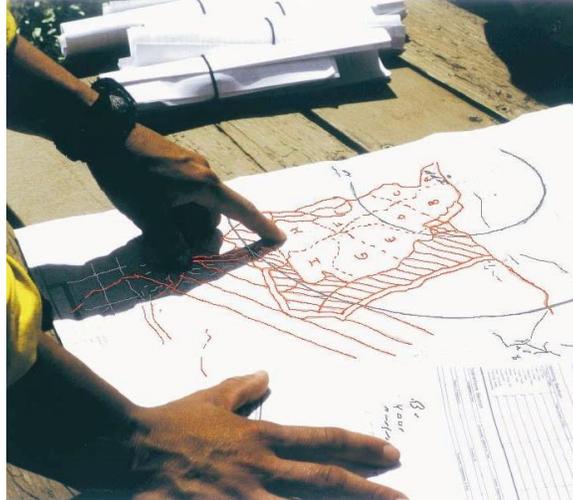# Management of
Land Search Operations

Plan of Instruction
For
Advanced Search Planning for
Managing Land Search Operations

A World Standard in Planning & Management
For Search
Management of Land Search Operations

Background

The term SAR denotes two separate functions; first search and second rescue. Rescue utilizes proven procedures along with a high degree of technical skill for victim retrieval. With known victims in known locations, the principle problem involves devising the quickest method of removing that individual from danger to a place of safety and providing medical aid. On the other hand, search for missing or lost subjects often involves sophisticated science, and many investigative techniques including: statistics, probability, human behavior and interviewing. These are but a few of the standard tools used in land search strategies.

Traditionally, search and rescue systems provide the response for missing, overdue, lost, injured, or stranded people, in outdoor environments. However, SAR and more specifically the function of search now regularly surfaces in rural and urban settings. In SAR, wilderness takes on several meanings. For instance, most consider "wilderness" as generally uninhabited and devoid of anything man-made. While this certainly describes natural areas such as large parks and open countryside, it also describes urban areas after devastation by natural forces such as the recent earthquakes and tsunamis in Japan or the U.S. East Coast after Hurricane Sandy. The major flash flooding in Colorado during 2013 is another good example. Even the explosion and crash of Pan American Flight 103 in Lockerbie, Scotland, decades ago proved to be one of the largest Wide Area Search operations for evidence and human remains in Europe's history. The search for all the pieces of the space shuttle Columbia across Texas is another example of events pertaining to Wide Area Search.

It would be difficult to estimate the total demand for SAR services around the world today. Some estimate the numbers of missions in the U.S. alone, exceed 150,000 every year. SAR refers to emergency situations that vary from nation to nation as much as the responders vary in the way they provide relief to persons in distress. SAR programs, equipment and personnel vary geographically in accordance with local needs and also the requirement for Wide Area Search techniques. SAR plays an extremely important role in virtually every disaster, fire response, law enforcement and even many EMS emergencies.

Comprehensive emergency management continuously benefits from ongoing SAR operations. Those operations provide a training ground and experience building opportunities for disaster response capabilities at the most elementary level. Management concepts used in SAR Operations establish a foundation for providing a response to larger scale emergencies and disasters. Nearly every type of hazard mentioned in Comprehensive Emergency Management Plans *(state and local)* require search and rescue as an Emergency Support Function. Management of SAR operations ranges from directing the actions of a few responders in a small community, to managing an effort involving hundreds or even thousands of searchers in larger urban calamities. The varieties of environments and situations span mountains and heavily forested terrain, coastal and inland environments, all with numerous threats to human safety. Often, these larger situations also involve several political subdivisions and the coordination of both air and ground resources. Local governments and any other agencies or organizations that participate in SAR response must practice cooperation and coordination among diverse multi-skilled responders. In the longer time frame, these courses will add to future training, planning efforts, and cooperation crucial to a fully integrated emergency response system at the local level.

The New Managing Land Search Operations Training Courses

The "*Management of Land Search Operations*" original course was designed for those who have the responsibility to plan, prepare for, and respond to search operations for missing or lost people in wilderness, rural, or urban environments. The course has now been divided into two integrated, but sequential training programs. The split from the original 5-day MLSO curriculum is aimed at both reducing the costs of training and also targeting operational functions. The split into two courses has also proven to be more conducive to normal work schedules as well.

