

CIVIL AIR PATROL

UNITED STATES AIR FORCE AUXILIARY

CAPABILITIES HANDBOOK



**A Field Operations
Resource Guide For
Emergency Managers**

INTRODUCTION

The Civil Air Patrol (CAP) is a national organization that represents a locally-available talent and asset pool for municipal, state and federal government entities to utilize as a cost-effective aerial and ground resource.

We are proud to present this first edition of our CAPabilities Handbook, a field operations guide for Emergency Managers to utilize when tasking CAP for assistance with local, regional or national incident response.

We hope that this guide gives you an idea of the ways that CAP can assist you and your agency in both routine operations as well as emergency and humanitarian missions.

Please let us know if there is any additional information we can provide in future editions of this field operations guide to help show how CAP can support your efforts.

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RECORD OF REVISIONS

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OVERVIEW

- The Civil Air Patrol (CAP) is a Congressionally-chartered public benefit corporation which, when tasked by the Air Force, acts as the Air Force Auxiliary.
- CAP is available to assist state and local authorities perform various Reconnaissance, Emergency Services, Disaster Relief and Homeland Security missions. When tasked by the Air Force, CAP, in its Air Force Auxiliary role, can support federal authorities to include assistance to state and local authorities requested by a lead federal agency (LFA).
- Types of missions CAP can carry out:
 - Airborne reconnaissance of isolated locations, border and coastal areas, ports and harbors and critical infrastructure to help identify suspicious activity.
 - Aerial transportation of personnel, equipment, search dog teams, blood and organs, etc.
 - In-flight disaster and damage assessment as well as ongoing visual reconnaissance.
 - Airborne still imaging with near real-time satellite downlink.
 - Communications support; VHF and HF capability and aerial communications relay platforms.
 - Command and control CAP units with ICS-qualified emergency services mission / incident commanders.
 - Damage assessment and mitigation, disaster recovery and limited security with trained ground teams able to augment civil and military authorities.
- Capable (with sufficient advanced coordination) of carrying various customer-supplied sensor packages aloft.
- All members are unpaid volunteers, therefore missions can be accomplished at a fraction of the cost of other agencies.

CAPABILITY

- Aerial imaging with ability to download high resolution digital photos within minutes. Have ability to contact aircraft via satellite link to re-task or request different photo orientation.
- Light air transport capability for human blood or organs, equipment, passengers, or search dog teams to austere or remote airfields.
- Fleet of over 950 ground vehicles for use by ground search and rescue teams or as transport.
- Extensive communications network includes over 5,000 fixed-land VHF radio stations and 10,000 mobile radios, as well as nationwide HF network. Possess interoperable ground and airborne communications platforms for use during major man-made, natural, or technological disasters. *
- Cadre of 650+ Chaplains available for weekly religious services or general support.
- Ability to take law enforcement or VIP personnel aloft for visual reconnaissance.
- Emergency airlift availability between specific locations over time (specialized, customer-specific “air shuttle”).
- Can assist in crisis / consequence management.
- Able to perform aerial reconnaissance of critical infrastructure such as power plants, gas pipelines, and reservoirs.
- Trained Critical Incident Stress Management (CISM) personnel available with prior notice. *
- Can accomplish missions at a fraction of the cost of other agencies.

* *Check with your CAP representative for local availability.*

AVAILABILITY

- Over 58,000 volunteers and a fleet of 535 aircraft nationwide (including Alaska, Hawaii and Puerto Rico) available for tasking, generally with a 2-hour scramble time.
- With sufficient advanced coordination, alert status is available, with prior approval to launch within minutes.
- For non-immediate response incidents, plan ahead and make request early to ensure time to approve request through Request For Assistance (RFA) process.
- Willing and able to work under a Lead Federal Agency (LFA). In the past, CAP has worked with agencies such as the Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS), Drug Enforcement Agency (DEA), Immigration and Customs Enforcement (ICE), Customs and Border Protection (CBP), Transportation Security Administration (TSA), U.S. Forest Service (USFS), Department of Natural Resources (DNR) etc. as well as numerous state and local emergency management and law enforcement agencies.
- Volunteers are available for multi-day missions (with crew / team rotation), even those that stretch into weeks.
- Availability of some assets may be limited in some locations and might require more than a few hours notification. *

