. 1	18.37%	80.00%
Seg. 2	30.61%	50.00%
Seg. 3	30.61%	0.00%

Figure 10.2. Current *POAs*


The screenshot shows the same "Hypothetical Search" window, but with projected values. The left table remains the same, while the right table shows updated POA and CPOD values.

	POD (%)
Seg. 1	0.00
Seg. 2	50.00
Seg. 3	60.00

Segment	POA	CPOD
R.O.W.	30.77%	0.00%
Seg. 1	27.69%	80.00%
Seg. 2	23.08%	75.00%
Seg. 3	18.46%	60.00%

Figure 10.3. Projected *POAs*

- *Different Teams* allows the user to see how a *CPOD* builds up if different teams search the same segment.
 - *Same Team* allows the user to see how a *CPOD* builds up if the same team searches the same segment repeatedly.
- *Target POD* calculates the additional *POD* required in a search segment to raise the *POD* from its current value to a targeted *CPOD*. Some incident objectives are expressed in terms of a target *CPOD*. This option allows the user to calculate the additional *POD* required to accomplish this.

Demonstration—Target POD

The current *POD* for Segment 1 is 80%, and the IC wants this to be raised to 90% by the end of the next OP. What *POD* is required to do that?

Answer

With Win CASIE III running, select the menu items “What If?” and “Target *POD*”. A 50% *POD* is required. Notice that in this case, a 50% *POD* gains only 10% in the *CPOD*.

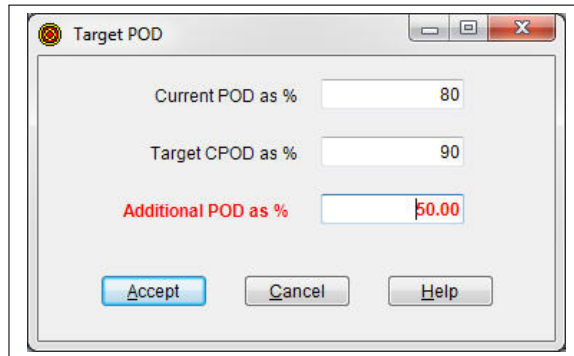


Figure 10.4. Target *POD*

- *POD And Coverage* converts a resource’s *POD* to its Coverage and vice-versa.
- *ESW From CS Or AMDR* estimates Effective Sweep Width (ESW) from Critical Separation (CS) or Average Maximum Detection Range (AMDR).
- *Coverage And Spacing From ESW* calculates either the Coverage or the Spacing (how far apart the members of a grid-search team should be) from the remaining one and the Effective Sweep Width.
- Under *Coverage/POD And Spacing* there are two choices:
 - *Spacing From Coverage/POD* allows the user to convert from Coverage or *POD* to the distance a grid-search team’s members should be apart (the Spacing) for a given Effective Sweep Width.
 - *Coverage/POD From Spacing* allows the user to convert from Spacing to Coverage or *POD* for a given Effective Sweep Width.
- *Coverage/POD From Area, Time, ...* estimates the *POD* and Coverage of a resource, typically a grid-search team, based on a number of factors.
- *Aircraft ESW Tables* estimates the effective sweep width for aircraft from the tables published in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual.
- *Grid Search Planning* uses the Grid Search Planning Formulas to calculate any one of the following four quantities when the Speed and the remaining three quantities are known for a grid search team.
 1. The *Area* of the segment to be searched.
 2. The number of *Hours* the search will take.
 3. The *Number of Searchers* in the resource.
 4. The *Spacing* between the searchers.

Demonstration—Number of Searchers Required

In planning the search for a clandestine grave in an area of 0.2 square miles, the IC wants the grid-searchers to be separated by 8 feet and to search at 0.25 mph for 8 hours. How many searchers are required?

Answer

With Win CASIE III running, select the menu items “What If?”, “Grid Search Planning”, and “Number of Searchers”. Number of searchers required is 66.

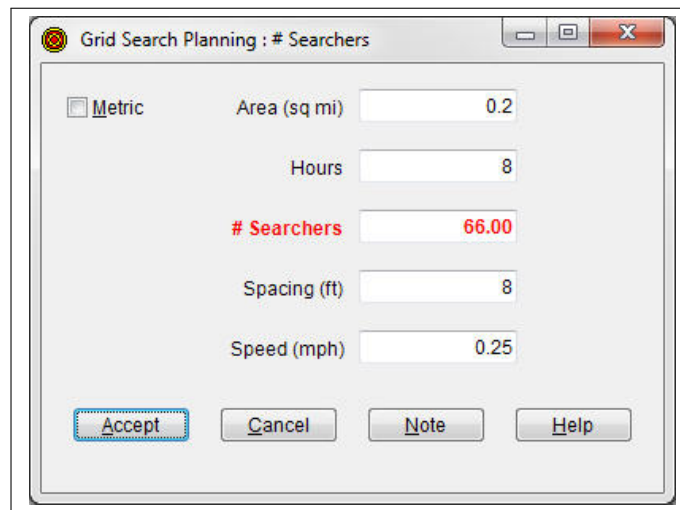


Figure 10.5. Number of searchers required

Section 10.6 Mindset

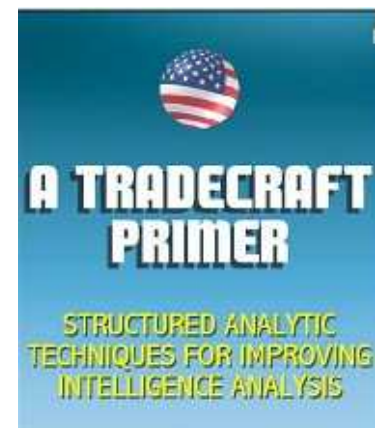
Traditionally, one of the initial steps at the start of a search incident is to construct different scenarios that fit the evidence, intelligence, and clues, and then base the search strategy and tactics on the most-likely scenario. When doing this, the possibility of mindset should not be ignored.

In SAR, mindset is where the search is so focused on one scenario that evidence to the contrary is ignored, while evidence supporting the scenario is embraced. Mindset can cause the IMT to overlook, reject, or forget important incoming or missing information that is not in accord with their assumptions and expectations.

To quote from Reference [CIA], the Central Intelligence Agency’s “A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis”, *the key risks of mindsets are that:*

- *Analysts perceive what they expect to perceive.*
- *Once formed, they are resistant to change.*
- *New information is assimilated, sometimes erroneously, into existing mental models.*
- *Conflicting information is often dismissed or ignored.*

Analysts should be self-conscious about their reasoning processes. They should think about how they make judgments and reach conclusions, not just about the judgments and conclusions themselves.



Analysis of Competing Hypotheses

In order to mitigate mindset, Richards J. Heuer, Jr., while working for the CIA, introduced the process known as the “Analysis of Competing Hypotheses”—ACH.² **The key difference between this process and the traditional one is that, rather than looking for evidence to support the most-likely scenario, it looks for evidence to reject the least-likely scenario.** In this way, should the most-likely scenario turn out to be false, no-one is blind-sided by this, because other alternatives are still under consideration.

If a search has been going on for several operational periods following a particular scenario—but without much success—then the ACH process may be useful in identifying alternative scenarios. It may be that the process of creating the ACH is more important than the results of the ACH analysis, because ACH requires the users to consider equally all the possible scenarios together with all the clues.

To quote from the PARC ACH manual,³ *“In focusing more attention on alternative explanations, the procedure brings out the full uncertainty inherent in any situation that is poor in data but rich in possibilities. Although such uncertainty is frustrating, it may be an accurate reflection of the true situation. As Voltaire said, Doubt is not a pleasant state, but certainty is a ridiculous one.”*

In its simplest form, the ACH process consists of first identifying scenarios that are mutually exclusive but collectively inclusive.⁴ Then a matrix is constructed with scenarios across the top row, each in its own column, and all clues down the first column, each in its own row. Table 10.1 shows a sample ACH Matrix. Note, the word “clues” is used here in the widest possible context including physical clues, electronic clues, evidence, witness reports, investigative information, information from the LPQ, financial status, mental and physical health, deductive conclusions, time subject went missing, . . .

Table 10.1. ACH sample blank matrix

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	⋯	Scenario m
Clue 1						
Clue 2						
⋮						
Clue n						

Then members of the search management team start with the first row and, for each scenario, they enter “Yes”, “No”, or “NA” (not applicable) in each cell, depending on whether the clue supports that scenario, does not support that scenario, or says nothing about that scenario.⁵ See Table 10.2. Note that this is done row-by-row, not column-by-column; that is, clue-by-clue, not scenario-by-scenario.

Table 10.2. ACH sample completed matrix

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	⋯	Scenario m
Clue 1	Yes	Yes	No	NA	⋯	NA
Clue 2	No	NA	No	Yes	⋯	No
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Clue n	No	Yes	Yes	NA	⋯	Yes

Then, to complete the analysis, the “No”s in each column are counted. The “Yes”s and “NA”s are ignored. The Scenario with the most “No”s is the scenario least likely to happen, so, based on the

² See Chapter 8 of “Psychology of Intelligence Analysis” by Richards J. Heuer, Jr. This free document is available from <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/psychology-of-intelligence-analysis/index.html>.

³ Downloaded from <http://www2.parc.com/istl/projects/ach/ach.html>.

⁴ Mutually Exclusive scenarios are such that if one is true then all others must be false. Collectively Inclusive scenarios are such that at least one of them must be true.

⁵ Other symbols are sometimes used, such as +, −, and blank; or 1, −1, and 0. The latter symbols are useful if performing this simple form of ACH on a spreadsheet.

current information, it should be considered for rejection. In Table 10.3, Scenario 1 is considered for rejection.

Table 10.3. ACH sample completed matrix

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	...	Scenario m
Clue 1	Yes	Yes	No	NA	...	NA
Clue 2	No	NA	No	Yes	...	No
\vdots	\vdots	\vdots	\vdots	\vdots	\ddots	\vdots
Clue n	No	Yes	Yes	NA	...	Yes
# “No”s	10	1	5	2	...	3

As scenarios are removed then the remaining scenarios may be refined and the Clues reapplied. However, if new clues are found, the process may need to be restarted because scenarios that were previously rejected may now be retained.

There are more sophisticated versions of ACH that replace the three choices for each cell by five, namely:

- CC—if the clue is Very Consistent with the scenario.
- C—if the clue is Consistent with the scenario.
- N or NA—if the clue is Neutral.
- I—if the clue is Inconsistent with the scenario.
- II—if the clue is Very Inconsistent with the scenario.

One benefit of this expanded choice is that, under the simplest form of ACH, every scenario might receive the same choice for a particular clue—perhaps “No” (does not support that scenario)—so that clue does not help in ranking the scenarios. Nevertheless, that same clue might **strongly** not support a specific scenario, in which case, under the sophisticated version, it could be assigned an “II” (Very Inconsistent) instead of an “I” (Inconsistent), which does help with the ranking. However, if a clue leads to the same choice for every scenario, that clue, while it may be interesting, is of little use in this process—it does not discriminate between the scenarios.

Sophisticated versions of ACH also permit each clue to be optionally weighted for Credibility and Relevance. This process can be automated using specifically designed software, such as Palo Alto Research Center’s ACH (PARC ACH), which can be downloaded from <http://www2.parc.com/ist1/projects/ach/ach.html>. (Note, this software can be used to replicate the simple ACH method, by restricting the choices to “C”, “N”, and “I”.) In addition to instructions, this free software package includes an excellent tutorial on ACH. It runs under all platforms. PARC ACH and ACH itself use the word “Hypothesis” in place of “Scenario” and the word “Evidence” in place of “Clue”.

CHAPTER 11

The Planning Process: A Framework for Incident Management

Section 11.1 Overview

To achieve the incident objectives and ultimately resolve the incident, the IMT must often transform the chaos and confusion of the Initial Response into orderly, coordinated, effective performance. This requires quickly getting control of the information flow, and adding structure to the incident response. The IMT must carefully balance conducting search operations for the current operational period, and planning for the following operational period.

The Planning Process is a key feature of the ICS. It is the common ICS approach to provide structure and organization to the incident response. The Planning Process is covered in detail, step by step, in this chapter.¹

Section 11.2 The Planning Process Defined—The Planning P

The Planning P diagram, see Figure 11.1 on the next page, illustrates the step-by-step planning process commonly used in managing incidents under the ICS. The process begins at the bottom of the stem with the initial response activities, which lead to the recurring incident planning cycle. This cycle, which is repeated during each subsequent operational period, is represented by the body of the Planning P.

In an emergency, many actions must be taken quickly by the initial response resources. As the incident grows larger, and more resources arrive on scene, maintaining effective communications with all of these resources, and effectively controlling resources' activities becomes increasingly difficult. Establishing a simple, proactive planning process is key to effective management. This process must be:

- Objectives based—The planning process must be based upon desired outcomes that contribute directly to resolving the incident. This focuses the efforts of all incident personnel on those activities that are most important for success.

¹ FEMA has produced a Planning P video that can be seen on YouTube at <http://www.youtube.com/playlist?list=PLS1BHGhs7X3gEPsRgE1chwBoxPUAXGiis>. However, it shows the PSC (or RESL) completing the ICS 215 and ICS 215A *after* the Tactics Meeting rather than during the Tactics Meeting. A better practice is to complete these forms during the Tactics Meeting because that is the time to work out details and problems.

- **Structured**—The process must be easily described, simple, yet effective in gathering, analyzing, processing and communicating information, and developing viable plans for applying incident resources to accomplish the objectives.
- **Organized**—Clearly defined roles for each of the participants ensures that no important details or actions are missed, and that the process moves smoothly to a timely and effective conclusion.
- **Accountable**—There must be accountability for assigned actions, and follow up to ensure that the desired/planned actions are accomplished as intended. If not accomplished, then that action must be quickly fed into the planning process to ensure that it is accomplished in the next operational period.
- **Timely**—To be useful and effective, the planning process must produce a current, accurate, realistic plan prior to the beginning of each operational period, so that the plan can be distributed to all incident resources at the Operational Period Briefing.

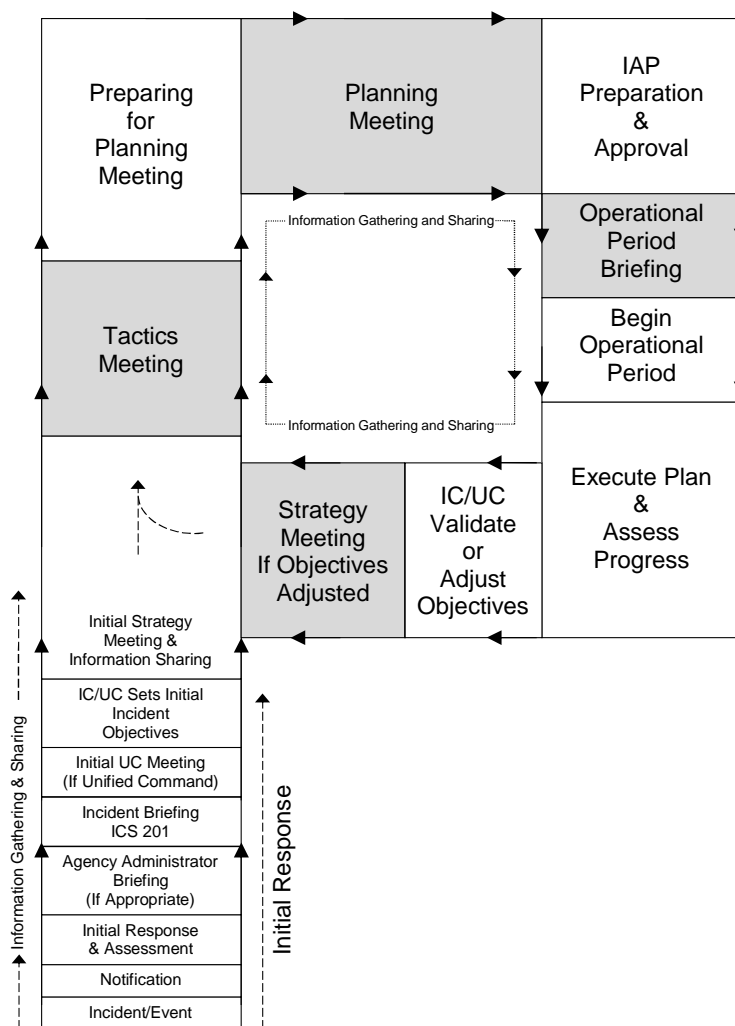


Figure 11.1. The Planning P

Section 11.3

The Steps in the Planning P

An explanation of the individual steps of the Planning P follows:

Initial Actions

The Incident/Event occurs when a person or persons become lost or overdue from a trip, or cannot be located by their friends, family or responsible party. At that point, the friends, family or responsible party may look for the missing or overdue person(s) quickly, and if the person is not located, notify the local agency having jurisdiction over the incident. Chapter 2 on page 15 addresses the Notifications, Initial Response and Assessment phases of the planning process identified in the stem of the Planning P as well as the Planning Function responsibilities during this phase of an incident.

Incident Commander's/Unified Commanders' Briefing with the Agency Administrator

The next step in the planning process occurs when the Initial Response is unsuccessful, and the IRIC or Initial Response Unified Command requests additional incident management expertise. This expertise may include a more experienced IC, a PSC, an OSC, an LSC, or a complete IMT. Upon arrival at the incident, or enroute to the incident, depending upon the location and circumstances, the new IC and the IMT members meet with the Agency Administrator who shares key information and provides executive level guidance to the incoming Incident Commander and IMT regarding agency priorities, concerns, and policies. If the IC or IMT is from a different agency, the Agency Administrator should provide a written Delegation of Authority (see Chapter 19 on page 190 for an example) at the briefing, and discuss it with the IMT. If the IC or IMT is from the agency having jurisdiction over the incident, the Agency Administrator meeting may not need to occur. The PSC obtains a copy of the Delegation of Authority, and ensures that precise minutes of the meeting are recorded for later use by the IMT and for filing in the incident documentation package.

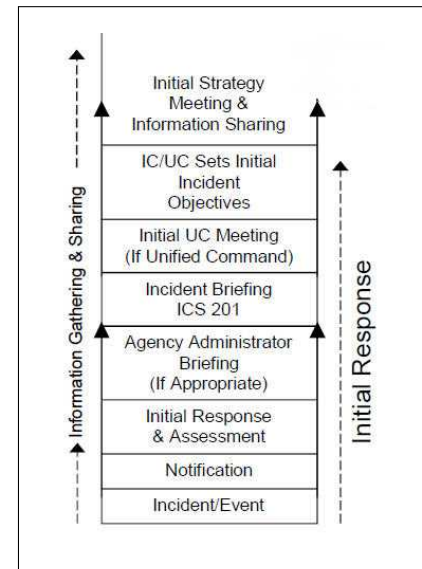


Figure 11.2. Planning P stem

Initial Incident Briefing using the Incident Briefing ICS 201

Following the Agency Administrator meeting, the incoming IMT receives an Incident Briefing from the IRIC. The IRIC should have completed an ICS 201, Incident Briefing (see page 207), and provides a copy to the IC and IMT at the Incident Briefing. During the Incident Briefing, the IRIC shares current incident information including size, location and complexity of the incident, current incident objectives, situation status, resources assignments and current status, any problems, hazards or concerns. The PSC should obtain a copy of the ICS 201, and distribute copies to the SITL and RESL for use in preparing for the first Planning Meeting.

Incident Commander/Unified Commanders Develop/Update Objectives

The IC or UC either develops the incident objectives, if none were developed by the IRIC, or, if they already exist, the IC or UC reviews and updates them. Current, accurate, realistic, attainable and time limited incident objectives must be written for the incident. If the incident is managed by a UC, this may require a meeting. Otherwise the IC determines the incident objectives that are to be reviewed with the Command and General Staff and finalized at the Incident Strategy and Information Sharing meeting.

Incident Strategy and Information Sharing Meeting

This IMT meeting is held after the Agency Administrator Meeting and the IRIC Briefing, and before the team assumes command of the incident. In this meeting, the IC shares incident objectives, strategy, and other key information with Command and General Staff, and provides direction and timelines for the key elements of the incident planning process. Since there may not be time to fully explore alternative strategies for accomplishing the incident objectives at this point in the incident, the PSC works with the IC and the OSC to develop the preferred strategy for the upcoming operational period. The IC determines the meeting format, and usually has the PSC run the meeting. In this meeting, the IC, in consultation with the OSC and PSC, establishes the operational period times (often 12 hours long, but sometimes varies according to the incident needs). The PSC then sets times for subsequent meetings in the planning process, and makes assignments needed to prepare for these meetings. All of the decisions of this meeting are recorded by the PSC or a recorder, and distributed to the other IMT members.

Prepare for the Tactics Meeting

The OSC identifies the tactics necessary to implement the IC's strategy and to accomplish the incident objectives during the upcoming operational period. The PSC identifies the resources available at the incident for the next operational period. Once these two tasks are completed, the PSC and the OSC, along with other key staff members, meet to discuss the tactics.

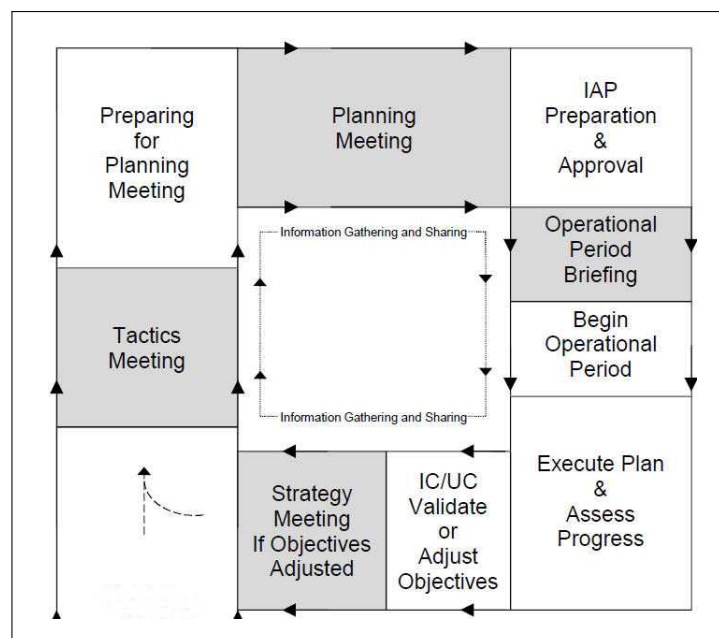


Figure 11.3. Planning P cycle

Tactics Meeting

The purpose of the Tactics Meeting is to identify the tactics needed to accomplish the current incident objectives, and then to determine the resources that are needed to carry out those tactics. The Tactics Meeting must be held early enough so resources can be ordered and arrive in time for the Operational Period Briefing.

The Tactics Meeting must be held early enough so resources can be ordered and arrive in time for the Operational Period Briefing.

During the Tactics Meeting, the OSC² describes the tactics and the resources needed to carry out those tactics for the upcoming operational period, and ensures that the key Command and General Staff understand and are able to support them. This is usually a quick, informal meeting, by invitation only. It is coordinated and run by the OSC, and is normally attended by the OSC, PSC, LSC, SO, and perhaps the RESL and SITL. The group identifies any hazards that exist in the area, such as caves, mine openings, swift water, dangerous animals or poisonous plants, steep or vertical terrain or other hazardous conditions. The group also identifies any required mitigation to keep searchers safe.

The ICS 215, Operational Planning Worksheet, (see page 259) may be partially completed in draft by the OSC prior to the Tactics Meeting, or it may be completed during the meeting in the wall-size format by the RESL. Regardless, the product of this meeting is a current, accurate, complete ICS 215, a sample of which is shown in Figure 4.6 on page 43. If the wall-size ICS 215 is not filled out during the meeting, a copy of the completed ICS 215 is provided to the RESL so that the wall-size ICS 215 can be prepared prior to the Planning Meeting. The Tactics meeting usually takes no more than 10 to 15 minutes.

Many agencies fall into the trap of planning tactics for only the local resources that they know to be available. In fact, tactics should be planned that appropriately accomplish incident objectives, and then determine the resources that are needed to carry out those tactics. They should attempt to order the needed resources from outside agencies and through ordering channels. Remember, all states have SAR resource ordering systems and resources are also available nationally through the AFRCC.

Plan the tactics that appropriately accomplish incident objectives, and then determine the resources that are needed to carry out those tactics.

Prepare for the Planning Meeting

There are a number of actions the PSC needs to take to prepare for the upcoming Planning Meeting:

1. The PSC meets with the IC to determine Planning Meeting attendees. Normally the list of attendees includes the:
 - IC
 - Command Staff
 - General Staff
 - Resources Unit Leader
 - Situation Unit Leader
 - Investigator

² During a complex incident, the OSC may appoint a Deputy OSC who is responsible for the OSC's role in the Tactics Meeting. This allows the OSC to concentrate on what is happening in the field while the Deputy OSC focuses on quality input in the Planning Process.

- Air Operations
 - Communications Unit Leader
 - Technical Specialists (as required)
 - Agency Representatives (as required)
 - Recorders
2. The PSC establishes and posts the time and location for the Planning Meeting at the ICP as well as Incident Base to ensure that all identified attendees have access to the information.
 3. The PSC also ensures that Incident Objectives; Incident Map Sketch; ICS 215, Operational Planning Worksheet (wall-size format); ICS 215A, Safety Message; and all required forms and maps are available and up to date.
 4. The PSC either obtains the most current information on the situation and resource availability, or ensures that the SITL and RESL have done so and are prepared to present it at the Planning Meeting. Sometimes the PSC turns to the OSC for the situation update. Whether the situation update is provided by the PSC or the OSC/SITL is decided in advance of the meeting.
 5. If possible, the PSC visits the search area and evaluates the situation first hand. This can be done by driving around the search area, or by a helicopter or fixed wing overflight. Talking with the Division/Group Supervisors (DIVS)—or Strike Team/Task Force leaders or single resources if no Division/Group Supervisor positions are filled—on the ground is an excellent way to ensure that the PSC has the most accurate and current situation information.
 6. The PSC evaluates the current situation and determines if current planning is adequate for the remainder of the operational period. If not, the PSC suggests changes to the IC and OSC. During the first planning cycle, information can be gleaned from the ICS 201. During later planning cycles, the SITL can provide current situation information.
 7. The PSC obtains an estimate of resources that are available off-incident, and their estimated times to arrive on the incident after they are mobilized. These resources are normally not ordered until the Planning Meeting is concluded. Resource information is gathered by checking agency preplans, agency representatives or local and regional dispatch centers. The need for potentially scarce resources should be identified early, and those that are available for callout should be put on standby if possible. Scarce resources may include:
 - Search dogs.
 - Human trackers.
 - Specialized search teams.
 - Heavy equipment.
 - Aircraft.
 - Communications equipment.
 - Search computer operators.
 - Trained IMT personnel.
 - Trained Investigators.
 8. The PSC obtains any agency-specific policies or environmental constraints/concerns that may affect implementation of the Tactical Plan.
 9. The PSC notifies the Planning Section Unit Leaders of the Planning Meeting time and location, and the Leaders' responsibilities and assignments for the meeting.

Planning Meeting

The purpose of the Planning Meeting is to present the final Tactical Plan to the Command and General Staff, and to ensure that all of the members buy into, and can support the Plan. Because of the meetings and informal discussions that have occurred among the Command and General Staff prior to the Planning Meeting, there should be no surprises for anyone attending. The PSC conducts the Planning Meeting, and maintains control of the discussion so that the meeting proceeds efficiently.

Immediately following the Planning Meeting, the PSC and LSC, after obtaining the IC's approval, develop and place the resource and personnel orders.

A format similar to the Planning Meeting Agenda format—shown on the current page—can be used for numerous other activities that occur on the incident, including Operational Period Briefing, IC/Agency Administrator Meeting, Tactics Meeting, and the Incident Strategy and Information Sharing meeting. By using one common format, everyone knows what to expect, what their roles and responsibilities are, and how information is shared in an organized and time efficient manner.

A format similar to the Planning Meeting format can be used for numerous other activities that occur on the incident.

Normal Agenda for a Planning Meeting

1. The IC or PSC opens the Planning Meeting with brief background on the incident.
2. The OSC, PSC, or SITL briefs on the current situation status.
3. The PSC or RESL briefs on the weather forecast for the upcoming operational period, the current resource status, including assigned, available, and out-of-service resources, as well as those potentially available off-incident for the next operational period.
4. The IC presents the current incident objectives and strategies for team review. If there are no comments, additions, or revisions, the incident objectives are validated for the next operational period.
5. The OSC plots on the sketch map, and describes the overall incident boundaries and Division/Group boundaries if applicable.
6. The OSC specifies the tactics for each Division or Segment by referring to the previously completed wall-size format ICS 215. When the ICS 215 is completed, it is an accurate record of the OSC's desires for tactical deployment of search resources for the following operational period.
7. The OSC specifies the resources needed by Division or Segment as it is depicted on the wall-size ICS 215.
8. The OSC specifies the operational facilities, such as Staging Areas, Helispots and Drop Points, as well as the reporting locations, and plots them on the map.
9. The SO discusses the ICS 215A and any safety issues or messages that are pertinent to the operational period.
10. The PIO provides any pertinent comments on the plan as it concerns the Information Function.
11. The LSC briefs on communications, medical and traffic plan requirements.
12. The Finance Section Chief addresses any Finance or Administration concerns and requirements.
13. The IC and PSC set the completion time for the Incident Action Plan and for all forms and attachments that must be included.
14. The meeting is adjourned.

Prepare Incident Action Plan (covered in Chapter 12 on page 156)

Following the Planning Meeting, all Command and General Staff and responsible Unit Leaders complete their assigned forms and attachments to the IAP, and submit them to the PSC or RESL. The PSC, after reviewing the completed plan for accuracy and adherence to policy and objectives, collates the IAP and meets with the IC to obtain plan approval. Upon approval the PSC determines the number

of copies of the IAP required for the next operational period. The PSC sends the approved IAP to the Documentation Unit for reproducing and collating the required quantities of the IAP prior to the Operational Period Briefing. The PSC may make a final review of the completed IAP prior to the Operational Period Briefing.

Operational Period Briefing

The Operational Period Briefing occurs immediately prior to the beginning of each operational period. The purpose of the Operational Period Briefing is to provide all incident personnel with the information needed to effectively accomplish their work during the upcoming operational period. The briefing generally follows the same format as the Planning Meeting. The briefing format also ensures that searchers have an opportunity to meet the IMT face to face. On extremely large missions, all personnel down to, and including Team Leaders attend the Operational Period Briefing. The Team Leaders then brief their team members separately. On smaller incidents, with only a few search resources, Team Leaders may be briefed individually as they arrive on the incident, and before they are deployed to the field. The Operational Period Briefing is discussed in detail in Chapter 13 on page 162.

New Operational Period

The new operational period begins. The oncoming search resources go into the search area and replace the resources that have been working the preceding operational period. The plan is implemented and the results evaluated throughout the operational period. Often, the search resources from the preceding operational period are transported back to the Incident Base and debriefed at the beginning of the new operational period. Any new information gathered from the debriefing is incorporated into the Tactical Plans for either the current or the upcoming operational period.

Strategy Meeting

The Strategy Meeting is held only if the current objectives have changed. There are various reasons why the objectives may change. For example

- There is evidence that indicates the subject might be outside the designated search area, and the search must be expanded.
- Weather conditions change affecting survivability.
- An objective has been accomplished.

Once the objectives change, then the current strategy may no longer be valid, and alternative strategies need to be explored and a new strategy identified before the tactics can be developed for the IAP.

Summary

The Planning Process is a key feature of the ICS. It is a tool that facilitates timely, accurate communication throughout the incident. It helps the IMT bring order to the search effort.

Responding to an evolving and expanding emergency and making sound tactical decisions while planning for future operational periods is difficult, but balancing Operations and Planning is exactly what an IMT is expected to do. The ICS Planning Process is the framework upon which the incident response is built. It is the glue that binds the incident together. Mastering the Planning Process enables the IMT to lead the incident to a successful conclusion; and an informed, capable, organized PSC is the key to ensuring that this occurs.

Sample Timetable for Planning Process Meetings

Here is a sample timetable for the Planning Process meetings, assuming 12-hour operational periods starting at 0600 and 1800.

*0730 & 1930 Command and General Staff Shift Change
 0900 & 2100 IC/UC Validate or Adjust Objectives
 0900 & 2100 Strategy Meeting (if objectives changed)
 1000 & 2200 Tactics Meeting
 1100 & 2300 Planning Meeting
 1500 & 0300 IAP Approval
 1730 & 0530 Operational Period Briefing
 1800 & 0600 Begin Operational Period*

Initial Response Period Actions

These Initial Response actions assume that an Area Search is to follow the Initial Response.

Organize and activate a Route and Location Search.

1. *Receive the Initial Report.*
2. *Assign an IRIC.*
3. *IRIC starts an Investigation—establish and staff an Investigations Unit.*
4. *IRIC establishes an ICP and announces it to everyone.*
5. *IRIC quickly develops an rudimentary scenario and assumption analysis to determine likely spots and routes to search.*
6. *IRIC develops the initial incident objectives and Strategy that will serve the Initial Response, but may not be appropriate for an extended response.*
7. *Contain the search area.*
8. *Identify and protect the IPP.*
9. *Determine a direction of travel from the IPP.*
10. *Search the routes and likely spots.*
11. *Order additional operational resources as needed (anticipate the time for resources to mobilize and respond to the incident).*

Prepare for upcoming Area Search in Operational Period 1.

12. *IC appoints necessary General Staff Positions, including a PSC and an OSC, perhaps a LSC as well, depending on the projected size and scope of the incident.*
13. *IC briefs incoming staff when they arrive on the incident (they should arrive in time to produce a written IAP for Operational Period 1. (Command and General Staff Briefing with ICS 201)*
14. *IC revises the original Incident Objectives (could be done here, or after the Consensus). (IC/UC develops Incident Objectives)*
15. *The next three steps could be done in a separate meeting, or as the initial part of the Strategy Meeting in the Planning P.*
 - a) *With the PSC, OSC, and IC, and perhaps other experienced, trusted search experts, conduct a Scenario Analysis.*
 - b) *With the PSC, OSC and IC, define and segment the search area. The PSC draws the segments with the OSC and IC's approval.*
 - c) *Conduct a Consensus to establish initial POA's for the search area.*
16. *PSC, OSC, and IC then discuss potential Strategies, and PSC develops the Preferred Strategy and one or more Alternative Strategies to implement the revised Incident Objectives. IC selects the Strategy. (This is done in the Strategy Meeting.)*
17. *OSC and PSC meet together to develop the Tactics (Tactics Meeting).*
18. *Command and General Staff attend Planning Meeting to finalize the contents of the IAP for Operational Period 1.*
19. *Planning Section with assistance from other Staff compiles and reviews the IAP.*
20. *IC approves IAP.*
21. *Planning Section copies IAP for all supervisors (to be handed out at the Operational Period Briefing).*
22. *Operational Period Briefing for Operational Period 1.*

Start Operational Period 1.

CHAPTER 12

The Incident Action Plan

Section 12.1 Overview

Purposes. An Incident Action Plan (IAP) is prepared for each upcoming operational period. For less complex incidents or in the beginning phases of an incident, the plan may not be written. But, it should still exist. More complex or extended incidents must have a written IAP. The IAP provides important information for incident personnel, including:

- The current incident objectives.
- Identification of the ICS positions filled and the names of the resources filling those positions.
- The tactical assignments and identification of the resources completing the assignments.
- Critical safety information for incident personnel.
- Important logistical information for incident personnel.
- Other important information, including searching data (such as photographs, physical descriptions, clothing descriptions, etc.), maps, weather forecasts, diagrams, and other pertinent material.

Development of the IAP. The entire IMT develops the basic Tactical Plan for the next operational period while navigating the “Planning P” described in Chapter 11 on page 146. Once the plan has been outlined on the ICS 215, Operational Planning Worksheet (and the ICS 215A, Safety Analysis), supported by the Command and General Staff, and approved by the IC at the Planning Meeting, the Planning Section begins to prepare and assemble the written plan. Once the IAP is completed, it is submitted to the IC for approval.

Section 12.2 Components of the Plan

The IAP consists of many components.

- **IAP Cover**

Having a separate cover on the IAP is optional. Many IMTs include a cover to create a unique visual identification for each IAP and as a morale booster. If a cover is included, it must be free of images and text that may be offensive or insensitive. The cover should include

- The name of the incident (such as “Benson Search”).
- The date and time of the operational period for which the plan has been prepared.
- Other appropriate information such as an incident number or agency account number.

Ideally the cover should be color-coded with a different color for each operational period.

<p>Benson Search</p> <p>Incident Action Plan</p> <p>Operational Period 1</p> <p>8/31/2013</p> <p>0600–1800</p> <p>AK-20130831</p>

- **ICS 202, Incident Objectives**

This form is the first page of every IAP. It includes the current incident objectives, a brief safety message, the weather forecast and a listing of other attachments. Every block of the form must be completed, even if there is a separate safety message and weather forecast. The attachments should be listed in the order in which they appear in the IAP. The RESL usually prepares this form. Detailed information about completing this form can be found on page 214.

- **ICS 203, Incident Assignment List**

This form lists those ICS positions that have been filled for the incident and identifies the resource filling each position. Some IMTs like to include the cellphone number for the each person in the “name” block. The RESL usually prepares this form. Detailed information about completing this form can be found on page 217.

- **ICS 204, Assignment List**

One ICS 204 is prepared for each Division or Group assigned to the Operations Section. The form includes a list of resources assigned to the Division/Group, the tactics assigned to those resources, a list of pertinent overhead personnel, an area for special instructions, and a list of pertinent radio communications information. Only those sections that have applicable information are completed. However, the radio communications section should always be completed. The RESL usually prepares this form. Detailed information about completing this form can be found on page 220.

An Assignment List that has been carefully prepared with thorough and detailed work assignments is the key ingredient to operational success on a search. Simply saying, “Search Segment 12”, is the typical abbreviated approach that most PSCs take. Making assumptions with search resources during a search incident is a recipe for less than optimal results. A well-written assignment would include statements, like “search in a downhill manner, clear GPS track log and set updates to every 10 sec., verify datum selected, encourage team members to practice purposeful wandering, overlap with team searching Segment 11 to the east, use verbal attraction, etc.”. The meat-and-potatoes of the IAP is the “recipe” described on the ICS 204. This is a **CRITICALLY** important feature of the Planning Function during a search incident.

An Assignment List that has been carefully prepared with thorough and detailed work assignments is the key ingredient to operational success on a search.

The ICS 204 forms appear in the IAP in branch (identified with Roman numerals for geographic branches and titles for functional branches) and, then, Division/Group order. Divisions are generally lettered (A, B, C, ...) while groups are given titles (for example, Rescue Group, Investigation Group).

Sample Work Assignment and Special Instructions on ICS 204

Work Assignments:

- *Initially fly to Tapeats Creek Confluence and land for area orientation.*
- *Coordinate helicopter search activity with Tapeats Spotter posted at confluence of Tapeats Creek confluence. Provide visual confirmation that search efforts are located within the correct area.*
- *Conduct search effort in afternoon when light is on west facing slopes.*
- *Conduct thorough aerial helicopter search (N368PA) for missing aircraft in identified areas; **Listed In Priority Order:** East side of Galloway Canyon drainage (Segments 1–3); Arrowhead Terrace (Segments 4–5); West of Stone Creek (Segment 6) & Powell Plateau Region (Segment 7).*
- *Utilize eye witness photos and GIS “Viewshed” map data to conduct effective search of the identified areas.*
- *Conduct helicopter search efforts with doors open or removed for increased probability of detection (POD).*
- *Capture GPS track log of all search flight activity.*

Special Instructions:

- *Upon location of wreckage, immediately contact Park Dispatch for documentation and follow-up notifications.*
- *Obtain site coordinates and initial photo documentation from the air.*
- *Recovery plan will be developed from the initial reconnaissance of the accident site.*
- *Considerations include; technical access, proximity of a suitable helispot, effectiveness of radio communications from site, environmental special needs, wreckage condition, etc.*
- *As appropriate and safely feasible, land nearby and conduct initial survey of accident scene. Do Not Disturb Wreckage.*
- *In the event aircraft shuts down, pilot will refrain from becoming involved in physical tasks which could incur injury.*
- *Communicate tasks thoroughly among team members in advance.*
- *Utilize all appropriate and complete PPE for expected hazards.*
- *Maintain a thorough unit log of all incident activities.*
- *Debrief actions.*
- *Thoroughly review the INCIDENT RECOVERY PLAN in advance of additional efforts and implement as appropriate.*

Equipment List:

- *Investigations: Handheld GPS and digital SLR camera.*
- *Personal: Food, water, first aid and appropriate high visibility clothing.*

Notifications:

- *Park Management & Public Affairs*
- *CCSO*
- *Radford Spouse*
- *NTSB/FAA*
- *USAF/ AFRCC*
- *NPS-WASO*

Tactics can be listed in detail on the form, with specific tasks being assigned to specific resources; or, the tasks and resources can be listed, leaving it to the Division/Group Supervisor to make specific assignments in the field.