Original Goals and Objectives

The original 5-day course was designed to provide a comprehensive methodology in search for use by local government jurisdictions and land management agencies and that has not changed. The two training courses, and their accompanying student textbook, are now a search management "standard" in numerous countries. The same methods described in both the Basic and Advanced Search Planning courses are also used for evidence searches in many police operations as well as prison breaks. These are not field skills courses. They are management oriented. Participants will learn how to plan for, organize and manage a search effort for missing or lost persons using incident management (NIMS ICS) as the accepted management structure. Both courses emphasize on using the right resources to do the job, reflex tasking based on Lost Person Behavior research for every response, accessing international data for missing and lost person behavior and lastly, the correct application of the "science" of search theory and planning. Participants find out how to properly manage a search effort for a lost or missing person in an effective manner. Small group discussion and case study tabletop map exercises are used periodically throughout both the Basic and Advanced courses.

Dividing the Managing Land Search Operations Course

For decades ERI's basic course focused on two comprehensive areas:

The first centered on the overall organization/structure and management of a response effort to find a missing or lost person. Course emphasis included logistics, resources, organizational structure, planning, SAR hazard vulnerability assessments, documentation, and rudiments of investigation, interviewing and protocols for suspending the operation. In recent years we added Lost Person Behavior as another foundation concept in our basic approach.

The second area of emphasis in the ERI course focused on "Search Planning." This aspect of the SAR incident has received increased importance over the past half decade. This function represents a discipline unto itself. Started in the 1940's under the banner of Operations Research, the search planning component describes a special resource within the management structure of a search incident. Because this function in search is so important on complicated or extended operations, ERI has endeavored to at least include the rudiments of this discipline in all basic courses. The rationale behind this emphasis is that any extended operational search must be based on specific documentation and numerical assessments initiated early in the operation. Specific decisions about tactics and numbers of resources must be based on verifiable operational procedures that are repeatable in a wide array of environments.

The Split

Far more local agency personnel and designated volunteer responders will be involved in first-on-scene operations than will ever be involved in protracted or extended searches. The bottom line is that while the numbers of incidents are not necessarily going down, planning for rapid first response based on sound management principles solves a good number of search problems fairly quickly. Volunteer overhead team members still need to be familiar with search nomenclature and protocols, multi-organizational structure and responsibilities, as well as the basic concepts of effective search. In addition, local resources and capabilities must be matched with reflex tasking tied to the growing research databases for lost subject behavior. Early documentation combined with basic numerical assessments still ensures effective search operations in all cases both simple and complex. All of these basic components are contained in the initial three-day "*Basic Management of Land Search Operations.*"

For years many in the SAR community have stated that "Probability Theory" (*or formal Search Planning*) and the use of mathematics is really not necessary in search because the majority of incidents are over in 12 to 24 hours. This off hand reference, based on gut feeling and anecdotes, is now coming into focus as more statistical data builds within the International Search and Rescue Incident Database (ISRID). In analyzing nearly 10,000 SAR cases, it was found that 81% were resolved within 12 hours. Based on the data now available, while 81% of searches seem to be resolved within that 12 hour window, statistics also indicate that approximately 20% (or 1 in 5) searches have the potential of being more difficult and so require more formal search planning. Even if you

push the time frame to 24 hours one search out of twenty (or approximately 5%) has a huge potential for either some type of legal action or worse, finding the subject too late to save them. 1 in 20 searches represent about one or two more complicated incidents per year for many (busy) teams across the U.S.

If a jurisdiction or SAR Team adheres to the philosophy that most searches only last 12 to 24 hours and they train for only this outcome, that training leads to a very unrealistic expectation of success. In fact, this approach may prove detrimental or even disastrous in a protracted search where sound theory and analysis provide insights beyond simple repeated processes. For this reason *Advanced Search Planning for Managing Land Search Operations* then follows after the foundation laid in the Basic course described above. The focus of the advanced training creates a specialized resource for local jurisdictions for use in protracted or very difficult search operations. From a raw numbers perspective, it is obvious that the majority of personnel in a local jurisdiction would not need this level of specialized training and information. As mentioned earlier, a Search Planner functions as a specialized resource separate from incident command both in duties and responsibilities. Four to six individuals in a large jurisdiction or region of a state serving as primary and backup resources provides more functionality along with more cost effective training for everyone.

