



United States Air Force Auxiliary · Civil Air Patrol  
North Carolina Wing

NCWG Emergency Services

A5 Training Guidelines & Scenarios

Search & Rescue · Disaster Relief

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# Funding Request Guidelines



## Training Expectations

The purpose of having a standardized approval process is to set training expectations for an active Wing with a wide-range of training needs. The goal is to define requirements focusing on consistency while planning and executing mission-realistic training profiles, and maintaining CAP Core Values.

## Funding Request (F98) Submission Requirements

- All members participating in an exercise must be appropriately qualified or in trainee status.
- Air requests should include the CAPID of each member of the aircrew. Ground requests should include the name and CAPID of the Ground Team Leader.
- Intended training profile taken from below OR detailed training scenario to be exercised.
- Estimated Total Cost to include accurate fueling costs at FBO, gas station.
- Responses to requests may take up to 72 hours. Requests submitted closer to the date of training are not guaranteed to be processed.
- See provided examples on the NCWG F98 page.

## Post-Approval Steps

- WMIRS – Add sortie(s) along with the tracking number within 24 hours. Training must take place within 5 days of the date provided in the request.
- Briefing should include full scenario, just as it would in a real mission.
- Any changes to the exercise or crew must be approved before the exercise begins.
- Sorties not completed on the date entered in WMIRS must be moved (with approval) or canceled.
- Sorties left in past dates are subject to cancelation of the sortie and funding approval.

## Sortie Close-Out

- WMIRS – Sorties must be properly closed out within 24 hours.
- Times – Tach/Hobbs, ATD/ATA recorded accurately.
- Fuel – Receipt properly annotated and uploaded.
- Debrief – Must include a full recap of the exercise (areas searched, targets located, messages relayed, etc.).
- Any overage from the allocated funds must be explained in the sortie debrief and may be the responsibility of the member or unit.

## Scenario Library

The following section provides a series of mission-like training scenarios to be used for funded training. Funding requests should indicate which scenario will be used for the training in question. All SAR or DR training should simulate a realistic mission on which NCWG may be asked to participate. One should not plan to simply fly search patterns or execute line searches with no scenario in mind.

Funded training should accomplish as many aspects of the scenario as possible. If time and budget allow, pilots may use limited time at the end of an exercise to execute maneuvers, landings, or an instrument approach for currency as needed, but only when the scenario has been completed.

Scenario Reference	Type of Training
<b>Search &amp; Rescue</b>	
SAR-A	Missing Person/Aircraft (Electronic)
SAR-B	Missing Person/Aircraft (Visual)
SAR-C	Missing Person/Aircraft (Thermal)
SAR-D	Missing Person (Ground Search)
<b>Disaster Relief</b>	
DR-A	Critical Infrastructure
DR-B	Road Assessment

# Search & Rescue (SAR-A): Missing Aircraft/Boat Search (Electronic)

## Background

CAP is the primary responder for electronic searches (ELT/EPIRB/PLB) in the United States. Requests come from the Air Force Rescue Coordination Center (AFRCC) after either reports from aircraft or a satellite-based indication of an active emergency beacon. Depending on the type of beacon, initial information may be very limited. Newer (406 MHz) beacons transmit a latitude and longitude at regular intervals, helping to greatly narrow the search area. Older (121.5 MHz) beacons simply emit an audio signal that can be heard for up to 50 nm from altitude, making the search area much larger and the beacon more difficult to locate. Time and precision are key on this profile, as a better set of coordinates will allow a ground team to more quickly locate the beacon on the ground, and get help to an aircraft in distress.

## Sample Scenario (121.5 MHz)

Multiple aircraft inbound to Charlotte/Douglas Airport (CLT) have reported an ELT signal approximately 20 nm north of CLT, near Lake Norman. CAP assistance has been requested to locate the beacon.

## Sample Scenario (406 MHz)

CAP assistance is requested in locating a 406 MHz EPIRB whose location is plotting near Edenton. The beacon is unregistered, so attempts to contact the owner have been unsuccessful.

## Training Set-Up

This scenario works best when the location of the practice beacon is unknown to anyone on the search team, including the pilot. Every attempt should be made to enlist the help of a trusted agent on the ground who can place the beacon in an unknown location. The team should be given the approximate area to initially search, as appropriate for the type of beacon being simulated. This scenario can be run during day or night, or even in IFR conditions as safety allows.