- **ICS 205, Incident Radio Communications Plan**

This form is prepared by the Communications Unit in the Logistics Section and is submitted to the Planning Section for inclusion in the IAP. Detailed information about completing this form can be found on page 222. Many IMTs also include a telephone directory as an attachment to the Communications Plan.

- **ICS 206, Medical Plan**

This form outlines the steps to be taken if incident personnel become sick or injured. Be proactive with detailed contingency planning in the form of Medical/Rescue Plan for incident personnel as well as the search subject. The nature of backcountry search areas require the staging of specialized equipment and teams that can be immediately deployed when needed.

The ICS 206 is prepared by the Medical Unit in the Logistics Section and submitted to the Planning Section for inclusion in the IAP. Detailed information about completing this form can be found on page 227. The Medical Plan must be reviewed by the Safety Officer.

- **ICS 208, Safety Message/Plan**

This form provides space for an extended safety message beyond that listed on the ICS 202. This form is completed by the SO and submitted to the Planning Section for inclusion in the IAP. If the incident includes hazardous materials, the form identifies the location of the OSHA required, approved Site Safety Plan. Detailed information about completing this form can be found on page 230. Some SOs may opt for a safety message that is not on an ICS 208.

- **ICS 220, Air Operations Summary**

This form is prepared by the Air Operations Branch of the Operations Section and is submitted to the Planning Section for inclusion in the IAP. Detailed information about completing this form can be found on page 266.

- **Searching Data**

Information that can enable incident personnel to identify relevant clues or the missing subject should be included. This can include the Missing Person Flyer, recent photographs, physical descriptions, clothing descriptions, drawing and physical description of the shoe print, and lists of items carried. In addition, the circumstances of the disappearance can be summarized.

- **Weather Forecast**

A detailed weather forecast for the operational period in the incident area should be included. Potentially hazardous weather should be highlighted so that responders can plan accordingly.

- **Traffic Plan**

If needed, a map showing the approved traffic patterns for incident vehicles is prepared by the Ground Support Unit of the Logistics Section and submitted to the Planning Section for inclusion in the IAP.

- **Other Information**

Other information relevant to the incident may be included, such as information about the missing subject's family, instructions for dealing with the media, demobilization information, and other pertinent information.

- **Maps**

Detailed maps and diagrams of the search area should be included. These may include an overall map of the area, a map showing search segments, and detailed, high-resolution, colored maps of areas to be searched.

- **ICS 214, Activity Log**

This blank form is to be completed by the incident personnel during their operational period to document important actions and decisions. Detailed information about completing this form can

be found on page 258. On the ICS 202, where the ICS 214 is listed as an attachment, a comment should be added to indicate what should be done with the completed ICS 214. For example the comment might be “submit to Planning after OP” or “submit to DOCL after OP”, which would mean that the plan holder should complete the ICS 214 and turn it in to the Planning Section or to the Documentation Unit Leader after they have completed their assignment.

A schematic of the IAP components is shown in Figure 12.1.

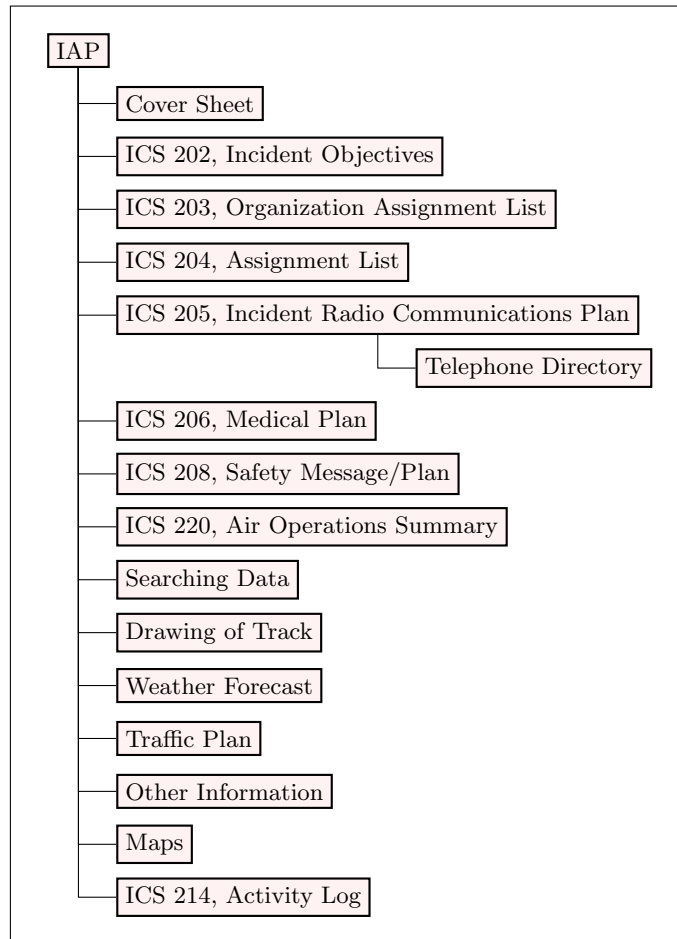


Figure 12.1. The IAP Components

Section 12.3 Completing the Plan

Completing the plan is a four-stage process.

1. Assembling the Plan

The RESL or PSC put the completed pages in order. Most incident responders are used to seeing an IAP in the following order: ICS 202, ICS 203, ICS 204 (as many as needed), ICS 205, telephone directory, ICS 206, ICS 208, ICS 220 (if aircraft are used), Weather Forecast, Searching Data, Other Information, and Maps. Some IMTs prefer to have the information in the IAP in the same order as is given at the Operational Period Briefing, so some IAPs may differ. The IC sets the standards for the IAP.

2. Approving the Plan

Once the original IAP document is assembled, it must be brought to the IC for approval. If the IC corrects or revises the IAP, the changed pages must be redone and the plan resubmitted to the IC. The IC approves the IAP by placing an original signature in the appropriate box.

3. Distributing the Plan

Once the IAP is approved, it must be distributed to incident personnel. While each incident supervisor must receive a copy, it is better to provide a copy to all incident personnel. The plan should be copied on paper, with copies to be handed out prior to the Operational Period Briefing, introduced on page 153 and discussed in more detail in Chapter 13 on the next page. Copies should be emailed or faxed to remote Branches and Divisions. In addition, electronic editions can be distributed to tablets and smart phones. The original IAP, with the IC's original signature, must be filed in the Incident Documentation Package, described on page 172, because it is a legal document.

The IAP is usually also sent to the Agency Administrator, expanded or other dispatch centers, cooperating agencies, etc.

4. Evaluating the Plan

As the operational period unfolds, all incident personnel should evaluate the effectiveness of the assigned tactics and the progress of the incident in meeting the incident objectives. The OSC should modify tactics, if needed, and all operational personnel should note the tactics needed for the next operational period. Deviations from the IAP should be explained on ICS 214, Activity Logs.

The Planning Section or the RESL should maintain a "Correction Copy" of the IAP for each operational period to write in changes such as when the OSC changes assignments at the briefing, unassigned resources are given assignments, personnel have changed from the names on the IAP, phone numbers or other information is corrected, This is also filed with the incident documentation.

CHAPTER 13

Briefing: Communicating the Plan

Briefing information is a critical step in the life of an incident. Briefings occur from the IMT to the search personnel both at the initial response phase and during extended operations, generally at the beginning of an operational period. Briefings also occur when new incident management staff are brought onto the incident to aid in managing the search. Finally briefings may also occur to agency heads, politicians, and media. In each case the basic goal is the same—to provide information about the current status of the incident and what is being done during the operational period to help resolve the incident. The level of detail and the specific information content may change depending on the audience for the briefing.

During the Initial Response the briefing does not usually involve a written IAP. Some form of briefing information may be handed out such as maps of the area, a description of the search subject, weather and safety information, and communications information. At this point the incident objectives may not have been written but are passed along verbally. The briefing during the Initial Response may be given by the PSC if that position has been established but is more often given by the IC who has not yet expanded the incident staff. The briefings occur as resources arrive and are sent into the field. During the Initial Response this may occur several times as resources arrive in a staggered fashion.

The Briefing Format for Emergencies developed by Karl Weick¹ is a good model for use during initial actions and upon encountering unexpected or emergency situations in the field during an assignment.

Briefing Format for Emergencies

1. Here's what I think we face.
 - Situation Summary/Description of the Problem/Incident Objectives.
2. Here's what I think we should do.
 - Strategy and Tactics/Assignments.
 - Communications Plan.
3. Here's why.
 - Thoughts behind the development of the plan (Lost Person Behavior, Influencing Factors).
4. Here's what we should keep our eye on.
 - Safety Statement (Communications, Weather, Aviation, Hazards).
5. Now, talk to me.
 - Solicit input from the searchers to make sure there are not better ideas or something missed.
 - Clear up any ambiguities.

¹ See Reference [Weick].

As the incident progresses into an extended operation written IAPs should be prepared and ideally the PSC position has been filled. At the beginning of an operational period as established by the Incident Commander an Operational Period Briefing is held, introduced on page 153. The PSC presides over this briefing which includes other members of the IMT providing information to the searchers. On incidents that have relatively few personnel the Operational Period Briefing may include all searchers. On incidents that have a large number of personnel the team leaders may be the only personnel that attend the Operational Period Briefing. In the latter case the team leaders then return to their team and conduct a team level briefing.

A well done briefing inspires confidence in the searchers that the incident management team is working effectively to support them.

Guide for an Operational Period Briefing

- *Meeting Rules (PSC)*
 - *Turn off radios and cell phones during briefing*
- *Situation Update*
 - *Weather*
 - *Intelligence/Investigation (PSC or Technical Specialists)*
- *Incident Objectives and Strategy (IC)*
- *Division Assignments (OSC)*
- *Safety Message (SO)*
- *Logistics (LSC)*
 - *Communications Plan (COML or LSC)*
 - *Medical Plan (MEDL or LSC)*
- *Finance/Administration (FSC if assigned)*
 - *Required Forms, Claims, Workers Comp*
- *Information/Media (PIO)*
 - *Media visits to the incident*
 - *Any reminders about Social Media use by incident personnel*
- *Words of Wisdom (IC)*
- *Any Final Questions or Concerns? (PSC)*
- *Any unassigned resources see PSC and OSC after the briefing (PSC)*
- *Briefing is complete. Turn on radios and cell phones (PSC)*

Briefing information about tactics should be fairly specific so that the resources that receive the information perform the tasks that the IMT envisioned. For example during an Area Search resources should be told to determine Critical Separation once at the assignment site based on the search subject, vegetation, and terrain. That separation should be maintained unless the vegetation and terrain changes which requires an adjustment. There may be some “in the field” alterations to the tactics based on the terrain or other conditions but if the information was briefed well the team leader should know what the expectations were and should work to meet them. This is the IMT’s one chance to explain the plan and the desired outcomes before the search teams go into the field.

Sometimes the object that searchers picture when they are told what they are searching for may not be what the object actually looks like. When a searcher is told that they are searching for an overdue airplane they may well picture an airplane that is intact and parked at an airport when in reality they are likely looking for an airplane crash site in which the airplane is not intact and may be a different color. It is useful to remind searchers of this and to remind them that there may be many clues that lead to the object of the search.

Special situations or hazards may exist that need to be briefed to searchers. Along international borders there may be safety concerns or procedures that must be followed. In some forested areas there may be incidences or indicators of illegal marijuana growing operations that have some safety concerns. Searchers may also need to receive information about the health or mental health of the search subject. That information could be protected by law. Since these issues are of a sensitive nature and the information should not be shared with the public the PSC should remind searchers not to distribute the information outside of the incident personnel.

Other hazards that searchers may encounter are traffic hazards along roadways, dangerous neighborhoods, abandoned buildings, domestic animals in urban and suburban areas, and unsecured utilities after a disaster. It is not possible to identify all hazards that searchers may encounter in this book. It is the responsibility of the Safety Officer and other IMT staff to size up the situation and identify the potential hazards so that they can be briefed to incident personnel and mitigated to the extent possible.

CHAPTER 14

Debriefing: Documenting Results

Section 14.1 Overview

Debriefing both searchers and found subjects is an important task that should not be overlooked or hastily done. The information gleaned can have a significant impact on future actions during the search and on future searches. Personnel that may be called upon to debrief search teams or search subjects would benefit from training in interviewing. Law enforcement personnel involved in search and rescue often have experience in interviewing people as part of law enforcement investigations and can potentially make good debriefers.

Section 14.2 Debriefing Searchers

Just as important as the briefing to inform searchers what their task consists of, is the debriefing to find out what they actually did. Search planners cannot assume that the assignment that they handed out was completed as they expected when the team returns from that assignment. This is especially true if the IMT or searchers are unfamiliar with the area. There are many situations that searchers could encounter which could affect their ability to fulfill their assignment, including weather and unknown features or obstacles. The debriefing allows the search team to present their effort and inform the Planning Section about the actual conditions on the ground. There is only so much information that can be gleaned from a topographic map. Aerial and satellite imagery help planners examine unfamiliar terrain but nothing beats good “ground truthing”. Debriefing should be conducted on both Route and Location Searches and Area Searches.

It may be tempting to assign the debriefing task to a new or inexperienced searcher because it seems like a mundane task. Even worse it might be tempting to hand a team a blank debriefing form and ask them to fill it out and turn it in. These are significant mistakes. In reality the debriefing should be conducted by an experienced searcher. A good debriefing can generate very valuable information about the search and the search area. Often a standardized question from a debriefing form leads to follow up questions or discussions between the team and the debriefer, which yield valuable information.

The debriefing should be conducted by an experienced searcher.

An inadequate debriefing may fail to uncover gaps in search coverage, clues located, hazards in the search area, previously unknown features in the search area, and communications difficulties. Additionally searchers that have completed an assignment may have suggestions for additional resources that should (or should not) be applied to the search segment.



Figure 14.1. Not all hazards are visible—bear track and unexploded ordinance

The debriefing should take place in a relatively quiet location mostly free of distractions, out of sight and earshot of media and family. The debriefer sits down with the team leader and discusses the assignment that was just completed. This debriefing should be documented and any relevant materials collected from the team leader such as the team’s map with all notations, and any ICS 214 Activity Logs (see Figure 23.53 on page 257). If the team was using GPS in a tracking capacity, then the track log should be downloaded. If potential witnesses were interviewed during their assignment then this should be reviewed. If clues were located during the search then those should be discussed and a clue report filled out. If clues are collected they should be turned in during the debriefing. If relevant photographs were taken then those should also be shared with the debriefer.

Debriefing Searchers Checklist

1. *Who was involved in the debriefing?*
2. *What was their assignment?*
3. *What time did they begin?*
4. *What did they accomplish?*
5. *How likely were they to have seen the missing person? (The likelihood of detecting the subject for a Route and Location search or the POD for an Area Search.)*
6. *What time did they finish?*
7. *Any difficulties or areas they could not search adequately?*
8. *Any clues found?*
 - a) *Where?*
 - b) *What?*
 - c) *What did they do?*
 - d) *Where is it now?*
9. *Any hazards observed in the area?*
10. *Any communications problems?*
11. *Any comments? For example, what would the team suggest if this task was done again: type of resource, how to search.*

It is important to recognize that less experienced resources may overestimate their search effort or are less likely to acknowledge that their entire segment was not searched. This is because the team wants to please the IMT in order to receive future assignments. During the debriefing it should be stressed that the search assignments are not competitions, but rather important tasks that need to be accomplished in a complete and thorough manner. If a debriefing was done only with a form or with an inexperienced debriefer these errors may not be discovered. An overstatement of the area covered on a Route and Location Search or the *POD* on an Area Search could lead to areas being discounted or not searched again.

The use of GPS track logs can be a very helpful tool during the debriefing. The track log, discussed in Section 9.3 on page 113, can show where the searchers have been during a search assignment. This helps determine whether the searchers were able to search the entire assignment but does not yield any information about the thoroughness of their search.

The track log helps determine whether the searchers were able to search their entire assignment but does not yield any information about the thoroughness of their search.

When conducting a debriefing on an Area Search a team may overestimate their *POD*. It is acceptable for the debriefer to revise down the *POD* value to an appropriate number based on the debriefer's experience. It is important to do this out of the view of the team otherwise a situation can develop where teams assume that their *POD* values are going to be revised down so they intentionally inflate the *POD*. A high *POD* reported by a team can indicate that the team thought that they really did a good job on the assignment but may not know how to estimate their *POD* in a conservative way. That clue should be taken into account by the debriefer and may be the basis for some additional questions during the debriefing.

Debriefings should be well documented and include a reference to the team being debriefed and their assignment. This documentation is passed to the Win CASIE III operator who enters the data into Win CASIE III to update the status of the search whether it be for a Route and Location Search or for an Area Search. This information may also be used by the GIS specialist to update search maps. Finally the documentation is stored in the search file with the rest of the documentation from the incident to maintain a complete record of what was done.

There are several forms that can be of help when conducting the debriefing of searchers. Perhaps the most common is the ICS 204B, see Figure 14.2 on the next page. This is not a standard ICS form published by Federal Emergency Management Agency (FEMA), but it is in circulation among search and rescue units and is included in Win CASIE III. The Bay Area Search and Rescue Council has resource specific debriefing forms (Dog, Equestrian, Hasty, and Tracking) that can be downloaded from <http://www.basarc.org/downloads/sarforms/SARForms.zip?attredirects=0>.

Finally, searchers should be reminded that photographs and information about the search should not be distributed on social media.

Section 14.3
Debriefing the Search Subject

Following a successful search where the subject is located alive debriefing the subject is very important. This debriefing can give search planners important information about what the subject did, what caused the subject to become lost, what the search subject did to aid in their rescue, and what search tactics were effective.

This debriefing should also be conducted by an experienced searcher who preferably is familiar with the search area. If possible it is helpful to go over a map, especially if the subject was using a map, to

SEARCH AND RESCUE DEBRIEFING FORM (ICS 204B)						
INCIDENT NAME: _____						
DATE:	TEAM #	ASSIGNMENT #	OP. PERIOD			
STATE RESOURCE TYPE AND TACTICS UTILIZED:						
STATE EXPLICIT COVERAGE OF THE AREA SEARCHED:						
STATE CLUES LOCATED, EVENTS, HAZARDS AND IDENTIFY ALL ON AN ATTACHED MAP:						
COMMUNICATIONS ISSUES:						
RECOMMENDATION FOR FUTURE EFFORT:						
SEGMENT SPLITTING						
IDENTIFY AREAS THAT WERE NOT THOROUGHLY SEARCHED OR SEARCHED WITH DIFFERENT POD'S THAT NEED TO BE SPLIT.						
<i>THE PLANS SECTION WILL ASSIGN A NUMBER TO THE SPLIT SEGMENTS. AS THE TACTICAL TEAM LEADER YOU MUST ACCURATELY DEPICT BOUNDARIES.</i>						
ARE YOU SPLITTING YOUR SEGMENT? _____						
HAVE YOU IDENTIFIED SEGMENT BOUNDARIES TO THE PLANS SECTION? _____						
HAVE YOU DRAWN YOUR COVERAGE ON AN ATTACHED MAP? _____						
STATE ESTIMATED COVERAGE OR POD FOR EACH SEGMENT SEARCHED DURING THE ASSIGNMENT. BE SURE TO IDENTIFY THE SEGMENT BY NUMBER.						
SEGMENT NUMBER	LIVE RESPONSIVE	NON- RESPONSIVE	CLANDESTINE GRAVE SITE	FOOTPRINT	_____	_____
SIGNED TEAM LEADER: _____ DATE: _____						

Figure 14.2. ICS 204B Debriefing Form.

help determine where the subject went. If the subject was using trails this debrief may help to discover confusing trail intersections and may help to inform on placing signage or other preventative search and rescue information.

Debriefing the subject also contributes to better LPB data. At a minimum the IPP and the Location Found should be reported but additional information about the subject's activities, equipment, and training can be helpful to flesh out the lost person data.

The interview should occur as soon as possible after the subject is rescued, but not before they have a medical evaluation and appropriate treatment. Frequently the interview can take place at the incident location, but sometimes it has to be done after the subject has left the incident for medical treatment, either at the hospital or at the subject's residence.

To aid in debriefing a search subject, a guide titled "Interviewing a Subject Found Alive" is included in Win CASIE III. What follows is taken directly from that document.

The subject debriefing should strive to gather a complete and fairly thorough understanding of the subject's actions, activities, thinking, analysis, and assumptions in a more or less chronological order.

The purpose of this meeting is for the IMT to

- Determine the effectiveness of the search effort.
- Learn what worked and what did not.
- Understand how the lost subject behaved during the search.
- Identify which investigative information was helpful, and which was not.
- Identify whether the scenarios on which the search strategies and tactics were based coincided with what actually happened.
- Improve the knowledge of LPB in the appropriate jurisdiction.
- Evaluate the effectiveness of the search objectives, strategies and tactics (what was the IMT doing and thinking while the subject was doing what they were doing, and why did the searchers not find them at that point?).
- Add accurate information to the statistical database for search area determination.
- Identify additional preventative SAR actions which can be implemented to prevent future incidents from occurring.
- Identify additional training needs for SAR managers and responders.
- Identify strategies and tactics that worked well and why.
- Identify strategies and tactics that might need improvement.
- Create new case studies with which to train search managers.

The interview should take place

- After the subject has been stabilized.
- After the subject and been reunited with family, either by phone or in person.
- In a quiet secure area, with only the subject and with a few members of the IMT, such as the IC, OSC, and PSC.
- Without any outside disturbances.
- In a friendly atmosphere, with no blame being assigned to the subject.

If possible the interview should be recorded and should always be documented in writing for future reference. A good summary of the debriefing can be invaluable in conducting the After Action Review.

The interview should start with the interviewer telling the subject how pleased they are at the outcome. The interviewer should then explain the reason for the meeting, and ask the subject to describe what happened in their own words and at their own pace, as they remember it. During this process the subject should cover the following points, if appropriate.

- How and where did they get lost?
- What were they doing when they got lost?
- Once lost did they follow anything (drainage, wash, trail, landmark, ...)?
- At what stage did they stop moving and decide to wait to be found?
- How much water and food did they have with them?
- Did they find and drink water? Was the water purified?
- Did they encounter any wildlife?
- Did they see or hear a helicopter?
- Did they see or hear searchers?
- How did they respond to seeing or hearing searchers or aircraft?
- Did they use their cellphone, and where was coverage non-existent?
- Did the cellphone battery run out?

If the subject was hiking, then they should also cover the following points.

- When did they start hiking?
- What was their intended route?
- Why did they go off-trail?

- How long after they started hiking did they realize they were lost?
- How long after they started hiking did they decide to stop hiking and wait to be found?
- Did missing trail markers or too many trail crossings lead to their becoming lost?
- Did they become fatigued and try to find a shorter route back?

When the subject has finished, all of the previous points that were not covered during the narrative should be raised. Additional questions that could be asked are

- Did they have a map/compass/GPS and are they familiar with them?
- What could the searchers have done to find them quicker?
- Hypothetically, if they were unconscious during the search, do they think the searchers would have found them?
- Did the subject have any survival training? If so what?
- Once lost what did they do to increase their chances of survival?
- What did they do to increase their chances of detection?

Finally, they should be reminded of any medical advice given to them.¹

However, be aware that occasionally not all subjects are totally candid with the interviewer. Some people find it difficult to be honest with law enforcement, which is confirmed when the evidence or clues are inconsistent with the narrative. Do not forget this!

¹ If the subject found and drank unpurified water in the field, then they should be advised of the possible repercussions and treatment.

CHAPTER 15

Documenting the Incident

Section 15.1 Overview

The incident should be documented sufficiently to

- Allow an After Action Review.
- Meet agency-reporting standards.
- Legally protect all involved.
- Allow the collection of data used in developing search probability statistics.

Collecting, filing, and preserving the documents of the incident is the responsibility of the Documentation Unit. The duties of the Documentation Unit Leader (DOCL) are discussed on page 35, and a DOCL Job Action Sheet can be found on page 282.

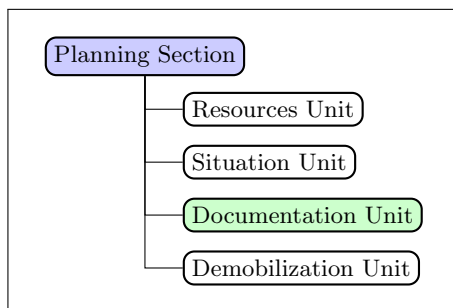


Figure 15.1. Documentation Unit

Section 15.2 Details

Importance

Documentation is important for the following reasons:

- It is the legal record of what occurred, including the actions taken by responsible agencies.
- It can protect incident personnel and others from inappropriate legal action.
- It can assist incident personnel and agencies in learning and improving search services.
- It is the historical record of what occurred.

- It can provide statistical information, that when combined with other incidents, can improve planning for search incidents.
- It can be the basis for follow-up actions in the event the subject is not found during the search effort.

Basic Reporting

The reports and forms required by the host agency must be completed upon completion of the incident. These can include Incident Reports, Search and Rescue Reports, and other documents. These reports should meet the minimum agency standards.

Incident Documentation Packages

The staff at more complex incidents should prepare an Incident Documentation Package. This package should include:

- A narrative of the initial situation and circumstances of the disappearance.
- Incident objectives and identified strategies, including changes that occurred as the incident progressed.
- A narrative of the initial actions taken.
- A detailed investigative report.
- A detailed list of searching data.
- A detailed list of planning data, including subject itinerary and other plans.
- The original, signed copy of each IAP.
- The original copy of every filed ICS 214, Activities Log.
- All other debriefing materials.
- The clue log and a narrative of all follow-up clue verification actions.
- A copy of every run of Win CASIE III.
- All maps and GIS data.
- A general narrative of the incident, including material regarding all ICS functions (Command, Operations, Planning, Logistics, and Finance/Administration).
- Photographs.
- Financial records.
- Other pertinent records.

The agency experiencing the incident generally receives the final Incident Documentation Package. Packages are kept in accordance with agency record management policies. Federal agencies experiencing a major incident must keep their documentation in accordance with the standards set forth at the National Wildfire Coordinating Group website, <http://www.nwcg.gov/policies/records/>.

The original IAPs are stored by themselves by date. Other records are filed by position, in chronological order. Table 15.1 on the next page, shows a suggested Master Documentation Index of incident folders, in compliance with Federal records management requirements. However, not all documentation folders shown in the Table are necessary for every search incident. All are listed so that the PSC and DOCL can consider whether they are needed.

Table 15.1. Master Documentation Index

COMMAND and ADMIN RECORDS	(Planning Section continued)
Agency Administrator Briefing/Package	Selected/Alternative Strategies
Delegation of Authority/Return of DOA	Win CASIE III Runs (one folder per OP)
ICS 201 Incident Briefing	Field Weather Observations
Final Incident Narrative	Clue Investigation Reports
Search Suspension Analysis/Decision	Clue Log
IMT Transition/Debriefing/Evaluation	General Maps
Complexity and Search Urgency Analyses	Search Segmentation Maps
Mechanical Use in Wilderness Request	Search Progress Maps
Significant Events Narrative/Notes	Clue Location Maps
Special Interest/Political Inquiries	Scenario Analysis Information
HUMAN RESOURCES	Investigation Reports
Critical Incident Stress Mgmt Narrative	Photographs
Significant Events Narrative/Notes	Specialized Data (as many as needed)
INFORMATION	Incident Training Narrative/Final Report
Community Relations	Individual Training Records A–L
Closure Orders/Restrictions	Individual Training Records M–Z
Information Summary	Demobilization Plan
Media Log/Key Contacts	Final iSUITE/ROSS Database Printout
Newspaper Clippings	ICS 221 Demob Checkout (T-cards optional)
Press Releases	Performance Evaluations
Public Meeting Agendas/Notes/Briefings	R & R Plan/Work-Rest Information
Special Events/Tours/VIP Visits	Contingency Plans
Thank You Letters	LOGISTICS SECTION
Web Pages/Videos	Communications Equipment Inventory
LIAISON	Radio Traffic Logs
Contact Log/Conversation Record	Telephone Logs
Significant Events Narrative	Repeater Site Documentation
SAFETY	Facilities Health Inspections
Accident Investigation Reports	Caterer—Menu/Meal Logs
Hazard Abatement	Caterer—Orders/Waybills
JHAs/Safety Training	Food Health Inspections
Safety Inspections	Equipment Repair Orders
OSHA Reports	ICS 212 Demob Vehicle Safety Inspection
Safenets	ICS 218 Support Vehicle Inventory
PLANNING SECTION	OF 296 Vehicle/Equip Inspection Checklist
Resource Advisor Information	Rental Vehicle Checkout List
Resource Protection Plans	Rental Vehicle Inventory
Incident Action Plans (Originals)	Vehicle Dispatch Logs
ICS 207 Organization Chart	Security Patrol Logs
ICS 211 Check-in Lists (Chronologically)	Security Plan
ICS 215 Operational Planning Worksheets	Accident Action Plan
ICS 215A Safety Analysis	Medical Injury/Treatment Log
ICS 209 Incident Status Summary	Medical Issue Log
Win CASIE III Initial Note	Accountable Property Summary—Cache
Initial Planning Information	Cache Issue Report
↗	↘
Master Documentation Index continued on next page ...	

Daily Inventory	Planning Section Chief/Deputy
Incident Replacement Requisition/AD-112	Resources Unit
Property Loss/Damage Report	Situation Unit
Resource Orders—Crews/Teams	Documentation Unit
Resource Orders—Equipment	Demobilization Unit
Resource Orders—Overhead	Technical Specialists
Resource Orders—Supplies	Training Specialist
OPERATIONS SECTION	Logistics Section Chief/Deputy
Aircraft Authorizations	Communications Unit
FS 127/OES 23 Flight Use/Hour Tracking	Facilities Unit
Helibase Daily Use/Cost Summary	Food Unit
Helibase Documentation	Ground Support Unit
Helicopter Daily Use/Cost Summary	Medical Unit
Helicopter Briefing/Debriefing Checklist	Supply Unit—Orders
Helicopter Information Sheet	Supply Unit—Other Messages
Helicopter Crew Information Sheet	Finance Section Chief/Deputy
Helicopter Demob Information Sheet	Comp/Claims Unit
Load Calculations/Manifests	Cost Unit
Mission Request/Flight Following Log	Time Unit
Safecomms	Procurement Unit
Temporary Flight Restrictions	ICS 214 UNIT LOGS
FINANCE/ADMIN SECTION	IC/Deputy IC/UC
Land Use Agreements	Information
Comp for Injury Documents/Logs	Safety
Property Damage Claims/Logs	Liaison
Aircraft Costs	Operations Section Chief/Deputy
Cost Share Agreements	Air Operations Branch Directors
Cost Summary	(Each OPBD and DIVS, STL/TFL)
Final Statement of Costs	Planning Section Chief/Deputy
iSUITE Daily Cost Printouts	Resources Unit
Excessive Shift Justifications	Situation Unit
I-9s and Tax Forms	Documentation Unit
Length of Assignment Extension Approvals	Demobilization Unit
Personnel Time Records	Technical Specialists
Work/Rest Justifications/Worksheets	Training Specialist
Procurement Purchase Receipts	Logistics Section Chief/Deputy
Procurement Purchase Log/Equipment Log	Communications Unit
Commissary Contract/Costs/Claims	Facilities Unit
Contract Letter to CO	Food Unit
Contractor Performance Evaluations	Ground Support Unit
Equipment Time Records/Claims	Medical Unit
ICS 213 GENERAL MESSAGES	Supply Unit—Orders
IC/Deputy IC/UC	Supply Unit—Other Messages
Information	Finance Section Chief/Deputy
Safety	Comp/Claims Unit
Liaison	Cost Unit
Operations Section Chief/Deputy	Time Unit
Air Operations Branch Directors	Procurement Unit
(Each OPBD and DIVS, STL/TFL)	

CHAPTER 16

Transitioning to Limited Continuous Search and After Action Review

Section 16.1 Overview

All incidents eventually come to an end. In most incidents the end occurs when the missing person is located, evacuated from the search area, and turned over to medical care for evaluation and treatment, or reunited with their friends and families. Sometimes the missing person is found deceased and the agency of jurisdiction assumes command and control of the investigation and follow-up actions. Early in the incident, using the Planning Process, the PSC and the OSC develop a rescue and evacuation contingency plan and a reasonable set of alternatives to address what actions are to occur when the missing person is located. The OSC then adapts and implements the rescue and evacuation plan as needed and appropriate.

Infrequently the missing person is not located by the search effort, and the IMT, in collaboration with the Agency Administrator (AA), must make the difficult decision to transition to a Limited Continuous Search, a state in which there is no active searching, see Section 16.3 on page 178. When this occurs, the Planning Section plays an important role in ensuring that the decision making process considers all of the available information on the situation, the missing person, and the extent of the search effort.

In addition, every incident should have an After Action Review (AAR). Whether that review is an informal discussion among the members of the IMT and the Agency Administrator, or a formal review of the incident, the Planning Section provides the required documentation and participates in the Review.

This Chapter discusses the Planning Function in preparing for and participating in the Transition and After Action Review processes.

Section 16.2 Determining to Transition to Limited Continuous Search

A search cannot continue indefinitely. Sometimes, even the most well-run searches fail to locate the missing person. One of the most difficult decisions that the IC and the IMT have to make is the decision to transition to a Limited Continuous Search. While the decision to transition is not “cut and dried”, there are several situations that can help the IMT determine when suspension should be considered. These include:

- The conditions make searching unsafe for SAR personnel.
- The available resources are exhausted, and additional, experienced resources are not readily available.
- The probability of significant search personnel mishap or injury exceeds the probability of subject survival. See Figure 16.1.

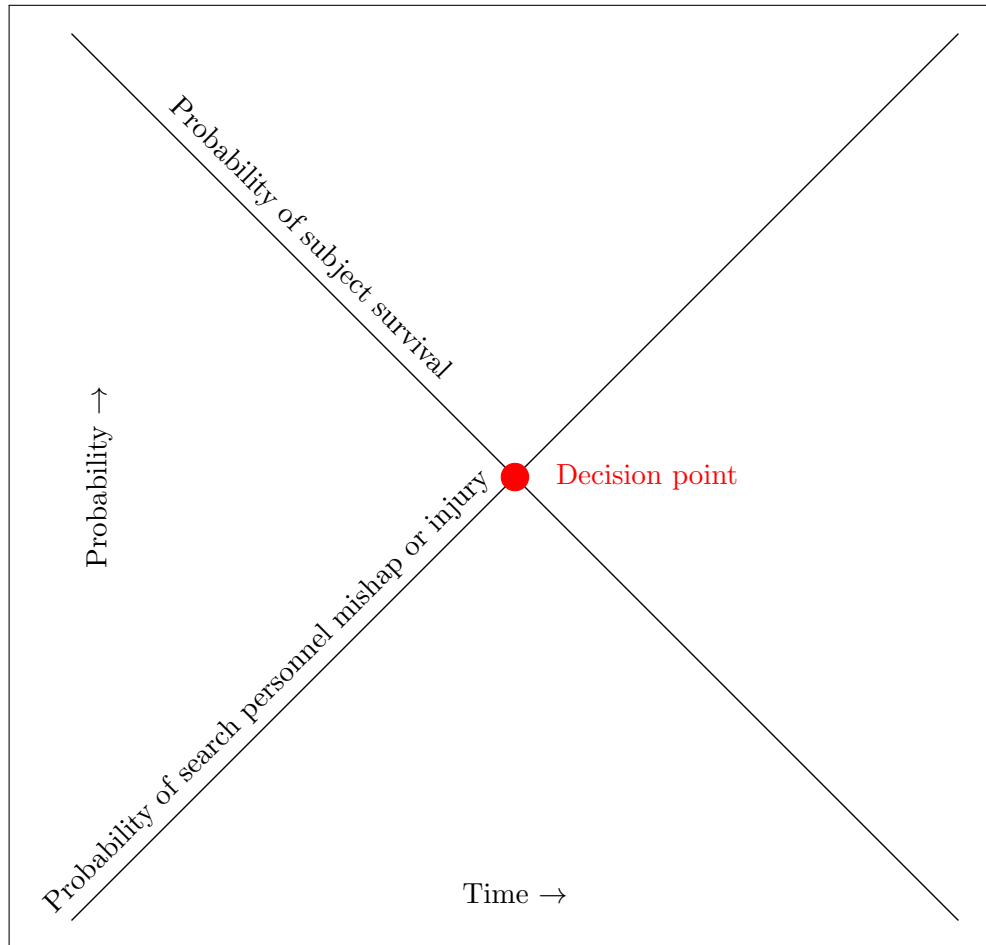


Figure 16.1. Probability of search personnel mishap or injury vs probability of subject survival, as a function of time

- The missing person's chances of survival are significantly diminished.
- Higher priority missions develop that are drawing resources from this incident.
- The investigation strongly indicates that the subject is not in the search area.
- The *ROW* (the probability that the subject is out of the search area) indicates that a transition is warranted.

Putting a time limit on a search—such as 3 days, and then reaching it—is not, by itself an acceptable reason to transition to a Limited Continuous Search. Numerous other factors must be evaluated and considered together before making the decision to transition.

Putting a time limit on a search—such as 3 days, and then reaching it—is not, by itself an acceptable reason to transition to a Limited Continuous Search.

Because the decision to transition is so difficult, a consensus process, involving the IMT members and the AA, is often used to make the final decision.

Usually the IC makes the decision to evaluate whether to transition the search incident when one or more of these situations exist. At that point, the PSC must gather and present all of the pertinent information about the incident for consideration by the IMT and AA.

This information includes, but certainly is not limited to:

- Subject survivability tables and data tailored to the missing person’s profile and situation. For example, see Section 20.3 on page 201.
- Current *POAs* and *CPODs* for each search segment and the *ROW*.
- Extent of physical coverage of each segment and any areas that have not been actively searched (“holes in the search area”).
- Hazard locations and severity of each.
- Unresolved clues.
- Investigative information related to possible criminal activity.
- Current resource status and condition.
- Potentially available resources—number, kind, type, and location.
- Equipment problems.
- Short and longer range weather forecasts.
- Political or family pressures to continue the search (this information is usually provided by the IC).
- Financial information (cost of search to date, funding availability for continuing efforts).
- Other information considered critical to making the decision to transition the search.

The ICS Planning Meeting format, described on page 151, is well suited for organizing and managing this “Transitioning to Limited Continuous Search Meeting”. The information listed is presented by the responsible Unit Leader or Section Chief, and all questions are answered before moving to the decision making process. At that point, a matrix such as that shown in Table 16.1, can be used to evaluate the IMT’s conclusions on essential elements of the decision.

Table 16.1. Transition to Limited Continuous Search Matrix

Factor	Rationale	For	Against
Survivability			
Search Area Coverage			
Likelihood in the ROW			
Hazards			
Unresolved Clues			
Investigative Information			
Resources condition			
Additional resources availability			
Equipment condition/function			
Predicted weather			
Financial considerations			
Political considerations			
Other considerations (list)			

The decision to transition a search incident then depends upon the IMT’s and AA’s assessment of how each factor individually affects whether or not to transition, as well as whether the combination of factors supports transitioning the search incident.