Managing Land Search Operations – 2nd Course

Advanced Search Planning

When initial response Reflex Tasking and multiple operational periods fail on a search incident, the only viable solution rests on some level of technical search planning. If the basic protocols advocated in the Basic MLSO Course have been implemented, the Search Planner will be able to pick up where the previous operation left off. *Advanced Search Planning for Managing Land Search Operations* provides the background and fundamental skills necessary to carry out the function of *Search Planner* in the overhead team under the Plans Chief. The course initially provides a cursory review of basic management tenets from the introductory training and then launches into the use and application of statistical probabilities from the International Search and Rescue Incident Database (ISRID- dbS Productions – Robert J. Koester). **This course is designed for Incident Commanders managing a Type 2, or 1 incident. These ICs will not be doing the search planning themselves, but they will know what formal search planning looks like and also that it is being done correctly.** The curriculum explains and illustrates the Operations Research started in the Second World War as the precursor to land search operations. Basic tenets of "Search Theory" are discussed and related to current land search operations. Practical search maps exercises then illustrate "probability loading" from the statistical analysis in ISRID. Assigning probabilities, Proportional Consensus, Regions of Probability, Probability of Detection and how to monitor probability of Success are all explained and used in practical desk-top map exercises derived from actual land search cases. Once again, the Advanced course is designed to create a specialized resource for local jurisdictions that can be called upon in protracted or very difficult search operations. (Type 2 and Type 1 incidents)

PURPOSE AND SCOPE OF THE TRAINING

Managing Land Search Operations **Basic** and **Advanced Search Planning** provide participants with information and knowledge about conducting search operations and the overall management of a missing person incident. Course completion enables participants to manage and direct search efforts for missing or lost persons in a more coordinated and efficient manner. The training serves as a state-of-the-art forum of information exchange about conducting search operations in wilderness, rural, or urban environments. Current text materials, articles, research documents, and the combined experience and knowledge of the instructors and course participants all combine to create an *"Information Rich Learning Environment."* That environment and methodology of information sharing is one of the leading attributes of the course.

- The ultimate goal of the *Basic Managing Land Search Operations* course is to improve search incident management. Informed and trained Incident Commanders with state-of-the-art search methods have more capabilities, provide better coordination, usually communicate better, and use preplanning as a hedge against poor results and failure.

- The ultimate goal of the *Advanced Search Planning for Managing Land Search Operations* course is to provide the background and fundamental skills necessary to carry out the function of *Search Planner* in the overhead team under the Plans Chief. The training is designed to create a specialized resource for local jurisdictions that can be used in protracted or very difficult search operations.

- Progressive teaching techniques maximize the use of case histories and problem solving exercises that provide practical application and challenge the participants. Practical map exercises based on real anecdotal cases serve as the basis for decision making on similar situations encountered by participants in future actual SAR missions.

- The MLSO training courses (Basic and Advanced) will be of interest to any agency or organization, whether professional or volunteer, with search related interests, responsibilities, or capabilities.

- Throughout MLSO courses and the Textbook, management and planning tenets are described generically for land search so that participants and readers can make the widest possible application of the principles and recommendations. Regardless of the environment *(flat land, mountains, lakes, rivers, air search, urban or suburban neighborhoods etc.)* the elements of good land search management and planning will be the same.

- The training modules in this training use focused research and case studies to identify past mistakes with an expectation that lessons learned may well prevent future problems of the same nature.

There is no doubt that some attending this advanced training will know some of the material presented by the very nature of having been involved in SAR at the local level for a period of time. Some may even feel that they already know most of the material. While the latter is doubtful, it is none-the-less important to encourage participants to keep an open mind, and consider the scope of the entire training package and the inter-relationships of all the parts.

The advanced training course discusses and builds on the foundation laid down in the MLSO Basic course. It is important to stress that common sense, experience and professional needs should provide both direction and value to the course and text content.

OBJECTIVES for the Advanced Managing Land Search Operations Course

At the conclusion of this advanced training course, participants will have had exposure to all of the basic tenets of incident management for land search operations and also the rudiments of real search planning.