## Desired Outcomes

Given the initial information, the crew should work together to determine an appropriate search plan. Using electronic methods, the team should report the determined coordinates of the located beacon with as much accuracy and precision as possible. In the debrief, the determined location should be compared against the actual location, and the team should discuss how improvements could be made for next time. Historically, actual electronic searches have taken as much as 2-3 hours, and as little as a few minutes.

## Debrief

The CAPF 104 debrief should include the patterns flown, time to first contact with the beacon signal, actions taken upon contact, and an assessment of performance.

## Search & Rescue (SAR-B): Missing Aircraft or Person Search (Visual)

### Background

In North Carolina, county-level emergency management is the primary agency for missing aircraft and missing person searches that are not electronic. CAP is often called for assistance in searching for the missing aircraft or person from the air when an approximate location is known. Communication with a mission base on the ground is a central part of this profile, as CAP is typically given an area to search, which can change several times during the course of the mission, and once on-scene, direction is typically given by the on-scene commander from the lead agency. In addition to providing a unique perspective on a search area, an aircraft can cover in mere seconds what would take hours on a ground-based search.

### Sample Scenario (Missing Person)

CAP assistance is requested in an ongoing search for a missing 71-year-old male with cognitive impairment, last seen at his residence (provide location) approximately 24 hours ago. The area of focus is a wooded area to the east of his home.

### Sample Scenario (Missing Aircraft)

CAP assistance is requested in locating a missing aircraft. A Cessna 210 en route from Roanoke VA to Fayetteville NC did not arrive at the expected time, and no contact has been made with the pilot. The last radar return on the aircraft showed it in a descent near Burlington NC (KBUY) at approximately 1615Z.

### Training Set-Up

This scenario works best when the aircrew has an actual target to search for, whether a person or a simulated aircraft, the exact location of which is unknown to the crew. Every effort should be made to include a trusted agent who can help to simulate the missing target in some way. If this is not possible, the crew should overfly a populated area to demonstrate the apparent size of people and vehicles from search altitude. Since communication with a mission base is typically a large part of this profile, it is helpful to have someone on the ground who can act as mission base, and provide feedback and new instructions throughout the flight. In addition, air and ground crews should expect to utilize VIPER communications on any actual search in NC. This scenario can include a ground team, as well. The coordinates of a located target can be relayed to the ground, providing the initial target for a ground team to execute a more detailed search.

### Desired Outcomes

Given the initial information, the crew should determine an appropriate plan for the search, including a starting point, search patterns to be flown, a review of any known information about the subject (aircraft color, clothing description, etc.), and a thorough review of the communications plan. The crew should execute that plan, to include any changes provided by a simulated mission base. Areas of interest should be noted and reported to the ground as soon as possible.

### Debrief

The debrief in WMIRS should include all actions taken by the crew, locations searched, patterns flown, areas of interest noted, and the outcome of the search.

# Search & Rescue (SAR-C): Missing Person/Aircraft (Thermal)

## Background

NCWG has been one of the pioneer wings in the adoption of thermal imaging technology in CAP. As of Jan 2021, two aircraft in NCWG are equipped with thermal imaging (infrared/IR) cameras that have been used to assist local agencies in searches for missing persons and aircraft, both day and night. This is a highly specialized mission for which NCWG has prepared for several years. This scenario is restricted to TISOs/trainees who have completed at least the NCWG in-person hands-on training for thermal imaging.

## Sample Scenario (Missing Person)

CAP assistance is requested in an ongoing search for a missing hiker in Linville Gorge. Ground searches today have been unsuccessful, and because of terrain and nightfall, local authorities are requesting thermal imaging within a 2-nm area centered on 35° 51'N / 81° 54'W. Communications will be on VIPER Event H2.

## Sample Scenario (Missing Aircraft)

CAP assistance is requested in locating a missing aircraft. A Cessna 210 en route from Roanoke VA to Fayetteville NC did not arrive at the expected time, and no contact has been made with the pilot. The last radar return on the aircraft showed it in a descent near Burlington NC (BUY) at approximately 1615Z.

## Training Set-Up

This scenario works best when the aircrew has an actual target to search for, whether a person or a simulated aircraft, the exact location of which is unknown to the crew. Every effort should be made to include a trusted agent who can help to simulate the missing target in some way. If this is not possible, the crew should overfly a populated area to demonstrate the apparent size of people and vehicles from search altitude. Since communication with a mission base is typically a large part of this profile, it is helpful to have someone on the ground who can act as mission base, and provide feedback and new instructions throughout the flight. In addition, air and ground crews should expect to utilize VIPER communications on any actual search in NC. This scenario can include a ground team, as well. The coordinates of a located target can be relayed to the ground, providing the initial target for a ground team to execute a more detailed search.