The PSC ensures that this process and the matrix, as well as pertinent information relating to the decision making process, is documented for the incident file. The IC ensures that the AA concurs with

the decision. The IC and the AA make the announcement to the incident personnel, and the incident demobilization plan is implemented. Demobilization may not be immediate, because there may be some follow-up actions needed to complete field search assignments and the investigation of any unresolved clues.

An effort should be made to collect DNA samples from parents, siblings, or descendants for submission to the Combined DNA Index System (CODIS) Missing Persons Database. These samples may be useful if unidentified human remains are located in the future that could be related to the missing person. A consent form must be signed by the donors of the DNA material and submitted with the samples that are to be included in the Missing Person Database (see Figure 16.2). When unidentified remains are located and DNA is collected from those remains, the profile can be uploaded into the Missing Person Database. A query is run once a week against standards that are in the database.

PRESIDENT'S DNA INITIATIVE
Advancing Justice Through DNA Technology

NATIONAL MISSING PERSONS PROGRAM
Missing Person and Family Reference Sample Information Form

Name of Missing Person: _____
Last First MI

Missing Person's Date of Birth: _____ Age when missing: _____ Approx. Height: _____
Sex of Missing Person: ☐ Female ☐ Male Medical Anomalies (scars, marks, tattoos, medical devices, etc.): _____
Race: ☐ African American ☐ Asian ☐ Caucasian ☐ Hispanic ☐ Native American ☐ Other (Please Specify) _____

Are dental records available? ☐ Yes ☐ No
Date of Last Contact: _____
Location of Last Contact: _____

Family Member Providing Reference Sample: _____
Last First MI

Sex of Family Member: ☐ Female ☐ Male
Race: ☐ African American ☐ Asian ☐ Caucasian ☐ Hispanic ☐ Native American ☐ Other (Please Specify) _____

Relationship of Family Member to Missing Person: _____
Note: The most useful family reference DNA samples are from close blood relatives such as the missing person's biological mother, father, children, brothers, or sisters (indicated on chart below with * and #). However, close maternal relatives of the missing person allow for the analysis of both nuclear and mitochondrial DNA. If you have any questions regarding the selection of family members for reference sampling please call 1-800-763-3147.

CIRCLE BOX BELOW INDICATING RELATIONSHIP TO MISSING PERSON

Grandmother Grandfather Grandmother Grandfather

Aunt Uncle Mother* Father*

Female Cousin Male Cousin Sister* Brother*

MISSING PERSON* Spouse*

Second Cousin Niece Nephew Daughter* Son*

Great Niece Great Nephew Granddaughter Grandson Granddaughter Grandson

Any of the shaded boxes represent a potential maternal relative. In addition, if the missing person is female, any of her children are also considered a maternal relative.
* Primary Donor for nuclear DNA.

PRESIDENT'S DNA INITIATIVE
Advancing Justice Through DNA Technology

NATIONAL MISSING PERSONS PROGRAM
Consent for Collection, Testing and CODIS Entry Form

Name of Missing Person: _____
Last First MI

Family Member Reference Sample: _____
Last First MI

Relationship to Missing Person: _____ NCIC No.: _____

I understand that the answers provided on this form are correct to the best of my knowledge. I fully understand that my answers are critical to the process of identifying my missing family member.

I freely and voluntarily consent to provide oral swab samples for DNA analysis and entry into the Combined DNA Index System (CODIS) database, maintained by the FBI under authority of Title 42, United States Code, Section 14132. Law enforcement agencies having online access to the missing persons database may search against my DNA profile for potential matches. I understand that the information I have provided is protected by the Privacy Act notices for the National DNA Index System and the FBI's Central Records System as most recently published in the Federal Register. I also understand that my sample will be destroyed and my DNA profile will be removed from the CODIS database once my family member has been positively identified.

I authorize the appropriate law enforcement agent listed below to collect these samples for the sole purpose of identifying my missing family member. I have witnessed my swab samples being collected, and a barcode label with my name has been attached to each swab handle. The swabs were then placed in the sample collection pouch and sealed.

Signature of family member or legal guardian giving consent: _____ Date: _____

I, on _____ at _____: _____ a.m./p.m. have verified the identity of the individual who is providing the DNA sample. I then collected four swab samples from this individual, attached a label with his/her name to each swab, placed them in a sample collection pouch and then sealed the pouch.

Law Enforcement Agent collecting DNA swab samples: Print Name _____
Signature _____

I understand that I am not required or obligated to provide a DNA sample, and that my consent to have a DNA sample taken is knowingly and voluntarily made. I further consent to the use of my DNA profile in the anonymous population database to aid in statistical inferences. The database will not contain any of my personal information, and the DNA profile cannot be associated with me as a donor.

Signature of family member or legal guardian giving consent: _____ Date: _____

Figure 16.2. Missing person DNA consent

Additionally there is a Missing Persons Database called 'NamUS' online at <http://www.findthemmissing.org>. An agency or an individual can enter missing person information into the database for comparison to other cases. The Missing and Unidentified Persons (MUPS) database should be updated as well. These tasks might be conducted by the Investigator assigned to the incident or by the agency of jurisdiction.

Section 16.3 Limited Continuous Search Mode

The PSC and the OSC should develop and document a plan for a "Limited Continuous Search" that is given to the AA to guide follow-up actions, such as conducting training missions in the search area,

posting missing person flyers around the search area, contacting persons working or recreating in the area, and following up on any clues that might be discovered later. In the Limited Continuous Search Mode there is no active searching other than training missions, but if any clues are discovered they are investigated, and if warranted, active searching is resumed. The agency of jurisdiction keeps pertinent information about the case available to those working and recreating in the area.

For example, if a search in limited continuous search mode, contains an area where hunting takes place, then the agency of jurisdiction could work with game and fish departments to send mailings to hunters who have drawn tags in the area so that they are alert for any potential clues while in the area. Posting flyers at land management agency offices, trail heads, and visitor centers where people are picking up permits for use in the area can also be valuable. Finally there may be areas where biological, archaeological, or geological research is occurring. Researchers can be contacted and advised about the missing person. Land management agencies and universities often track carnivorous wildlife such as bears, wolves, wolverines and mountain lions with satellite or radio collars. Those animals may be attracted to a person's remains.

Section 16.4 After Action Review

An After Action Review (AAR) should be conducted following every SAR incident. An AAR is a tool designed to evaluate an incident in order to improve performance by supporting strengths and correcting weaknesses of the plan, the responders, and the response. On small scale incidents the AAR may be informal and conducted around the hood of a vehicle or at the ICP. For larger and more complex incidents, the AAR may be held more appropriately in a formal setting a short time after the incident is concluded.¹

The goal of each type of review is the same. Important aspects of the AAR include determining:

- How did this incident occur?
- How could it have been prevented?
- What worked well, and should be incorporated into the next incident response?
- What did not work well, and could be improved before the next incident?
- What else should be done on the next incident?

The AAR is not the place to point fingers or place blame, rather it should be a learning exercise so that improvements can be made, and successful actions can be repeated. Lessons learned from past searches are the basis for improving search management. Much of successful search management comes from learning from each other. Sharing the lessons learned and the near misses helps everyone do a better job.

Lessons learned from past searches are the basis for improving search management.

On smaller incidents, the content of the AAR may not be documented, but on large or complex incidents, the Planning Section may be actively involved in preparing for, and documenting the results of the AAR.

Preparing for the AAR requires that the PSC develop a chronological summary of the important events of the incident. This summary is used as a guide and memory refresher for those participating in the AAR. Both the full incident report and the agency search preplan are important reference documents, and should be made available to all attendees.

¹ The AAR should be held within a few days or weeks after the incident is concluded or transitioned, depending upon how long it takes to complete the incident report and gather the required participants together.

The IC is responsible for conducting the AAR, unless the AA determines that someone else, outside the IMT conducts it. During the AAR, participants should identify any changes that need to be made to the preplan, training, equipment or future response protocols, and the actions required to effect these changes. The IC and/or the participants then determine who is responsible for completing each action, and when it is to be done.

If the IC is from the agency having jurisdiction, the IC may be responsible for ensuring that the recommended changes are made following the AAR. The PSC may facilitate the accountability process by developing a written AAR follow up action plan, or matrix. This action plan or matrix should include all of the follow-up action assignments made during the AAR, the person responsible for each assignment, and the due dates for completion. The IC and/or the AA can then use this plan to ensure that all actions are completed as assigned.

CHAPTER 17

Demobilization: Getting Everyone Home Safely

Section 17.1 Overview

It is the Demobilization Unit Leader's (DMOB) responsibility to prepare and distribute the Demobilization Plan. To do so, the DMOB must accurately predict the probable scope of the demobilization effort, coordinate the demobilization planning effort, and prepare and distribute the Demobilization Plan. This chapter discusses the process required to prepare and implement an effective Demobilization Plan.

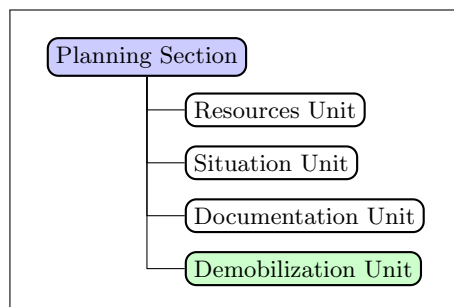


Figure 17.1. Demobilization Unit

A Demobilization Unit Leader Job Action Sheet can be found on page 284.

Section 17.2 What is Demobilization?

Demobilization is the process of checking out and moving all incident resources safely home from an incident. Although sometimes overlooked, or poorly planned and executed, demobilizing the incident personnel and equipment is an important part of an incident. The IC is responsible for all incident resources from the time they leave their home bases enroute to the incident until they arrive home from the incident. Getting everyone home safely, cost effectively and timely is a key component of good incident management. In some ways, demobilization may be as important as the search operations because of the morale and physical condition of the incident personnel at the time of demobilization. When people are tired they are more accident prone. Numerous searchers have been severely injured or killed in traffic accidents driving home from a search. It is important to have a work/rest policy for the incident to ensure that search personnel are adequately rested prior to being demobilized. Remember, an effective demobilization leaves a lasting, positive impression on incident responders.

Numerous searchers have been severely injured or killed in traffic accidents driving home from a search.

Demobilization is not a mirror image of mobilization. Mobilizing resources to an incident involves a large number of people who identify available resources in often widely separated, diverse locations. This large group of people also arranges transportation to the incident, moving the resources from those various, widely separated locations to a single location in the most efficient and timely manner possible. Demobilization is the responsibility of a few people to get the incident resources from a single point back to their diverse home bases. While demobilization communication and dispatch channels may remain the same as in mobilization, the procedures may vary.

Demobilization usually occurs at the end of an incident. However, in search incidents using volunteer resources, demobilization may be required on a daily basis. Volunteer resources may travel some distance to participate in the search for only an operational period, and then need to be demobilized and returned home to be available for their regular jobs. Demobilization on a search is often an ongoing and complicated process.

Death of an Incident Commander, Virginia

Five-year-old boy Victor Shoemaker was reported missing and lost after wandering away from kids he was playing with in the mountains of Hampshire County near the town of Kirby, WV. At 8 o'clock on the morning of May 3, 1994, 24-year-old Lisa Hannon had just been relieved as Incident Commander by fellow Appalachian Search and Rescue Conference (VA) members. Lisa had worked tirelessly through the night to organize the massive search operation that would eventually involve over 1,000 personnel. She had not slept in 23 hours. Twenty minutes after sliding in behind the wheel of her truck, Lisa fell asleep while driving and struck a tree on U.S. Route 50 at full speed, killing her instantly. Lisa's death was the first line-of-duty death for the State of Virginia Search & Rescue Program. See Reference [Dixon].

Section 17.3

The Demobilization Process

Types of Demobilization

There are two general types of demobilization: Sudden or instantaneous demobilization and scaled-down demobilization. Sudden or instantaneous demobilization occurs when the missing person is found. In sudden demobilization, all resources must be quickly transported from the field to the incident base, debriefed, rested as necessary, and then, after checking in all incident equipment, transported back to their home bases. The timing of sudden demobilization is unpredictable. It is important to have predetermined demobilization priorities and a standard process for both supervisors and the resources to follow to ensure that everyone is accounted for, and no one is left in the field. Thus, demobilization planning should begin when the resources arrive on the incident.

Scaled-down demobilization may occur when a search is suspended. Daily demobilization of volunteer resources also falls under scaled-down demobilization. Scaled-down demobilization is predictable, and can be planned and executed over a period of time. Generally there are fewer resources requiring demobilization at one time, and there is time to explain the demobilization process to those involved in advance.

Demobilizing search incidents involving small numbers of local resources from one or two agencies or organizations with their own transportation generally does not require a written plan. The demobilization process is usually simple, and can be explained verbally to the resources. However, on larger

operations involving many resources, a variety of different kinds of resources, and numerous agencies or organizations, a written plan is necessary to ensure a smooth, efficient and safe demobilization.

Demobilization Planning

Demobilization planning starts with Check-In, when critical information on each arriving resource is collected from page 4 of ICS 201, Incident Briefing (see page 207), or ICS 211, Incident Check-In List (see page 254). Information such as the resources' agencies, home bases, methods of transportation and numbers of personnel is useful in developing the demobilization plan. The Demobilization Unit can obtain copies of these documents from the RESL or the DOCL.

The IC and Planning Section plan for demobilizing short-term resources early in the incident, usually no later than the end of the first operational period. Further demobilization planning generally occurs during the ensuing operational periods, and the scope of the demobilization plan then expands to cover all incident resources under the following circumstances:

1. When the IC or PSC note that there are few or no new resource orders being made by the General Staff.
2. When the end of the incident is in sight (such as determining to suspend the incident).
3. When there are numbers of unassigned resources on the incident.

Formal demobilization planning begins with the Demobilization Planning Meeting.

Demobilization Planning Meeting

The purpose of the Demobilization Planning meeting is to gather all the information necessary to develop and write the Incident Demobilization Plan.¹ The meeting is scheduled and managed by the IC, and should occur within the first few operational periods. The PSC conducts the Demobilization Planning Meeting, using a format similar to the Operational Period Planning Meetings. DMOB attends the meeting and listens very carefully, so they can lead the preparation of the Demobilization Plan.

The Demobilization Plan consists of five parts:

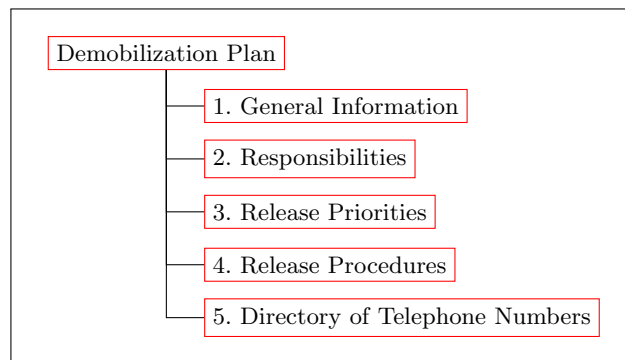


Figure 17.3. Five Parts of a Demobilization Plan

1. **General Information**—This section includes a general discussion of the demobilization procedures for the incident, as well as any information required to orient incident personnel to the demobilization process.

¹ There is no ICS form for this.



Figure 17.2. Check-In

2. **Responsibilities**—This section includes the specific responsibilities, by function, for key implementation activities in the demobilization process. It also describes who has responsibility for initiating the plan. This section establishes a clear chain of command for the demobilization process, and documents the activities that are to occur at specific locations on the incident to execute the plan.
3. **Release Priorities**—This section documents the release priorities approved by the IC. Release priorities are dictated by the incident situation, logistical requirements, resource needs and constraints. While not cut in stone, release priorities are often determined according to the following model:
 - 1st Priority: Local volunteer resources
 - 2nd Priority: Military resources
 - 3rd Priority: Out of state non-federal resources
 - 4th Priority: Out of state federal resources
 - 5th Priority: Local cooperating agency
 - 6th Priority: Agency of jurisdiction resources
4. **Release Procedures**—This section describes the demobilization process in chronological order by function, in enough detail that incident personnel know what actions are required and in what order, where to go, and what to do in each location. Procedures for Checkout are found on ICS 221, Demobilization Check-Out (see page 268).
5. **Directory of Telephone Numbers**—This section includes the name and phone numbers of all of the key dispatch centers, incident facilities, and transportation hubs used during the demobilization process.

The Demobilization Plan is prepared by DMOB, reviewed by PSC and approved by the IC. A Sample Demobilization Plan is shown in Section 17.4 on the next page.

Responsibilities in the Demobilization Process

The IC sets release priorities, manages the demobilization planning meeting, and approves the Demobilization Plan.

The PSC, or DMOB if delegated, prepares the transportation manifests, notifies personnel of specific times for release, provides individuals/team leaders with ICS 221s, ensures all incident documentation is submitted to the Documentation Unit.

The LSC ensures return of all accountable property and non-expendable equipment issued on the incident, and arranges transportation as needed based upon transportation manifests.

The FSC ensures that personnel time records, injury reports and claims reports are completed and submitted, and collects all individual performance evaluations.

Plan Distribution

Copies of the final Demobilization Plan should be distributed to all individuals and key locations playing a role in the demobilization process. This includes agency dispatch centers, Command and General Staff, checkout locations, and transportation hubs.

Summary

Demobilization planning to get incident personnel and resources home safely is a critical part of the PSC job. Inadequate planning, or initiating planning too late results in angry incident and agency personnel, increased incident costs, a poor image of the IMT, missing supplies and equipment, and potential legal problems. Remember, everyone is tired after working on the incident, and no one should

be allowed to operate a motor vehicle without adequate rest. A good demobilization plan helps ensure that this common safety issue is identified and avoided!

Section 17.4 Sample Demobilization Plan

Howard Search Incident Demobilization Plan

July 24, _____

General Information

The remote location of the Howard Search, and the extended transportation times associated with demobilization from the incident to the participating Units home bases dictate that all surplus resources will be held in the Incident Base upon return from the field, until they have met the sleep and rest guidelines set by the Incident Commander. No one will leave the incident base until they are specifically authorized to do so.

Rest/sleep guidelines

1. No person will be released prior to obtaining a minimum of four hours of off-shift rest time. Exceptions require the specific approval of the Incident Commander.
2. All released resources must be able to arrive back at their home base no later than 2200 hours.

Party chiefs, team leaders, and individual overhead will be thoroughly briefed prior to leaving the incident. The briefing will include:

- Method of travel
- Route of travel
- Estimated time of arrival at home base
- Re-contact information enroute

Responsibilities

1. Command and General Staff will initiate releases of surplus resources by submitting proposed releases to the Planning Section.
2. The Planning Section will compile the proposed releases and submit them to the Incident Commander for review and approval.
3. After Incident Commander approval, the Planning Section, after consulting with the Logistics Section, will develop release and transportation manifests.
4. The DMOB will notify surplus personnel of their release date and time.
5. The Logistics Section will clear all items checked out from the Supply Unit or Communications Unit.
6. The Finance/Administration Section will complete all personnel and equipment reports, and collect all overhead and crew/team performance ratings.
7. The Logistics Section will arrange transportation to the final destination, advise the Planning Section when this has been done, and will collect the Demobilization Checkout Form, ICS 221.
8. The Planning Section will notify the local Agency Dispatch Center when released resources have left the incident. This notification will include departure time, final destination, method of travel, estimated time of arrival at final destination, re-contact information.
9. Each Team Leader or individual overhead will call back to the Howard Incident Communications Center upon arrival at their home base.

Release Priorities

The following release priorities have been approved by the Incident Commander:

1. Local volunteer resources
2. Military resources
3. Out of state non-federal resources
4. Out of state federal resources
5. Local cooperating agency
6. Agency of jurisdiction resources

Release Procedures

The following release procedures will apply to the Howard Search Incident Demobilization Process:

1. Command and General Staff will identify surpluses and submit the list to the Planning Section.
2. Planning Section will combine surplus resources by category (crews/teams, overhead, equipment) and prepare tentative release lists.
3. Planning Section will get Incident Commander's approval for all releases.
4. Demobilization Unit Leader will:
 - Notify all personnel of pending release date and time
 - Provide resources with a Demobilization Checkout Form ICS 221
 - Describe checkout procedures to involved personnel
5. Demobilizing personnel will check out with the various Sections as follows:
 - Documentation Unit: turn in incident related documentation.
 - Finance/Administration: finalize personnel time reports, claims for damages, injury reports, turn in performance ratings.
 - Logistics Section: turn in surplus equipment and non-expendable items, turn in Demobilization Checkout ICS 221, and obtain transportation from the incident.

Directory of Telephone Numbers

<i>Howard Search Communications Center</i>	<i>907-683-7743</i>
<i>Denali National Park Dispatch Center</i>	<i>907-683-9555</i>
<i>Alaska State Troopers Dispatch Center</i>	<i>907-221-8532</i>
<i>SEA/TAC Transportation Desk</i>	<i>206-404-9000</i>

Approval

Prepared by: _____ Date: _____
 Demobilization Unit Leader

Concurred by: _____ Date: _____
 Planning Section Chief

Approved by: _____ Date: _____
 Incident Commander

CHAPTER 18

Summary of the Planning Function

Throughout this book, the various tasks that must be performed in the Planning Section in support of a missing person search incident have been discussed. As a member of the General Staff, the Search PSC is a critical position in managing an incident efficiently and effectively. To be successful the PSC must lead, manage and accomplish all of the following tasks:

- **Manage the Planning Section.** The PSC must organize, supervise and coach the members of the Planning Section to ensure that the Planning Function achieves its incident responsibilities. The PSC must also communicate effectively with all members of the Command and General Staff to obtain and disseminate information important to achieving the incident objectives.
- **Identify and track the status of all incident resources throughout the incident.** The PSC or the RESL must identify every resource assigned to the incident from the Initial Response to the final demobilization. In addition, the location and status of every resource and piece of equipment assigned to the incident must be tracked accurately on a continuing basis throughout the incident. This information must be available to incident and agency personnel at all times.
- **Collect, analyze and effectively use incident situation information.** The PSC or the SITL ensure that an Investigator is assigned at the first opportunity, early in the incident, and that the function is staffed throughout the incident. In addition, all subject information, weather information, terrain and vegetation information, as well as all incident assignments and the results of search efforts for each operational period must be captured, analyzed and displayed for use by the Command and General Staff.
- **Develop alternative strategies for accomplishing the incident objectives and resolving the incident.** Early in the incident, the PSC works with the OSC and the IC to develop and analyze a set of alternative incident strategies to accomplish the incident objectives. After the IC selects the preferred strategy, the PSC ensures that it is evaluated each operational period, and adjusted as necessary to guarantee the most effective and efficient use of search resources in resolving the search.
- **Develop the Incident Action Plan.** The PSC conducts the Planning Meeting. The PSC, RESL, and the SITL, if those positions are filled, ensure that all applicable information is provided at the Planning Meeting so that the IMT can develop the most effective plan for the next operational period. The PSC and staff complete their assigned ICS forms, and collect and collate the required forms from other Command and General Staff members into the current Incident Action Plan. The PSC obtains the IC's approval for the completed plan and makes adequate copies for distribution to all Incident supervisory staff.
- **Conduct timely, accurate, efficient Operational Period Briefings using the Incident Action Plan as the briefing document.** The PSC, and often the RESL and SITL, participate

in Operational Period Briefings with other members of the Command and General Staff. Often, the PSC conducts the Operational Period Briefing in the same format as the Planning Meeting to ensure that all incident personnel have the information they need to effectively and safely accomplish their work during the upcoming operational period. The PSC ensures that the Operational Period Briefings occur on schedule, and end on time so that incident resources' time in the field is maximized.

- **Maintain current, accurate, complete incident files.** The PSC or the DOCL collect, organize, file and preserve all important incident information in a central filing system. The Incident Documentation Package covers the duration of the incident, which starts with the ICS 201 and LPQ, and ends with the final demobilization forms. The DOCL also provides copy services for incident personnel, and may provide recorders for important meetings such as the Strategy Meetings, the Tactics Meetings, and the Planning Meetings.
- **Conduct efficient, effective debriefings of incident personnel.** The PSC and the SITL are responsible for debriefing all operational resources at the end of each operational period. They ensure that all crucial and pertinent information is gathered from each resource, and written down for use in evaluating progress toward accomplishing incident objectives, and in planning for future operational periods. All debriefing information is filed in the Documentation Unit.
- **Develop the incident demobilization plan.** The PSC or the DEMOB develops the Incident Demobilization Plan, and assists in executing that plan. A critical element of incident management, this is one of the most commonly overlooked areas of the incident. The safety and wellbeing of the searchers and other incident resources as they leave the incident and travel to their home bases is dependent on a well thought out, well executed Demobilization Plan.
- **Ensure that all of the incident documentation is complete, organized and turned over to the agency having jurisdiction over the incident.** The PSC and the DOCL are often the last to leave the incident because they must ensure that the final Incident Documentation Package is complete, organized and meets the agency having jurisdiction's standards. The incident is not over until the paperwork is done, and the PSC is the primary person responsible to see that this is accomplished to the standard set by the agency having jurisdiction.

Continuing Education

Beyond attending NIMS training courses related to the All Hazards Planning Function, there are sometimes opportunities to shadow local IMTs as they respond to fires, floods, and other all hazard emergency incidents. Contact your local Emergency Management Agency to explore these potential opportunities. Also, having a trained and experienced search management mentor on hand who has been through this process before, and who can share some lessons learned, is a great resource. As a member of a search IMT, consider requesting an experienced search management mentor to coach your team during training, or on your next incident.

A final thought: The IMT must carefully balance conducting search operations for the current operational period while planning for the next operational period. Learn to use the "Planning P" effectively. It is the PSC and their staff that ensure search planning is effective, timely, and efficient, so that everyone can focus their attention on doing the right things at the right time in the right way to find the missing person!

It is the PSC and their staff that ensure search planning is effective, timely, and efficient.

Good Luck!

Reference Materials

CHAPTER 19

Sample Delegation of Authority

File Code: _____

Date: _____

Subject: Delegation of Authority for the _____ Incident

To: _____, Incident Commander

Effective _____ hours, on _____ (date) _____, you are hereby delegated the authority to manage the _____ Search Incident in _____ (name of jurisdiction) _____.

You have full authority and responsibility for managing incident operations and associated costs to locate, stabilize, and evacuate the missing person within the framework of legal statute, current policy, and the broad direction provided in both your verbal and written briefing materials. You are accountable to me. A formal evaluation of your performance will be conducted prior to your departure from the incident.

Safety:

Accountability for personnel safety is your first and most important responsibility. All members of your team must observe a “Zero Tolerance” policy for any careless or unsafe action. Take all precautions to protect responders when operating in high risk environments. Please ensure that all responders follow accepted safe practices while enroute to, during and returning from this incident. Incident personnel who violate these practices are to be reprimanded and released from this incident.

Objectives:

- Provide for responder and public safety first.
- This is a time sensitive incident. Make every effort to locate, stabilize, and rescue the missing person within the next 24 hours.
- Manage the incident with a concern for fiscal integrity. Costs should be consistent with values at risk.
- Keep me informed of events as soon as is practicable.
- Manage the media interest relating to the incident, however, defer any policy questions to me.

Cost Accountability:

Provide the necessary search and rescue resources to resolve this search and rescue at a reasonable cost. By 10:00 am each morning, please provide me with a daily cost summary, by category, for this incident.

If it appears that the predicted costs of response to this incident will exceed \$_____ please contact me immediately so that I may review and approve any additional costs. Please be efficient, but safe in your operations.

Public Information:

Manage the local and national media contacts in coordination with my Public Information Officer. All political contacts are to be forwarded to me. Keep me informed of all political or potentially political aspects of the incident.

Please provide me an Incident Status Summary (ICS 209) and an in-person status briefing at 10:00 am each day, unless incident events preclude our meeting. If so, please reschedule with me for the first available opportunity.

Search Operations:

My priorities for this incident are described in the Objectives. In my absence, _____ will be my representative. _____ will be your Resource Advisor on any resource issues that may arise.

Resource Issues:

Sensitive resource and land management issues include minimizing impacts to threatened and endangered species, the use of motorized vehicles and aircraft in Wilderness Areas, and campfires in the backcountry. Please work closely with the Resource Advisor to minimize any impacts.

Central Ordering Point:

The central ordering point for all incident orders will be _____. I expect that all orders originating from the incident will go through this ordering point, unless you contact me for a waiver.

Human Resources:

Human Resource issues include the need to provide for training specialist and human resource specialist needs. I expect that all Human Resource issues will be reported to me personally. The incident is to be managed with Zero Tolerance for Sexual Harassment. Incident personnel who demonstrate any type of inappropriate behavior should be released immediately with appropriate follow up documentation. Inappropriate behavior includes use or possession of drugs, alcohol, sexual harassment, or any violation of agency personnel rules.

Be sure that you provide for, and meet the Incident Training needs and human resource objectives.

Incident Base:

Incident Base will be located at _____.

Incident Turn Back Standards:

I will set the Turn Back Standards as the incident progresses.

Final Payments:

Because of fiscal accountability issues, your team will be expected to prepare daily accruals and pay all obligations incurred on this incident. Work with the agency Administrative/Finance Chief _____ for specific requirements and assistance.

Should any problems or concerns arise, please contact me. I am prepared to discuss any needs or to revise or revisit this Delegation. Agency personnel can be reached at the following numbers:

Agency Administrator:
Deputy (or Acting):
Resource Advisor:
Public Affairs Officer:
Administration/Finance Chief:

Sincerely,

/s/

Agency Administrator

CHAPTER 20

Lost Person Data

Section 20.1

Lost Person Behavior

Table 20.1. Lost Person Behavior¹

Children 1–3	<p>They are unaware of the concept of being “lost”. Navigational skills and sense of direction are almost nonexistent. They tend to wander aimlessly. They often seek out the most convenient location to lie down and go to sleep:</p> <ul style="list-style-type: none">• Inside a log.• Under a thick bush.• Under an overhanging rock.• Under a picnic table.• Inside an automobile trunk.• Inside an abandoned appliance. <p>They are almost always very difficult to detect, as they are frequently out of sight and will rarely answer searchers’ calls. Because they tend to seek shelter in poor weather, their chances of survival are often quite good. However, their temperature coping mechanisms are not as strong as older children so their urgency factor rating is high.</p> <p>Children (all ages) are rarely able to find their own way out of the woods.</p> <p>Implications for search planning: a highly thorough search may be necessary. As small children rarely travel far, confinement is not usually a high priority when search resources are scarce.</p>
Children 4–6	<p>They are capable of traveling farther than younger children.</p> <p>They have a concept of being lost and will generally try to return home or go back to someplace familiar.</p> <p>They are frequently drawn away from homes or campsites by animals, following older children, or just exploring.</p> <p>Similar to younger children, they will usually seek shelter when tired, at nightfall, or when the weather becomes bad.</p> <p>Having been taught to avoid strangers, few children of this age will answer searchers calling their name, nor will they show themselves when searchers are near.</p> <p>Children (all ages) are rarely able to find their own way out of the woods.</p> <p>Implications for search planning: a highly thorough search may be required, with searchers focusing on visual clues.</p>
Continued on next page ...	

Children 7–12	<p>Their navigational and directional skills are much more developed than those of the younger child, and they are learning to construct primitive “mental maps” of their environments, which may be highly inaccurate.</p> <p>They frequently become lost while attempting a short cut to a familiar location. They may become extremely upset and confused when lost, seeming to react very irrationally. Lost children of this age frequently resort to trail running, which may take them some distance from the PLS. Subjects of this age may respond more maturely if accompanied by a friend or sibling.</p> <p>Children (all ages) are rarely able to find their own way out of the woods.</p> <p>Statistical data: an analysis of 9 cases of missing children (7-12 yrs) by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 89% (8 out of 9) survived. • 55% (5 out of 9) of the cases involved 2 or more subjects. • No child of this category found his/her own way out of the woods. <p>Implications for search planning: because of the distance they tend to travel, combined with their panicky state, the search for a child of this age can be particularly difficult. Confinement of trails, roadways, and other travel aids is a top priority.</p>
Climbers	<p>They are usually well equipped and self sufficient. They tend to remain on or near designated routes. A common factor for missing climbers is weather or hazardous conditions which limit their capabilities. Other important factors are falling debris and avalanches.</p> <p>Implications for search planning: technical expertise is usually needed for both search and rescue (or recovery) of climbers.</p>
Despondents	<p>These are individuals with a history of depression or suicide attempts, or who are explicitly described by family or friends as having been severely depressed or suicidal just before the incident. It is not usually their intention to travel very far, but to find a place where they can be alone and possibly contemplate suicide. Despondent individuals are frequently located at the interface between two types of terrain (for example, forest and meadow), and sometimes in a “scenic location” where they can sit and meditate, such as on a hill overlooking a lake or city. Despondents will rarely answer searchers’ calls, and will sometimes avoid or even hide from search teams. There is an extremely high fatality rate for this category, as despondents rarely take steps to protect themselves from the weather, and, in addition, drugs or alcohol may be involved.</p> <p>Statistical data: an analysis of 16 cases of missing despondents by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • None walked out to safety on their own. • None of the cases involved two or more subjects. • Only 35% survived (the remainder died from exposure or suicide). <p>Implications for search planning: the search for a despondent individual, even in moderate weather, should be considered highly urgent, likely requiring medical treatment and rescue. Confinement is not normally a high priority. While the search area may not be particularly large, the search should be thorough, as these subjects are often hard to detect and may not respond to sounds. Focus on likely spots and visual search methods.</p>
Elderly	<p>It is important not to underestimate the older subject merely because he or she is over the age of 65. Studies of elderly outdoor sportsmen, such as hunters, hikers, and fishermen, reveal that they are capable of traveling just as far when lost as younger subjects (Hill, 1992). More importantly, the elderly subject often behaves more rationally when lost than does his/her younger counterpart. The elderly subject may be more willing to build a shelter and prepare to be rescued by searchers. However, if the older person has Alzheimer’s disease or some other form of dementia, then the incident should be treated as a walkaway situation.</p> <p>Therefore, for adult subjects, it is the Lost Person’s Category, not his or her age as such, that is significant for search planning.</p>
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Fishermen	<p>Shore fishermen often become lost while traveling on a trail to or from their fishing site. Boat fishermen sometimes become disoriented while trying to find the spot from which they launched their boat. They may become overcome by darkness and forced to land in some unfamiliar location. There is a somewhat higher possibility of drowning for boat fishermen than for shore fishermen, especially if there is alcohol involved. Statistical data: an analysis of 25 cases of missing fishermen by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 88% of subjects survived (the remainder died of drowning or exposure). • 25% found their own way back to safety. • 32% of the cases involved 2 or more subjects. <p>Implications for search planning: a thorough investigation is imperative. For shore fishermen, identify the subject's favorite fishing sites, and whether he/she liked to move around a lot. Direction of wind and current may be important for locating the landing sites of lost boaters.</p>
Hikers	<p>Hikers are trail-oriented and often become lost when their trail is obscured for some reason, or when they encounter a confusing junction of intersecting paths. Because of their reliance on trails, hikers tend to travel farther than other lost person categories, although extreme distances are less frequent than for hunters. They are often less prepared and “woods-wise” than hunters and fishermen. Statistical data: an analysis of 501 cases of lost or overdue hikers (Mitchell, 1985) revealed the following characteristics:</p> <ul style="list-style-type: none"> • Only about 40% were considered to be adequately equipped. • 92% did not travel after the first 24 hours. • Between 30% and 40% traveled at night. • About 40% were located by a “hasty search”. <p>An analysis of 24 cases of missing hikers (adults only) by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 29% found their own way back to safety. • 92% survived. • 42% of the cases involved two or more subjects. <p>Implications for search planning: confinement is a top priority, especially trail blocks. Clue-aware searchers should be tasked to run all likely trails, paths, roads, and similar travel aids.</p>
Hunters	<p>Their concentration on game often distracts them from navigation. Hunters frequently become disoriented while chasing wounded game into thick areas of trees or brush. They tend to overextend themselves in darkness and push beyond their physical abilities. When game laws prescribe the wearing of “hunter orange”, these subjects can be easily detected from a distance or from a helicopter. Many hunters will fire shots if they believe searchers are looking for them, and will respond to sounds if they are able. Due to ego or game laws, many hunters will go to great lengths to walk out unassisted by search teams. The “typical” hunter will attempt to build a shelter at night, then walk out of the woods at daybreak. On average, about one in three lost hunters will manage to find their own way out. Statistical data: an analysis of 167 cases of lost or overdue hunters by Mitchell (1985) revealed the following characteristics:</p> <ul style="list-style-type: none"> • One in three missing hunters was overtaken by nightfall. • 39% followed a natural drainage. • Between 45% and 80% traveled at night. • 90% did not travel after the first 24 hours. • Between 25% and 45% found their own way out of the woods. <p>An analysis of 100 cases of lost or overdue hunters by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 16% of the cases involved 2 or more subjects. • 93% survived. • 24% found their own way out of the woods. <p>Implications for search planning: confinement is a priority, as some hunters travel long distances on trails or woods roads. Attraction methods (sirens, whistles, gunshots) may also be effective. Also look for clues off the trails, such as in drainages or along river banks.</p>

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Miscellaneous	<p>This category includes gatherers (for example, mushrooms, berries, other fruit), nature photographers, rock hounds, and people engaged in some outdoor occupational activity, such as surveyors, forestry employees, conservation officers, and park rangers. Many are inadequately equipped or clothed for an extended duration outdoors. Many subjects in this category are found away from trails, depending on the nature of the activity in which they had been involved. They are frequently located near natural boundaries, such as rivers and lake shores.</p> <p>Statistical data: an analysis of 26 cases of lost persons engaging in miscellaneous outdoor activity by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 96% survived. • 23% of the cases involved two or more subjects. • 31% of subjects found their own way back to safety. <p>Implications for search planning: investigation is especially important for a subject of this “mixed bag” category. Effort should be made to identify the relevant locations which may have attracted the person, as these may be the most likely to contain clues.</p>
Skiers	<p>Most are young and in fairly good physical condition. They are usually well equipped and dressed for the weather. Most become lost because they took the wrong route, or misjudged time and/or distance.</p> <p>Some skiers are made immobile by injury and may be vulnerable to hypothermia. They are usually wearing brightly colored clothing, which makes them highly detectable against the snow. With the advent of ski areas charging the lost person for search and rescue services, more skiers may use searchers as “offset aiming points” so they may find their own way out and avoid costs.</p> <p>Statistical data: an analysis of 87 cases of lost or overdue skiers (Mitchell, 1985) revealed the following characteristics:</p> <ul style="list-style-type: none"> • 50% found their own way back to safety. • When found by search teams, only 50% were mobile. • 83% stopped moving within the first 24 hours. • Between 30% and 45% traveled at night. <p>Implications for search planning: visual trackers should be especially effective for locating missing skiers.</p>
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Walkaways	<p>These are individuals who “walk away” from a constant-care situation, whether a hospital or a residence. This includes people with senile dementia (for example, Alzheimer’s disease), mentally retarded individuals, as well as person suffering from some debilitating form of mental illness (for example, psychosis). They rarely understand they are lost, and their wanderings may seem non-purposeful or at least non-predictable. They are almost never dressed appropriately for wet or severe weather conditions. They rarely respond to callers, and in some instances, such as with mentally retarded subjects, they may hide or even run from searchers. Persons suffering from Alzheimer’s disease (or related illnesses) may be attempting to return to some former home or place where they once enjoyed being (however far away that place may be). They often walk in a straight line until running into a barrier, then turn and continue in another directions (the so-called “pinball effect”). Eventually, they become entangled in brush or mired in mud, unable to continue. Some have even walked straight into a lake and drowned. Walkaways who are allowed some independence by an institution (or a person managing home care) with respect to going outside unsupervised, may travel farther than persons requiring more supervision. The fatality rate for subjects in this category is extremely high.</p> <p>Statistical data on Walkaways. An analysis of 22 cases of missing walkaways (general category) by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 45% were found dead (from exposure or drowning). • None walked out to safety on their own. • None called for help or answered searchers’ calls. <p>Statistical data on Alzheimer’s patients in particular: An analysis of 25 incidents involving missing Alzheimer’s patients revealed the following characteristics:</p> <ul style="list-style-type: none"> • Average age was 73 years (59% male). • Not one Alzheimer’s subject called for help from searchers. • 28% were found dead. • They were found a median distance of 1/2 mile from the PLS. <p>Implications for search planning: the search for a walkaway should be considered highly urgent. Man-trackers and trailing dogs may be especially effective, with air scent dog teams employed in high probability areas with dense vegetation. Because walkaways are usually very difficult to detect, often hidden under brush or in thickly treed areas, a highly thorough search may be necessary. Alzheimer’s patients, mentally retarded individuals, and other institutionalized walkaways are often found somewhere on the grounds of their respective institutions, so a thorough search should begin there. Confinement of Alzheimer’s patients is not normally a high priority, compared to other lost person categories, as these walkaways seldom travel great distances. However, be warned that some allegedly “frail” Alzheimer’s patients have traveled much farther than their caretakers had expected. As well, mentally retarded subjects have been known to hide from searchers and to flee when spotted. Recurring discrete patrols focusing on visual searching may be helpful.</p>
Youths 13–15	<p>Frequently become lost in groups of two or more people, while engaged in exploring or some other “adventuring” activity. When in groups, they will rarely travel very far. They will usually respond to searchers’ calls. They often resort to direction sampling, looking for some familiar place or landmark.</p> <p>Statistical data: an analysis of 20 cases of missing youths by Hill (1996) revealed that:</p> <ul style="list-style-type: none"> • 60% of the cases involved 2 or more missing subjects. • All subjects survived. • Only 10% found their own way out of the woods. <p>Implications for search planning: confinement is not usually a high priority unless the subject is alone.</p>

¹ Courtesy of Ken Hill, as quoted in NASAR’s “Managing The Lost Person Incident”.