After successful completion of the **Advanced Search Planning** for Managing Land Search Operations course, participants will be able to:

1. Manage a search effort for single or multiple missing/lost persons and be able to monitor and supervise the search planning function in the ICS management hierarchy.
2. Describe and define the importance of "*a detection index*" or "*sweep width*" as it relates to the function of search planning.
3. List the functions and responsibilities of the Search Planner position in the management structure of ICS.
4. List the primary reasons why the numbers, the math and the search theory formula can become so important and powerful in a protracted Type 2 or Type 1 search incident.
5. Describe why the concept of *"effort allocation"* is so important to effective search planning.
6. Identify regions of probability that coincide with plausible scenarios on a search area map subdivided into searchable segments.
7. Transcribe International Search and Rescue Incident database probability zones based on Lost Person Behavior onto an operational search maps for use with tactical resource application.
8. Explain the process of applying probability (the numbers) to a well-defined operational search map.
9. List the primary factors involved in determining *effort allocation* for any specific search sortie.
10. Describe why vision basics, target orientation, and search image are so important in the briefing process.
11. Describe why spacing between searchers should never be used as an indicator of searcher coverage in a specified area.

12. List the reasons why searcher speed in varying terrain conditions and cover should be recorded as benchmarks for the search planner in future operations.
13. Demonstrate the ability to reconcile numerical assessments and values when the search area is expanded or contracted or a clue is located.
14. Describe how the value of Probability of Success is used to justify searching, or researching specific areas or suspending a SAR operation altogether.
15. Be able to supervise the search planning function on site on a major search incident and translate the importance of the numbers produced.

QUALIFICATIONS FOR ATTENDANCE

The MLSO Basic and Advanced Search Planning courses were designed for those agency members that have responsibilities for conducting search operations in rural, wilderness, urban or missing aircraft related incidents. This may include personnel from law enforcement agencies, land management agencies, federal reservations, fire rescue services, emergency medical groups and all three levels of government: (local, state and federal). In addition, selected representatives from volunteer and private search organizations will definitely have a need for information contained in these courses as well.

Pre-requisites MLSO: *Basic Management of Land Search Operations* is a required pre-requisite to the Advanced Search Planning course.

SPECIAL REQUIREMENTS FOR THE CONDUCT OF THE TRAINING

During the case study map exercises the participants will need to break into small working groups. Additional classroom space or small break-out rooms for discussion work well. Group size for break-out and discussion groups for the map exercise sessions should be a maximum of 6 participants.

MANAGEMENT OF LAND SEARCH OPERATIONS

Advanced Search Planning Course Modules and Times

1. Introductions, handout books, initial admin announcements ....1.0 Hr

Operational Response *(Carrying out the function of Search Planner)*

2. Organization: The Search Planner in the ICS Structure................ ....0.5 Hr
3. Missing & Lost Person Behavior Statistical Analysis..................... ....1.0 Hr
4. Reflex Tasking based on Category of Subject from ISRID ....1.0 Hr
5. Review of the Science of Search – *(Search Planning Theory)*........ 1.0 Hr
6. Map Exercise (Map Tabletop #1) ....2.5 Hr
7. Establishing the Search Area (POA) Part 1 ....1.0 Hr
8. Probability of Area (POA) Part 2.. ....1.5 Hr
9. Target Orientation, Vision & POD (POD Part 1) ....1.0 Hr
10. Search Tactics: Determining Probability of Detection (POD Part 2) ....1.0 Hr
11. Map Exercise (Tabletop # 2) ....3.0 Hrs
12. Applied Search Theory and Planning (POA X POD = POS)........ ....2.0 Hrs
13. The POD Briefing / Debriefing Connection................................... ....1.0 Hr
14. Search Planning in the Urban Environment ....1.0 Hr

Suspension and Documentation - Post Search Admin

15. Suspending or Continuing a Search based on Numerical Assessments ....1.0 Hr
16. Computers & Software Technology for Search............................... ....1.0 Hr
17. Final Map Exercise (Map Tabletop #3) ....3.0 Hrs
18. Critique, Closing Comments and Certificates ....0.5 Hr

TOTAL.......................... ....**24.00 Hrs**

Advanced Search Planning for Management of Land Search Operations

UNITS OF INSTRUCTION

1. Introduction, Course Administration, Class Objectives (1 Hr)

Scope: Welcome, familiarization with the facilities, administrative information, course purpose, objectives, agenda and instructional staff introduction. Class participants establish their primary objectives for attending the course and introduce themselves.

Operational Response *(Carrying out the function of Search Planner)*

2. Organization: The Search Planner in the ICS Structure (0.5 Hr)

Scope: The ICS on-scene management system is reviewed with specific focus on the position of Search Planner under the Plans Chief function; Responsibilities and tasks related to Operational Period functions as well as regular briefing and debriefing for the IC and Plans Chief. Documentation and map records are emphasized for future access and use.