## Desired Outcomes

Given the initial information, the crew should determine an appropriate plan for the search, including a starting point, search patterns to be flown, a review of any known information about the subject (aircraft color, clothing description, etc.), and a thorough review of the communications plan to include interagency communications via VIPER. The crew should execute that plan, to include any changes provided by a simulated mission base. Areas of interest should be noted and reported to the ground as soon as possible. Video of search area should be captured using the on-board recorder.

## Debrief

The debrief in WMIRS should include all actions taken by the crew, locations searched, patterns flown, areas of interest noted, and the outcome of the search. Crew should retrieve video from the onboard SD card and go through the process of delivering it to another member.

## Search & Rescue (SAR-D): Missing Person (Ground)

### Background

Because of a strong and growing partnership with NC Emergency Management at the state and county level, NCWG has been increasingly called upon to assist with ground-based searches for missing persons. After a request is received and a mission created by AFRCC, an NCWG ICP will solicit for ground teams from a wide area and dispatch them to a staging area, where operational control is taken by the local lead agency. Our teams typically remain together, but depending on numbers, have been split and reformed with other searchers. It is vitally important that our members on the ground display the utmost professionalism and integrity, as they are often the most direct interaction with CAP that many members of our community have.

### Sample Scenario (Missing Person)

CAP assistance is requested in an ongoing search for a missing 71-year-old male with cognitive impairment, last seen at his residence (provide location) approximately 24 hours ago. The area of focus is a wooded area to the east of his home. From the staging area, CAP teams are requested to search Area 5 (SARTopo map typically provided). Clues are to be reported directly to the on-scene command post.

### Training Set-Up

This scenario works best when teams have an actual person to search for. Every effort should be made to include a trusted agent who can help to simulate the missing person. Wooded searches should be cleared with property owners or governing agencies (e.g., NC State Parks) well prior to the beginning of any activity on their land. A SARTopo map simulating the search should be provided to the Ground Team Leader, along with their assignment.

### Desired Outcomes

The team, led by a Ground Team Leader, should execute the search as directed, using appropriate search techniques, reporting all clues to the mission base, while preserving the scene appropriately. All members must be signed in and a ground sortie created correctly. The CAPF 109 should accurately identify all personnel on the search and a clear briefing of the search itself.

### Debrief

The debrief in WMIRS should include all actions taken by the team, any clues or targets located, as well as a synopsis of strengths and areas for improvement, so that others may benefit from the experience.

# Disaster Relief (DR-A): Critical Infrastructure

## Background

Following a natural disaster, one of CAP's typical missions involves the survey and documentation of critical infrastructure so that emergency officials can take stock of damage impacts, identify risks to public safety, and prioritize their own response. Examples include power plants, dams, solar farms, and bridges. The photos we take are then delivered to the customer according to their instructions. Sometimes this takes the form of a special uploader provided by FEMA, sometimes simply through email to a local emergency manager. In a large-scale event, deconfliction is critical as we often have multiple aircraft operating in adjacent or even overlapping areas. This mission is extremely time-critical, as conditions change rapidly, and emergency managers are depending on quick results from our crews in order to make vital decisions.

## Sample Scenario

CAP assistance is requested for the survey and airborne photography of the following targets (spreadsheet would be provided with coordinates and target descriptions). For dams, request clear photos of upstream and downstream faces, abutments on either end of the dam, and spillways. For bridges, photos are to be taken along the length of the bridge, as well as both upstream and downstream sides, focusing on support structure under the road deck. Photos to be emailed to squadron Emergency Services Officer.

## Training Set-Up

Crew will be provided a list of pre-determined targets to photograph or survey, including a target description and a lat/lon coordinate for each. This scenario works best if the target list is provided by someone not on the crew, to enhance realism as the crew works together to determine the best plan of action. Tasking should include instruction on where to send the compiled photos. An evaluator should review the photos for quality to ensure that we are delivering high-quality products to our customers.

## Desired Outcomes

The crew should capture high-quality photos or video of all listed targets in a logical order, adhering to the instructions provided by the scenario, to include final delivery of the finished product. The entire process should ideally take no more than 4 hours from receipt of the target list to final delivery of the photos/video.