Table 20.2. Overview Lost Person Behavior

Overview: Lost Adults	<ul style="list-style-type: none"> • Will bushwhack when they are “positive” they know the right direction. • Will usually stay on a trail if not absolutely certain of the correct direction. • May climb a hill to improve their view. • Rarely move around randomly. • Rarely attempt to travel in an arbitrary straight line. • Will rarely reverse direction on a trail unless absolutely certain they have been going the wrong way. • May attempt to apply “woods wisdom”, such as traveling downstream. • May “regress” to less effective methods when panicky.
Overview: Lost Children	<ul style="list-style-type: none"> • Have relatively poor “mental maps” of their environment. • Will usually search for familiar places rather than for routes (travel aids). • Are rarely good at judging direction or distance. • Often become lost when taking a “short cut” (ages 7 to 12). • Will often try “trail running” (ages 7 to 12). • May move randomly or unsystematically (ages 1 to 6). • May be extremely panicky. • Are rarely able to find their own way out of the woods. • Rarely answer searchers calling their name.

Section 20.2

Lost Person Behavior Distance Traveled

Arizona

Be cautious when using data with only a few cases.

All distances in miles.

Table 20.2. Distances Traveled by Lost Persons in Arizona, USA

Mission Category	Cases	Min	25%	50%	75%	100%	Mean
Aircraft Crashed	5	0.61	0.67	4.74	10.57	10.57	5.43
Aircraft Missing	3	18.93	18.93	18.93	18.93	18.93	18.93
Aircraft Overdue	5	2.36	2.36	12.05	12.05	12.05	8.17
ELT ELT	7	0.01	0.08	0.31	39.21	101.41	25.76
PLB PLB	1	0.04	0.04	0.04	0.04	0.04	0.04
Search Alzheimer	37	0.07	0.17	0.54	2.42	26.41	2.23
Search Camper	1	0.14	0.14	0.14	0.14	0.14	0.14
Search Child (1–3)	5	0.09	0.22	0.50	0.98	1.07	0.57
Search Child (4–6)	4	0.23	0.43	0.77	1.30	2.04	0.95
Search Child (7–12)	11	0.05	0.52	2.33	2.53	16.40	2.88
Search Despondent	17	0.05	0.37	0.81	4.37	23.96	3.62
Search Elderly	22	0.18	0.53	1.35	3.82	28.49	4.22
Search Hiker	430	0.04	0.87	1.66	3.56	43.84	2.94
Search Hunter	30	0.03	0.79	2.26	4.41	47.20	5.58
Search Mental	17	0.02	0.24	1.01	1.70	33.35	3.62
Search Not Necessary	9	0.01	0.49	2.58	7.02	28.22	6.59
Search Other	52	0.03	0.88	1.71	4.38	30.75	4.72
Search Snow skier/boarder	3	0.41	0.81	1.20	22.32	43.44	15.02
Search UDA	6	0.02	1.85	3.46	4.37	5.07	3.00
Search Walk Away	33	0.10	0.36	1.04	4.23	40.69	4.19
Search Youth(13-15)	16	0.10	0.21	0.36	0.81	42.86	3.14
Vehicle (2 Wheel)	39	1.09	1.92	8.94	13.00	65.23	10.05
Vehicle (4 Wheel)	59	1.20	2.25	9.16	17.21	157.85	13.83
Vehicle ATV	19	0.15	1.39	6.25	11.43	37.78	7.28
Vehicle Bike	4	0.83	1.00	1.13	6.16	21.07	6.04
Vehicle Horseback Rider	3	0.02	0.02	0.02	2.58	5.13	1.72
Vehicle Motorcycle	4	0.38	2.80	8.67	14.57	17.04	8.69
Vehicle UTV	3	1.33	1.35	1.37	9.50	17.63	6.78
Water Boater	7	1.37	3.46	3.46	3.84	4.22	3.38
Water Bystander	1	4.22	4.22	4.22	4.22	4.22	4.22
Water Fisherman	3	0.05	0.59	1.12	2.14	3.15	1.44
Water Rafter	6	1.11	3.83	8.14	10.44	10.44	6.91
Water Swimmer	2	0.15	2.72	5.30	7.87	10.44	5.30
Water Tuber	1	0.09	0.09	0.09	0.09	0.09	0.09

Compiled by Barry Scott, Arizona Division of Emergency Management, January 2012.

Explanation of Table 20.2. Look at the row for Hikers. There were 430 people in this category. 25% of them were found within a circle of radius 0.87 miles centered at the IPP. 50% were found within a 1.66 mile radius, 75% within a 3.56 mile radius, and 100% within a 43.84 mile radius. None were found within 0.04 miles of the IPP or farther than 43.84 miles from the IPP.

Nova Scotia

Table 20.3. Distances Traveled by Lost Persons in Nova Scotia, Canada

Category	Cases	25%	50%	75%	90%	Range	Survived
Children (1–6)	16	0.50 km 0.31 mi	1.03 km 0.64 mi	1.81 km 1.12 mi	2.02 km 1.26 mi	0.10–2.65 km 0.06–1.65 mi	100%
Children (7–12)	15	0.80 km 0.50 mi	1.48 km 0.92 mi	2.50 km 1.55 mi	3.20 km 1.99 mi	0.14–8.00 km 0.09–4.97 mi	96%
Youths (13–15)	23	0.86 km 0.53 mi	1.49 km 0.93 mi	3.00 km 1.86 mi	4.18 km 2.60 mi	0.40–7.00 km 0.25–4.35 mi	100%
Misc. Adults	49	0.75 km 0.47 mi	1.70 km 1.06 mi	3.57 km 2.22 mi	7.82 km 4.86 mi	0.10–19.00 km 0.06–11.81 mi	98%
Despondents	26	0.40 km 0.25 mi	0.81 km 0.50 mi	1.28 km 0.80 mi	1.60 km 0.99 mi	0.10–3.38 km 0.06–2.10 mi	54%
Dementia	41	0.40 km 0.25 mi	1.00 km 0.62 mi	1.46 km 0.91 mi	2.40 km 1.49 mi	0.10–5.43 km 0.06–3.37 mi	73%
Fishermen	38	0.92 km 0.57 mi	1.77 km 1.10 mi	4.15 km 2.58 mi	6.01 km 3.73 mi	0.45–17.70 km 0.28–11.00 mi	91%
Hikers	53	1.35 km 0.84 mi	2.23 km 1.39 mi	4.80 km 2.98 mi	7.52 km 4.67 mi	0.22–24.00 km 0.14–14.91 mi	94%
Hunters	127	1.30 km 0.81 mi	2.39 km 1.49 mi	3.83 km 2.38 mi	8.00 km 4.97 mi	0.10–19.31 km 0.06–12.00 mi	94%

Compiled by Ken Hill, Halifax Regional SAR, August, 2006.

Explanation of Table 20.3. Look at the row for Children (1–6). There were 16 children in this category. 25% of them were found within a circle of radius 0.31 mi centered at the IPP. 50% were found within a 0.64 mi radius, 75% within a 1.12 mi radius, 90% within a 1.26 mi radius, and 100% within a 1.65 mi radius. None were found within 0.06 mi of the IPP.

Forested Wilderness Areas in U.S.

Table 20.4. Distances Traveled for Lost Persons in Forested Wilderness Areas in U.S.

Category	Cases	Hilly or Mountainous Terrain					Flat Terrain				
		Median	25%	50%	75%	Max	Median	25%	50%	75%	Max
Children (1–6 yrs)	22	0.3 ↓	0.1 ↑ 0.5 ↓	0.5 ↑ 0.5 ↓	1.5 ↑ 1.4 ↓	89% 1.6 ↑ 2.6 ↓	1.1	1.0–1.6	0.6–1.7	0.5–2.1	0.0–2.2
Children (6–12 yrs)	24	1.6 ↓	1.0 ↓ 2.0 ↓	0.5 ↑ 2.1 ↓	2.0 ↑ 4.0 ↓	92% 2.6 ↑ 4.1 ↓	1.2	0.8–1.2	0.7–2.0	0.2–2.2	0.0–3.0
Elderly	24	1.2 ↓	0.5 ↓ 1.8 ↓	0.0 2.4 ↓	0.4 ↑ 2.6 ↓		1.0	0.8–1.0	0.7–1.2	0.1–1.3	0.0–3.0
Hikers	44	2.5 ↓	2.0 ↓ 3.0 ↓	0.6 ↓ 2.0 ↓	0.4 ↑ 6.1 ↓		2.0	1.4–2.4	1.0–3.2	0.2–3.3	0.0–4.0
Hunters	100	2.0 ↓	1.8 ↓ 2.8 ↓	0.7 ↓ 3.1 ↓	0.8 ↑ 4.0 ↓	93% 3.0 ↑ 6.0 ↓	1.6	1.0–1.6	0.9–2.2	0.1–2.3	0.0–3.0
Misc.	15	1.6 ↓	0.6 ↓ 1.6 ↓	0.0 3.0 ↓	1.4 ↑ 3.1 ↓	84% 2.5 ↑ 3.2 ↓	1.6	1.1–1.6	0.5–1.8	0.1–2.8	0.0–4.0

Table 20.4 is a summary of some of the work of Syrotuck, see Reference [Syrotuck].

Explanation of Table 20.4 on the previous page. Look at the row for Children (1–6). There were 22 children in this category. The median distance from the IPP for this category in Hilly or Mountainous Terrain was 0.3 miles downwards, and in flat terrain was 1.1 miles. 25% of the subjects in Hilly or Mountainous Terrain were found between 0.1 miles upwards and 0.5 miles downwards from the IPP, whereas in flat terrain they were found between 1.0 and 1.6 miles from the IPP.

Section 20.3 Survivability

To quote Syrotuck (see Reference [Syrotuck, page 57]): *“It is difficult to predict who will and who will not survive under a given set of circumstances.”*

By analyzing data from New York and Washington State, Syrotuck found that, **of those subjects who died**,

- 45% were dead within 1 day.
- 74% were dead within 2 days.
- 83% were dead within 3 days.
- 92% were dead within 4 days.
- The remaining 8% took longer than 4 days to die.

He also found that

- 4% of children who were found dead in good weather, whereas 66.6% died in bad weather.²
- 11% of adults who were found dead in good weather, whereas 53.3% died in bad weather.
- 35% of the elderly who were found dead in good weather, whereas 67% died in bad weather.

Kelley (see Reference [Kelley, pages 20–33]) also studied survivability and concluded that subjects³ who died from hypothermia survived for a maximum of

- 3 days when the temperature⁴ was 0°F.
- 4 days when the temperature was 10°F.
- 6 days when the temperature was 20°F.
- 8 days when the temperature was 30°F.

However, at all these temperatures some subjects died from hypothermia on the first day—some within hours of being lost.

Adolph (see Reference [Adolph]) studied the days of expected survival of immobile, responsive subjects (these were military personnel who were not lost) in a desert environment in terms of the amount of water available. See Table 20.5.

Table 20.5. Days of Expected Survival in Terms of Available Quarts of Water and Temperature in Shade

Quarts of Water →	0	1	2	4	10	20
Max. Temp °F ↓						
120	2	2	2	2.5	3	4.5
110	3	3	3.5	4	5	7
100	5	5.5	6	7	9.5	13.5
90	7	8	9	10.5	15	23
80	9	10	11	13	19	29

² Bad weather is defined as temperatures below 45°F at any time while the subject is lost combined with some rain or snow, or temperatures above 45°F with extensive rain.

³ Kelley defines a subject as being a 25-year-old male wearing clothing similar to a suit.

⁴ This temperature includes the effects of wind chill.

Explanation of Table 20.5 on the previous page. Look at the row for 120°F. Subjects who had 0, 1, or 2 quarts of water available, had a life expectancy of 2 days. Those who had 4, 10, or 20 quarts of water available, had a life expectancy of 2.5, 3, or 4.5 days respectively.

Having said all this, be aware that there are some amazing survival stories. For example, on May 8, 2011, 56-year-old Rita Chretien of Penticton, B.C., was found after being lost for 48 days in the Nevada backcountry. The Chretiens were en route from their Penticton home to a Las Vegas trade show on March 19, 2011, when their 2000 Chevrolet Astro van became stuck on a muddy U.S. Forest Service road in a cold, untamed, mountainous, remote region near where Oregon, Idaho and Nevada meet. They got lost because they were “foolishly following a GPS without a lot of experience”. Her husband went searching for help on March 22, but did not return. Rita survived for more than seven weeks by staying put, eating snow and granola bars. On May 16, 2011, the search for her husband, Albert, was suspended until weather and snow conditions improved.⁵

⁵ In August 2011, Elko County sheriff’s deputies ended their efforts to locate Albert Chretien after attempts continued to offer no clues to the missing man’s whereabouts. “We’re assuming that he is deceased and that his remains have been scattered,” said Elko County Sheriff’s Lt. Marvin Morton. On September 29, 2012, his remains were found in a secluded area about 7 miles west of the vehicle by a pair of local hunters. The remains were intact and had not been scattered by animals. Chretien had been heading in the right direction and was not too far from a road, but his journey was likely hampered by deep snow.

CHAPTER 21

Search Urgency Rating Chart

This chart is based on the work of Bill Wade. See Reference [Setnicka, pages 60–62].

Table 21.1. Search Urgency Rating Chart

Factors	Rating
AGE OF SUBJECT:	
Very Young	1
Very Old	1
Other	2 – 3
MEDICAL CONDITION OF SUBJECT:	
Known/Suspected injured, ill, or mental problem	1 – 2
Healthy	3
Known fatality	3
NUMBER OF SUBJECTS:	
One alone	1
More than one (unless separated)	2 – 3
SUBJECT EXPERIENCE PROFILE:	
Not experienced, does not know area	1
Not experienced, knows area	1 – 2
Experienced, not familiar with area	2
Experienced, knows area	3
WEATHER PROFILE:	
Past and/or existing hazardous weather	1
Predicted hazardous weather (less than 8 hrs.)	1 – 2
Predicted hazardous weather (more than 8 hrs.)	2
No hazardous weather predicted	3
EQUIPMENT PROFILE	
Inadequate for environment and weather	1
Questionable for environment and weather	1 – 2
Adequate for environment and weather	3
TERRAIN/HAZARDS PROFILE	
Known hazardous terrain or other hazards	1
Few or no hazards	2 – 3
TOTAL: (between 7 and 21)	

One number in each category (row) is selected. In some categories there is a choice of numbers, for example, under “AGE OF SUBJECT:”, “Other”, either a “2” or a “3” can be selected. After selection, the numbers are totalled giving the numerical rating. The lower the numerical rating, the higher the relative emergency. See Figure 21.1. All ratings are relative and their total indicates a possible relative urgency.

<u>7</u>	14	<u>21</u>
Highest Urgency	Intermediate Urgency	Lowest Urgency

Figure 21.1. Relative urgency and numerical rating

All other factors bearing on the incident need to be evaluated by the IC to establish the final emergency level. However, if any of the categories in Table 21 on the previous page is rated a “1”, then consider responding immediately with high priority. Otherwise, the preponderance of checked categories provides an indication of the urgency level.

In the event that there is more than one missing subject, a single search urgency rating chart is completed based on the worst case situation for each person in the group. This errs on the side of caution and generates a higher urgency rating compared to any individual in the group. The possibility that a group has split should always be considered and investigated.

Table 21 on the previous page is available in Win CASIE III and in ICS-SAR.

CHAPTER 22

PSC Kit

What follows is a suggested PSC kit.

- Laptops (loaded with Win CASIE III, ICS SAR, Clue Manager, SAR T-Cards, Communications Manager, Terrain Navigator Pro, ARC GIS, MapSAR).
- People trained to use the software.
- Printer Kit (printer, paper, ink, cord, ...).
- Copy Machine Kit (copy machine, paper, ink, cord, ...).
- Camera Kit (digital camera, memory cards, batteries).
- Scanner.
- Power conditioners.
- Projector.
- Laser pointer.
- Handheld radios (6).
- Satellite Phones (2-3).
- Pelican Case(s).
- GPS units (6).
- GPS convertor Cables.
- Universal Chargers and cables for an assortment of electronic devices.
- ICS Forms ICS 201 through ICS 221 (paper and electronic copies).
- SAR Briefing/Debriefing Forms (paper).
- Dry erase boards (2-4) with pens and erasers.
- Laminated enlarged Operational Planning Worksheet ICS 215.
- Command Identifiers (vests with removable position cards).
- Zip lock bags.
- Procedure manual.
- Miscellaneous stationary and supplies: Ruler, protractor, pens and pencils, pads of paper, scissors, Exacto knife, glue sticks, paper clips, stapler, extra staples, evidence or clue tags, expandable file folders.
- Map template to estimate segment sizes.
- T-card organizer (2).
- Supply of T-Cards, ICS 219, for anticipated resources.
- Laminated or plasticized large-scale maps of the search area.
- Mylar for overlays.
- Dry erase markers thin and thick points, assortment of colors.
- Masking tape.
- Color headed push pins.
- Hand calculator.
- Reference guides (MLPI, FOG, ISM, Find 'EM: A Guide for Planning the Missing Person Incident Response).
- Duct Tape.
- Flagging tape.
- Electronic fillable ICS forms (I-Suite).

CHAPTER 23

ICS Forms

All 2010 ICS forms can be downloaded in PDF format as one document directly from FEMA at <http://www.fema.gov/emergency/nims/JobAids.shtm>. The same forms in Microsoft® Word format can be downloaded as one document from <http://www.saraz.org> under the *External Link* menu item.

The PDF 2010 ICS forms are documents that can be completed electronically using Adobe® Reader. However, a completed document can only be printed. It cannot be saved, which is a problem if the document is partially completed. This problem can be circumvented by downloading the program “PDF-XChange Lite” from http://www.tracker-software.com/free_lite_home.html. Loading an ICS Form into this allows the user to partially complete it, save it, and complete it at a later date.

PDF Forms with multiple pages have boxes such as “Incident Name”, “Date and Time Prepared”, and “Prepared By” repeated at the top of every page. If these boxes are completed on the first page, then the corresponding boxes on subsequent pages are automatically populated.

Table 23.1. ICS Forms

Form Name		Prepare	Required Approval
201	Incident Briefing	Initial Response IC	None
202	Incident Objectives	PSC	IC
203	Organization Assignment List	RESL/PSC	None
204	Field Assignment	RESL	None
205	Incident Radio Communications Plan	COML/LSC	None
206	Medical Plan	MEDL/LSC	SO
207	Organizational Chart	RESL	None
209	Incident Status Summary	RESL/SITL/PSC	None
211	Incident Check-In Lists	Check-In Recorder/RESL	None
214	Activity Log		
215	Operational Planning Worksheet	OSC, PSC	RESL & SO
215A	Incident Action Plan Safety Analysis	SO	None
220	Air Operations Summary	AOBD/OSC	None
221	Demobilization Check-Out	DMOB	PSC

ICS 201—Incident Briefing

INCIDENT BRIEFING (ICS 201)		
1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: _____
4. Map/Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment):		
5. Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.		
6. Prepared by: Name: _____ Position/Title: _____ Signature:		
ICS 201, Page 1		Date/Time: _____

Figure 23.1. ICS 201—Page 1

[illegible]

INCIDENT BRIEFING (ICS 201)			
1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: _____	
9. Current Organization (fill in additional organization as appropriate):			
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 10px; text-align: center;">Incident Commander(s)</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Liaison Officer</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Safety Officer</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Public Information Officer</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Planning Section Chief</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Operations Section Chief</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Finance/Administration Section Chief</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Logistics Section Chief</div> </div>			
6. Prepared by: Name: _____ Position/Title: _____ Signature: _____			
ICS 201, Page 3		Date/Time: _____	

Figure 23.3. ICS 201—Page 3

INCIDENT BRIEFING (ICS 201)					
1. Incident Name:		2. Incident Number:		3. Date/Time Initiated: Date: Time:	
10. Resource Summary:					
Resource	Resource Identifier	Date/Time Ordered	ETA	Arrived	Notes (location/assignment/status)
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
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				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
6. Prepared by: Name: _____		Position/Title: _____		Signature: _____	
ICS 201, Page 4		Date/Time: _____			

Figure 23.4. ICS 201—Page 4

Instructions for Completing ICS 201—Incident Briefing

ICS 201**Incident Briefing**

Purpose. The Incident Briefing (ICS 201) provides the Incident Commander (and the Command and General Staffs) with basic information regarding the incident situation and the resources allocated to the incident. In addition to a briefing document, the ICS 201 also serves as an initial action worksheet. It serves as a permanent record of the initial response to the incident.

Preparation. The briefing form is prepared by the Incident Commander for presentation to the incoming Incident Commander along with a more detailed oral briefing.

Distribution. Ideally, the ICS 201 is duplicated and distributed before the initial briefing of the Command and General Staffs or other responders as appropriate. The "Map/Sketch" and "Current and Planned Actions, Strategies, and Tactics" sections (pages 1–2) of the briefing form are given to the Situation Unit, while the "Current Organization" and "Resource Summary" sections (pages 3–4) are given to the Resources Unit.

Notes:

- The ICS 201 can serve as part of the initial Incident Action Plan (IAP).
- If additional pages are needed for any form page, use a blank ICS 201 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Date/Time Initiated • Date, Time	Enter date initiated (month/day/year) and time initiated (using the 24-hour clock).
4	Map/Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment)	Show perimeter and other graphics depicting situational status, resource assignments, incident facilities, and other special information on a map/sketch or with attached maps. Utilize commonly accepted ICS map symbology. If specific geospatial reference points are needed about the incident's location or area outside the ICS organization at the incident, that information should be submitted on the Incident Status Summary (ICS 209). North should be at the top of page unless noted otherwise.
5	Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.	Self-explanatory.
6	Prepared by • Name • Position/Title • Signature • Date/Time	Enter the name, ICS position/title, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
7	Current and Planned Objectives	Enter the objectives used on the incident and note any specific problem areas.

Figure 23.5. ICS 201 Instructions Page 1

Block Number	Block Title	Instructions
8	Current and Planned Actions, Strategies, and Tactics <ul style="list-style-type: none"> Time Actions 	Enter the current and planned actions, strategies, and tactics and time they may or did occur to attain the objectives. If additional pages are needed, use a blank sheet or another ICS 201 (Page 2), and adjust page numbers accordingly.
9	Current Organization (fill in additional organization as appropriate) <ul style="list-style-type: none"> Incident Commander(s) Liaison Officer Safety Officer Public Information Officer Planning Section Chief Operations Section Chief Finance/Administration Section Chief Logistics Section Chief 	<ul style="list-style-type: none"> Enter on the organization chart the names of the individuals assigned to each position. Modify the chart as necessary, and add any lines/spaces needed for Command Staff Assistants, Agency Representatives, and the organization of each of the General Staff Sections. If Unified Command is being used, split the Incident Commander box. Indicate agency for each of the Incident Commanders listed if Unified Command is being used.
10	Resource Summary	Enter the following information about the resources allocated to the incident. If additional pages are needed, use a blank sheet or another ICS 201 (Page 4), and adjust page numbers accordingly.
	• Resource	Enter the number and appropriate category, kind, or type of resource ordered.
	• Resource Identifier	Enter the relevant agency designator and/or resource designator (if any).
	• Date/Time Ordered	Enter the date (month/day/year) and time (24-hour clock) the resource was ordered.
	• ETA	Enter the estimated time of arrival (ETA) to the incident (use 24-hour clock).
	• Arrived	Enter an "X" or a checkmark upon arrival to the incident.
	• Notes (location/assignment/status)	Enter notes such as the assigned location of the resource and/or the actual assignment and status.

Figure 23.6. ICS 201 Instructions Page 2

ICS 202—Incident Objectives

INCIDENT OBJECTIVES (ICS 202)		
1. Incident Name:	2. Operational Period: Date From: _____ Date To: _____ Time From: _____ Time To: _____	
3. Objective(s):		
4. Operational Period Command Emphasis:		
General Situational Awareness		
5. Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/> Approved Site Safety Plan(s) Located at:		
6. Incident Action Plan (the items checked below are included in this Incident Action Plan):		
<input type="checkbox"/> ICS 202 <input type="checkbox"/> ICS 203 <input type="checkbox"/> ICS 204 <input type="checkbox"/> ICS 205 <input type="checkbox"/> ICS 205A	<input type="checkbox"/> ICS 206 <input type="checkbox"/> ICS 207 <input type="checkbox"/> ICS 208 <input type="checkbox"/> Map/Chart <input type="checkbox"/> Weather Forecast/Tides/Currents	Other Attachments: <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____
7. Prepared by: Name: _____ Position/Title: _____ Signature:		
8. Approved by Incident Commander: Name: _____ Signature:		
ICS 202	IAP Page _____	Date/Time: _____

Figure 23.7. ICS 202

Instructions for Completing ICS 202—Incident Objectives

ICS 202 Incident Objectives

Purpose. The Incident Objectives (ICS 202) describes the basic incident strategy, incident objectives, command emphasis/priorities, and safety considerations for use during the next operational period.

Preparation. The ICS 202 is completed by the Planning Section following each Command and General Staff meeting conducted to prepare the Incident Action Plan (IAP). In case of a Unified Command, one Incident Commander (IC) may approve the ICS 202. If additional IC signatures are used, attach a blank page.

Distribution. The ICS 202 may be reproduced with the IAP and may be part of the IAP and given to all supervisory personnel at the Section, Branch, Division/Group, and Unit levels. All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 202 is part of the IAP and can be used as the opening or cover page.
- If additional pages are needed, use a blank ICS 202 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident. If needed, an incident number can be added.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Objective(s)	Enter clear, concise statements of the objectives for managing the response. Ideally, these objectives will be listed in priority order. These objectives are for the incident response for this operational period as well as for the duration of the incident. Include alternative and/or specific tactical objectives as applicable. Objectives should follow the SMART model or a similar approach: <u>S</u> pecific – Is the wording precise and unambiguous? <u>M</u> easurable – How will achievements be measured? <u>A</u> ction-oriented – Is an action verb used to describe expected accomplishments? <u>R</u> ealistic – Is the outcome achievable with given available resources? <u>T</u> ime-sensitive – What is the timeframe?
4	Operational Period Command Emphasis	Enter command emphasis for the operational period, which may include tactical priorities or a general weather forecast for the operational period. It may be a sequence of events or order of events to address. This is not a narrative on the objectives, but a discussion about where to place emphasis if there are needs to prioritize based on the Incident Commander's or Unified Command's direction. Examples: Be aware of falling debris, secondary explosions, etc.
	General Situational Awareness	General situational awareness may include a weather forecast, incident conditions, and/or a general safety message. If a safety message is included here, it should be reviewed by the Safety Officer to ensure it is in alignment with the Safety Message/Plan (ICS 208).
5	Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Safety Officer should check whether or not a site safety plan is required for this incident.
	Approved Site Safety Plan(s) Located At	Enter the location of the approved Site Safety Plan(s).

Figure 23.8. ICS 202 Instructions—Page 1

Block Number	Block Title	Instructions
6	Incident Action Plan (the items checked below are included in this Incident Action Plan): <ul style="list-style-type: none"> <input type="checkbox"/> ICS 202 <input type="checkbox"/> ICS 203 <input type="checkbox"/> ICS 204 <input type="checkbox"/> ICS 205 <input type="checkbox"/> ICS 205A <input type="checkbox"/> ICS 206 <input type="checkbox"/> ICS 207 <input type="checkbox"/> ICS 208 <input type="checkbox"/> Map/Chart <input type="checkbox"/> Weather Forecast/Tides/Currents <u>Other Attachments:</u>	Check appropriate forms and list other relevant documents that are included in the IAP. <ul style="list-style-type: none"> <input type="checkbox"/> ICS 202 – Incident Objectives <input type="checkbox"/> ICS 203 – Organization Assignment List <input type="checkbox"/> ICS 204 – Assignment List <input type="checkbox"/> ICS 205 – Incident Radio Communications Plan <input type="checkbox"/> ICS 205A – Communications List <input type="checkbox"/> ICS 206 – Medical Plan <input type="checkbox"/> ICS 207 – Incident Organization Chart <input type="checkbox"/> ICS 208 – Safety Message/Plan
7	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature 	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
8	Approved by Incident Commander <ul style="list-style-type: none"> • Name • Signature • Date/Time 	In the case of a Unified Command, one IC may approve the ICS 202. If additional IC signatures are used, attach a blank page.

Figure 23.9. ICS 202 Instructions—Page 2

ICS 203—Organization Assignment List

ORGANIZATION ASSIGNMENT LIST (ICS 203)			
1. Incident Name:		2. Operational Period: Date From: _____ Date To: _____ Time From: _____ Time To: _____	
3. Incident Commander(s) and Command Staff:		7. Operations Section:	
IC/UCs		Chief	
		Deputy	
Deputy		Staging Area	
Safety Officer		Branch	
Public Info. Officer		Branch Director	
Liaison Officer		Deputy	
4. Agency/Organization Representatives:		Division/Group	
Agency/Organization	Name	Division/Group	
		Division/Group	
		Division/Group	
		Division/Group	
		Division/Group	
		Branch	
		Branch Director	
		Deputy	
5. Planning Section:		Division/Group	
Chief		Division/Group	
Deputy		Division/Group	
Resources Unit		Division/Group	
Situation Unit		Division/Group	
Documentation Unit		Branch	
Demobilization Unit		Branch Director	
Technical Specialists		Deputy	
		Division/Group	
		Division/Group	
		Division/Group	
6. Logistics Section:		Division/Group	
Chief		Division/Group	
Deputy		Air Operations Branch	
Support Branch		Air Ops Branch Dir.	
Director			
Supply Unit			
Facilities Unit		8. Finance/Administration Section:	
Ground Support Unit		Chief	
Service Branch		Deputy	
Director		Time Unit	
Communications Unit		Procurement Unit	
Medical Unit		Comp/Claims Unit	
Food Unit		Cost Unit	
9. Prepared by: Name: _____		Position/Title: _____ Signature:	
ICS 203	IAP Page _____	Date/Time: _____	

Figure 23.10. ICS 203

Instructions for Completing ICS 203—Organization Assignment List

ICS 203 Organization Assignment List

Purpose. The Organization Assignment List (ICS 203) provides ICS personnel with information on the units that are currently activated and the names of personnel staffing each position/unit. It is used to complete the Incident Organization Chart (ICS 207) which is posted on the Incident Command Post display. An actual organization will be incident or event-specific. **Not all positions need to be filled.** Some blocks may contain more than one name. The size of the organization is dependent on the magnitude of the incident, and can be expanded or contracted as necessary.

Preparation. The Resources Unit prepares and maintains this list under the direction of the Planning Section Chief. Complete only the blocks for the positions that are being used for the incident. If a trainee is assigned to a position, indicate this with a "T" in parentheses behind the name (e.g., "A. Smith (T)").

Distribution. The ICS 203 is duplicated and attached to the Incident Objectives (ICS 202) and given to all recipients as part of the Incident Action Plan (IAP). All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 203 serves as part of the IAP.
- If needed, more than one name can be put in each block by inserting a slash.
- If additional pages are needed, use a blank ICS 203 and repaginate as needed.
- ICS allows for organizational flexibility, so the Intelligence/Investigations Function can be embedded in several different places within the organizational structure.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Incident Commander(s) and Command Staff <ul style="list-style-type: none"> • IC/UCs • Deputy • Safety Officer • Public Information Officer • Liaison Officer 	Enter the names of the Incident Commander(s) and Command Staff. Label Assistants to Command Staff as such (for example, "Assistant Safety Officer"). For all individuals, use at least the first initial and last name. For Unified Command, also include agency names.
4	Agency/Organization Representatives <ul style="list-style-type: none"> • Agency/Organization • Name 	Enter the agency/organization names and the names of their representatives. For all individuals, use at least the first initial and last name.
5	Planning Section <ul style="list-style-type: none"> • Chief • Deputy • Resources Unit • Situation Unit • Documentation Unit • Demobilization Unit • Technical Specialists 	Enter the name of the Planning Section Chief, Deputy, and Unit Leaders after each position title. List Technical Specialists with an indication of specialty. If there is a shift change during the specified operational period, list both names, separated by a slash. For all individuals, use at least the first initial and last name.

Figure 23.11. ICS 203 Instructions—Page 1

Block Number	Block Title	Instructions
6	Logistics Section <ul style="list-style-type: none"> • Chief • Deputy Support Branch <ul style="list-style-type: none"> • Director • Supply Unit • Facilities Unit • Ground Support Unit Service Branch <ul style="list-style-type: none"> • Director • Communications Unit • Medical Unit • Food Unit 	<p>Enter the name of the Logistics Section Chief, Deputy, Branch Directors, and Unit Leaders after each position title.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
7	Operations Section <ul style="list-style-type: none"> • Chief • Deputy • Staging Area Branch <ul style="list-style-type: none"> • Branch Director • Deputy • Division/Group Air Operations Branch <ul style="list-style-type: none"> • Air Operations Branch Director 	<p>Enter the name of the Operations Section Chief, Deputy, Branch Director(s), Deputies, and personnel staffing each of the listed positions. For Divisions/Groups, enter the Division/Group identifier in the left column and the individual's name in the right column.</p> <p>Branches and Divisions/Groups may be named for functionality or by geography. For Divisions/Groups, indicate Division/Group Supervisor. Use an additional page if more than three Branches are activated.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
8	Finance/Administration Section <ul style="list-style-type: none"> • Chief • Deputy • Time Unit • Procurement Unit • Compensation/Claims Unit • Cost Unit 	<p>Enter the name of the Finance/Administration Section Chief, Deputy, and Unit Leaders after each position title.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
9	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	<p>Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).</p>

Figure 23.12. ICS 203 Instructions—Page 2

ICS 204—Assignment List

ASSIGNMENT LIST (ICS 204)					
1. Incident Name:		2. Operational Period: Date From: _____ Date To: _____ Time From: _____ Time To: _____		3.	
				Branch:	
4. Operations Personnel: <u>Name</u>		<u>Contact Number(s)</u>		Division:	
Operations Section Chief: _____				Group:	
Branch Director: _____				Staging Area:	
Division/Group Supervisor: _____					
5. Resources Assigned:		# of Persons	Contact (e.g., phone, pager, radio frequency, etc.)	Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information	
Resource Identifier	Leader				
6. Work Assignments:					
7. Special Instructions:					
8. Communications (radio and/or phone contact numbers needed for this assignment):					
Name/Function		Primary Contact: indicate cell, pager, or radio (frequency/system/channel)			
/					
/					
/					
/					
9. Prepared by: Name: _____ Position/Title: _____ Signature: _____					
ICS 204	IAP Page _____	Date/Time: _____			

Figure 23.13. ICS 204

Instructions for Completing ICS 204—Assignment List

ICS 204 Assignment List

Purpose. The Assignment List(s) (ICS 204) informs Division and Group supervisors of incident assignments. Once the Command and General Staffs agree to the assignments, the assignment information is given to the appropriate Divisions and Groups.

Preparation. The ICS 204 is normally prepared by the Resources Unit, using guidance from the Incident Objectives (ICS 202), Operational Planning Worksheet (ICS 215), and the Operations Section Chief. It must be approved by the Incident Commander, but may be reviewed and initialed by the Planning Section Chief and Operations Section Chief as well.

Distribution. The ICS 204 is duplicated and attached to the ICS 202 and given to all recipients as part of the Incident Action Plan (IAP). In some cases, assignments may be communicated via radio/telephone/fax. All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 204 details assignments at Division and Group levels and is part of the IAP.
- Multiple pages/copies can be used if needed.
- If additional pages are needed, use a blank ICS 204 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Branch Division Group Staging Area	This block is for use in a large IAP for reference only. Write the alphanumeric abbreviation for the Branch, Division, Group, and Staging Area (e.g., "Branch 1," "Division D," "Group 1A") in large letters for easy referencing.
4	Operations Personnel <ul style="list-style-type: none"> • Name, Contact Number(s) <ul style="list-style-type: none"> – Operations Section Chief – Branch Director – Division/Group Supervisor 	Enter the name and contact numbers of the Operations Section Chief, applicable Branch Director(s), and Division/Group Supervisor(s).
5	Resources Assigned	Enter the following information about the resources assigned to the Division or Group for this period:
	• Resource Identifier	The identifier is a unique way to identify a resource (e.g., ENG-13, IA-SCC-413). If the resource has been ordered but no identification has been received, use TBD (to be determined).
	• Leader	Enter resource leader's name.
	• # of Persons	Enter total number of persons for the resource assigned, including the leader.
	• Contact (e.g., phone, pager, radio frequency, etc.)	Enter primary means of contacting the leader or contact person (e.g., radio, phone, pager, etc.). Be sure to include the area code when listing a phone number.
5 (continued)	• Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information	Provide special notes or directions specific to this resource. If required, add notes to indicate: (1) specific location/time where the resource should report or be dropped off/picked up; (2) special equipment and supplies that will be used or needed; (3) whether or not the resource received briefings; (4) transportation needs; or (5) other information.

Figure 23.14. ICS 204 Instructions—Page 1

Figure 23.15. ICS 204 Instructions—Page 2

ICS 205—Incident Radio Communications Plan

Figure 23.16. ICS 205

Instructions for Completing ICS 205—Incident Radio Communications Plan

ICS 205

Incident Radio Communications Plan

Purpose. The Incident Radio Communications Plan (ICS 205) provides information on all radio frequency or trunked radio system talkgroup assignments for each operational period. The plan is a summary of information obtained about available radio frequencies or talkgroups and the assignments of those resources by the Communications Unit Leader for use by incident responders. Information from the Incident Radio Communications Plan on frequency or talkgroup assignments is normally placed on the Assignment List (ICS 204).

Preparation. The ICS 205 is prepared by the Communications Unit Leader and given to the Planning Section Chief for inclusion in the Incident Action Plan.

Distribution. The ICS 205 is duplicated and attached to the Incident Objectives (ICS 202) and given to all recipients as part of the Incident Action Plan (IAP). All completed original forms must be given to the Documentation Unit. Information from the ICS 205 is placed on Assignment Lists.