3. Missing and Lost Person Behavior Statistical Analysis (1.0 Hr)

Scope: The International Search and Rescue Incident Database is detailed and explained as it relates to plotting probable search areas on the map. Probability density and distribution are discussed as they relate to application of initial and follow-on resources that will be committed to probability zones in the search area.

4. Reflex Tasking Based on Category of Subject Groupings in ISRID (1.0 Hr)

Scope: This module covers the initial actions on every search, that are based on Lost Person Behavior Subject Categories regardless of the incident circumstances; Reflex tasking is reviewed and further defined along with useful "Bike Wheel Model" for on-scene initial response; The logical sequence for planning a search effort is given from the database descriptions along with guidelines for developing attainable and verifiable operational period objectives. Categories of Subject in the ISRID database are compared and contrasted to show the differences and similarities.

5. Review of the Science of Search (Search Planning Theory) (1.0 Hr)

Scope: Review of the history and derivation of search theory dating back to WWW II and Operations Research; Review of current approaches to management and planning of searches; The need for quantification and a detailed explanation of how to use and apply mathematical units of measure; statistical concepts and their application to the problem of search; probability zones and the use of conventional notation for Search Probability Theory plus selected definitions. The module also discusses the Probability of Success and its importance as a management tool.

6. Establishing the Search Area (1 Hr)

Scope: The process to establish a search area and the four methods used to reduce that area to a manageable size. The potential search area is described as a function of probable scenarios. The ISRID database combined with terrain analysis are used to identify potential travel distances and probable locations within specific regions of probability. All methods of establishing a search area are brought together in a sample problem.

7. Determining Probability of Area (1 Hr)

Scope: This in depth module outlines the concept of assigning probabilities to search segments by proportional consensus; Subjective regions of probability combined with missing/lost person behavior data probability zones are also discussed; The concept of shifting probabilities of area and the mathematical analysis necessary for tracking changing values is also covered. As a final practical exercise, the entire process is tracked from start to finish using one incident and all the associated processes and figures.

8. Target Orientation, Vision and POD - POD Part 1 (1 Hr)

Scope: This first module in POD deals with the how and why searchers see clues or even the missing subject in a given environment. Simple explanations do not fit as this is a complex process of sensation (vision) and decision making. Vision, perception and detection versus recognition are discussed with practical examples; Feature integration, form, organization and grouping along with vision basics are all covered. Canonical perspective and visual briefings are covered in summation of this module along with some conclusions about target orientation and POD as they relate to briefings or programming before searchers go to the field.

9. Search Tactics - Determining POD - POD Part 2 (1 Hr)

Scope: POD is re-defined and discussed in detail; the original research and experiments on probability of detection carried out in the Pacific Northwest along with "Critical Separation" developed in the UK; Tactics that are used in search for missing persons, objects and evidence are discussed in detail. Operations research is discussed as it relates to determination of *Sweep Width* and *Coverage*. Methods of determining POD for volunteers using "Average Range of Detection" (AROD) and the current research that substantiates this procedure are also covered. Sample problems with representative calculations are provided along with practical application and use; emphasis on practical procedures to determine reasonably accurate probability of detection calculations.

10.   Map Exercise - Tabletop # 2 (3 Hrs)

Scope: The second tabletop map exercise is designed to utilize all of the basic principles introduced during the course up to this point. It is another actual search effort and course participants, as before, use the same resources that were available during the actual incident. Interviewing and investigation and use of forms are emphasized to gather planning and searching data along with missing and lost person behavior. Participants are encouraged to document everything as this will be the first map exercise to involve a shift change between groups during the problem.

11. Applied Search Theory and Planning *(POA X POD = POS)* **(2.0 hours)**

Scope: The module provides an overview of all the basic principles involved in the search theory standard notation formula: (POA X POD = POS). The importance of quantifying values for both search area designation and the ability of resources to detect the missing subject in the field are both emphasized. Practical examples are given concerning decisions about effort allocation and the options that are open to a search manager when committing resources to the field; The probability of success for each segment and the overall search effort throughout the search area; Determination and use of shifting probabilities and the impact on search tactics; The POS tracking form is also reviewed and participants will track probability of success through multiple searches and several segments.