## Debrief

The debrief in WMIRS should include all actions taken by the team, including any targets unable to be photographed. This is critical so that future crews can be tasked to re-fly those targets as soon as possible.

# Disaster Relief (DR-B): Road Survey

## Background

In addition to critical infrastructure, historically, CAP has often been asked to survey arterial roads and highways following a major disaster, such as a hurricane or a mass flooding event. These roads can easily become impassable, blocking access to hospitals, and trapping residents in their homes. The survey work and aerial imagery that CAP produces, sometimes multiple times per day, is vitally important to emergency managers as they work to open transportation routes.

## Sample Scenario

CAP assistance is required to survey the condition of the following roads in New Hanover County:

- Interstate 40 from NC-210 to Wilmington
- US-421 from NC-210 to Wilmington
- US-17 from Hampstead to Wilmington

Request aerial imagery and location of any sections that remain flooded to be delivered to New Hanover EM by 12:00 EDT, and again by 18:00 EDT.

## Training Set-Up

Crew will be provided a list of roads to survey, as well as clear instructions as to the nature of the request (e.g., surveying bridges/water crossings along the route, searching for flooded sections, surveying large cross-streets). Crew should also be provided with a delivery mechanism to simulate delivery of the results to an external customer. This could simply be an email address to which selected images and a thorough survey can be sent.

## Desired Outcomes

The crew should complete the survey as requested in the briefing section of the CAPF 104/109 (air/ground as applicable). Results should be delivered to a “customer” in some way. This should be accomplished as quickly as is safely possible, as the timing of these missions is absolutely vital. The total time from receipt of the request to delivery of photos should be no more than five hours.

## Debrief

The debrief in WMIRS should include all actions taken by the team, including any targets unable to be photographed or areas unable to be surveyed. This is critical so that future crews can be tasked to re-fly those targets as soon as possible.

## Bonus Scenarios

### Bonus 1 - Missing Kayakers

A family of four (mother, father, two teenaged sons) waited out a days-long spring storm in anticipation of their weekend kayaking trip along the Haw River. Upon waking to blue skies, they entered the river at the Saxapahaw Island Park at 0800L and intended to kayak to join friends at a campsite at Jordan Lake later that evening. At 1130L the Haw River Hydro dam burst. At 1430L friends reported that they have not heard from the family since the morning. CAP called in to search for missing kayakers.

### Bonus 2 - Tornado & Hail Damage Assessment

CAP called to survey storm damage from Rockingham to Burlington, NC due to multi-county storm with suspected EF-3 tornado that caused significant hail and wind damage. CAP requested to assess areas affected, including roads, bridges, residential areas and businesses.

### Bonus 3 - NORAD Tandem Flight Suspected Crash

CAP requested to locate 1 of 2 planes flying tandem to KGWW prior to the Wings over Wayne airshow. Two best friends flew from Indiana to North Carolina for the event. The night prior, they had dinner and drinks with friends in Greensboro, NC before departing to KGWW in the morning. The lead plane lost sight of his friend southeast of Smithfield, NC and turned back to see if he could locate the plane (a blue Citabria). The area where he thinks the plane went down is a wooded area along the Neuse River and he was able to provide his location to Washington Center. Perform search grid in CLT60A using extreme caution for towers and KJNX traffic.

### Bonus 4 - ELT Search with Ground Team

Local squadron is preparing for a UDF day and needs to know the range available to receive good signal strength in a large state park with elevations from 650' MSL to 1200' MSL. Fly over area at different elevations from point of first signal to fade using shadowing & aural search, include metered search, and report back diameter in NM. Good time to change the batteries in the practice beacon, practice light signals & reflection techniques, radio communication, and distress signals.

It is important to agree to the sectional or map scale in communicating distance, clearly communicate call signs, and both air and ground teams need to agree upon the unit and format of the geographic coordinates:

Degrees, Minutes, Seconds (DMS): 40° 26' 46" N / 079° 58' 56" W

Degrees and Decimal Minutes (DDM): 40° 26.767' N / 079° 58.933' W

Decimal Degrees (DD): -40.446 +79.982

### Bonus 5 - Dam Tasking

AP Proficiency Scenario: Dam/Bridge imaging. Wide-spread damage caused by Hurricane Charlie. Targets will be provided to the AP 24-48 hours prior to flight only, and the MO/MP are to be briefed on the targets prior to the flight by the AP. Using FEMA standards, AP will select four (4) images per target and email to squadron Emergency Services Officer.