Notes:

- The ICS 205 is used to provide, in one location, information on all radio frequency assignments down to the Division/Group level for each operational period.
- The ICS 205 serves as part of the IAP.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Date/Time Prepared	Enter date prepared (month/day/year) and time prepared (using the 24-hour clock).
3	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
4	Basic Radio Channel Use	Enter the following information about radio channel use:
	Zone Group	
	Channel Number	Use at the Communications Unit Leader's discretion. Channel Number (Ch #) may equate to the channel number for incident radios that are programmed or cloned for a specific Communications Plan, or it may be used just as a reference line number on the ICS 205 document.
	Function	Enter the Net function each channel or talkgroup will be used for (Command, Tactical, Ground-to-Air, Air-to-Air, Support, Dispatch).
	Channel Name/Trunked Radio System Talkgroup	Enter the nomenclature or commonly used name for the channel or talk group such as the National Interoperability Channels which follow DHS frequency Field Operations Guide (FOG).
	Assignment	Enter the name of the ICS Branch/Division/Group/Section to which this channel/talkgroup will be assigned.
	RX (Receive) Frequency (N or W)	Enter the Receive Frequency (RX Freq) as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places, followed by an "N" designating narrowband or a "W" designating wideband emissions. The name of the specific trunked radio system with which the talkgroup is associated may be entered across all fields on the ICS 205 normally used for conventional channel programming information.
	RX Tone/NAC	Enter the Receive Continuous Tone Coded Squelch System (CTCSS) subaudible tone (RX Tone) or Network Access Code (RX NAC) for the receive frequency as the mobile or portable subscriber would be programmed.

Figure 23.17. ICS 205 Instructions—Page 1

Block Number	Block Title	Instructions
4 (continued)	TX (Transmit) Frequency (N or W)	Enter the Transmit Frequency (TX Freq) as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places, followed by an "N" designating narrowband or a "W" designating wideband emissions.
	TX Tone/NAC	Enter the Transmit Continuous Tone Coded Squelch System (CTCSS) subaudible tone (TX Tone) or Network Access Code (TX NAC) for the transmit frequency as the mobile or portable subscriber would be programmed.
	Mode (A, D, or M)	Enter "A" for analog operation, "D" for digital operation, or "M" for mixed mode operation.
	Remarks	Enter miscellaneous information concerning repeater locations, information concerning patched channels or talkgroups using links or gateways, etc.
5	Special Instructions	Enter any special instructions (e.g., using cross-band repeaters, secure-voice, encoders, private line (PL) tones, etc.) or other emergency communications needs). If needed, also include any special instructions for handling an incident within an incident.
6	Prepared by (Communications Unit Leader) <ul style="list-style-type: none"> • Name • Signature • Date/Time 	Enter the name and signature of the person preparing the form, typically the Communications Unit Leader. Enter date (month/day/year) and time prepared (24-hour clock).

Figure 23.18. ICS 205 Instructions—Page 2

ICS 205A—Communications List

[illegible]

Figure 23.19. ICS 205A

Instructions for Completing ICS 205A—Communications List

**ICS 205A
Communications List**

Purpose. The Communications List (ICS 205A) records methods of contact for incident personnel. While the Incident Radio Communications Plan (ICS 205) is used to provide information on all radio frequencies down to the Division/Group level, the ICS 205A indicates all methods of contact for personnel assigned to the incident (radio frequencies, phone numbers, pager numbers, etc.), and functions as an incident directory.

Preparation. The ICS 205A can be filled out during check-in and is maintained and distributed by Communications Unit personnel. This form should be updated each operational period.

Distribution. The ICS 205A is distributed within the ICS organization by the Communications Unit, and posted as necessary. All completed original forms must be given to the Documentation Unit. If this form contains sensitive information such as cell phone numbers, it should be clearly marked in the header that it contains sensitive information and is not for public release.

Notes:

- The ICS 205A is an optional part of the Incident Action Plan (IAP).
- This optional form is used in conjunction with the ICS 205.
- If additional pages are needed, use a blank ICS 205A and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Basic Local Communications Information	Enter the communications methods assigned and used for personnel by their assigned ICS position.
	• Incident Assigned Position	Enter the ICS organizational assignment.
	• Name	Enter the name of the assigned person.
	• Method(s) of Contact (phone, pager, cell, etc.)	For each assignment, enter the radio frequency and contact number(s) to include area code, etc. If applicable, include the vehicle license or ID number assigned to the vehicle for the incident (e.g., HAZMAT 1, etc.).
4	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Figure 23.20. ICS 205A Instructions

ICS 206—Medical Plan

MEDICAL PLAN (ICS 206)							
1. Incident Name:		2. Operational Period: Date From:			Date To:		
		Time From:			Time To:		
3. Medical Aid Stations:							
Name	Location	Contact Number(s)/Frequency	Paramedics on Site?				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
			<input type="checkbox"/> Yes <input type="checkbox"/> No				
4. Transportation (indicate air or ground):							
Ambulance Service	Location	Contact Number(s)/Frequency	Level of Service				
			<input type="checkbox"/> ALS <input type="checkbox"/> BLS				
			<input type="checkbox"/> ALS <input type="checkbox"/> BLS				
			<input type="checkbox"/> ALS <input type="checkbox"/> BLS				
			<input type="checkbox"/> ALS <input type="checkbox"/> BLS				
5. Hospitals:							
Hospital Name	Address, Latitude & Longitude if Helipad	Contact Number(s)/Frequency	Travel Time		Trauma Center	Burn Center	Helipad
			Air	Ground			
					<input type="checkbox"/> Yes Level: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes Level: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes Level: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes Level: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes Level: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Special Medical Emergency Procedures:							
<input type="checkbox"/> Check box if aviation assets are utilized for rescue. If assets are used, coordinate with Air Operations.							
7. Prepared by (Medical Unit Leader): Name: _____ Signature:							
8. Approved by (Safety Officer): Name: _____ Signature:							
ICS 206		IAP Page _____		Date/Time: _____			

Figure 23.21. ICS 206

Instructions for Completing ICS 206—Medical Plan

**ICS 206
Medical Plan**

Purpose. The Medical Plan (ICS 206) provides information on incident medical aid stations, transportation services, hospitals, and medical emergency procedures.

Preparation. The ICS 206 is prepared by the Medical Unit Leader and reviewed by the Safety Officer to ensure ICS coordination. If aviation assets are utilized for rescue, coordinate with Air Operations.

Distribution. The ICS 206 is duplicated and attached to the Incident Objectives (ICS 202) and given to all recipients as part of the Incident Action Plan (IAP). Information from the plan pertaining to incident medical aid stations and medical emergency procedures may be noted on the Assignment List (ICS 204). All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 206 serves as part of the IAP.
- This form can include multiple pages.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Medical Aid Stations	Enter the following information on the incident medical aid station(s):
	• Name	Enter name of the medical aid station.
	• Location	Enter the location of the medical aid station (e.g., Staging Area, Camp Ground).
	• Contact Number(s)/Frequency	Enter the contact number(s) and frequency for the medical aid station(s).
	• Paramedics on Site? <input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate (yes or no) if paramedics are at the site indicated.
4	Transportation (indicate air or ground)	Enter the following information for ambulance services available to the incident:
	• Ambulance Service	Enter name of ambulance service.
	• Location	Enter the location of the ambulance service.
	• Contact Number(s)/Frequency	Enter the contact number(s) and frequency for the ambulance service.
	• Level of Service <input type="checkbox"/> ALS <input type="checkbox"/> BLS	Indicate the level of service available for each ambulance, either ALS (Advanced Life Support) or BLS (Basic Life Support).

Figure 23.22. ICS 206 Instructions—Page 1

Block Number	Block Title	Instructions
5	Hospitals	Enter the following information for hospital(s) that could serve this incident:
	• Hospital Name	Enter hospital name and identify any predesignated medivac aircraft by name a frequency.
	• Address, Latitude & Longitude if Helipad	Enter the physical address of the hospital and the latitude and longitude if the hospital has a helipad.
	• Contact Number(s)/ Frequency	Enter the contact number(s) and/or communications frequency(s) for the hospital.
	• Travel Time • Air • Ground	Enter the travel time by air and ground from the incident to the hospital.
	• Trauma Center <input type="checkbox"/> Yes Level: _____	Indicate yes and the trauma level if the hospital has a trauma center.
	• Burn Center <input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate (yes or no) if the hospital has a burn center.
	• Helipad <input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate (yes or no) if the hospital has a helipad. Latitude and Longitude data format need to compliment Medical Evacuation Helicopters and Medical Air Resources
6	Special Medical Emergency Procedures	Note any special emergency instructions for use by incident personnel, including (1) who should be contacted, (2) how should they be contacted; and (3) who manages an incident within an incident due to a rescue, accident, etc. Include procedures for how to report medical emergencies.
	<input type="checkbox"/> Check box if aviation assets are utilized for rescue. If assets are used, coordinate with Air Operations.	Self explanatory. Incident assigned aviation assets should be included in ICS 220.
7	Prepared by (Medical Unit Leader) • Name • Signature	Enter the name and signature of the person preparing the form, typically the Medical Unit Leader. Enter date (month/day/year) and time prepared (24-hour clock).
8	Approved by (Safety Officer) • Name • Signature • Date/Time	Enter the name of the person who approved the plan, typically the Safety Officer. Enter date (month/day/year) and time reviewed (24-hour clock).

Figure 23.23. ICS 206 Instructions—Page 2

ICS 208—Safety Message/Plan

SAFETY MESSAGE/PLAN (ICS 208)		
1. Incident Name:	2. Operational Period: Date From: _____ Time From: _____	Date To: _____ Time To: _____
3. Safety Message/Expanded Safety Message, Safety Plan, Site Safety Plan:		
4. Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/> Approved Site Safety Plan(s) Located At: _____		
5. Prepared by: Name: _____ Position/Title: _____ Signature: _____		
ICS 208	IAP Page _____	Date/Time: _____

Figure 23.24. ICS 208

Instructions for Completing ICS 208—Safety Message/Plan

ICS 208 Safety Message/Plan

Purpose. The Safety Message/Plan (ICS 208) expands on the Safety Message and Site Safety Plan.

Preparation. The ICS 208 is an optional form that may be included and completed by the Safety Officer for the Incident Action Plan (IAP).

Distribution. The ICS 208, if developed, will be reproduced with the IAP and given to all recipients as part of the IAP. All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 208 may serve (optionally) as part of the IAP.
- Use additional copies for continuation sheets as needed, and indicate pagination as used.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Safety Message/Expanded Safety Message, Safety Plan, Site Safety Plan	Enter clear, concise statements for safety message(s), priorities, and key command emphasis/decisions/directions. Enter information such as known safety hazards and specific precautions to be observed during this operational period. If needed, additional safety message(s) should be referenced and attached.
4	Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Check whether or not a site safety plan is required for this incident.
	Approved Site Safety Plan(s) Located At	Enter where the approved Site Safety Plan(s) is located.
5	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Figure 23.25. ICS 208 Instructions

ICS 209—Incident Status Summary

INCIDENT STATUS SUMMARY (ICS 209)				
*1. Incident Name:		2. Incident Number:		
*3. Report Version (check one box on left): <input type="checkbox"/> Initial Rpt # <input type="checkbox"/> Update (if used): <input type="checkbox"/> Final	*4. Incident Commander(s) & Agency or Organization:	5. Incident Management Organization:	*6. Incident Start Date/Time: Date: _____ Time: _____ Time Zone: _____	
7. Current Incident Size or Area Involved (use unit label – e.g., "sq mi," "city block"):	8. Percent (%) Contained Completed	*9. Incident Definition:	10. Incident Complexity Level:	*11. For Time Period: From Date/Time: _____ To Date/Time: _____
Approval & Routing Information				
*12. Prepared By: Print Name: _____ ICS Position: _____ Date/Time Prepared: _____			*13. Date/Time Submitted: Time Zone: _____	
*14. Approved By: Print Name: _____ ICS Position: _____ Signature: _____			*15. Primary Location, Organization, or Agency Sent To:	
Incident Location Information				
*16. State:	*17. County/Parish/Borough:		*18. City:	
19. Unit or Other:	*20. Incident Jurisdiction:		21. Incident Location Ownership (if different than jurisdiction):	
22. Longitude (indicate format): Latitude (indicate format):	23. US National Grid Reference:		24. Legal Description (township, section, range):	
*25. Short Location or Area Description (list all affected areas or a reference point):			26. UTM Coordinates:	
27. Note any electronic geospatial data included or attached (indicate data format, content, and collection time information and labels):				
Incident Summary				
*28. Significant Events for the Time Period Reported (summarize significant progress made, evacuations, incident growth, etc.):				
29. Primary Materials or Hazards Involved (hazardous chemicals, fuel types, infectious agents, radiation, etc.):				
30. Damage Assessment Information (summarize damage and/or restriction of use or availability to residential or commercial property, natural resources, critical infrastructure and key resources, etc.):	A. Structural Summary	B. # Threatened (72 hrs)	C. # Damaged	D. # Destroyed
	E. Single Residences			
	F. Nonresidential Commercial Property			
	Other Minor Structures			
	Other			
ICS 209, Page 1 of ____		* Required when applicable.		

Figure 23.26. ICS 209—Page 1

INCIDENT STATUS SUMMARY (ICS 209)					
*1. Incident Name:			2. Incident Number:		
<i>Additional Incident Decision Support Information</i>					
*31. Public Status Summary:	A. # This Reporting Period	B. Total # to Date	*32. Responder Status Summary:	A. # This Reporting Period	B. Total # to Date
<i>C. Indicate Number of Civilians (Public) Below:</i>			<i>C. Indicate Number of Responders Below:</i>		
D. Fatalities			D. Fatalities		
E. With Injuries/Illness			E. With Injuries/Illness		
F. Trapped/In Need of Rescue			F. Trapped/In Need of Rescue		
G. Missing (note if estimated)			G. Missing		
H. Evacuated (note if estimated)			H. Sheltering in Place		
I. Sheltering in Place (note if estimated)			I. Have Received Immunizations		
J. In Temporary Shelters (note if est.)			J. Require Immunizations		
K. Have Received Mass Immunizations			K. In Quarantine		
L. Require Immunizations (note if est.)					
M. In Quarantine					
<i>N. Total # Civilians (Public) Affected:</i>			<i>N. Total # Responders Affected:</i>		
33. Life, Safety, and Health Status/Threat Remarks:			*34. Life, Safety, and Health Threat Management: <div style="text-align: right; padding-right: 10px;">A. Check if Active</div>		
			<input type="checkbox"/>		
			<input type="checkbox"/>		
			<input type="checkbox"/>		
			<input type="checkbox"/>		
			<input type="checkbox"/>		
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			<input type="checkbox"/>		
			<input type="checkbox"/>		
35. Weather Concerns (synopsis of current and predicted weather; discuss related factors that may cause concern):					
36. Projected Incident Activity, Potential, Movement, Escalation, or Spread and influencing factors during the next operational period and in 12-, 24-, 48-, and 72-hour timeframes:					
12 hours:					
24 hours:					
48 hours:					
72 hours:					
Anticipated after 72 hours:					
37. Strategic Objectives (define planned end-state for incident):					
ICS 209, Page 2 of ____			* Required when applicable.		

Figure 23.27. ICS 209—Page 2

INCIDENT STATUS SUMMARY (ICS 209)	
*1. Incident Name:	2. Incident Number:
<i>Additional Incident Decision Support Information (continued)</i>	
38. Current Incident Threat Summary and Risk Information in 12-, 24-, 48-, and 72-hour timeframes and beyond. Summarize primary incident threats to life, property, communities and community stability, residences, health care facilities, other critical infrastructure and key resources, commercial facilities, natural and environmental resources, cultural resources, and continuity of operations and/or business. Identify corresponding incident-related potential economic or cascading impacts.	
12 hours: 24 hours: 48 hours: 72 hours: Anticipated after 72 hours:	
39. Critical Resource Needs in 12-, 24-, 48-, and 72-hour timeframes and beyond to meet critical incident objectives. List resource category, kind, and/or type, and amount needed, in priority order:	
12 hours: 24 hours: 48 hours: 72 hours: Anticipated after 72 hours:	
40. Strategic Discussion: Explain the relation of overall strategy, constraints, and current available information to: <ol style="list-style-type: none"> 1) critical resource needs identified above, 2) the Incident Action Plan and management objectives and targets, 3) anticipated results. <p>Explain major problems and concerns such as operational challenges, incident management problems, and social, political, economic, or environmental concerns or impacts.</p>	
41. Planned Actions for Next Operational Period:	
42. Projected Final Incident Size/Area (use unit label – e.g., "sq mi"):	
43. Anticipated Incident Management Completion Date:	
44. Projected Significant Resource Demobilization Start Date:	
45. Estimated Incident Costs to Date:	
46. Projected Final Incident Cost Estimate:	
47. Remarks (or continuation of any blocks above – list block number in notation):	
ICS 209, Page 3 of ____	* Required when applicable.

Figure 23.28. ICS 209—Page 3

Figure 23.29. ICS 209—Page 4

Instructions for Completing ICS 209—Incident Status Summary

ICS 209

Incident Status Summary

Purpose. The ICS 209 is used for reporting information on significant incidents. It is not intended for every incident, as most incidents are of short duration and do not require scarce resources, significant mutual aid, or additional support and attention. The ICS 209 contains basic information elements needed to support decisionmaking at all levels above the incident to support the incident. Decisionmakers may include the agency having jurisdiction, but also all multiagency coordination system (MACS) elements and parties, such as cooperating and assisting agencies/organizations, dispatch centers, emergency operations centers, administrators, elected officials, and local, tribal, county, State, and Federal agencies. Once ICS 209 information has been submitted from the incident, decisionmakers and others at all incident support and coordination points may transmit and share the information (based on its sensitivity and appropriateness) for access and use at local, regional, State, and national levels as it is needed to facilitate support.

Accurate and timely completion of the ICS 209 is necessary to identify appropriate resource needs, determine allocation of limited resources when multiple incidents occur, and secure additional capability when there are limited resources due to constraints of time, distance, or other factors. The information included on the ICS 209 influences the priority of the incident, and thus its share of available resources and incident support.

The ICS 209 is designed to provide a “snapshot in time” to effectively move incident decision support information where it is needed. It should contain the most accurate and up-to-date information available at the time it is prepared. However, readers of the ICS 209 may have access to more up-to-date or real-time information in reference to certain information elements on the ICS 209. Coordination among communications and information management elements within ICS and among MACS should delineate authoritative sources for more up-to-date and/or real-time information when ICS 209 information becomes outdated in a quickly evolving incident.

Reporting Requirements. The ICS 209 is intended to be used when an incident reaches a certain threshold where it becomes significant enough to merit special attention, require additional resource support needs, or cause media attention, increased public safety threat, etc. Agencies or organizations may set reporting requirements and, therefore, ICS 209s should be completed according to each jurisdiction or discipline’s policies, mobilization guide, or preparedness plans. It is recommended that consistent ICS 209 reporting parameters be adopted and used by jurisdictions or disciplines for consistency over time, documentation, efficiency, trend monitoring, incident tracking, etc.

For example, an agency or MAC (Multiagency Coordination) Group may require the submission of an initial ICS 209 when a new incident has reached a certain predesignated level of significance, such as when a given number of resources are committed to the incident, when a new incident is not completed within a certain timeframe, or when impacts/threats to life and safety reach a given level.

Typically, ICS 209 forms are completed either once daily or for each operational period – in addition to the initial submission. Jurisdictional or organizational guidance may indicate frequency of ICS 209 submission for particular definitions of incidents or for all incidents. This specific guidance may help determine submission timelines when operational periods are extremely short (e.g., 2 hours) and it is not necessary to submit new ICS 209 forms for all operational periods.

Any plans or guidelines should also indicate parameters for when it is appropriate to stop submitting ICS 209s for an incident, based upon incident activity and support levels.

Preparation. When an Incident Management Organization (such as an Incident Management Team) is in place, the Situation Unit Leader or Planning Section Chief prepares the ICS 209 at the incident. On other incidents, the ICS 209 may be completed by a dispatcher in the local communications center, or by another staff person or manager. This form should be completed at the incident or at the closest level to the incident.

The ICS 209 should be completed with the best possible, currently available, and verifiable information at the time it is completed and signed.

This form is designed to serve incidents impacting specific geographic areas that can easily be defined. It also has the flexibility for use on ubiquitous events, or those events that cover extremely large areas and that may involve many jurisdictions and ICS organizations. For these incidents, it will be useful to clarify on the form exactly which portion of the larger incident the ICS 209 is meant to address. For example, a particular ICS 209 submitted during a statewide outbreak of mumps may be relevant only to mumps-related activities in Story County, Iowa. This can be indicated in both the incident name, Block 1, and in the Incident Location Information section in Blocks 16–26.

Figure 23.30. ICS 209 Instructions—Page 1

While most of the “Incident Location Information” in Blocks 16–26 is optional, the more information that can be submitted, the better. Submission of multiple location indicators increases accuracy, improves interoperability, and increases information sharing between disparate systems. Preparers should be certain to follow accepted protocols or standards when entering location information, and clearly label all location information. As with other ICS 209 data, geospatial information may be widely shared and utilized, so accuracy is essential.

If electronic data is submitted with the ICS 209, do not attach or send extremely large data files. Incident geospatial data that is distributed with the ICS 209 should be in simple incident geospatial basics, such as the incident perimeter, point of origin, etc. Data file sizes should be small enough to be easily transmitted through dial-up connections or other limited communications capabilities when ICS 209 information is transmitted electronically. Any attached data should be clearly labeled as to format content and collection time, and should follow existing naming conventions and standards.

Distribution. ICS 209 information is meant to be completed at the level as close to the incident as possible, preferably at the incident. Once the ICS 209 has been submitted outside the incident to a dispatch center or MACS element, it may subsequently be transmitted to various incident supports and coordination entities based on the support needs and the decisions made within the MACS in which the incident occurs.

Coordination with public information system elements and investigative/intelligence information organizations at the incident and within MACS is essential to protect information security and to ensure optimal information sharing and coordination. There may be times in which particular ICS 209s contain sensitive information that should not be released to the public (such as information regarding active investigations, fatalities, etc.). When this occurs, the ICS 209 (or relevant sections of it) should be labeled appropriately, and care should be taken in distributing the information within MACS.

All completed and signed original ICS 209 forms **MUST** be given to the incident’s Documentation Unit and/or maintained as part of the official incident record.

Notes:

- To promote flexibility, only a limited number of ICS 209 blocks are typically required, and most of those are required only when applicable.
- Most fields are optional, to allow responders to use the form as best fits their needs and protocols for information collection.
- For the purposes of the ICS 209, responders are those personnel who are assigned to an incident or who are a part of the response community as defined by NIMS. This may include critical infrastructure owners and operators, nongovernmental and nonprofit organizational personnel, and contract employees (such as caterers), depending on local/jurisdictional/discipline practices.
- For additional flexibility only pages 1–3 are numbered, for two reasons:
 - Possible submission of additional pages for the Remarks Section (Block 47), and
 - Possible submission of additional copies of the fourth/last page (the “Incident Resource Commitment Summary”) to provide a more detailed resource summary.

Block Number	Block Title	Instructions
*1	Incident Name	REQUIRED BLOCK. <ul style="list-style-type: none"> • Enter the full name assigned to the incident. • Check spelling of the full incident name. • For an incident that is a Complex, use the word “Complex” at the end of the incident name. • If the name changes, explain comments in Remarks, Block 47. • Do not use the same incident name for different incidents in the same calendar year.

Figure 23.31. ICS 209 Instructions—Page 2

Block Number	Block Title	Instructions
2	Incident Number	<ul style="list-style-type: none"> Enter the appropriate number based on current guidance. The incident number may vary by jurisdiction and discipline. Examples include: <ul style="list-style-type: none"> A computer-aided dispatch (CAD) number. An accounting number. A county number. A disaster declaration number. A combination of the State, unit/agency ID, and a dispatch system number. A mission number. Any other unique number assigned to the incident and derived by means other than those above. Make sure the number entered is correct. Do not use the same incident number for two different incidents in the same calendar year. Incident numbers associated with host jurisdictions or agencies and incident numbers assigned by agencies represented in Unified Command should be listed, or indicated in Remarks, Block 47.
*3	Report Version (check one box on left)	REQUIRED BLOCK. <ul style="list-style-type: none"> This indicates the current version of the ICS 209 form being submitted. If only one ICS 209 will be submitted, check BOTH “Initial” and “Final” (or check only “Final”).
	<input type="checkbox"/> Initial	Check “Initial” if this is the first ICS 209 for this incident.
	<input type="checkbox"/> Update	Check “Update” if this is a subsequent report for the same incident. These can be submitted at various time intervals (see “Reporting Requirements” above).
	<input type="checkbox"/> Final	<ul style="list-style-type: none"> Check “Final” if this is the last ICS 209 to be submitted for this incident (usually when the incident requires only minor support that can be supplied by the organization having jurisdiction). Incidents may also be marked as “Final” if they become part of a new Complex (when this occurs, it can be indicated in Remarks, Block 47).
	Report # (if used)	Use this optional field if your agency or organization requires the tracking of ICS 209 report numbers. Agencies may also track the ICS 209 by the date/time submitted.
*4	Incident Commander(s) & Agency or Organization	REQUIRED BLOCK. <ul style="list-style-type: none"> Enter both the first and last name of the Incident Commander. If the incident is under a Unified Command, list all Incident Commanders by first initial and last name separated by a comma, including their organization. For example: L. Burnett – Minneapolis FD, R. Domanski – Minneapolis PD, C. Taylor – St. Paul PD, Y. Martin – St. Paul FD, S. McIntyre – U.S. Army Corps, J. Hartl – NTSB
5	Incident Management Organization	Indicate the incident management organization for the incident, which may be a Type 1, 2, or 3 Incident Management Team (IMT), a Unified Command, a Unified Command with an IMT, etc. This block should not be completed unless a recognized incident management organization is assigned to the incident.

Figure 23.32. ICS 209 Instructions—Page 3

Block Number	Block Title	Instructions
*6	Incident Start Date/Time	REQUIRED. This is always the start date and time of the incident (not the report date and time or operational period).
	Date	Enter the start date (month/day/year).
	Time	Enter the start time (using the 24-hour clock).
	Time Zone	Enter the time zone of the incident (e.g., EDT, PST).
7	Current Incident Size or Area Involved (use unit label – e.g., “sq mi,” “city block”)	<ul style="list-style-type: none"> • Enter the appropriate incident descriptive size or area involved (acres, number of buildings, square miles, hectares, square kilometers, etc.). • Enter the total area involved for incident Complexes in this block, and list each sub-incident and size in Remarks (Block 47). • Indicate that the size is an estimate, if a more specific figure is not available. • Incident size may be a population figure rather than a geographic figure, depending on the incident definition and objectives. • If the incident involves more than one jurisdiction or mixed ownership, agencies/organizations may require listing a size breakdown by organization, or including this information in Remarks (Block 47). • The incident may be one part of a much larger event (refer to introductory instructions under “Preparation”). Incident size/area depends on the area actively managed within the incident objectives and incident operations, and may also be defined by a delegation of authority or letter of expectation outlining management bounds.
8	Percent (%) Contained or Completed (circle one)	<ul style="list-style-type: none"> • Enter the percent that this incident is completed or contained (e.g., 50%), with a % label. • For example, a spill may be 65% contained, or flood response objectives may be 50% met.
*9	Incident Definition	REQUIRED BLOCK. Enter a general definition of the incident in this block. This may be a general incident category or kind description, such as “tornado,” “wildfire,” “bridge collapse,” “civil unrest,” “parade,” “vehicle fire,” “mass casualty,” etc.
10	Incident Complexity Level	Identify the incident complexity level as determined by Unified/Incident Commanders, if available or used.
*11	For Time Period	REQUIRED BLOCK. <ul style="list-style-type: none"> • Enter the time interval for which the form applies. This period should include all of the time since the last ICS 209 was submitted, or if it is the initial ICS 209, it should cover the time lapsed since the incident started. • The time period may include one or more operational periods, based on agency/organizational reporting requirements.
	From Date/Time	<ul style="list-style-type: none"> • Enter the start date (month/day/year). • Enter the start time (using the 24-hour clock).
	To Date/Time	<ul style="list-style-type: none"> • Enter the end date (month/day/year). • Enter the end time (using the 24-hour clock).

Figure 23.33. ICS 209 Instructions—Page 4

Block Number	Block Title	Instructions
APPROVAL & ROUTING INFORMATION		
*12	Prepared By	REQUIRED BLOCK. When an incident management organization is in place, this would be the Situation Unit Leader or Planning Section Chief at the incident. On other incidents, it could be a dispatcher in the local emergency communications center, or another staff person or manager.
	Print Name	Print the name of the person preparing the form.
	ICS Position	The ICS title of the person preparing the form (e.g., "Situation Unit Leader").
	Date/Time Prepared	Enter the date (month/day/year) and time (using the 24-hour clock) the form was prepared. Enter the time zone if appropriate.
*13	Date/Time Submitted	REQUIRED. Enter the submission date (month/day/year) and time (using the 24-hour clock).
	Time Zone	Enter the time zone from which the ICS 209 was submitted (e.g., EDT, PST).
*14	Approved By	REQUIRED. When an incident management organization is in place, this would be the Planning Section Chief or Incident Commander at the incident. On other incidents, it could be the jurisdiction's dispatch center manager, organizational administrator, or other manager.
	Print Name	Print the name of the person approving the form.
	ICS Position	The position of the person signing the ICS 209 should be entered (e.g., "Incident Commander").
	Signature	Signature of the person approving the ICS 209, typically the Incident Commander. The original signed ICS 209 should be maintained with other incident documents.
*15	Primary Location, Organization, or Agency Sent To	REQUIRED BLOCK. Enter the appropriate primary location or office the ICS 209 was sent to apart from the incident. This most likely is the entity or office that ordered the incident management organization that is managing the incident. This may be a dispatch center or a MACS element such as an emergency operations center. If a dispatch center or other emergency center prepared the ICS 209 for the incident, indicate where it was submitted initially.
INCIDENT LOCATION INFORMATION		
<ul style="list-style-type: none"> • Much of the "Incident Location Information" in Blocks 16–26 is optional, but completing as many fields as possible increases accuracy, and improves interoperability and information sharing between disparate systems. • As with all ICS 209 information, accuracy is essential because the information may be widely distributed and used in a variety of systems. Location and/or geospatial data may be used for maps, reports, and analysis by multiple parties outside the incident. • Be certain to follow accepted protocols, conventions, or standards where appropriate when submitting location information, and clearly label all location information. • Incident location information is usually based on the point of origin of the incident, and the majority of the area where the incident jurisdiction is. 		
*16	State	REQUIRED BLOCK WHEN APPLICABLE. <ul style="list-style-type: none"> • Enter the State where the incident originated. • If other States or jurisdictions are involved, enter them in Block 25 or Block 44.
*17	County / Parish / Borough	REQUIRED BLOCK WHEN APPLICABLE. <ul style="list-style-type: none"> • Enter the county, parish, or borough where the incident originated. • If other counties or jurisdictions are involved, enter them in Block 25 or Block 47.

Figure 23.34. ICS 209 Instructions—Page 5

Block Number	Block Title	Instructions
*18	City	REQUIRED BLOCK WHEN APPLICABLE. <ul style="list-style-type: none"> Enter the city where the incident originated. If other cities or jurisdictions are involved, enter them in Block 25 or Block 47.
19	Unit or Other	Enter the unit, sub-unit, unit identification (ID) number or code (if used), or other information about where the incident originated. This may be a local identifier that indicates primary incident jurisdiction or responsibility (e.g., police, fire, public works, etc.) or another type of organization. Enter specifics in Block 25.
*20	Incident Jurisdiction	REQUIRED BLOCK WHEN APPLICABLE. <p>Enter the jurisdiction where the incident originated (the entry may be general, such as Federal, city, or State, or may specifically identify agency names such as Warren County, U.S. Coast Guard, Panama City, NYPD).</p>
21	Incident Location Ownership (if different than jurisdiction)	<ul style="list-style-type: none"> When relevant, indicate the ownership of the area where the incident originated, especially if it is different than the agency having jurisdiction. This may include situations where jurisdictions contract for emergency services, or where it is relevant to include ownership by private entities, such as a large industrial site.
22	22. Longitude (indicate format): Latitude (indicate format):	<ul style="list-style-type: none"> Enter the longitude and latitude where the incident originated, if available and normally used by the authority having jurisdiction for the incident. Clearly label the data, as longitude and latitude can be derived from various sources. For example, if degrees, minutes, and seconds are used, label as "33 degrees, 45 minutes, 01 seconds."
23	US National Grid Reference	<ul style="list-style-type: none"> Enter the US National Grid (USNG) reference where the incident originated, if available and commonly used by the agencies/jurisdictions with primary responsibility for the incident. Clearly label the data.
24	Legal Description (township, section, range)	<ul style="list-style-type: none"> Enter the legal description where the incident originated, if available and commonly used by the agencies/jurisdictions with primary responsibility for the incident. Clearly label the data (e.g., N 1/2 SE 1/4, SW 1/4, S24, T32N, R18E).
*25	Short Location or Area Description (list all affected areas or a reference point)	REQUIRED BLOCK. <ul style="list-style-type: none"> List all affected areas as described in instructions for Blocks 16–24 above, OR summarize a general location, OR list a reference point for the incident (e.g., "the southern third of Florida," "in ocean 20 miles west of Catalina Island, CA," or "within a 5 mile radius of Walden, CO"). This information is important for readers unfamiliar with the area (or with other location identification systems) to be able to quickly identify the general location of the incident on a map. Other location information may also be listed here if needed or relevant for incident support (e.g., base meridian).
26	UTM Coordinates	Indicate Universal Transverse Mercator reference coordinates if used by the discipline or jurisdiction.

Figure 23.35. ICS 209 Instructions—Page 6

Block Number	Block Title	Instructions
27	Note any electronic geospatial data included or attached (indicate data format, content, and collection time information and labels)	<ul style="list-style-type: none"> Indicate whether and how geospatial data is included or attached. Utilize common and open geospatial data standards. WARNING: Do not attach or send extremely large data files with the ICS 209. Incident geospatial data that is distributed with the ICS 209 should be simple incident geospatial basics, such as the incident perimeter, origin, etc. Data file sizes should be small enough to be easily transmitted through dial-up connections or other limited communications capabilities when ICS 209 information is transmitted electronically. NOTE: Clearly indicate data content. For example, data may be about an incident perimeter (such as a shape file), the incident origin (a point), a point and radius (such as an evacuation zone), or a line or lines (such as a pipeline). NOTE: Indicate the data format (e.g., .shp, .kml, .kmz, or .gml file) and any relevant information about projection, etc. NOTE: Include a hyperlink or other access information if incident map data is posted online or on an FTP (file transfer protocol) site to facilitate downloading and minimize information requests. NOTE: Include a point of contact for getting geospatial incident information, if included in the ICS 209 or available and supporting the incident.
INCIDENT SUMMARY		
*28	Significant Events for the Time Period Reported (summarize significant progress made, evacuations, incident growth, etc.)	REQUIRED BLOCK. <ul style="list-style-type: none"> Describe significant events that occurred during the period being reported in Block 6. Examples include: <ul style="list-style-type: none"> Road closures. Evacuations. Progress made and accomplishments. Incident command transitions. Repopulation of formerly evacuated areas and specifics. Containment. Refer to other blocks in the ICS 209 when relevant for additional information (e.g., "Details on evacuations may be found in Block 33"), or in Remarks, Block 47. Be specific and detailed in reference to events. For example, references to road closures should include road number and duration of closure (or include further detail in Block 33). Use specific metrics if needed, such as the number of people or animals evacuated, or the amount of a material spilled and/or recovered. This block may be used for a single-paragraph synopsis of overall incident status.
29	Primary Materials or Hazards Involved (hazardous chemicals, fuel types, infectious agents, radiation, etc.)	<ul style="list-style-type: none"> When relevant, enter the appropriate primary materials, fuels, or other hazards involved in the incident that are leaking, burning, infecting, or otherwise influencing the incident. Examples include hazardous chemicals, wildland fuel models, biohazards, explosive materials, oil, gas, structural collapse, avalanche activity, criminal activity, etc.
	Other	Enter any miscellaneous issues which impacted Critical Infrastructure and Key Resources.

Figure 23.36. ICS 209 Instructions—Page 7

Block Number	Block Title	Instructions
30	Damage Assessment Information (summarize damage and/or restriction of use or availability to residential or commercial property, natural resources, critical infrastructure and key resources, etc.)	<ul style="list-style-type: none"> • Include a short summary of damage or use/access restrictions/limitations caused by the incident for the reporting period, and cumulatively. • Include if needed any information on the facility status, such as operational status, if it is evacuated, etc. when needed. • Include any critical infrastructure or key resources damaged/destroyed/impacted by the incident, the kind of infrastructure, and the extent of damage and/or impact and any known cascading impacts. • Refer to more specific or detailed damage assessment forms and packages when they are used and/or relevant.
	A. Structural Summary	Complete this table as needed based on the definitions for 30B–F below. Note in table or in text block if numbers entered are estimates or are confirmed. Summaries may also include impact to Shoreline and Wildlife, etc.
	B. # Threatened (72 hrs)	Enter the number of structures potentially threatened by the incident within the next 72 hours, based on currently available information.
	C. # Damaged	Enter the number of structures damaged by the incident.
	D. # Destroyed	Enter the number of structures destroyed beyond repair by the incident.
	E. Single Residences	Enter the number of single dwellings/homes/units impacted in Columns 30B–D. Note any specifics in the text block if needed, such as type of residence (apartments, condominiums, single-family homes, etc.).
	F. Nonresidential Commercial Properties	Enter the number of buildings or units impacted in Columns 30B–D. This includes any primary structure used for nonresidential purposes, excluding Other Minor Structures (Block 30G). Note any specifics regarding building or unit types in the text block.
	Other Minor Structures	Enter any miscellaneous structures impacted in Columns 30B–D not covered in 30E–F above, including any minor structures such as booths, sheds, or outbuildings.
	Other	Enter any miscellaneous issues which impacted Critical Infrastructure and Key Resources.

Figure 23.37. ICS 209 Instructions—Page 8

Block Number	Block Title	Instructions
ADDITIONAL INCIDENT DECISION SUPPORT INFORMATION (PAGE 2)		
*31	Public Status Summary	<ul style="list-style-type: none"> This section is for summary information regarding incident-related injuries, illness, and fatalities for civilians (or members of the public); see 31C–N below. Explain or describe the nature of any reported injuries, illness, or other activities in Life, Safety, and Health Status/Threat Remarks (Block 33). Illnesses include those that may be caused through a biological event such as an epidemic or an exposure to toxic or radiological substances. NOTE: <i>Do not estimate any fatality information.</i> NOTE: Please use caution when reporting information in this section that may be on the periphery of the incident or change frequently. This information should be reported as accurately as possible as a snapshot in time, as much of the information is subject to frequent change. NOTE: Do not complete this block if the incident covered by the ICS 209 is <i>not directly responsible</i> for these actions (such as evacuations, sheltering, immunizations, etc.) <i>even if they are related to the incident.</i> <ul style="list-style-type: none"> Only the authority having jurisdiction should submit reports for these actions, to mitigate multiple/conflicting reports. For example, if managing evacuation shelters is part of the incident operation itself, do include these numbers in Block 31J with any notes in Block 33. NOTE: <u>When providing an estimated value, denote in parenthesis: "est."</u> <p>Handling Sensitive Information</p> <ul style="list-style-type: none"> Release of information in this section should be carefully coordinated within the incident management organization to ensure synchronization with public information and investigative/intelligence actions. Thoroughly review the "Distribution" section in the introductory ICS 209 instructions for details on handling sensitive information. Use caution when providing information in any situation involving fatalities, and verify that appropriate notifications have been made prior to release of this information. Electronic transmission of any ICS 209 may make information available to many people and networks at once. Information regarding fatalities should be cleared with the Incident Commander and/or an organizational administrator prior to submission of the ICS 209.
	A. # This Reporting Period	Enter the total number of individuals impacted in each category for this reporting period (since the previous ICS 209 was submitted).
	B. Total # to Date	<ul style="list-style-type: none"> Enter the total number of individuals impacted in each category for the entire duration of the incident. This is a cumulative total number that should be adjusted each reporting period.
	C. Indicate Number of Civilians (Public) Below	<ul style="list-style-type: none"> For lines 31D–M below, enter the number of civilians affected for each category. Indicate if numbers are estimates, for those blocks where this is an option. Civilians are those members of the public who are affected by the incident, but who are not included as part of the response effort through Unified Command partnerships and those organizations and agencies assisting and cooperating with response efforts.
	D. Fatalities	<ul style="list-style-type: none"> Enter the number of <i>confirmed</i> civilian/public fatalities. See information in introductory instructions ("Distribution") and in Block 31 instructions regarding sensitive handling of fatality information.
	E. With Injuries/Illness	Enter the number of civilian/public injuries or illnesses directly related to the incident. Injury or illness is defined by the incident or jurisdiction(s).