12. The Briefing / Training / POD Connection (1.0 Hr)

Scope: This module discusses the questions of how or if searchers see or recognize clues, or even the missing subject.   These questions defy simple explanation. This session explains why it is much more than just seeing an item, a clue or the subject. It is a little known fact that perception, and judgment based on that perception, combines the complex processes of vision and decision making. This presentation will discuss the connection and possible benefits for probability of detection (POD) through the briefing process for searchers immediately before they enter the field. Also covered will be the influence of training for increased probability of detection and success during search operations.

13. Searching in the Urban Environment (1.5 Hr)

Scope: Some search concepts are the same in the urban environment, and many are different. This module is a portion of a three day course on searching in the urban environment. Probability of Area values still must be established in the urban or city environment. If resources are sent out to search, somehow an evaluation of that effort must be made. That's what Probability of Detection is all about. Urban tactics are discussed with specifics about house to house inquiries, searching buildings, and coming up with some reasonable estimation of probability of detection. The need for experimentation in this arena is huge. Past methodologies and experiments are discussed with regard to current recommendations for establishing more accurate calculations in this environment.

14. Suspending or Continuing a Search Based on Numerical Assessments (1 Hr)

Scope: This module identifies the key factors involved in deciding when to suspend or continue a search and suggests a methodology to use numbers in that assessment process. This presentation discusses the importance and inter-relationships of these factors to the decision making process. Of primary importance to suspend or continue, should be some type of assessment that places numerical value on the factors identified.

15. Computers and Software in Search Planning and Management (1.0 Hr)

Scope: History and detail on the development of software and computer systems used in search. Also identifies innovative new software programs and initiatives available around the world that are being used or modified to aid in search. Implications for the future about needed innovations are also described and discussed.

16. Final Map Exercise Table-Top (3 Hours)

Scope: Practical application of all concepts and principles presented throughout the course.

17. Formal course ends. Discussion, closing remarks, Critique, Certificates - -

Search Planning for Managing Land Search Operations - Advanced

Sample Agenda
The course must have a flexible agenda based on local needs & tangent discussion topics.
Times for each module are approximate and vary with location and course participant needs.
Depending on start times, modify time hacks as appropriate; Times for each module are approximate.

DAY 1:   INSTRUCTOR

0800	Class Starts	
-55min	Introductions, Handout text, initial Admin.	_____

Operational Response *(Carrying out the Function of Search Planner)*

-55min	Organization: The Search Planner in the ICS Structure	_____
-55min	Missing & Lost Person Behavior Statistical Analysis	_____
1030 -1045	**Break** (coffee/tea)	
-55min	Reflex Tasking based on Category of Subject from ISRID	_____
1200-1300	**Lunch**	
-55min	Review of the Science of Search *(Search Planning Theory)*	_____
-150 min	Map Exercise (Tabletop #1)	_____
-55min	Establishing the Search Area (POA)	_____
1700	**Class ends for the first day**	

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DAY 2:

0800 -	Class Starts	
-55 min	Probability of Area (POA)	_____
-55min	Target Orientation, Vision & POD (Part 1)	_____
-55min	Search Tactics: Determining POD (Part 2)	_____
-55min	Map Exercise (Tabletop #2)	_____
1015 – 1200		
1200 -1300	**Lunch**	
-120min	Map Exercise: (Tabletop #2)	_____
-90min	Applied Search Theory and Planning (POA X POD = POS)	_____
1500 -1515	**Break** (coffee/tea)	
-55 min	The POD / Briefing / Training Connection	_____
1700 -	**Class ends for 2nd day**	

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DAY 3:

0800 -	Class Starts	
0800 – 1000		
-55min	Search Planning in the Urban Environment	_____
-55min	Suspending or Continuing Based on Numerical Assessments	_____
1000 -1015	**Break** (coffee/tea)	
-55min	Computers & Software Technology for Search	_____
1015 -1200		
1200 -1300	**Lunch**	
1300 -1500		
-180min	Final Map Exercise (Tabletop # 3)	_____
1500 - 1515	**Break** (coffee/tea)	
		_____
1630-1700	**Course ends**. Discussion, closing remarks	_____
	Critique, Certificates - -	
1700 -	**Course ends on 3rd day**	

TOTAL _____**24.00 Hrs**

EVALUATION

There should be some feedback and evaluation on the course utility and practical value at the end of the course. The feedback should consist of measuring objectives by various methods and techniques outlined in the lesson plans and in the end-of-course critique. Some law enforcement academies prefer a written test as evaluation which is included in the Instructor Suite.   The map problems serve as one of the best indicators for participant understanding of essential planning and management concepts.