Figure 23.38. ICS 209 Instructions—Page 9

Block Number	Block Title	Instructions
*31 (continued)	F. Trapped/In Need of Rescue	Enter the number of civilians who are trapped or in need of rescue due to the incident.
	G. Missing (note if estimated)	Enter the number of civilians who are missing due to the incident. Indicate if an estimate is used.
	H. Evacuated (note if estimated)	Enter the number of civilians who are evacuated due to the incident. These are likely to be best estimates, but indicate if they are estimated.
	I. Sheltering-in-Place (note if estimated)	Enter the number of civilians who are sheltering in place due to the incident. Indicate if estimates are used.
	J. In Temporary Shelters (note if estimated)	Enter the number of civilians who are in temporary shelters as a direct result of the incident, noting if the number is an estimate.
	K. Have Received Mass Immunizations	Enter the number of civilians who have received mass immunizations due to the incident and/or as part of incident operations. Do not estimate.
	L. Require Mass Immunizations (note if estimated)	Enter the number of civilians who require mass immunizations due to the incident and/or as part of incident operations. Indicate if it is an estimate.
	M. In Quarantine	Enter the number of civilians who are in quarantine due to the incident and/or as part of incident operations. Do not estimate.
	N. Total # Civilians (Public) Affected	Enter sum totals for Columns 31A and 31B for Rows 31D–M.
*32	Responder Status Summary	<ul style="list-style-type: none"> This section is for summary information regarding incident-related injuries, illness, and fatalities for responders; see 32C–N. Illnesses include those that may be related to a biological event such as an epidemic or an exposure to toxic or radiological substances directly in relation to the incident. Explain or describe the nature of any reported injuries, illness, or other activities in Block 33. NOTE: Do not estimate any fatality information or responder status information. NOTE: Please use caution when reporting information in this section that may be on the periphery of the incident or change frequently. This information should be reported as accurately as possible as a snapshot in time, as much of the information is subject to frequent change. NOTE: Do not complete this block if the incident covered by the ICS 209 is <i>not directly responsible</i> for these actions (such as evacuations, sheltering, immunizations, etc.) even if they are related to the incident. Only the authority having jurisdiction should submit reports for these actions, to mitigate multiple/conflicting reports. <p>Handling Sensitive Information</p> <ul style="list-style-type: none"> Release of information in this section should be carefully coordinated within the incident management organization to ensure synchronization with public information and investigative/intelligence actions. Thoroughly review the “Distribution” section in the introductory ICS 209 instructions for details on handling sensitive information. Use caution when providing information in any situation involving fatalities, and verify that appropriate notifications have been made prior to release of this information. Electronic transmission of any ICS 209 may make information available to many people and networks at once. Information regarding fatalities should be cleared with the Incident Commander and/or an organizational administrator prior to submission of the ICS 209.

Figure 23.39. ICS 209 Instructions—Page 10

Block Number	Block Title	Instructions
*32 (continued)	A. # This Reporting Period	Enter the total number of responders impacted in each category for this reporting period (since the previous ICS 209 was submitted).
	B. Total # to Date	<ul style="list-style-type: none"> Enter the total number of individuals impacted in each category for the <i>entire duration</i> of the incident. This is a <i>cumulative</i> total number that should be adjusted each reporting period.
	C. Indicate Number of Responders Below	<ul style="list-style-type: none"> For lines 32D–M below, enter the number of responders relevant for each category. Responders are those personnel included as part of Unified Command partnerships and those organizations and agencies assisting and cooperating with response efforts.
	D. Fatalities	<ul style="list-style-type: none"> Enter the number of <i>confirmed</i> responder fatalities. See information in introductory instructions (“Distribution”) and for Block 32 regarding sensitive handling of fatality information.
	E. With Injuries/Illness	<ul style="list-style-type: none"> Enter the number of incident responders with serious injuries or illnesses due to the incident. <i>For responders, serious injuries or illness are typically those in which the person is unable to continue to perform in his or her incident assignment, but the authority having jurisdiction may have additional guidelines on reporting requirements in this area.</i>
	F. Trapped/In Need Of Rescue	Enter the number of incident responders who are in trapped or in need of rescue due to the incident.
	G. Missing	Enter the number of incident responders who are missing due to incident conditions.
	H.	(BLANK; use however is appropriate.)
	I. Sheltering in Place	Enter the number of responders who are sheltering in place due to the incident. Once responders become the victims, this needs to be noted in Block 33 or Block 47 and handled accordingly.
	J.	(BLANK; use however is appropriate.)
	L. Require Immunizations	Enter the number of responders who require immunizations due to the incident and/or as part of incident operations.
	M. In Quarantine	Enter the number of responders who are in quarantine as a direct result of the incident and/or related to incident operations.
	N. Total # Responders Affected	Enter sum totals for Columns 32A and 32B for Rows 32D–M.
33	Life, Safety, and Health Status/Threat Remarks	<ul style="list-style-type: none"> Enter any details needed for Blocks 31, 32, and 34. Enter any specific comments regarding illness, injuries, fatalities, and threat management for this incident, such as whether estimates were used for numbers given in Block 31. This information should be reported as accurately as possible as a snapshot in time, as much of the information is subject to frequent change. Evacuation information can be very sensitive to local residents and officials. Be accurate in the assessment. Clearly note primary responsibility and contacts for any activities or information in Blocks 31, 32, and 34 that may be caused by the incident, but that are being managed and/or reported by other parties. Provide additional explanation or information as relevant in Blocks 28, 36, 38, 40, 41, or in Remarks (Block 47).

Figure 23.40. ICS 209 Instructions—Page 11

Block Number	Block Title	Instructions
*34	Life, Safety, and Health Threat Management	Note any details in Life, Safety, and Health Status/Threat Remarks (Block 33), and provide additional explanation or information as relevant in Blocks 28, 36, 38, 40, 41, or in Remarks (Block 47). Additional pages may be necessary for notes.
	A. Check if Active	Check any applicable blocks in 34C–P based on currently available information regarding incident activity and potential.
	B. Notes	Note any specific details, or include in Block 33.
	C. No Likely Threat	Check if there is no likely threat to life, health, and safety.
	D. Potential Future Threat	Check if there is a potential future threat to life, health, and safety.
	E. Mass Notifications In Progress	<ul style="list-style-type: none"> Check if there are any mass notifications in progress regarding emergency situations, evacuations, shelter in place, or other public safety advisories related to this incident. These may include use of threat and alert systems such as the Emergency Alert System or a “reverse 911” system. Please indicate the areas where mass notifications have been completed (e.g., “mass notifications to ZIP codes 50201, 50014, 50010, 50011,” or “notified all residents within a 5-mile radius of Gatlinburg”).
	F. Mass Notifications Completed	Check if actions referred to in Block 34E above have been completed.
	G. No Evacuation(s) Imminent	Check if evacuations are not anticipated in the near future based on current information.
	H. Planning for Evacuation	Check if evacuation planning is underway in relation to this incident.
	I. Planning for Shelter-in-Place	Check if planning is underway for shelter-in-place activities related to this incident.
	J. Evacuation(s) in Progress	Check if there are active evacuations in progress in relation to this incident.
	K. Shelter-In-Place in Progress	Check if there are active shelter-in-place actions in progress in relation to this incident.
	L. Repopulation in Progress	Check if there is an active repopulation in progress related to this incident.
	M. Mass Immunization in Progress	Check if there is an active mass immunization in progress related to this incident.
	N. Mass Immunization Complete	Check if a mass immunization effort has been completed in relation to this incident.
	O. Quarantine in Progress	Check if there is an active quarantine in progress related to this incident.
	P. Area Restriction in Effect	Check if there are any restrictions in effect, such as road or area closures, especially those noted in Block 28.

Figure 23.41. ICS 209 Instructions—Page 12

Block Number	Block Title	Instructions
35	Weather Concerns (synopsis of current and predicted weather; discuss related factors that may cause concern)	<ul style="list-style-type: none"> Complete a short synopsis/discussion on significant weather factors that could cause concerns for the incident when relevant. Include current and/or predicted weather factors, and the timeframe for predictions. Include relevant factors such as: <ul style="list-style-type: none"> Wind speed (label units, such as mph). Wind direction (clarify and label where wind is coming from and going to in plain language – e.g., “from NNW,” “from E,” or “from SW”). Temperature (label units, such as F). Relative humidity (label %). Watches. Warnings. Tides. Currents. Any other weather information relative to the incident, such as flooding, hurricanes, etc.
36	Projected Incident Activity, Potential, Movement, Escalation, or Spread and influencing factors during the next operational period and in 12-, 24-, 48-, and 72-hour timeframes 12 hours 24 hours 48 hours 72 hours Anticipated after 72 hours	<ul style="list-style-type: none"> Provide an estimate (when it is possible to do so) of the direction/scope in which the incident is expected to spread, migrate, or expand during the next indicated operational period, or other factors that may cause activity changes. Discuss incident potential relative to values at risk, or values to be protected (such as human life), and the potential changes to those as the incident changes. Include an estimate of the acreage or area that will likely be affected. If known, provide the above information in 12-, 24-, 48- and 72-hour timeframes, and any activity anticipated after 72 hours.
37	Strategic Objectives (define planned end-state for incident)	Briefly discuss the desired outcome for the incident based on currently available information. Note any high-level objectives and any possible strategic benefits as well (especially for planned events).

Figure 23.42. ICS 209 Instructions—Page 13

Block Number	Block Title	Instructions
ADDITIONAL INCIDENT DECISION SUPPORT INFORMATION (continued) (PAGE 3)		
38	<p>Current Incident Threat Summary and Risk Information in 12-, 24-, 48-, and 72-hour timeframes and beyond.</p> <p>Summarize primary incident threats to life, property, communities and community stability, residences, health care facilities, other critical infrastructure and key resources, commercial facilities, natural and environmental resources, cultural resources, and continuity of operations and/or business. Identify corresponding incident-related potential economic or cascading impacts.</p> <p>12 hours</p> <p>24 hours</p> <p>48 hours</p> <p>72 hours</p> <p>Anticipated after 72 hours</p>	Summarize major or significant threats due to incident activity based on currently available information. Include a breakdown of threats in terms of 12-, 24-, 48-, and 72-hour timeframes.

Figure 23.43. ICS 209 Instructions—Page 14

Block Number	Block Title	Instructions
39	<p>Critical Resource Needs in 12-, 24-, 48-, and 72-hour timeframes and beyond to meet critical incident objectives. List resource category, kind, and/or type, and amount needed, in priority order:</p> <p>12 hours 24 hours 48 hours 72 hours Anticipated after 72 hours</p>	<ul style="list-style-type: none"> List the specific critical resources and numbers needed, in order of priority. <i>Be specific as to the need.</i> Use plain language and common terminology for resources, and indicate resource category, kind, and type (if available or known) to facilitate incident support. If critical resources are listed in this block, there should be corresponding orders placed for them through appropriate resource ordering channels. Provide critical resource needs in 12-, 24-, 48- and 72-hour increments. List the most critical resources needed for each timeframe, if needs have been identified for each timeframe. Listing critical resources by the time they are needed gives incident support personnel a “heads up” for short-range planning, and assists the ordering process to ensure these resources will be in place when they are needed. More than one resource need may be listed for each timeframe. For example, a list could include: <ul style="list-style-type: none"> <u>24 hrs</u>: 3 Type 2 firefighting helicopters, 2 Type I Disaster Medical Assistance Teams <u>48 hrs</u>: Mobile Communications Unit (Law/Fire) <u>After 72 hrs</u>: 1 Type 2 Incident Management Team Documentation in the ICS 209 can help the incident obtain critical regional or national resources through outside support mechanisms including multiagency coordination systems and mutual aid. <ul style="list-style-type: none"> Information provided in other blocks on the ICS 209 can help to support the need for resources, including Blocks 28, 29, 31–38, and 40–42. Additional comments in the Remarks section (Block 47) can also help explain what the incident is requesting and why it is critical (for example, “Type 2 Incident Management Team is needed in three days to transition command when the current Type 2 Team times out”). Do not use this block for noncritical resources.
40	<p>Strategic Discussion: Explain the relation of overall strategy, constraints, and current available information to:</p> <p>1) critical resource needs identified above, 2) the Incident Action Plan and management objectives and targets, 3) anticipated results.</p> <p>Explain major problems and concerns such as operational challenges, incident management problems, and social, political, economic, or environmental concerns or impacts.</p>	<ul style="list-style-type: none"> Wording should be consistent with Block 39 to justify critical resource needs, which should relate to planned actions in the Incident Action Plan. Give a short assessment of the likelihood of meeting the incident management targets, given the current management strategy and currently known constraints. Identify when the chosen management strategy will succeed given the current constraints. Adjust the anticipated incident management completion target in Block 43 as needed based on this discussion. Explain major problems and concerns as indicated.

Figure 23.44. ICS 209 Instructions—Page 15

Block Number	Block Title	Instructions
41	Planned Actions for Next Operational Period	<ul style="list-style-type: none"> Provide a short summary of actions planned for the next operational period. Examples: <ul style="list-style-type: none"> “The current Incident Management Team will transition out to a replacement IMT.” “Continue to review operational/ engineering plan to facilitate removal of the partially collapsed west bridge supports.” “Continue refining mapping of the recovery operations and damaged assets using GPS.” “Initiate removal of unauthorized food vendors.”
42	Projected Final Incident Size/Area (use unit label – e.g., “sq mi”)	<ul style="list-style-type: none"> Enter an estimate of the total area likely to be involved or affected over the course of the incident. Label the estimate of the total area or population involved, affected, or impacted with the relevant units such as acres, hectares, square miles, etc. Note that total area involved may not be limited to geographic area (see previous discussions regarding incident definition, scope, operations, and objectives). Projected final size may involve a population rather than a geographic area.
43	Anticipated Incident Management Completion Date	<ul style="list-style-type: none"> Enter the date (month/day/year) at which time it is expected that incident objectives will be met. This is often explained similar to incident containment or control, or the time at which the incident is expected to be closed or when significant incident support will be discontinued. Avoid leaving this block blank if possible, as this is important information for managers.
44	Projected Significant Resource Demobilization Start Date	Enter the date (month/day/year) when initiation of significant resource demobilization is anticipated.
45	Estimated Incident Costs to Date	<ul style="list-style-type: none"> Enter the estimated total incident costs to date for the entire incident based on currently available information. Incident costs include estimates of all costs for the response, including all management and support activities per discipline, agency, or organizational guidance and policy. This does not include damage assessment figures, as they are impacts from the incident and not response costs. If costs decrease, explain in Remarks (Block 47). If additional space is required, please add as an attachment.
46	Projected Final Incident Cost Estimate	<ul style="list-style-type: none"> Enter an estimate of the total costs for the incident once all costs have been processed based on current spending and projected incident potential, per discipline, agency, or organizational guidance and policy. This is often an estimate of daily costs combined with incident potential information. This does not include damage assessment figures, as they are impacts from the incident and not response costs. If additional space is required, please add as an attachment.

Figure 23.45. ICS 209 Instructions—Page 16

Block Number	Block Title	Instructions
47	Remarks (or continuation of any blocks above – list block number in notation)	<ul style="list-style-type: none"> Use this block to expand on information that has been entered in previous blocks, or to include other pertinent information that has not been previously addressed. List the block number for any information continued from a previous block. Additional information may include more detailed weather information, specifics on injuries or fatalities, threats to critical infrastructure or other resources, more detailed evacuation site locations and number of evacuated, information or details regarding incident cause, etc. For Complexes that include multiple incidents, list all sub-incidents included in the Complex. List jurisdictional or ownership breakdowns if needed when an incident is in more than one jurisdiction and/or ownership area. Breakdown may be: <ul style="list-style-type: none"> By size (e.g., 35 acres in City of Gatlinburg, 250 acres in Great Smoky Mountains), and/or By geography (e.g., incident area on the west side of the river is in jurisdiction of City of Minneapolis; area on east side of river is City of St. Paul jurisdiction; river is joint jurisdiction with USACE). Explain any reasons for incident size reductions or adjustments (e.g., reduction in acreage due to more accurate mapping). This section can also be used to list any additional information about the incident that may be needed by incident support mechanisms outside the incident itself. This may be basic information needed through multiagency coordination systems or public information systems (e.g., a public information phone number for the incident, or the incident Web site address). Attach additional pages if it is necessary to include additional comments in the Remarks section.
INCIDENT RESOURCE COMMITMENT SUMMARY (PAGE 4)		
<ul style="list-style-type: none"> This last/fourth page of the ICS 209 can be copied and used if needed to accommodate additional resources, agencies, or organizations. Write the actual page number on the pages as they are used. Include only resources that have been assigned to the incident and that have arrived and/or been checked in to the incident. Do not include resources that have been ordered but have <i>not</i> yet arrived. <p><u>For summarizing:</u></p> <ul style="list-style-type: none"> When there are large numbers of responders, it may be helpful to group agencies or organizations together. Use the approach that works best for the multiagency coordination system applicable to the incident. For example, <ul style="list-style-type: none"> Group State, local, county, city, or Federal responders together under such headings, or Group resources from one jurisdiction together and list only individual jurisdictions (e.g., list the public works, police, and fire department resources for a city under that city's name). On a large incident, it may also be helpful to group similar categories, kinds, or types of resources together for this summary. 		

Figure 23.46. ICS 209 Instructions—Page 17

Block Number	Block Title	Instructions
48	Agency or Organization	<ul style="list-style-type: none"> List the agencies or organizations contributing resources to the incident as responders, through mutual aid agreements, etc. List agencies or organizations using clear language so readers who may not be from the discipline or host jurisdiction can understand the information. Agencies or organizations may be listed individually or in groups. When resources are grouped together, individual agencies or organizations may be listed below in Block 53. Indicate in the rows under Block 49 how many resources are assigned to the incident under each resource identified. <ul style="list-style-type: none"> These can listed with the number of resources on the top of the box, and the number of personnel associated with the resources on the bottom half of the box. For example: <ul style="list-style-type: none"> <i>Resource:</i> Type 2 Helicopters... 3/8 (indicates 3 aircraft, 8 personnel). <i>Resource:</i> Type 1 Decontamination Unit... 1/3 (indicates 1 unit, 3 personnel). Indicate in the rows under Block 51 the total number of personnel assigned for each agency listed under Block 48, including both individual overhead and those associated with other resources such as fire engines, decontamination units, etc.
49	Resources (summarize resources by category, kind, and/or type; show # of resources on top ½ of box, show # of personnel associated with resource on bottom ½ of box)	<ul style="list-style-type: none"> List resources using clear language when possible – so ICS 209 readers who may not be from the discipline or host jurisdiction can understand the information. <ul style="list-style-type: none"> Examples: Type 1 Fire Engines, Type 4 Helicopters Enter total numbers in columns for each resource by agency, organization, or grouping in the proper blocks. <ul style="list-style-type: none"> These can listed with the number of resources on the top of the box, and the number of personnel associated with the resources on the bottom half of the box. For example: <ul style="list-style-type: none"> <i>Resource:</i> Type 2 Helicopters... 3/8 (indicates 3 aircraft, 8 personnel). <i>Resource:</i> Type 1 Decontamination Unit... 1/3 (indicates 1 unit, 3 personnel). NOTE: One option is to group similar resources together when it is sensible to do so for the summary. <ul style="list-style-type: none"> For example, do not list every type of fire engine – rather, it may be advisable to list two generalized types of engines, such as “structure fire engines” and “wildland fire engines” in separate columns with totals for each. NOTE: It is not advisable to list individual overhead personnel individually in the resource section, especially as this form is intended as a summary. These personnel should be included in the Total Personnel sums in Block 51.
50	Additional Personnel not assigned to a resource	List the number of <i>additional</i> individuals (or overhead) that are not assigned to a specific resource by agency or organization.
51	Total Personnel (includes those associated with resources – e.g., aircraft or engines – <i>and</i> individual overhead)	<ul style="list-style-type: none"> Enter the total personnel for each agency, organization, or grouping in the Total Personnel column. WARNING: Do not simply add the numbers across! The number of Total Personnel for each row should include <u>both</u>: <ul style="list-style-type: none"> The total number of personnel assigned to each of the resources listed in Block 49, and The total number of additional individual overhead personnel from each agency, organization, or group listed in Block 50.

Figure 23.47. ICS 209 Instructions—Page 18

Block Number	Block Title	Instructions
52	Total Resources	Include the sum total of resources for each column, including the total for the column under Blocks 49, 50, and 51. This should include the total number of <i>resources</i> in Block 49, as personnel totals will be counted under Block 51.
53	Additional Cooperating and Assisting Organizations Not Listed Above	<ul style="list-style-type: none">• List all agencies and organizations that are not directly involved in the incident, but are providing support.• Examples may include ambulance services, Red Cross, DHS, utility companies, etc.• Do not repeat any resources counted in Blocks 48–52, unless explanations are needed for groupings created under Block 48 (Agency or Organization).

Figure 23.48. ICS 209 Instructions—Page 19

ICS 211—Incident Check-In List

[illegible]

Figure 23.49. ICS 211

Instructions for Completing ICS 211—Incident Check-In List

ICS 211 Incident Check-In List

Purpose. 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 211). The ICS 211 serves several purposes, as it: (1) records arrival times at the incident of all overhead personnel and equipment, (2) records the initial location of personnel and equipment to facilitate subsequent assignments, and (3) supports demobilization by recording the home base, method of travel, etc., for resources checked in.

Preparation. The ICS 211 is initiated at a number of incident locations including: Staging Areas, Base, and Incident Command Post (ICP). Preparation may be completed by: (1) overhead at these locations, who record the information and give it to the Resources Unit as soon as possible, (2) the Incident Communications Center Manager located in the Communications Center, who records the information and gives it to the Resources Unit as soon as possible, (3) a recorder from the Resources Unit during check-in to the ICP. As an option, the ICS 211 can be printed on colored paper to match the designated Resource Status Card (ICS 219) colors. The purpose of this is to aid the process of completing a large volume of ICS 219s. The ICS 219 colors are:

- 219-1: Header Card – Gray (used only as label cards for T-Card racks)
- 219-2: Crew/Team Card – Green
- 219-3: Engine Card – Rose
- 219-4: Helicopter Card – Blue
- 219-5: Personnel Card – White
- 219-6: Fixed-Wing Card – Orange
- 219-7: Equipment Card – Yellow
- 219-8: Miscellaneous Equipment/Task Force Card – Tan
- 219-10: Generic Card – Light Purple

Distribution. ICS 211s, which are completed by personnel at the various check-in locations, are provided to the Resources Unit, Demobilization Unit, and Finance/Administration Section. The Resources Unit maintains a master list of all equipment and personnel that have reported to the incident.

Notes:

- Also available as 8½ x 14 (legal size) or 11 x 17 chart.
- Use reverse side of form for remarks or comments.
- If additional pages are needed for any form page, use a blank ICS 211 and repaginate as needed.
- Contact information for sender and receiver can be added for communications purposes to confirm resource orders. Refer to 213RR example (Appendix B)

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Check-In Location <input type="checkbox"/> Base <input type="checkbox"/> Staging Area <input type="checkbox"/> ICP <input type="checkbox"/> Helibase <input type="checkbox"/> Other	Check appropriate box and enter the check-in location for the incident. Indicate specific information regarding the locations under each checkbox. ICP is for Incident Command Post. Other may include...
4	Start Date/Time • Date • Time	Enter the date (month/day/year) and time (using the 24-hour clock) that the form was started.

Figure 23.50. ICS 211 Instructions—Page 1

Block Number	Block Title	Instructions
	Check-In Information	Self explanatory.
5	List single resource personnel (overhead) by agency and name, OR list resources by the following format	Enter the following information for resources: OPTIONAL: Indicate if resource is a single resource versus part of Strike Team or Task Force. Fields can be left blank if not necessary.
	• State	Use this section to list the home State for the resource.
	• Agency	Use this section to list agency name (or designator), and individual names for all single resource personnel (e.g., ORC, ARL, NYPD).
	• Category	Use this section to list the resource category based on NIMS, discipline, or jurisdiction guidance.
	• Kind	Use this section to list the resource kind based on NIMS, discipline, or jurisdiction guidance.
	• Type	Use this section to list the resource type based on NIMS, discipline, or jurisdiction guidance.
	• Resource Name or Identifier	Use this section to enter the resource name or unique identifier. If it is a Strike Team or a Task Force, list the unique Strike Team or Task Force identifier (if used) on a single line with the component resources of the Strike Team or Task Force listed on the following lines. For example, for an Engine Strike Team with the call sign "XLT459" show "XLT459" in this box and then in the next five rows, list the unique identifier for the five engines assigned to the Strike Team.
	• ST or TF	Use ST or TF to indicate whether the resource is part of a Strike Team or Task Force. See above for additional instructions.
6	Order Request #	The order request number will be assigned by the agency dispatching resources or personnel to the incident. Use existing protocol as appropriate for the jurisdiction and/or discipline, since several incident numbers may be used for the same incident.
7	Date/Time Check-In	Enter date (month/day/year) and time of check-in (24-hour clock) to the incident.
8	Leader's Name	<ul style="list-style-type: none"> For equipment, enter the operator's name. Enter the Strike Team or Task Force leader's name. Leave blank for single resource personnel (overhead).
9	Total Number of Personnel	Enter total number of personnel associated with the resource. Include leaders.
10	Incident Contact Information	Enter available contact information (e.g., radio frequency, cell phone number, etc.) for the incident.
11	Home Unit or Agency	Enter the home unit or agency to which the resource or individual is normally assigned (may not be departure location).
12	Departure Point, Date and Time	Enter the location from which the resource or individual departed for this incident. Enter the departure time using the 24-hour clock.
13	Method of Travel	Enter the means of travel the individual used to bring himself/herself to the incident (e.g., bus, truck, engine, personal vehicle, etc.).
14	Incident Assignment	Enter the incident assignment at time of dispatch.
15	Other Qualifications	Enter additional duties (ICS positions) pertinent to the incident that the resource/individual is qualified to perform. Note that resources should not be reassigned on the incident without going through the established ordering process. This data may be useful when resources are demobilized and remobilized for another incident.

Figure 23.51. ICS 211 Instructions—Page 2

Figure 23.52. ICS 211 Instructions—Page 3

ICS 214—Activity Log

Figure 23.53. ICS 214

Instructions for Completing ICS 214—Activity Log

ICS 214 Activity Log

Purpose. The Activity Log (ICS 214) records details of notable activities at any ICS level, including single resources, equipment, Task Forces, etc. These logs provide basic incident activity documentation, and a reference for any after-action report.

Preparation. An ICS 214 can be initiated and maintained by personnel in various ICS positions as it is needed or appropriate. Personnel should document how relevant incident activities are occurring and progressing, or any notable events or communications.

Distribution. Completed ICS 214s are submitted to supervisors, who forward them to the Documentation Unit. All completed original forms must be given to the Documentation Unit, which maintains a file of all ICS 214s. It is recommended that individuals retain a copy for their own records.

Notes:

- The ICS 214 can be printed as a two-sided form.
- Use additional copies as continuation sheets as needed, and indicate pagination as used.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Name	Enter the title of the organizational unit or resource designator (e.g., Facilities Unit, Safety Officer, Strike Team).
4	ICS Position	Enter the name and ICS position of the individual in charge of the Unit.
5	Home Agency (and Unit)	Enter the home agency of the individual completing the ICS 214. Enter a unit designator if utilized by the jurisdiction or discipline.
6	Resources Assigned	Enter the following information for resources assigned:
	• Name	Use this section to enter the resource's name. For all individuals, use at least the first initial and last name. Cell phone number for the individual can be added as an option.
	• ICS Position	Use this section to enter the resource's ICS position (e.g., Finance Section Chief).
	• Home Agency (and Unit)	Use this section to enter the resource's home agency and/or unit (e.g., Des Moines Public Works Department, Water Management Unit).
7	Activity Log <ul style="list-style-type: none"> • Date/Time • Notable Activities 	<ul style="list-style-type: none"> • Enter the time (24-hour clock) and briefly describe individual notable activities. Note the date as well if the operational period covers more than one day. • Activities described may include notable occurrences or events such as task assignments, task completions, injuries, difficulties encountered, etc. • This block can also be used to track personal work habits by adding columns such as "Action Required," "Delegated To," "Status," etc.
8	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	Enter the name, ICS position/title, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Figure 23.54. ICS 214 Instructions

OPERATIONAL PLANNING WORKSHEET (ICS 215)

OPERATIONAL PLANNING WORKSHEET (ICS 215)																	
1. Incident Name:			2. Operational Period:										Date To: Time To:				
			Date From: Time From:														
3. Branch	4. Division, Group, or Other	5. Work Assignment & Special Instructions	6. Resources										7. Overhead Position(s)	8. Special Equipment & Supplies	9. Reporting Location	10. Requested Arrival Time	
			Req.														
			Have														
			Need														
			Req.														
			Have														
			Need														
			Req.														
			Have														
			Need														
			Req.														
			Have														
			Need														
			Req.														
			Have														
			Need														
			11. Total Resources Required										14. Prepared by:				
													Name: _____				
													Position/Title: _____				
													Signature: _____				
													Date/Time: _____				
ICS 215																	

Instructions for Completing ICS 215—Operational Planning Worksheet

ICS 215 Operational Planning Worksheet

Purpose. The Operational Planning Worksheet (ICS 215) communicates the decisions made by the Operations Section Chief during the Tactics Meeting concerning resource assignments and needs for the next operational period. The ICS 215 is used by the Resources Unit to complete the Assignment Lists (ICS 204) and by the Logistics Section Chief for ordering resources for the incident.

Preparation. The ICS 215 is initiated by the Operations Section Chief and often involves logistics personnel, the Resources Unit, and the Safety Officer. The form is shared with the rest of the Command and General Staffs during the Planning Meeting. It may be useful in some disciplines or jurisdictions to prefill ICS 215 copies prior to incidents.

Distribution. When the Branch, Division, or Group work assignments and accompanying resource allocations are agreed upon, the form is distributed to the Resources Unit to assist in the preparation of the ICS 204. The Logistics Section will use a copy of this worksheet for preparing requests for resources required for the next operational period.

Notes:

- This worksheet can be made into a wall mount.
- Also available as 8½ x 14 (legal size) and 11 x 17 chart.
- If additional pages are needed, use a blank ICS 215 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Branch	Enter the Branch of the work assignment for the resources.
4	Division, Group, or Other	Enter the Division, Group, or other location (e.g., Staging Area) of the work assignment for the resources.
5	Work Assignment & Special Instructions	Enter the specific work assignments given to each of the Divisions/Groups and any special instructions, as required.
6	Resources	Complete resource headings for category, kind, and type as appropriate for the incident. The use of a slash indicates a single resource in the upper portion of the slash and a Strike Team or Task Force in the bottom portion of the slash.
	• Required	Enter, for the appropriate resources, the number of resources by type (engine, squad car, Advanced Life Support ambulance, etc.) required to perform the work assignment.
	• Have	Enter, for the appropriate resources, the number of resources by type (engines, crew, etc.) available to perform the work assignment.
	• Need	Enter the number of resources needed by subtracting the number in the "Have" row from the number in the "Required" row.
7	Overhead Position(s)	List any supervisory and nonsupervisory ICS position(s) not directly assigned to a previously identified resource (e.g., Division/Group Supervisor, Assistant Safety Officer, Technical Specialist, etc.).
8	Special Equipment & Supplies	List special equipment and supplies, including aviation support, used or needed. This may be a useful place to monitor span of control.
9	Reporting Location	Enter the specific location where the resources are to report (Staging Area, location at incident, etc.).
10	Requested Arrival Time	Enter the time (24-hour clock) that resources are requested to arrive at the reporting location.

Figure 23.56. ICS 215 Instructions—Page 1

Block Number	Block Title	Instructions
11	Total Resources Required	Enter the total number of resources required by category/kind/type as preferred (e.g., engine, squad car, ALS ambulance, etc.). A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/ Task Forces in the bottom portion of the slash.
12	Total Resources Have on Hand	Enter the total number of resources on hand that are assigned to the incident for incident use. A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/Task Forces in the bottom portion of the slash.
13	Total Resources Need To Order	Enter the total number of resources needed. A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/Task Forces in the bottom portion of the slash.
14	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Figure 23.57. ICS 215 Instructions—Page 2

ICS 215A—Incident Action Plan Safety Analysis

INCIDENT ACTION PLAN SAFETY ANALYSIS (ICS 215A)			
1. Incident Name:		2. Incident Number:	
3. Date/Time Prepared:		4. Operational Period:	
Date:	Time:	Date From:	Date To:
		Time From:	Time To:
5. Incident Area	6. Hazards/Risks	7. Mitigations	
8. Prepared by (Safety Officer): Name: _____		Signature: _____	
Prepared by (Operations Section Chief): Name: _____		Signature: _____	
ICS 215A		Date/Time: _____	

Figure 23.58. ICS 215A

Instructions for Completing ICS 215A—Incident Action Plan Safety Analysis

ICS 215A Incident Action Plan Safety Analysis

Purpose. The purpose of the Incident Action Plan Safety Analysis (ICS 215A) is to aid the Safety Officer in completing an operational risk assessment to prioritize hazards, safety, and health issues, and to develop appropriate controls. This worksheet addresses communications challenges between planning and operations, and is best utilized in the planning phase and for Operations Section briefings.

Preparation. The ICS 215A is typically prepared by the Safety Officer during the incident action planning cycle. When the Operations Section Chief is preparing for the tactics meeting, the Safety Officer collaborates with the Operations Section Chief to complete the Incident Action Plan Safety Analysis. This worksheet is closely linked to the Operational Planning Worksheet (ICS 215). Incident areas or regions are listed along with associated hazards and risks. For those assignments involving risks and hazards, mitigations or controls should be developed to safeguard responders, and appropriate incident personnel should be briefed on the hazards, mitigations, and related measures. Use additional sheets as needed.

Distribution. When the safety analysis is completed, the form is distributed to the Resources Unit to help prepare the Operations Section briefing. All completed original forms must be given to the Documentation Unit.

Notes:

- This worksheet can be made into a wall mount, and can be part of the IAP.
- If additional pages are needed, use a blank ICS 215A and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Date/Time Prepared	Enter date (month/day/year) and time (using the 24-hour clock) prepared.
4	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (24-hour clock) and end date and time for the operational period to which the form applies.
5	Incident Area	Enter the incident areas where personnel or resources are likely to encounter risks. This may be specified as a Branch, Division, or Group.
6	Hazards/Risks	List the types of hazards and/or risks likely to be encountered by personnel or resources at the incident area relevant to the work assignment.
7	Mitigations	List actions taken to reduce risk for each hazard indicated (e.g., specify personal protective equipment or use of a buddy system or escape routes).
8	Prepared by (Safety Officer and Operations Section Chief) <ul style="list-style-type: none"> • Name • Signature • Date/Time 	Enter the name of both the Safety Officer and the Operations Section Chief, who should collaborate on form preparation. Enter date (month/day/year) and time (24-hour clock) reviewed.

Figure 23.59. ICS 215A Instructions

ICS 220—Air Operations Summary

AIR OPERATIONS SUMMARY (ICS 220)													
1. Incident Name:		2. Operational Period: Date From: _____ Time From: _____		Date To: _____ Time To: _____		3. Sunrise:		Sunset:					
4. Remarks (safety notes, hazards, air operations special equipment, etc.):		5. Ready Alert Aircraft: Medivac: New Incident:		5. Ready Alert Aircraft: Medivac: New Incident:		6. Temporary Flight Restriction Number: Altitude: Center Point:		9. Fixed-Wing (category/kind/type, make/model, N#, base): Air Tactical Group Supervisor Aircraft:					
										8. Frequencies:		FM	
										Air/Air Fixed-Wing			
7. Personnel:		Name:		Phone Number:		Air/Air Rotary-Wing – Flight Following							
Air Operations Branch Director						Air/Ground							
Air Support Group Supervisor						Command		Other Fixed-Wing Aircraft:					
Air Tactical Group Supervisor						Deck Coordinator							
Helicopter Coordinator						Take-Off & Landing Coordinator							
Helibase Manager						Air Guard							
10. Helicopters (use additional sheets as necessary):													
FAA N#	Category/Kind/Type	Make/Model	Base	Available	Start	Remarks							
11. Prepared by: Name:		Position/Title:		Signature:									
ICS 220, Page 1		Date/Time:											

Figure 23.60. ICS 220—Page 1

[illegible]

Instructions for Completing ICS 220—Air Operations Summary

ICS 220

Air Operations Summary

Purpose. The Air Operations Summary (ICS 220) provides the Air Operations Branch with the number, type, location, and specific assignments of helicopters and air resources.

Preparation. The ICS 220 is completed by the Operations Section Chief or the Air Operations Branch Director during each Planning Meeting. General air resources assignment information is obtained from the Operational Planning Worksheet (ICS 215), which also is completed during each Planning Meeting. Specific designators of the air resources assigned to the incident are provided by the Air and Fixed-Wing Support Groups. If aviation assets would be utilized for rescue or are referenced on the Medical Plan (ICS 206), coordinate with the Medical Unit Leader and indicate on the ICS 206.

Distribution. After the ICS 220 is completed by Air Operations personnel, the form is given to the Air Support Group Supervisor and Fixed-Wing Coordinator personnel. These personnel complete the form by indicating the designators of the helicopters and fixed-wing aircraft assigned missions during the specified operational period. This information is provided to Air Operations personnel who, in turn, give the information to the Resources Unit.

Notes:

- If additional pages are needed for any form page, use a blank ICS 220 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Sunrise/Sunset	Enter the sunrise and sunset times.
4	Remarks (safety notes, hazards, air operations special equipment, etc.)	Enter special instructions or information, including safety notes, hazards, and priorities for Air Operations personnel.
5	Ready Alert Aircraft <ul style="list-style-type: none"> • Medivac • New Incident 	Identify ready alert aircraft that will be used as Medivac for incident assigned personnel and indicate on the Medical Plan (ICS 206). Identify aircraft to be used for new incidents within the area or new incident(s) within an incident.
6	Temporary Flight Restriction Number <ul style="list-style-type: none"> • Altitude • Center Point 	Enter Temporary Flight Restriction Number, altitude (from the center point), and center point (latitude and longitude). This number is provided by the Federal Aviation Administration (FAA) or is the order request number for the Temporary Flight Restriction.
7	Personnel <ul style="list-style-type: none"> • Name • Phone Number 	Enter the name and phone number of the individuals in Air Operations.
	Air Operations Branch Director	
	Air Support Group Supervisor	
	Air Tactical Group Supervisor	
	Helicopter Coordinator	
	Helibase Manager	

Figure 23.62. ICS 220 Instructions—Page 1

Block Number	Block Title	Instructions
8	Frequencies • AM • FM	Enter primary air/air, air/ground (if applicable), command, deck coordinator, take-off and landing coordinator, and other radio frequencies to be used during the incident.
	Air/Air Fixed-Wing	
	Air/Air Rotary-Wing – Flight Following	Flight following is typically done by Air Operations.
	Air/Ground	
	Command	
	Deck Coordinator	
	Take-Off & Landing Coordinator	
	Air Guard	
9	Fixed-Wing (category/kind/type, make/model, N#, base)	Enter the category/kind/type based on NIMS, discipline, or jurisdiction guidance, make/model, N#, and base of air assets allocated to the incident.
	Air Tactical Group Supervisor Aircraft	
	Other Fixed-Wing Aircraft	
10	Helicopters	Enter the following information about the helicopter resources allocated to the incident.
	FAA N#	Enter the FAA N#.
	Category/Kind/Type	Enter the helicopter category/kind/type based on NIMS, discipline, or jurisdiction guidance.
	Make/Model	Enter the make and model of the helicopter.
	Base	Enter the base where the helicopter is located.
	Available	Enter the time the aircraft is available.
	Start	Enter the time the aircraft becomes operational.
	Remarks	
11	Prepared by • Name • Position/Title • Signature • Date/Time	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
12	Task/Mission/Assignment (category/kind/type and function includes: air tactical, reconnaissance, personnel transport, search and rescue, etc.)	Enter the specific assignment (e.g., water or retardant drops, logistical support, or availability status for a specific purpose, support backup, recon, Medivac, etc.). If applicable, enter the primary air/air and air/ground radio frequency to be used. Mission assignments may be listed by priority.
	Category/Kind/Type and Function	
	Name of Personnel or Cargo (if applicable) or Instructions for Tactical Aircraft	
	Mission Start	
	Fly From	Enter the incident location or air base the aircraft is flying from.
	Fly To	Enter the incident location or air base the aircraft is flying to.

Figure 23.63. ICS 220 Instructions—Page 2

ICS 221—Demobilization Check-Out

DEMOBILIZATION CHECK-OUT (ICS 221)			
1. Incident Name:		2. Incident Number:	
3. Planned Release Date/Time: Date: _____ Time: _____		4. Resource or Personnel Released:	
5. Order Request Number:			
6. Resource or Personnel: You and your resources are in the process of being released. Resources are not released until the checked boxes below have been signed off by the appropriate overhead and the Demobilization Unit Leader (or Planning Section representative).			
LOGISTICS SECTION			
	Unit/Manager	Remarks	Name Signature
<input type="checkbox"/>	Supply Unit		
<input type="checkbox"/>	Communications Unit		
<input type="checkbox"/>	Facilities Unit		
<input type="checkbox"/>	Ground Support Unit		
<input type="checkbox"/>	Security Manager		
<input type="checkbox"/>			
FINANCE/ADMINISTRATION SECTION			
	Unit/Leader	Remarks	Name Signature
<input type="checkbox"/>	Time Unit		
<input type="checkbox"/>			
<input type="checkbox"/>			
OTHER SECTION/STAFF			
	Unit/Other	Remarks	Name Signature
<input type="checkbox"/>			
<input type="checkbox"/>			
PLANNING SECTION			
	Unit/Leader	Remarks	Name Signature
<input type="checkbox"/>			
<input type="checkbox"/>	Documentation Leader		
<input type="checkbox"/>	Demobilization Leader		
7. Remarks:			
8. Travel Information: <div style="display: flex; justify-content: space-between;"> <div> Room Overnight: <input type="checkbox"/> Yes <input type="checkbox"/> No Estimated Time of Departure: _____ Destination: _____ Travel Method: _____ Manifest: <input type="checkbox"/> Yes <input type="checkbox"/> No Number: _____ </div> <div> Actual Release Date/Time: _____ Estimated Time of Arrival: _____ Contact Information While Traveling: _____ Area/Agency/Region Notified: _____ </div> </div>			
9. Reassignment Information: <input type="checkbox"/> Yes <input type="checkbox"/> No Incident Name: _____ Incident Number: _____ Location: _____ Order Request Number: _____			
10. Prepared by: Name: _____ Position/Title: _____ Signature: _____			
ICS 221		Date/Time: _____	

Figure 23.64. ICS 221

Instructions for Completing ICS 221—Demobilization Check-Out

ICS 221

Demobilization Check-Out

Purpose. The Demobilization Check-Out (ICS 221) ensures that resources checking out of the incident have completed all appropriate incident business, and provides the Planning Section information on resources released from the incident. Demobilization is a planned process and this form assists with that planning.

Preparation. The ICS 221 is initiated by the Planning Section, or a Demobilization Unit Leader if designated. The Demobilization Unit Leader completes the top portion of the form and checks the appropriate boxes in Block 6 that may need attention after the Resources Unit Leader has given written notification that the resource is no longer needed. The individual resource will have the appropriate overhead personnel sign off on any checked box(es) in Block 6 prior to release from the incident.

Distribution. After completion, the ICS 221 is returned to the Demobilization Unit Leader or the Planning Section. All completed original forms must be given to the Documentation Unit. Personnel may request to retain a copy of the ICS 221.

Notes:

- Members are not released until form is complete when all of the items checked in Block 6 have been signed off.
- If additional pages are needed for any form page, use a blank ICS 221 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Planned Release Date/Time	Enter the date (month/day/year) and time (using the 24-hour clock) of the planned release from the incident.
4	Resource or Personnel Released	Enter name of the individual or resource being released.
5	Order Request Number	Enter order request number (or agency demobilization number) of the individual or resource being released.
6	Resource or Personnel You and your resources are in the process of being released. Resources are not released until the checked boxes below have been signed off by the appropriate overhead and the Demobilization Unit Leader (or Planning Section representative). <ul style="list-style-type: none"> • Unit/Leader/Manager/Other • Remarks • Name • Signature 	Resources are not released until the checked boxes below have been signed off by the appropriate overhead. Blank boxes are provided for any additional unit requirements as needed (e.g., Safety Officer, Agency Representative, etc.).
	Logistics Section <input type="checkbox"/> Supply Unit <input type="checkbox"/> Communications Unit <input type="checkbox"/> Facilities Unit <input type="checkbox"/> Ground Support Unit <input type="checkbox"/> Security Manager	The Demobilization Unit Leader will enter an "X" in the box to the left of those Units requiring the resource to check out. Identified Unit Leaders or other overhead are to sign the appropriate line to indicate release.

Figure 23.65. ICS 221 Instructions—Page 1

Block Number	Block Title	Instructions
6 (continued)	Finance/Administration Section <input type="checkbox"/> Time Unit	The Demobilization Unit Leader will enter an "X" in the box to the left of those Units requiring the resource to check out. Identified Unit Leaders or other overhead are to sign the appropriate line to indicate release.
	Other Section/Staff <input type="checkbox"/>	The Demobilization Unit Leader will enter an "X" in the box to the left of those Units requiring the resource to check out. Identified Unit Leaders or other overhead are to sign the appropriate line to indicate release.
	Planning Section <input type="checkbox"/> Documentation Leader <input type="checkbox"/> Demobilization Leader	The Demobilization Unit Leader will enter an "X" in the box to the left of those Units requiring the resource to check out. Identified Unit Leaders or other overhead are to sign the appropriate line to indicate release.
7	Remarks	Enter any additional information pertaining to demobilization or release (e.g., transportation needed, destination, etc.). This section may also be used to indicate if a performance rating has been completed as required by the discipline or jurisdiction.
8	Travel Information	Enter the following travel information:
	Room Overnight	Use this section to enter whether or not the resource or personnel will be staying in a hotel overnight prior to returning home base and/or unit.
	Estimated Time of Departure	Use this section to enter the resource's or personnel's estimated time of departure (using the 24-hour clock).
	Actual Release Date/Time	Use this section to enter the resource's or personnel's actual release date (month/day/year) and time (using the 24-hour clock).
	Destination	Use this section to enter the resource's or personnel's destination.
	Estimated Time of Arrival	Use this section to enter the resource's or personnel's estimated time of arrival (using the 24-hour clock) at the destination.
	Travel Method	Use this section to enter the resource's or personnel's travel method (e.g., POV, air, etc.).
	Contact Information While Traveling	Use this section to enter the resource's or personnel's contact information while traveling (e.g., cell phone, radio frequency, etc.).
	Manifest <input type="checkbox"/> Yes <input type="checkbox"/> No Number	Use this section to enter whether or not the resource or personnel has a manifest. If they do, indicate the manifest number.
	Area/Agency/Region Notified	Use this section to enter the area, agency, and/or region that was notified of the resource's travel. List the name (first initial and last name) of the individual notified and the date (month/day/year) he or she was notified.
9	Reassignment Information <input type="checkbox"/> Yes <input type="checkbox"/> No	Enter whether or not the resource or personnel was reassigned to another incident. If the resource or personnel was reassigned, complete the section below.
	Incident Name	Use this section to enter the name of the new incident to which the resource was reassigned.
	Incident Number	Use this section to enter the number of the new incident to which the resource was reassigned.
	Location	Use this section to enter the location (city and State) of the new incident to which the resource was reassigned.
	Order Request Number	Use this section to enter the new order request number assigned to the resource or personnel.

Figure 23.66. ICS 221 Instructions—Page 2

CHAPTER 24

SAR Map Symbols

Figures 24.1 and 24.2 show the “Incident Command System Map Display Symbology For Land SAR Missions” (suggested for placement on a base map), which were developed by Mark Pennington, VA DE; revised by Paul Anderson, Jim Stumpf, and Steve Foster; adopted by NASAR; and approved in *ASTM F1846 Standard Practice for Symbols and Markings for Use With Land Search Maps*.












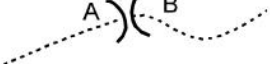
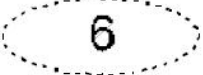
Color used (RED)		PLS, LKP OR IPP (Indicate which and include date and time)
Color used (RED)	• C-1 (4512/3486)	CLUE FOUND (Indicate number and location with UTM coordinates)
Color used (BLUE)		INCIDENT COMMAND POST
Color used (BLUE)		INCIDENT BASE
Color used (BLUE)		STAGING
Color used (BLUE)		CAMPS (Identify by name)
Color used (BLUE)		REPEATER OR MOBILE RADIO RELAY (Identify by number)
Color used (BLUE)		HELIBASE
Color used (BLUE)	• H-1 (216/982)	HELISPOT (Indicate number and location with UTM Coordinates)
Color used (RED)		PLANNED SEARCH AREA BOUNDRY

Figure 24.1. Standard Search and Rescue map symbols, Part 1

Color used (BLUE)		THEORETICAL SEARCH AREA
Color used (BLUE)		STATISTICAL SEARCH AREA WITH POA
Color used (BLACK)		TRAVEL BARRIER
Color used (BLACK)		DIVISION BOUNDARY (Indicate by letter)
Color used (BLACK)		SEGMENT BOUNDARY (Indicate by number)

SUGGESTED FOR PLACEMENT ON OVERLAYS


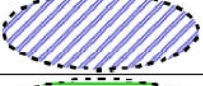



COLOR BASED ON TYPE OF RESOURCE MARKINGS BUILD ON EACH PREVIOUS LAYER		FIRST SEARCH COVERAGE
		SECOND SEARCH COVERAGE
		THIRD SEARCH COVERAGE
		FOURTH SEARCH COVERAGE
Colors used for above searches	DOG - BROWN GROUND CREW - GREEN AIR SEARCHES - BLUE	BOAT - ORANGE
Color used (RED)		CONFINEMENT BOUNDARY OR SEARCH PATROL
Color used (BLACK)	DOG # 2, CREW # 3, TF # 4, ST # 1, PATROL # 5	RESOURCE DESIGNATOR

Figure 24.2. Standard Search and Rescue map symbols, Part 2

CHAPTER 25

Job Action Sheets

A Job Action Sheet, or JAS, is a tool for defining and performing a specific emergency response functional role. A JAS is designed to clarify responsibilities. Unlike other hazards, such as fire, most SAR incidents do not warrant a Planning Section. While regular planning, training, exercises and evaluation are necessary to ensure that members of the IMT are competent to perform their emergency response roles, having a JAS can help ensure that each responder understands and performs assigned duties according to plan.

JASs based on ICS are common in the handling of medical emergencies. The Job Action Sheets in this text are based in part on the document http://www.emsa.ca.gov/HICS/files/JAS_Plan.doc from the California Emergency Medical Services Authority, on the documents <https://homeport.uscg.mil/mycg/portal/ep/contentView.do?contentId=41284&contentType=EDITORIAL> from the U.S. Department of Homeland Security, and on the documents <http://training.fema.gov/EMIWeb/IS/ICSResource/PositionChecklists.htm> from FEMA.

To paraphrase the U.S. Department of Homeland Security

“These Job Action Sheets do not cover other important traits of an effective PSC, such as:

- *Good leadership, interpersonal and communications skills, or experience in risk-based decision making.*
- *A solid grasp of political, social, environmental, and economic issues.*
- *Experience in risk-based decision making and in-depth knowledge of substantive aspects of the incident at hand.*

A good PSC exhibits these traits and many more in addition to properly executing the ICS.”

Although the Initial Response Incident Commander, Incident Commander, Operations Section Chief, Logistics Section Chief, Public Information Officer, and Safety Officer are not the focus of this book, the associated Job Action Sheets are included in this chapter for completeness.

Table 25.1. Initial Response Incident Commander Job Action Sheet ©2014

Initial Response Incident Commander (IC) Job Action Sheet	
Reports to:	Agency Administrator
Mission:	<ul style="list-style-type: none"> • Responsible for all incident activities during the initial response period including development and implementation of strategic decisions and for ordering and release of all resources. • Ensure welfare and safety of incident personnel. • Supervises all responding resources. • Determine whether incident can be managed with personnel on scene/en route or if higher level incident management is needed.
Qualifications:	<ul style="list-style-type: none"> • Leadership ability. • Experience in responding to Search incidents as a supervisor of single resources, Task Forces or Strike Teams. • Ability to see “the big picture” and focus on those actions most important to achieving the desired outcomes. • Knowledge of local resources and geography. • Investigative experience.
Oversees:	<ul style="list-style-type: none"> • All initial response resources, including single resources, Task Forces, Strike Teams. • If appointed, supervises Investigators or Investigative Unit Leader. • If appointed, supervises Command and General Staff.
Immediate Actions:	<ul style="list-style-type: none"> • Focus on Investigation, Containment, and Search in that order. • Take the initial report, either from the Agency Dispatcher or from the Reporting Party and write it down, either on a Lost Person Questionnaire, the ICS 201, or the WinCASIE III Initial Note. <ul style="list-style-type: none"> ◦ Name and contact information of reporting party. ◦ How the report was received (telephone, person, etc.). ◦ Name of missing person. ◦ Thumbnail sketch of missing person. ◦ Circumstances of loss. ◦ Date and time last seen. ◦ Place Last Seen or Last Known Point (as precisely and accurately as possible). ◦ What does the reporting party think happened? ◦ What does the reporting party want you to do? ◦ What Instructions did you give to the reporting party (stay put, call back in an hour, use text messages only to communicate with cell phone, etc.)? • Check in with Agency Dispatcher, and on ICS 201, page 4. • When appointed as IRIC, communicate this to dispatcher and incident-related personnel. • Read this entire Job Action Sheet. • Mark the Initial Planning Point on your map. • Initiate further investigation using the Lost Person Questionnaire as a guide, and consider delegating these duties to an Investigator. • Assess Current Situation: <ul style="list-style-type: none"> ◦ Determine Search Urgency. ◦ Review Lost Person Behavior. ◦ Review topography within the area defined by “distance traveled” in LPB and mark on map: <ul style="list-style-type: none"> ◊ Hazards. ◊ Barriers to travel. ◊ Trails, and other travel aids. ◊ Likely spots that might attract or hold the missing person. ◦ Identify those resources immediately available to respond. ◦ Conduct and record a scenario analysis. (Use Scenario Analysis worksheet.) ◦ Consider the possibility of a criminal act. ◦ Identify the potential “risks” to the missing person and to the searchers. ◦ Consider history of other missing persons in the same area.
Initial Response Incident Commander Job Action Sheet continued on next page ...	

...Initial Response Incident Commander Job Action Sheet continued from previous page	
	<ul style="list-style-type: none"> • Designate an Incident Command Post and notify all personnel of the location. Mark location on the map, and make sure you don't leave it! • Put on position identification • Write 3–5 Initial Response Incident Objectives on ICS 201. <ul style="list-style-type: none"> ◦ Continue investigation. ◦ Contain the subject. ◦ Locate and protect the PLS/IPP. ◦ Determine direction of travel. ◦ Search likely routes and locations. ◦ Provide for responder safety! • Choose a strategy or strategies to accomplish each objective. • Define the Tasks to carry out the strategy(ies). • Determine what kind and how many resources will be required to implement the Tactics. • Identify any needed reporting locations/staging areas. Mark on the map. • Order the required resources and begin tracking them on the ICS 201, page 4. • Confirm dispatch and arrival times of activated resources. • Brief and assign the initial response search resources.
Intermediate Actions:	<ul style="list-style-type: none"> • Keep the agency administrator and agency dispatcher informed of incident and response status regularly. • Evaluate the initial response plan and track the resources' progress in achieving the Incident Objectives. • Review the Investigative Task checklist (see 49) to ensure that all investigative tasks are being accomplished. • Consider appointing and delegating work as necessary to Command and General Staff positions. • Debrief the initial response resources as they complete their assignments. Reassign to additional tasks as appropriate. • If it appears that the initial response resources will not be able to locate the missing person quickly, consider ordering additional resources. <ul style="list-style-type: none"> ◦ Ensure ICS 201 and/or Initial Note is complete and accurate. ◦ Set time and location for the Transition Briefing. ◦ Conduct the Initial Briefing using the ICS 201 and other pertinent documents: <ul style="list-style-type: none"> ◊ Lost Person Questionnaire. ◊ Missing Person Flyer. ◊ Clue Log. ◊ Investigative information.
Demobilization:	<ul style="list-style-type: none"> • If needed, develop a Demobilization Plan based upon the needs of the incident. • If needed, determine Release Priorities. • If needed, implement the Demobilization Plan. • Participate in the After Action Review.
Forms Prepared: ICS 201	
Forms Approved: ICS 201	
Meetings:	Initial Incident Briefing, After Action Review.

Table 25.2. Planning Section Chief Job Action Sheet

Planning Section Chief (PSC) Job Action Sheet	
Reports to:	Incident Commander
Mission:	<ul style="list-style-type: none"> • Oversee all incident-related data gathering and analysis regarding incident operations and assigned resources. • Conduct planning meetings. • Prepare the Incident Action Plan (IAP) for each operational period.
Qualifications:	<ul style="list-style-type: none"> • Ability to write Incident Action Plans. • Management experience. • Organized individual; able to think ahead about what is needed or may be needed during all phases of an incident.
Oversees:	<ul style="list-style-type: none"> • Resources Unit Leader. • Situation Unit Leader. • Documentation Unit Leader. • Demobilization Unit Leader.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive appointment and briefing from the Incident Commander. • Review the current ICS 201 and/or IAP. • Read this entire Job Action Sheet and review incident management team chart (ICS 203/207). • Put on position identification. • Determine need for and appropriately appoint Unit Leaders, distribute corresponding Job Action Sheets and position identification. • Brief Planning Section Unit Leaders on current situation and incident objectives; develop response strategy and, with OSC, develop tactics; designate time for next briefing. • In consultation with the Incident Commander, establish the incident objectives and operational period. Initiate the Incident Objectives Form (ICS 202) and distribute to all activated positions. • Document all key activities, actions, and decisions in an Activity Log (ICS 214) on a continual basis. • Create preferred and alternative strategies. • Establish and maintain communications with Logistics Section Chief and Staging Manager to ensure the accurate tracking of personnel and resources. • Facilitate and conduct incident action planning meetings with Command Staff, Section Chiefs and other key positions to plan for the next operational period. Coordinate preparation and documentation of the Incident Action Plan and distribute copies to the Incident Commander and all Section Chiefs. • Ensure the Situation Unit Leader and staff regularly update and document status reports from all Section Chiefs and Unit Leaders. • Ensure Planning Section personnel comply with safety policies and procedures. • Document all communications (internal and external) on a General Message Form (ICS 213). Provide a copy of the General Message Form to the Documentation Unit.
Intermediate Actions:	<ul style="list-style-type: none"> • Meet regularly with the Incident Commander to brief on the status of the Planning Section and the Incident Action Plan. • Attend command briefings and meetings. • Continue to conduct regular planning meetings with Planning Section Unit Leaders, Section Chiefs, Command Staff, and the Incident Commander for continued update and development of the Incident Action Plan. • Ensure that the Planning Section is adequately staffed and supplied.
Planning Section Chief Job Action Sheet continued on next page ...	

... Planning Section Chief Job Action Sheet continued from previous page	
Extended Actions:	<ul style="list-style-type: none"> • Continue to monitor Planning Section personnel's ability to meet workload demands, staff health and safety, resource needs, and documentation practices. • Conduct regular situation briefings with Planning Section. • Continue to receive projected activity reports from Section Chiefs and Planning Section Unit Leaders at designated intervals to prepare status reports and update the Incident Action Plan. • Ensure the Demobilization Unit Leader assesses ability to deactivate positions, as appropriate, in collaboration with Section Chiefs and develops and implements a demobilization plan. • Ensure the Documentation Unit Leader is receiving and organizing all documentation, including Activity Logs (ICS 214) and General Message Forms (ICS 213). • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. • Observe all staff and volunteers for signs of stress and inappropriate behavior. Provide for staff rest periods and relief. • Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.
Demobilization:	<ul style="list-style-type: none"> • As needs decrease, combine or deactivate positions in a phased manner. • Continue to meet with Command Staff, Section Chiefs and Planning Section Unit Leaders to evaluate facility and personnel, review the demobilization plan and update the Incident Action Plan. • Ensure collection of all documentation and Activity Logs from Command and Sections as positions are deactivated and sections demobilized. • Work with Planning and Finance/Administration Sections to complete cost data information. • Begin development of the After Action Review and assign staff to complete portions/sections of the report. • Debrief staff on lessons learned and procedural/equipment changes needed. • Upon deactivation of your position, ensure all documentation and Activity Logs (ICS 214) are submitted to the Documentation Unit. • Upon deactivation, brief the Incident Commander on current problems, outstanding issues, and follow-up requirements. • Submit comments to the Incident Commander for discussion and possible inclusion in an after-action report; topics include: <ul style="list-style-type: none"> ◦ Review of pertinent position descriptions and operational checklists. ◦ Recommendations for procedure changes. ◦ Section accomplishments and issues. • Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.
Forms Prepared: ICS 202, ICS 203, ICS 204, ICS 207, ICS 209, ICS 214, ICS 215	
Forms Approved: ICS 221	
Meetings:	Initial Incident Briefing, Initial UC Meeting, Tactics Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.3. Resources Unit Leader Job Action Sheet

Resources Unit Leader (RESL) Job Action Sheet	
Reports to:	Planning Section Chief
Mission:	<ul style="list-style-type: none"> • Establish all incident check-in activities. • Prepare and process resource status change information. • Prepare and maintain displays, charts, and lists that reflect the current status and location of critical resources, transportation, and support vehicles. • Maintain a master check-in list of resources assigned to an incident.
Qualifications:	<ul style="list-style-type: none"> • Understanding of organization processes: check-in, resource ordering, and resource tracking. • Good communications and organizational skills.
Oversees:	<ul style="list-style-type: none"> • Check-In Recorders. • Status Recorders.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive appointment and briefing from the Planning Section Chief. • Obtain packet containing Resources Unit Job Action Sheets. • Read this entire Job Action Sheet and review incident management team chart (ICS 203/207). • Put on position identification. • Establish check-in functions at incident locations. (Check-in List, ICS 211). • Establish T-Card rack or SAR T-Cards. • Appoint Recorders as appropriate; distribute corresponding Job Action Sheets and position identification. • Brief Recorders on current situation; designate time for next briefing. • Complete the Organization Assignment List (ICS 203) and distribute. Consider posting a large size copy of the List for reference and information. • Establish contacts with incident facilities by telephone or through communications center and begin maintenance of resource status. • Document all key activities, actions, and decisions in an Activity Log (ICS 214). • Establish contact with the Situation Unit Leader to account for on-duty personnel, and equipment and supplies on hand. • Coordinate activities and inventories with Logistics Section's Supply Unit Leader. • Document all communications (internal and external) on a General Message Form (ICS 213). • Provide a copy of the General Message Form to the Documentation Unit. • Using the Incident Briefing (ICS 201), prepare and maintain the ICP display including the organization chart (ICS 207), resource allocation (ICS 201, 204), and deployment sections. • Confirm dispatch and estimated time of arrival of ordered Resources Unit personnel. • Request additional personnel or release of excess personnel.
Intermediate Actions:	<ul style="list-style-type: none"> • Meet regularly with the Planning Section Chief for status reports, and relay important information to Team Members. • Meet with the Public Information Officer, Liaison Officer, and Situation Unit Leader as necessary to update and maintain resources tracking. • Advise the Planning Chief immediately of any operational issue you are not able to correct or resolve. • Participate in Planning Section meetings as required by the Planning Section Chief. • Gather, post, and maintain incident resource status. • Prepare Organization Assignment List (ICS 203) and Organization Chart (ICS 207). • Prepare appropriate parts of Division/Group Assignment Lists (ICS 204). • Provide resource summary information to Situation Unit as requested.
Resources Unit Leader Job Action Sheet continued on next page ...	

...Resources Unit Leader Job Action Sheet continued from previous page	
Extended Actions:	<ul style="list-style-type: none"> • Continue to monitor the Unit's ability to meet workload demands, staff health and safety, resource needs, and documentation practices. • Continue to document actions and decisions in an Activity Log (ICS 214) and send to the Planning Section Chief at assigned intervals and as needed. • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. • Observe all staff and volunteers for signs of stress and inappropriate behavior. Provide for staff rest periods and relief. • Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.
Demobilization:	<ul style="list-style-type: none"> • As needs for Resources Unit staff decrease, combine or deactivate positions in a phased manner. • Debrief staff on lessons learned and procedural/equipment changes needed. • Upon deactivation of your position, ensure all documentation and Activity Logs (ICS 214) are submitted to the Planning Section Chief or Documentation Unit, as appropriate. • Upon deactivation of your position, brief the Planning Section Chief on current problems, outstanding issues, and follow-up requirements. • Submit comments to the Planning Section Chief for discussion and possible inclusion in the After Action Review; topics include: <ul style="list-style-type: none"> ◦ Review of pertinent position descriptions and operational checklists. ◦ Recommendations for procedure changes. ◦ Section accomplishments and issues. • Photograph Resources Unit displays for the Incident File package before dismantling and storing them. • List expendable supplies that need replenishing, and file with Supply Unit Leader. • Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.
Forms Prepared:	ICS 203, ICS 204, ICS 207, ICS 209, ICS 211
Forms Approved:	ICS 215
Meetings:	Tactics Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.4. Situation Unit Leader Job Action Sheet

Situation Unit Leader (SITL) Job Action Sheet	
Reports to:	Planning Section Chief
Mission:	<ul style="list-style-type: none"> • Collect, process, analyze, and organize ongoing situation information. • Prepare situation summaries. • Develop projections and forecasts of future events related to the incident. • Prepare maps and gather and disseminate information and intelligence for use in the Incident Action Plan (IAP).
Qualifications:	<ul style="list-style-type: none"> • Administrative experience. • SAR leadership or management background.
Oversees:	<ul style="list-style-type: none"> • Display Processor. • Field Observers. • Weather Observers. • Technical Specialists.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive appointment and briefing from the Planning Section Chief. Obtain packet containing Situation Unit Job Action Sheets. • Read this entire Job Action Sheet and review incident management team chart (ICS 203/207). Put on position identification. • Establish a Planning information center with a status/condition board and post information as it is received. Assign a recorder/documentation aide to keep the board updated with current information. • Receive and record status reports as they are received. • Assign a recorder to monitor, document, and organize all communications sent and received. • Assure the status updates and information provided to Command Staff and Section Chiefs is accurate, complete, and current. • Document all key activities, actions, and decisions in an Activity Log (ICS 214). • Document all communications (internal and external) on a General Message Form (ICS 213). • Provide a copy of the General Message Form to the Documentation Unit. • Catalog all clues, and identify those unresolved. • Analyze new clues. • Perform Scenario Analysis. • Start Win CASIE III.
Intermediate Actions:	<ul style="list-style-type: none"> • Meet regularly with the Planning Section Chief, Section Chiefs and Branch Directors to obtain situation and status reports, and relay important information to team Members. • Ensure that an adequate number of recorders are assigned to perform Situation Unit activities. • Ensure backup and protection of existing electronic data. • Ensure the security and prevent the loss of written documentation. • Ensure development of a demobilization plan by the Demobilization Unit Leader, in collaboration with Section Chiefs and Command Staff. • Assist the Planning Section Chief to develop the Incident Action Plan at designated intervals. • Advise the Planning Section Chief immediately of any operational issue you are not able to correct or resolve.
Extended Actions:	<ul style="list-style-type: none"> • Continue to monitor the Situation Unit staff's ability to meet workload demands, staff health and safety, resource needs, and documentation practices. • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. • Observe all staff and volunteers for signs of stress and inappropriate behavior. • Provide for staff rest periods and relief. • Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.
Situation Unit Leader Job Action Sheet continued on next page ...	

... Situation Unit Leader Job Action Sheet continued from previous page	
Demobilization:	<ul style="list-style-type: none"> • As needs for the Situation Unit staff decrease, combine or deactivate positions in a phased manner. • Continue to revise and implement demobilization plan for all Sections. • Compile incident summary data and reports, organize all documentation and submit to Planning Section Chief. • Assist with development of the incident After Action Review and improvement plan. • Debrief staff on lessons learned and procedural/equipment changes needed. • Upon deactivation of your position, ensure all documentation and Activity Logs (ICS 214) are submitted to the Planning Section Chief. • Submit comments to the Planning Section Chief for discussion and possible inclusion in the after-action report; topics include: <ul style="list-style-type: none"> ◦ Review of pertinent position descriptions and operational checklists. ◦ Recommendations for procedure changes. ◦ Section accomplishments and issues. • Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.
Forms Prepared:	ICS 209, Incident Maps
Forms Approved:	None
Meetings:	Tactics Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.5. Documentation Unit Leader Job Action Sheet

Documentation Unit Leader (DOCL) Job Action Sheet	
Reports to:	Planning Section Chief
Mission:	<ul style="list-style-type: none"> • Maintain accurate and complete incident files. • Provide duplication services to incident personnel. • File, maintain, and store incident files for legal, analytical, and historical purposes.
Qualifications:	<ul style="list-style-type: none"> • Several years of experience with large-scale incidents.
Oversees:	<ul style="list-style-type: none"> • Assigned Staff.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive appointment and briefing from the Planning Section Chief. • Read this entire Job Action Sheet and review incident management team chart (ICS 203/207). Put on position identification. • Establish work area with files and photocopier. • Establish initial contact with all Section Chiefs to obtain status and history of all major events and actions that have occurred to date, critical issues, and concepts of operations and steps to be taken within the next operational period. • Prepare a system to receive documentation and completed forms from all Sections over the course of the incident. • Check the accuracy and completeness of records submitted. Correct errors or omissions by contacting appropriate ICS Units. • Establish an incident filing system to organize and maintain all documentation of incident activities. • Provide duplicates of forms and reports to authorized requestors. • Prepare incident documentation for the Planning Section Chief when requested. • Document all key activities, actions, and decisions in an Activity Log (ICS 214). • Document all communications (internal and external) on a General Message Form (ICS 213). • Provide a copy of the General Message Form to the Documentation Unit.
Intermediate Actions:	<ul style="list-style-type: none"> • Regularly meet with all Section Chiefs regarding incident and Section status, steps taken to resolve critical issues, and projected actions and needs for the next operational period. • Continue to accept and organize all documentation and forms submitted to the Documentation Unit. • Check the accuracy and completeness of records submitted. Correct errors or omissions by contacting appropriate Section staff. • Maintain all historical information and record consolidated plans.
Extended Actions:	<ul style="list-style-type: none"> • Continue to meet regularly with the Planning Section Chief for status reports. • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. • Observe all staff and volunteers for signs of stress and inappropriate behavior. • Provide for staff rest periods and relief. • Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.
Documentation Unit Leader Job Action Sheet continued on next page ...	

... Documentation Unit Leader Job Action Sheet continued from previous page	
Demobilization:	<ul style="list-style-type: none"> • As needs for the Documentation Unit staff decrease, combine or deactivate positions in a phased manner. • Ensure all documentation from Command Staff and Sections is received and compiled. • Upon deactivation of your position, ensure all documentation and Activity Logs (ICS 214) are submitted to the Planning Section Chief. • Upon deactivation of your position, brief the Planning Chief on current problems, outstanding issues, and follow-up requirements. • Submit comments to the Planning Section Chief for discussion and possible inclusion in the After Action Review; topics include: <ul style="list-style-type: none"> ◦ Review of pertinent position descriptions and operational checklists. ◦ Recommendations for procedure changes. ◦ Section accomplishments and issues. • Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.
Forms Prepared:	None
Forms Approved:	None
Meetings:	Planning Meeting, Demobilization Planning Meeting, After Action Review

Table 25.6. Demobilization Unit Leader Job Action Sheet

Demobilization Unit Leader (DMOB) Job Action Sheet	
Reports to:	Planning Section Chief
Mission:	<ul style="list-style-type: none"> • Develop and coordinate an Incident Demobilization Plan that includes specific instructions for all staff and resources that will require demobilization.
Qualifications:	
Oversees:	<ul style="list-style-type: none"> • Assigned Staff.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive appointment and briefing from the Planning Section Chief. • Read this entire Job Action Sheet and review incident management team chart (ICS 203/207). Put on position identification. • Establish initial contact with all Section Chiefs to obtain status of events and begin discussions about what resources and personnel can be demobilized and when. • Document all key activities, actions, and decisions in an Activity Log (ICS 214) on a continual basis. • Document all communications (internal and external) on a General Message Form (ICS 213). Provide a copy of the General Message Form to the Documentation Unit.
Intermediate Actions:	<ul style="list-style-type: none"> • Monitor incident response activities and needs. • Regularly meet with all Section Chiefs and staff to maintain information regarding changes in their resource needs. • Attend Incident Action Planning meetings and briefings. • Continually update a consolidated Incident demobilization plan until a final version is prepared for approval.
Extended Actions:	<ul style="list-style-type: none"> • Continue to meet regularly with the Planning Section Chief for status reports. • Continue to assess the status of the incident and recommend deactivation of positions and personnel as the magnitude of the incident decreases. • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. • Observe all staff and volunteers for signs of stress and inappropriate behavior. • Provide for staff rest periods and relief. • Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.
Demobilization:	<ul style="list-style-type: none"> • Continue to assess the status of the incident and recommend to Section Chiefs and Command the deactivation of positions and personnel as the magnitude of the incident decreases. • Submit incident demobilization plan(s) to the Planning Section Chief for approval. Upon approval, distribute copies to all Section Chiefs. • Upon deactivation of your position, ensure all documentation and Activity Logs (ICS 214) are submitted to the Planning Section Chief. • Upon deactivation, brief the Planning Section Chief on current problems, outstanding issues, and follow-up requirements. • Submit comments to the Planning Section Chief for discussion and possible inclusion in the After Action Review; topics include: <ul style="list-style-type: none"> ◦ Review of pertinent position descriptions and operational checklists. ◦ Recommendations for procedure changes. ◦ Section accomplishments and issues. • Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.
Forms Prepared:	ICS 221
Forms Approved:	None
Meetings:	After Action Review

Table 25.7. Incident Commander Job Action Sheet ©2014

Incident Commander (IC) Job Action Sheet	
Reports to:	Agency Administrator
Mission:	<ul style="list-style-type: none"> • Responsible for all incident activities including development and implementation of strategic decisions and for approving ordering and release of all resources. • Ensure welfare and safety of incident personnel. • Supervise Command and General Staff.
Qualifications:	<ul style="list-style-type: none"> • Leadership ability. • Experience in managing complex Search incidents. • Ability to see “the big picture” and focus on those actions most important to achieving the desired outcomes.
Oversees:	<ul style="list-style-type: none"> • Safety Officer. • Information Officer. • Liaison Officer. • Operations Section Chief. • Planning Section Chief. • Logistics Section Chief. • Finance/Administration Section Chief.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Obtain initial briefing from current Incident Commander and agency administrator. • Read this entire Job Action Sheet and review incident management organization chart. • Put on position identification. • Assess Current Situation: <ul style="list-style-type: none"> ◦ Review the current situation status and initial incident objectives. Ensure that all local, State and Federal agencies impacted by the incident have been notified. • Recognize jurisdictional boundaries. <ul style="list-style-type: none"> ◦ Determine need for, establish, and participate in Unified Command. ◦ Co-located command post. ◦ Unified and prioritized incident objectives. ◦ Coordinated strategy. ◦ Single coordinated IAP. ◦ One Operations Section Chief (if activated). ◦ Communications plan. ◦ Resource ordering plan. • Activate appropriate Command and General Staff positions. • Confirm dispatch and arrival times of activated resources. • Confirm work assignments. • Announce Change of Command to all Incident personnel. • Develop and approve Incident Objectives. • Approve Incident Strategy. • Brief Staff: <ul style="list-style-type: none"> ◦ Identify incident objectives and any policy directives for the management of the incident. ◦ Provide a summary of current organization. ◦ Provide a review of current incident activities. ◦ Set time for initial planning meeting. • Establish level of planning to be accomplished: <ul style="list-style-type: none"> ◦ Written IAP. ◦ Contingency planning.
Incident Commander Job Action Sheet continued on next page ...	

... Incident Commander Job Action Sheet continued from previous page	
Intermediate Actions:	<ul style="list-style-type: none"> • Approve and authorize implementation of the IAP: <ul style="list-style-type: none"> ◦ Review IAP for completeness and accuracy. ◦ Verify that objectives are incorporated and prioritized. ◦ Sign ICS Form 202. • Establish parameters for resource requests and releases. • Review requests for critical resources. • Confirm who has ordering authority within the organization. • Confirm those orders that require Command authorization. • Authorize release of information to the media. • Ensure Planning Meetings are conducted as directed. • Manage by wandering around incident to meet and discuss progress/problems with Command and General Staff. • Coordinate with key team members inside and outside the ICS Organization (Command and General Staff, Agency Administrator, EOC/MAC personnel, etc.) to ensure all aspects of the incident objectives are addressed.
Extended Actions:	<ul style="list-style-type: none"> • Evaluate progress. <ul style="list-style-type: none"> ◦ Evaluate incident complexity. ◦ Monitor tactical operations. ◦ Compare actual progress to planned tactics. ◦ Decide if plan will accomplish incident objectives. • Monitor safety and condition of all resources assigned to the incident, including the IMT. • Ensure Command and General Staff coordination: <ul style="list-style-type: none"> ◦ Periodically check progress on assigned tasks of Command and General Staff personnel. ◦ Approve necessary changes to objectives and strategy goals and IAP. ◦ Ensure that Liaison Officer is making periodic contact with participating agencies. • Keep agency administrator informed on incident-related problems and progress.
Demobilization:	<ul style="list-style-type: none"> • Determine need for, and set time for Demobilization Planning Meeting. • Approve release priorities. • Approve final Demobilization Plan. • Ensure that all Command and General Staff receive performance evaluations. • Ensure that all required incident documentation is complete and accurate, and submitted to the Agency Administrator. • Participate in the After Action Review.
Forms Prepared: ICS 202, ICS 213, ICS 214	
Forms Approved: ICS 202, ICS 209, Incident Action Plan, Contingency Plans, Demobilization Plan	
Meetings:	Agency Administrator Briefing, Initial Incident Briefing, Initial UC Meeting, Strategy Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.8. Operations Section Chief Job Action Sheet

Operations Section Chief (OSC) Job Action Sheet	
Reports to:	Incident Commander
Mission:	<ul style="list-style-type: none"> • Responsible for managing all operations directly applicable to the primary mission. • Activates and supervises organizational elements in accordance with the Incident Action Plan, and directs its execution. • Directs preparation of operational plans, requests or releases resources, makes expedient changes to the Incident Action Plan as necessary and reports such to the Incident Commander and Planning Section Chief.
Qualifications:	<ul style="list-style-type: none"> • Leadership ability. • Experience managing operations on smaller incidents as either IC or OSC. • Working knowledge of the ICS Planning Process.
Oversees:	<ul style="list-style-type: none"> • All operational resources, including, but not limited to: <ul style="list-style-type: none"> ◦ Branch Directors, Group/Division Supervisors, Task Force and Strike Team Leaders, Field Teams, Air Operations.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive briefing from Incident Commander. • Review the current ICS 201 and/or IAP. • Read this entire Job Action Sheet and review incident management organization chart, ICS 203 and ICS 207. • Put on position identification. • Assess the incident operations • Participate in developing Incident Strategy. • Develop Tactical Plan (ICS 215) for the upcoming Operational Period. • Attend and coordinate the Tactics Meeting. • Assist the Safety Officer in completing the ICS 215A, IAP Safety Analysis. • Adjust operations as needed to most safely, effectively and efficiently accomplish the Incident Objectives. • Participate in the Planning Meeting. • Complete the ICS 220, Air Operations Summary as needed. • Present tactical assignments for all Operations resources at the Operational Period Briefing. • Document all internal communications on an ICS 213, and provide a copy to the Documentation Unit. • Complete the ICS 214 Unit Log.
Intermediate Actions:	<ul style="list-style-type: none"> • Meet regularly with the IC and PSC to brief on the status of operations, and progress toward meeting the Incident Objectives. • Attend all required meetings and briefings. • Adjust the existing Incident Action Plan as needed, and report changes to the IC and PSC. • Ensure that Operations Section staffing is adequate and appropriate to the needs of the incident. • Ensure that all Operations resources are fully briefing on Safety issues, and are operating safely. • Communicate regularly with the PSC, LSC, FSC, SO, and IC to share current information, resource condition and capability as well as progress in meeting the Incident Objectives. Help solve problems, and provide support. • Ensure that all Operations personnel submit their ICS 214's to the Planning Section, and get properly debriefed before going off duty.
Operations Section Chief Job Action Sheet continued on next page ...	