In the City and Guilds Institute of London under the Profiles in Professionalism category for vocational training, police and other law enforcement students have the option of submitting a personal evaluation of a search case study within 6 months after attending the course.   By asking students to read, study and comment on real cases and compare their findings with the internationally accepted principles of search planning and management, instructors may fully assess a student's knowledge of applied principles to real life situations in the search arena.

Specific competencies, particularly in complicated courses like Advanced Search Planning for Managing Land Search Operations, are not retained indefinitely. The skills and knowledge presented during the training are definitely perishable. Written evaluations serve the following purposes: to evaluate the participant's degree of understanding; to determine the need for revisions in future courses; and to determine the scope of future refresher courses.

DEPLOYMENT

The (*introductory*) **Basic Managing Land Search Operations** course should be taken sometime in the first year of assignment for newly designated local SAR coordinators and Search Incident Commanders. This exposure will provide a clear template and knowledge for managing Type 5, 4 or 3 SAR incidents. It will also provide a foundation of knowledge and terminology required to supervise or manage the formal search planning function on a protracted search.   A refresher course for this training should be attended by those with search responsibilities at a minimum of every three years.

Every jurisdiction should have access to the specialized capability of a search planner. Whether that is in the form of a volunteer or an official agency representative, the function is indispensable for Type 2 and Type 1 incidents involving protracted or wide area searches. As mentioned above, the majority of personnel in a local jurisdiction would not need this level of specialized training and information. The Search Planner functions as a specialized resource which is separate from incident command both in duties and responsibilities. Volunteers can serve this vital function well as a specialized local resource or team.   Four to six individuals in a large jurisdiction or region of a state serving as primary and backup resources provides more functionality along with more cost effective training for everyone. **The Advanced Search Planning for Management of Land Search Operations** should be attended within at least 6 months of going through the **Basic** course and should be followed up with a refresher at a minimum of every three years.

MATERIALS CHECKLIST: Basic MLSO Course

STUDENT TEXTS
Required: Text - <u>The Textbook for Managing Land Search Operations</u>, <u>Lost Person Behavior – A Search and Rescue Guide on Where to Look – for Land, Air and Water</u> **by Robert J. Koester**
Optional: Handbook -<u> The Handbook for Managing Land Search Operations</u>
Optional: Selected papers from research studies and practical field experiments

<u>**NOTE:**</u> Many states and sponsoring agencies prefer to provide 3-ring binders for the student text. This is so other information specific to the country, state, region, or community can be inserted in the book. The books are shrink-wrapped in plastic, 3-hole punched and spiral bound. This means the books can be used independently or placed in a ring binder.

STUDENT MATERIALS
Student pre-work or assignments *(Train the trainer courses usually have pre-work)*
3-ring notebooks *(if necessary)*
Name tent for each participant *(pass around marker to write names)*
Course critique forms
Certificates and MLSO Pins
Calculators for math computations and straight edge for measurement on maps

INSTRUCTIONAL AIDS
Instructional Suite PowerPoint (Instructor Package available thru ERI)
Laminated maps for use in tabletop exercises
Vinyl overlays for operational period designations
Embedded videos and case studies on CD

CLASSROOM FACILITIES
Blackboard, chalk and eraser
Flipchart and felt tip markers
Podium or instructor table at front of classroom
Reference tables for handouts, journals, research materials and example texts, etc *(two)*
Student seating - Desks? Tables with chairs work out much better
Separate work or breakout areas for students to work exercises/problems
Separate work-table for instructors (layout and organize instructional materials)
Room that can be secured for storage and access to a copy machine
3-hole punch for students to insert handouts and extra worksheets into text

AV EQUIPMENT
Overhead projector if available to assist with the map exercises for assignments
Computer projector
Extra bulbs and extension cord
Sources of immediate back-up equipment
Screen *(as large as possible);* realistically this should be at least 6 X 8 feet.

MISCELLANEOUS ADMIN. MATERIALS
Receipt book if necessary for registrations
Paper, pens or pencils & tape *(masking tape to hold down vinyl overlays)*
Extra transparencies (vinyl) & water soluble pens

<u>**ESSENTIAL:**</u> Means to make and distribute a class roster