... Operations Section Chief Job Action Sheet continued from previous page	
Extended Actions:	<ul style="list-style-type: none"> • Monitor ongoing Operations to ensure that they are focused directly, and appropriately on meeting the Incident Objectives. Adjust as necessary. If there is a need for revised Incident Objectives or Strategy, immediately notify the Incident Commander. • Continue to monitor Operations Section's ability to safely meet workload demands, maintain acceptable span of control, and adjust as necessary. • Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques. Observe all staff and volunteers for signs of stress and inappropriate behavior. Provide for staff rest periods and relief. • Coordinate the development, approval and implementation of transfer of duties when incident escalates/deescalates.
Demobilization:	<ul style="list-style-type: none"> • Attend and participate in the Incident Demobilization Planning Meeting. • Identify those resources that are no longer needed, and notify the Planning Section of excess resources. • Recommend release of Operations resources as the situation dictates and according to the release priorities approved by the Incident Commander. • Ensure that all Operations Section personnel receive performance evaluations. • Ensure all Operations Section documentation is submitted as required. • Participate in the After Action Review.
Forms Prepared: ICS 213, ICS 214, ICS 215, ICS 220	
Forms Approved: None	
Meetings:	Agency Administrator Briefing, Initial Incident Briefing, Strategy Meeting, Tactics Meeting, Planning Meeting, Operational Period Briefing, After Action Review.

Table 25.9. Logistics Section Chief Job Action Sheet

Logistics Section Chief (LSC) Job Action Sheet	
Reports to:	Incident Commander
Mission:	<ul style="list-style-type: none"> • Responsible for providing facilities, services, resources, and material in support of the incident. • Participates in development of the Incident Action Plan. • Activates and supervises the branches and sections within the Logistics Section.
Qualifications:	<ul style="list-style-type: none"> • Experience in providing logistics support as a Unit Leader or Logistics Section Chief on smaller incidents. • Leadership and problem solving ability. • Innovative, with a positive, “can do” attitude.
Oversees:	<ul style="list-style-type: none"> • Service Branch Director. <ul style="list-style-type: none"> ◦ Communications Unit Leader. ◦ Medical Unit Leader. ◦ Food Unit Leader. • Support Branch Director. <ul style="list-style-type: none"> ◦ Supply Unit Leader. ◦ Facilities Unit Leader. ◦ Ground Transportation Unit Leader.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on ICS 211. • Receive briefing from Incident Commander. • Review the ICS 201 or current IAP. • Read this entire Job Action Sheet and review incident management organization chart, ICS 203 or ICS 207. • Put on position identification. • Order and acquire, brief Logistics Section Unit Leaders on current situation and incident objectives, expected size and scope of the incident. • Collect information on current resources assigned, en route, on order, and local resource status including Initial Response as it relates to the Logistics Section. These information sources may include: <ul style="list-style-type: none"> ◦ Agency dispatcher. ◦ Initial Response Incident Commander, overhead, resource advisor, etc. • Obtain information on location, situations; for example, ICP/base locations, medical facilities, road closures, camp locations, etc. • Determine facilities established and operating. • Document all key activities, actions and decisions on an Activity Log, ICS 214. • Participate in preparation of the Incident Action Plan. • Ensure that ICS 205, ICS 206, Traffic Plan are completed. • Coordinate and process requests for additional incident resources.
Intermediate Actions:	<ul style="list-style-type: none"> • Manage Section personnel and activities for safe, timely service and support to the incident. Ensure the Section is adequately staffed and equipped. • Attend Strategy Meetings, Tactics Meetings, Planning Meetings, and Operational Period Briefings.
Logistics Section Chief Job Action Sheet continued on next page . . .	

... Logistics Section Chief Job Action Sheet continued from previous page	
Extended Actions:	<ul style="list-style-type: none"> ● Evaluate and monitor current situation. <ul style="list-style-type: none"> ○ Determine if current logistics capabilities will meet incident objectives. ○ Identify problems and concerns (evacuation, sheltering, aviation safety, etc.) for which logistics may be part of the solution. ○ Advise Incident Commander and other appropriate incident management team personnel. ● Anticipate and identify kind, type, and number of resources required to achieve objectives. ● Consider incident type and complexity, kinds and types of resources, resource availability, and safety factors. ● Order necessary personnel and equipment. ● Discuss long-range and contingency plans and identify potential and future resources' needs. ● Ensure all personnel and equipment time records are complete and have been submitted to the Time Unit Leader/Equipment Time Recorder at the end of each operational period.
Demobilization:	<ul style="list-style-type: none"> ● Participate in Demobilization Planning Meeting. ● Coordinate with unit leaders and provide Planning Section Chief a list of excess personnel, contract equipment, crews, miscellaneous personnel and other resources. List will include: <ul style="list-style-type: none"> ○ Name/type. ○ Quantity. ○ Time/date of available release. ● Review the list daily for accuracy ensuring that all units are demobilized in a timely and complete manner.
Forms Prepared: ICS 205, ICS 206, ICS 214, Resource Orders	
Forms Approved: None	
Meetings:	Strategy Meeting, Tactics Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.10. Public Information Officer Job Action Sheet

Public Information Officer (PIO) Job Action Sheet	
Reports to:	Incident Commander
Mission:	<ul style="list-style-type: none"> • Responsible for formulating and releasing information about the incident, both internally, to the news media, and to other appropriate agencies and organizations.
Qualifications:	<ul style="list-style-type: none"> • Public Affairs, Public Information experience. • Experience in the ICS on smaller incidents.
Oversees:	<ul style="list-style-type: none"> • Assistant Information Officers.
Immediate Actions:	<ul style="list-style-type: none"> • Check in on the ICS 211. • Obtain briefing from the Incident Commander. • Determine expectations of Incident Commander/Agency Administrator regarding gathering and disseminating of information. <ul style="list-style-type: none"> ◦ Participation in interviews. ◦ Media access (ground and air). ◦ Release of sensitive information. ◦ Investigation and cause. ◦ Need for, or location of information center. • Review the ICS 201 or current IAP. • Read this entire Job Action Sheet and review incident management organization chart, ICS 203 and ICS 207. • Put on position identification. • Contact the jurisdictional authority to coordinate public information activities. Obtain a media contact list. • Establish a single incident information center, if possible. • Obtain copies of the current ICS 209s. • Prepare an initial information summary as soon as possible after arrival. Interact with the Command and General Staff to obtain and disseminate information. • Observe any constraints on information release imposed by the IC. • Obtain Incident Commanders's approval for all information releases. • Establish system/schedule for obtaining incident information. <ul style="list-style-type: none"> ◦ ICS Form 209s. ◦ Communication with agency dispatch. ◦ Follow-up briefings from Incident Commander.
Public Information Officer Job Action Sheet continued on next page . . .	

... Public Information Officer Job Action Sheet continued from previous page	
Intermediate Actions:	<ul style="list-style-type: none"> • Initiate contact and respond to inquiries from media. <ul style="list-style-type: none"> ◦ Call wire services with initial information and updates. ◦ Provide phone numbers for media to call for further information. • Release news to the media and post information in the command post and other appropriate information boards. • Develop a Fact Sheet on the incident that describes the nature of the incident and addresses who, what, where, when, and why. <ul style="list-style-type: none"> ◦ Size. ◦ Location (proximity to well-known locations or communities). ◦ Time and date of origin. ◦ Cause (if cleared). ◦ Costs to date. ◦ Current and expected weather conditions. ◦ Agencies/jurisdiction. ◦ Cooperating agencies. ◦ Equipment and resources committed and responding. • Attend the Planning Meetings and Operational Period Briefings to update the available information. • Arrange for meetings between the media and the incident personnel. • Provide escort service to the media and VIP's/family. • Ensure all media and VIP's/family wear proper protective clothing and equipment. • Respond to special requests for information. • Complete ICS 214 daily.
Extended Actions:	<ul style="list-style-type: none"> • Support cooperating and participating agencies in contacts with the media and public. Written materials (news releases, fact sheets) should reflect support of other agencies as well. • Obtain updated maps and other visuals to aid Public Information Officers, and other incident personnel in briefing the media on incident status. • Take photographs and video of the incident and related activities. • Obtain community street maps, emergency numbers for local contacts. • Update and post incident fact sheet or newsletter at various locations in community. • Assist with post-incident information strategy and procedure. • Assist in organizing briefing material and documentation materials for jurisdictional agency information staff. • Assist jurisdictional agency with the preparation of a post incident information strategy.
Demobilization:	<ul style="list-style-type: none"> • Attend Demobilization Planning Meeting. • Complete ICS 221 if required. • Determine with replacement the time of transfer of duties.
Forms Prepared:	ICS 213, ICS 214, Media Releases
Forms Approved:	None
Meetings:	Agency Administrator Briefing, Initial Incident Briefing, Strategy Meeting, Planning Meeting, Operational Period Briefing, Demobilization Planning Meeting, After Action Review.

Table 25.11. Safety Officer Job Action Sheet

Safety Officer (SO) Job Action Sheet	
Reports to:	Incident Commander
Mission:	<ul style="list-style-type: none"> Responsible for monitoring and assessing hazardous and unsafe situations, and developing measures to ensure personnel safety. Although the SO has the authority to stop or prevent unsafe acts when immediate action is required, usually this is done through the regular line of authority. Includes Safety messages in each IAP.
Qualifications:	<ul style="list-style-type: none"> Risk Assessment and Risk Management training and experience. Operational field experience on SAR incidents. Working knowledge of ICS and the ICS Planning Process.
Oversees:	<ul style="list-style-type: none"> Assistant Safety Officers.
Immediate Actions:	<ul style="list-style-type: none"> Check in on the ICS 211. Obtain briefing from the Incident Commander. Read this entire Job Action Sheet and review incident management organization chart, ICS 203 and ICS 207. Put on position identification. Review the ICS 201 or current IAP and interview Operations Section personnel to identify hazardous situations associated with the incident. Participate in Tactics and Planning Meetings to ensure that safety is a part of the Planning Process. Review all Incident Action Plans for adequate risk identification and mitigation. Review and approve the Medical Plan, ICS 206. Exercise emergency authority to stop or prevent unsafe acts. Ensure that special precautions are taken when extraordinary hazards exist.
Intermediate Actions:	<ul style="list-style-type: none"> Discuss ICS 215A at operational briefings as appropriate. Prepare and present safety briefing. <ul style="list-style-type: none"> Present a safety briefing at each briefing session. Briefing should contain information to alert incident personnel of potential risk/hazard considered to be most critical. Answer any questions that may arise. Investigate and complete accident reports on all incident accidents.
Extended Actions:	<ul style="list-style-type: none"> Prepare narrative or special reports. When requested by the incident agency and/or Incident Commander, prepare narrative report of incident. Include the following items: <ul style="list-style-type: none"> Number of injuries and accidents. General safety situation and problems encountered. Description of significant incidents or unsafe situations. Recommendations for corrective action. Distribute accident investigation reports and initiate follow-up action. <ul style="list-style-type: none"> Follow up to see that all accident investigation reports are completed and include all required information. Distribute copies of the report to the Incident Commander and finance position assigned as appropriate. Recommend need for corrective action based on findings of the report to the Incident Commander. Initiate immediate corrective action, if necessary. Distribute information concerning accidents to Incident Commander. Ensure adequate rest is provided to all unit personnel.
Demobilization:	<ul style="list-style-type: none"> Participate in the Demobilization Planning Meeting. Follow Demobilization Plan instructions for demobilization. Ensure that all accident and injury reports are complete and submitted to the Finance/Administration Section prior to leaving the incident.
Safety Officer Job Action Sheet continued on next page ...	

... Safety Officer Job Action Sheet continued from previous page	
Forms Prepared: ICS 213, ICS 214, ICS 215A	
Forms Approved: ICS 206	
Meetings:	Strategy Meeting, Tactics Meeting, Planning Meeting, Operational Period Briefing, Demobilization Meeting, After Action Review.

Appendices

APPENDIX A

ICS Overview

Background

This chapter is a brief introduction to the Incident Command System (ICS). For a more in depth understanding, either attend the ICS 100, 200, and 300 courses, or study Reference [Deal].¹

Homeland Security Presidential Directive 5 requires that all federal agencies use the Incident Command System to facilitate a national, coordinated response to domestic emergencies.²

According to Ken Hill,³ “*The first function to break down in the search for a lost person is the management function, and when this happens it affects virtually every component of the search operation, most especially and unfortunately its outcome. When the Incident Commander (IC) loses control of the incident, confusion reigns, tempers flare, the media gets hostile, and the search becomes a protracted and painful ordeal.*”

Symptoms that the management of a SAR incident is malfunctioning include

- Lack of accountability (including unclear chain of command and supervision).
- Poor communication (including radio and terminology problems).
- Lack of an orderly, systematic planning process.
- Being reactive rather than proactive.
- Lack of documentation detailing what has been done.

These problems can be mitigated by using the ICS.

Problems with managing a SAR incident can be mitigated by using the ICS.

ICS Overview

An ICS organization is modular and flexible.

- It is scalable. Initially there is usually only the IC in the organization, but as the incident becomes larger and more complex, the size of the organization grows. Then, as the incident winds down, the organization shrinks. So the organization expands and contracts as needed.
- The incident objectives determine the organizational size.

¹ Some ICS courses are available online. See <http://www.training.fema.gov/is/crslist.asp>.

² See http://www.dhs.gov/xabout/laws/gc_1214592333605.shtm#content.

³ Part of this chapter is based on the ideas of Ken Hill (Reference [Hill 1]). Used with permission.

- Only functions/positions that are necessary are filled. The responsibilities of unfilled functions/positions are assumed by the immediate superiors.
- There is an orderly line of authority within the ranks of the incident management organization (Chain of Command).
- Every individual has one, and only one, designated supervisor to whom they report (Unity of Command).

The ICS provides consistent and efficient guidelines for the management of an incident, so that

1. The roles and functions of the **Incident Management Team**, are clearly defined and coordinated ensuring that search management is a team effort.
2. **Sound Management Principles** are specified and used permitting leaders to maintain control of the incident.
3. **Common Terminology** is provided allowing people to communicate effectively.
4. All actions taken on behalf of the lost subject are goal-directed rather than resulting from isolated decisions: that is, they are driven by operational objectives, thereby contributing to an overall **Incident Action Plan** for finding the subject.
5. All decisions, clues, and activities are **Documented**. ICS provides a comprehensive set of forms for keeping a written record of the incident. See Chapter 23 on page 206.

These concepts are discussed in turn. However, to quote Paul Anderson, “*in practice ICS is not as organized as it appears, and it often takes more than one operational period before all components of the system are synchronized.*”

1. Incident Management Team (IMT)

The Incident Management Team is the overhead team responsible for managing the search and devising an Incident Action Plan for finding the lost person. There are five basic functions that must be performed during the incident. See Figure A.

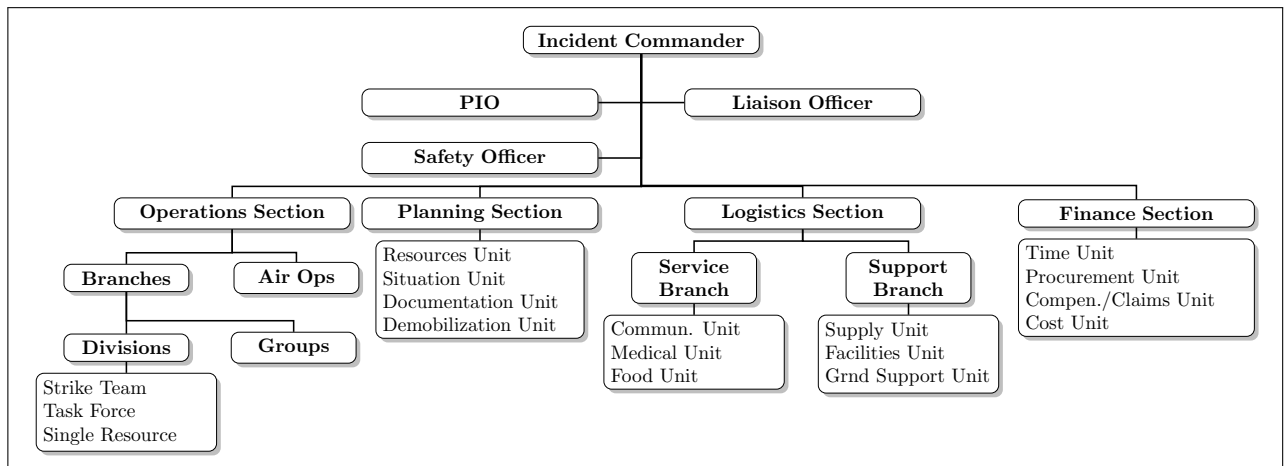


Figure A. ICS Structure

a) The Command Function

Although search management is a team effort, someone has to be responsible for leading the overhead team and overseeing all on-scene activities. The person who performs this function is called the Incident Commander. They set the Incident Objectives and ensure that other members of the overhead team implement those objectives. While they supervise the performance of other search functions (for example, decisions concerning search tactics), they do not become overly involved with any particular function, because this detracts from their ability to maintain “the big picture” on the incident. The IC delegates authority, but not responsibility.

The IC delegates authority, but not responsibility.

As needed, the Incident Commander delegates some authorities to the Public Information Officer, the Safety Officer, and the Liaison Officer.

- i. Public Information Officer (PIO). The PIO is responsible for interfacing with the public and media and/or with other agencies with incident-related information.
- ii. Safety Officer (SO). The SO monitors incident operations and advises the IC on all matters relating to operational safety, including the health and safety of emergency responder personnel.
- iii. Liaison Officer (LOFR). The LOFR is the point of contact for representatives of other governmental agencies, nongovernmental organizations, and/or private entities.

b) The Planning Function

Searching for a lost person involves gathering information (lost person data, witness reports, clues, weather forecasts, etc.) and, based on that information, acquiring and applying search resources (ground searchers, helicopters, dogs, etc.) to specific areas of the search. The Planning Section Chief (PSC) performs this function (in consultation with the Operations Chief and approved by the IC). They take the Incident Objectives (for example, “Confine the subject to within an area of 8 square miles.” “Search high probability areas with a high probability of detecting the subject.” “Find the subject before nightfall.”) set by the IC and translates them into an operational strategy, including an assessment of the resources necessary to implement the strategy.⁴ For example, in an Area Search they are responsible for segmenting the search area on a map and—based on a review of the behavior of past lost persons of a similar type—assigning probabilities that the subject is located within each segment; they decide where to set up containment points for keeping the subject from leaving the area; and they keep a careful record of the extent to which different segments of the search area have been searched.

The PSC takes the Incident Objectives set by the IC and translates them into an operational strategy, including an assessment of the resources necessary to implement the strategy.

Generally, the PSC is in charge of both documentation (keeping accurate records of search progress) and investigation (acquiring the information necessary to conduct a successful search).

As needed, the PSC delegates some authorities to the Resources, Situation, Demobilization, and Documentation Unit leaders.

- i. Resources Unit Leader (RESL). The Resources Unit ensures that all assigned personnel and other resources have checked in at the incident. This unit keeps track of the current location and status of all assigned resources and maintains a master list of all resources committed to the incident.
- ii. Situation Unit Leader (SITL). The Situation Unit collects, processes, and organizes ongoing situation information. It prepares situation summaries, develops projections and forecasts of future events related to the incident, and prepares maps and gathers and disseminates information and intelligence for use in the IAP.
- iii. Documentation Unit Leader (DOCL). The Documentation Unit maintains accurate and complete incident files, including a complete record of the major steps taken to resolve

⁴ The PSC should consult and collaborate with the OSC in the development of strategies.

the incident. It provides duplication services to incident personnel; and files, maintains, and stores incident files for legal, analytical, and historical purposes.

- iv. Demobilization Unit Leader (DMOB). The Demobilization Unit develops an Incident Demobilization Plan that includes specific instructions for all personnel and resources that require demobilization.

c) **The Operations Function**

The Operations Section Chief makes tactical decisions about how to apply available resources to implement the search strategy set by the IC.⁵ For example, if the PSC wants a certain degree of coverage in a particular segment, the Operations Section Chief decides whether to use grid searchers, trackers, dog teams, aircraft, or some other search resource in order to complete the search strategy. They prepare the assignments and commit searchers to the field.

The Operations Section Chief makes tactical decisions about how to apply available resources to implement the search strategy set by the IC.

As needed, the Operations Section Chief establishes Divisions and Groups. Divisions are associated with physical or geographical areas of operation within the search area, for example, “Division A consists of Segments 1 through 7”. Groups are associated with functional areas of operation for the incident, for example, the Medical Group or the Investigative Group.

d) **The Logistics Function**

Logistics is an important supportive function. Someone has to ensure that searchers are fed and have a place to rest, that adequate transportation is available, that a communications system is established, that helicopters have a place to land, that medical services are available for injured searchers, and that order is maintained at the search base. Anything that is necessary to support the search incident is provided and supervised by the Logistics Section Chief.

Anything that is necessary to support the search incident is provided and supervised by the Logistics Section Chief.

e) **The Finance/Administration Function**

The Finance/Administration Function is responsible for managing all financial aspects of the incident. Not all incidents require a Finance/Administration Section. The Finance/Administration Section Chief processes workers compensation claims, contracts, payment for paid personnel, and equipment time-keeping. These functions are very important and while the Finance Section Chief is not seen on many incidents the IC is responsible for making sure that these issues are handled. While less likely in a SAR incident the Finance/Administration Section Chief can have significant influence over strategy and tactics based on the money available for the incident.

2. Sound Management Principles

As applied to search and rescue, ICS specifies a number of guidelines for optimal management of the search incident. Some of these include:

- **Operational Periods (Operational Period).**

The number of hours for which search managers can remain effective, rational decision-makers is limited. Normally, the quality of thinking processes begins to wane after 8 hours of duty

⁵ Strategy involves the “big picture”—the overall plan, and how those plans will achieve the goals and objectives. A tactic is an action that leads to the execution of the strategy. For example, a strategy might be to search particular segments. The search technique used to search a particular segment is a tactic.

and becomes severely impaired after 12 hours. The usual full operational period therefore consists of 12-hour shifts, with an overlap of approximately one hour at shift changes so that the next overhead team can be adequately briefed. In other words, the work shift is longer than the operational period. In urban searches the operational period is sometimes set at 8 hours, rather than 12. The start and length of the first full and subsequent operational periods should be proposed by the Planning Section, confirmed by the Logistics Section, and given final approval by the Incident Commander. The operational period is the period of time scheduled for completion of a given set of actions called for in the IAP.

- **Manageable Span of Control.**

The number of people that a manager can effectively supervise is limited, especially during a SAR incident. ICS recommends that the number of supervised people is between 3 and 7, with 5 suggested as an optimum. When the number becomes larger than this, it is time to delegate authority to assistants, to whom the manageable span of control also applies. The size of the current organization and that for the next operational period are determined through the incident planning process.

ICS recommends that the number of supervised people is between 3 and 7, with 5 suggested as an optimum.

- **Decision by Consensus and Consultation.**

In search management, the basic tenet is “Never Plan Alone”. Consultation requires discussion, and discussion facilitates a rational and systematic approach to search planning, where ideas are analyzed and reevaluated through dialogue. For example, although the Incident Commander has sole responsibility for establishing the incident objectives, they consult with members of the overhead team before doing so. Similarly, the PSC draws upon all available expertise when assigning priorities to different segments of the search area.

- **Being Proactive Rather than Reactive.**

A proactive search manager anticipates events before they occur and is fully prepared to cope with emerging problems or difficulties. Bad weather, injuries, accidents, equipment failures, and the depletion of resources are planned for rather than merely reacted to. Most importantly, search managers must have at their disposal a preplan, which guides many of the decisions that have to be made during a search emergency. A good preplan anticipates such problems and suggests optimal courses of action for each.

- **Resource Management.**

Resources at an incident must be managed effectively. Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management.

Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management.

Resource management includes processes for:

- Ordering resources.
- Dispatching resources.
- Categorizing resources. For example, there are three ways to temporarily organize resources: as single resources, as strike teams, or as task forces.
 - ◊ **Single Resources.** As the name implies, a single resource is an individual piece of equipment, or group of individuals, with an identified supervisor. Examples of a single resource are: a helicopter with pilot, an air-scent dog with handler, a UAV with “pilot”, an ATV with driver, a hasty search team with leader.

- ◊ **Strike Teams.** A strike team consists of resources of the same kind with common communications and a leader. Examples of a strike team are: an 6-man team including a Strike Team Leader created from three 2-man hasty teams to search a segment, or three horses and their riders as well as a Strike Team Leader.
- ◊ **Task Forces.** A task force consists of resources of different kinds with common communications and a leader. An example of a task force is a human tracking team, a search team, an air scenting dog, and a task force leader, assembled to search a portion of the search area.
- Tracking resources. The status of a resource that is checked-in but not checked out, fall into one of three categories.
 - ◊ Assigned. Currently working on an assignment under the direction of a supervisor.
 - ◊ Available. Ready for immediate assignment and has been issued all required equipment.
 - ◊ Out-of-Service. Neither available nor ready to be assigned (for example, maintenance issues, rest periods).
- **Common Terminology**

For effective management, everyone must speak the same language. A number of central terms basic to ICS have already been introduced, such as “Incident Commander” and “Operational Period”. Others follow.

- Position Titles. At each level within the ICS organization, individuals with primary responsibility have distinct titles, as do their assistants. See Table A. Titles provide a common standard for all users, and also make it easier to fill ICS positions with qualified personnel. ICS titles often do not correspond to the titles used on a daily basis.

Table A. ICS Position Titles

Organizational Element	Position Titles	Support Position Titles
Incident Command	Commander	Deputy
Command Staff	Officer	Assistant
General Staff	Chief	Deputy
Branch	Director	Deputy
Division or Group	Supervisor	—
Unit	Leader	Assistant

- Incident Facilities. Common terminology is used to designate the facilities in the vicinity of the incident area that are used in the course of incident management activities. See Figure B on the next page.⁶ These include
 - ◊ Incident Command Post (ICP), where the Incident Commander oversees the incident.
 - ◊ Staging Areas, where resources are kept while waiting to be assigned.
 - ◊ Base, where primary logistics functions are coordinated and administered.
 - ◊ Camps, where resources may be kept.
 - ◊ Helibase/Helisport, where helicopter operations are conducted.

The terms “base camp” and “rendezvous” which are sometimes used in SAR, are not in the ICS vocabulary, and their use should be discouraged.
- Resource Descriptions. Major resources—including personnel, facilities, and major equipment and supply items—used to support incident management activities are given common names and are “typed” with respect to their capabilities, to help avoid confusion. ICS identifies resources as tactical or support resources.
 - ◊ Tactical Resources. Personnel and major items of equipment used in the operation.

⁶ Downloaded from <http://training.fema.gov/EmiWeb/IS/ICSResource/assets/incidentfacilities.pdf>.

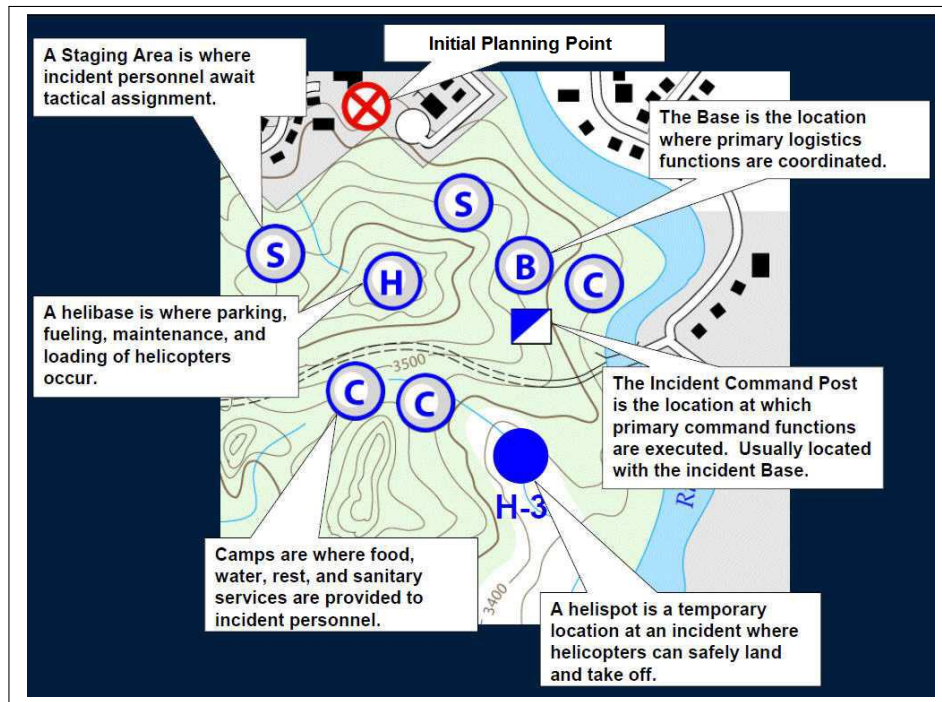


Figure B. Incident Facilities

- ◊ Support Resources. All other resources required to support the incident (for example, food, communications equipment, supplies).

In English, the expressions “type of resource” and “kind of resource” could be used interchangeably. Not so under ICS. The word “Kind” describes what the resource is, while the word “Type” describes its capability. For example, a helicopter is a kind of resource.

- Divisions and Groups are ways of partitioning an incident into manageable pieces. A Division is an operational unit established using geographical boundaries. For example, if there were 12 segments to search, which exceeds the span of control, then the search area could be divided into two Divisions, called Division A and Division B, each containing 6 segments. A Group is a collection of people established by function, that is, what it does. For example, the EMS Group consists of the following people, or the Investigative Group consists of the following people.
- Plain Language. The use of plain language, rather than 10-codes, in an emergency response is the ICS norm. However, if a subject is found deceased or injured it might be prudent to have agreed-upon language for these situations in case relatives inadvertently overhear sensitive radio traffic.

3. Incident Action Plan

All operational and logistical decisions are guided by reference to the Incident Action Plan (IAP), prepared by the overhead team for the next operational period. Basically, the IAP provides a framework for search strategy and tactics, keeps managers informed of the status of search resources, and encourages the overhead team to be proactive rather than reactive. Chapter 12 on page 156 is devoted to this, but here is an overview.

The most important components of the IAP are covered by adhering to the following order.

- What must be done? Identify the Incident Objectives by completing the ICS 202 form, see Section 23 on page 213. Incident objectives can be prioritized by
 - Life and Safety. Objectives that deal with immediate threats to the safety of the public and responders are the first priority.
 - Incident Stabilization. Objectives that contain the incident to keep it from expanding,

and objectives that control the incident to eliminate or mitigate the cause are the second priority.

- Property/Environmental Conservation. Objectives that deal with issues of protecting public and private property, or damage to the environment, are the third priority.
- Who is responsible for overseeing that it gets done? Create an organization chart of the overhead team by completing the ICS 203 form, see Section 23 on page 216.
- Who does what? Assign the resources by completing multiple ICS 204 forms, see Section 23 on page 219.
- A safety message is a critical component in the IAP. The safety message covers safety issues that may arise during the incident based on the objectives, the resources used, the weather, the location of the incident, and fatigue related issues. This is included in the ICS 204 form.
- How do we communicate with each other? Create a communications plan by completing the ICS 205 form, see Section 23 on page 221.
- What is the procedure if a searcher is injured? Create a medical emergency plan by completing the ICS 206 form, see Section 23 on page 226.
- Where is it happening? Create a map of the search area.

The Incident Action Plan is updated during the current operational period for the next operational period.

Every incident, large or small, requires some form of an IAP. For most incidents that are small, the IAP is developed by the Incident Commander and verbally passed on to subordinates and assigned resources.

Every incident, large or small, requires some form of an IAP.

4. Documentation

All decisions, schedules, plans, forecasts, clues, reports, and investigative results should be documented in such a way that they are immediately accessible and legible. The “acid test” for the adequacy of documentation is whether the search managers (specifically, the PSC), after the search is over, can describe all significant events that occurred during the incident. ICS provides most of the forms necessary for thorough documentation of the incident (see Chapter 23 on page 206).

Unified Command

The primary difference between the single command structure and the Unified Command, UC, structure is that in a single command structure the IC is solely responsible for establishing incident management objectives and strategies. In a Unified Command structure, the individuals designated by their jurisdictional authorities jointly determine objectives, plans, and priorities, and work together to execute them.

APPENDIX B

SAR Glossary

AA	Agency Administrator.
AAR	After Action Review. An AAR is a mechanism designed to evaluate an incident in order to improve performance by encouraging strengths and correcting weaknesses.
ACH	Analysis of Competing Hypotheses.
Agency Administrator	Chief executive officer (or designee) of the agency or jurisdiction that has responsibility for the incident. The designee might be the person to whom the IC reports. Usually the Agency Administrator is not on scene.
AOBD	Air Operations Branch Director. In ICS, a position in the Operations branch.
ATL	Attempt to Locate.
Base	A base is where primary logistics functions are coordinated and administered.
Bogus Search	A search in which, unknown to the searchers, the subject is not missing.
BOLO	Be on the lookout. All-points bulletin.
CALEA	Communications Assistance for Law Enforcement Act.
Camp	A camp is where resources are kept.
COA	Certificate of Authorization. Currently for a public safety agency to operate a UAS the agency needs to apply for and receive a Certificate of Authorization from the Federal Aviation Administration (FAA).
CODIS	Combined DNA Index System.
COML	Communications Unit Leader is responsible for developing plans for the effective use of incident communications equipment and facilities.
Command Staff	Under ICS, this consists of the PIO, the LOFR, and the SO.
CPOD	Cumulative Probability of Detection. The probability of multiple independent resources detecting the subject in a segment, assuming the subject is in that segment. It is a measure of how well the segment has been searched.

Division	Under ICS, a division is an operational unit established using geographical boundaries.
DIVS	Division/Group Supervisor.
DMOB	Demobilization Unit Leader.
DOA	Delegation Of Authority. A set of written guidelines from the agency of jurisdiction to the Incident Commander establishing extent of authority, operational and fiscal constraints, and other important information.
DOCL	Documentation Unit Leader.
DRPO	Display Processor.
FOBS	Field Observer.
FSC	Finance Section Chief.
General Staff	Under ICS, this consists of the OSC, the PSC, the LSC, and the FSC.
GIS	Geographic Information System. A GIS integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
GISS	Geographic Information System Specialist.
GPS	Global Positioning System. Based upon satellites, this device gives exact locations using latitude and longitude.
Group	Under ICS, a group is a collection of resources in the Operations Section established by function, that is, what it does, such as “Rescue Group”, “EMS Group”, “Investigations Group”.
Hasty Search	A search whose purpose is to cover the most obvious places a subject might be in the least time possible. Usually the first kind of search tactic to be utilized.
Helibase	The main location for parking, fueling, maintaining, servicing, and loading of helicopters operating in support of an incident.
Helispot	A location where a helicopter can safely take off and land.
IAP	Incident Action Plan. An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. There is only one IAP for each operational period.
IC	Incident Commander. The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources.
ICP	Incident Command Post. The field location at which the primary tactical-level, on-scene incident command functions are performed.
ICS	Incident Command System. A standardized on-scene emergency management system. Also, Investigate, Contain, Search—which dictates the order of initial actions.
I/I	Intelligence/Investigations.
IMT	Incident Management Team. Under ICS, the IMT consists of the IC, the Command Staff, and the General Staff.
IPP	Initial Planning Point. The first LKP or PLS.

IRIC	Initial Response Incident Commander.
JAS	Job Action Sheet.
LE	Law Enforcement.
Limited Continuous Mode	This is the state of an incident where no active searching is done but if clues are discovered they are investigated and, if warranted, active searching resumes.
LKP	Last Known Position. The last known location of the missing subject determined by physical evidence such as a vehicle, a discarded object, or a footprint.
LOFR	Liaison Officer. Sometimes abbreviated LNO.
LPB	Lost Person Behavior. An analysis of how lost subjects behave by putting them into different categories.
LPQ	Lost Person Questionnaire. A written document that describes all available physical and mental characteristics of a lost person.
LSC	Logistics Section Chief.
MEDL	Medical Unit Leader.
NCIC	National Crime Information Center.
OP	Operational Period.
OSC	Operations Section Chief.
PIO	Public Information Officer.
Planning Meeting	Part of the planning process. A meeting that provides the opportunity to review and validate the Operational Plan for the next OP.
PLB	Personal Locator Beacon.
PLS	Place Last Seen. The location where the missing subject was actually seen by another person.
POA	Probability of Area. POA applies to every segment and the ROW. The POA of a segment is the probability that the subject is in that segment taking into account all the searches that have taken place within the search area.
POD	Probability of Detection. The probability of a resource detecting the subject in a segment, assuming the subject is in that segment and is immobile. It is a measure of how well the segment has been searched by that resource.
PSAP	A Public Safety Answering Point is a call center responsible for answering calls to an emergency telephone number for police, firefighting, and ambulance services.
PSC	Planning Section Chief.
PTB	Position Task Book.
RESL	Resources Unit Leader. Sometimes abbreviated RUL.
ROW	Rest of the World. The ROW is the probability that the subject is outside the search area taking into account all searches that have taken place inside the search area.
SAR	Search and Rescue.

Segment	A uniform region within the search area with well-defined boundaries, recognizable to resources in the field. The size of this region should be searchable by a resource in one operational period.
Single Resource	A single resource is an individual piece of equipment, or group of individuals, with an identified supervisor, that can be used in a tactical assignment.
SITL	Situation Unit Leader. Sometimes abbreviated SUL.
SO	Safety Officer. Sometimes abbreviated SOFR.
Span of Control	The number of people that a manager can supervise effectively. ICS recommends that the number is between 3 and 7, with 5 suggested as an optimum.
Staging Area	A staging area is where resources are kept while waiting to be assigned.
Strategy	Strategy involves the “big picture”—the overall plan, and how those plans will achieve the goals and objectives.
STL	Strike Team Leader.
Strike Team	A strike team consists of resources of the same kind with common communications and a leader.
Tactic	Tactic is an action that leads to the execution of the strategy. For example, a strategy might be to search particular segments. The search technique used to search a particular segment is a tactic.
Tactics Meeting	Part of the planning process. A brief, informal meeting to review the tactics developed by the Operations Section Chief for the next OP.
Task Force	A task force consists of resources of different kinds with common communications and a leader.
TFL	Task Force Leader.
UAS	Unmanned Aerial System.
UC	Unified Command is an element in multi-jurisdictional or multi-agency domestic incident management. It provides guidelines to enable agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and interact effectively without giving up their statutory or jurisdictional authority and obligations.
WOBS	Weather Observer.
YABI	Yet Another Brilliant Idea.

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