* *Check with your CAP representative for local availability.*

ASSETS

- 535 light civil aircraft, including Cessna C-172, C-182 and C-206 models, as well 16 Gippsland GA-8 eight seat aircraft, strategically placed throughout the nation.
- Over 850 7, 12, & 15 passenger vans, 4X4s, and long-bed pickups.
- 90 dedicated communications vehicles with limited all-band capability and public service band interoperability. *
- A nationwide radio communications system comprised of over 15,000 CAP-owned base, mobile, and portable two-way radios.
- National & regional HF radio networks providing survivable, infrastructure-independent command and control communications (not dependent on satellite/cellular telephone systems).
- Over 500 VHF radio repeater stations located strategically throughout the country.
- 24 transportable VHF suitcase radio repeaters. Units operate on CAP radio frequencies, and can be used either on the ground or from aircraft to support operations in remote locations. *
- 2 transportable UHF suitcase repeaters. Operating on federal interagency frequencies, they can be used either on the ground or from aircraft to support remote operations.
- 100+ Satellite Digital Imaging Systems (SDIS) used to transmit still-frame digital pictures in near real time as well as direct voice communications from some aircraft. *
- 1,400 airborne, mobile, and hand-held DF units.
- 16 airborne hyperspectral imaging systems for complex or sophisticated target detection.

* *Check with your CAP representative for local availability.*

COMMUNICATIONS

- The nationwide CAP communications system has deployed assets in all 50 states, the District of Columbia and Puerto Rico.
- Over 7,100 VHF base, mobile and portable radios.
- Over 5,800 UHF intra-squad (ISR) portable radios.
- Over 900 HF-SSB long-range base and mobile radios.
- 24 transportable VHF suitcase radio repeaters. Units operate on CAP radio frequencies, and can be used either on the ground or from aircraft to support operations in remote locations. *
- 2 transportable UHF suitcase repeaters. Operating on federal interagency frequencies, they can be used either on the ground or from aircraft to support remote operations.
- Over 500 VHF radio repeater stations located strategically in all 50 states, the District of Columbia and Puerto Rico providing essentially seamless airborne local coverage. Conversion currently underway to narrowband FM, with completion scheduled for Q3 2007.
- 100+ airborne satellite telephone systems usable for either voice communications or digital data transmission.
- 90 dedicated communications vehicles with limited all-band capability and public service band interoperability. *
- 1,400 airborne, mobile, and hand-held Direction Finder (DF) units, capable of receiving aviation, marine or personal distress beacons on 121.5, 243, and 406 Mhz.
- CAP National Technology Center in Richmond, VA provides depot-level radio equipment maintenance and stores emergency response radio kits for delivery to mission sites.

* *Check with your CAP representative for local availability.*

PERSONNEL

- Over 34,500 trained adult volunteers nationwide, augmented by 23,000 young adults who are capable of manning phones and radios at mission bases.
- 11,910 qualified mission aircrew members.
- 3,830 members have been federally screened for Drug Enforcement Agency (DEA), U.S. Forest Service (USFS), and Customs and Border Patrol (CBP) missions.
- A limited number of personnel currently have Department of Defense (DoD) Secret and Top Secret clearances. For long-term repetitive missions, additional members can be screened as needed.
- 4,670 mission-qualified ground team members.
- 26,520 trained communicators, many with advanced Ham Radio licenses as well.
- 780 ICS-qualified Incident Commanders.
- Trained Critical Incident Stress Management (CISM) personnel available with sufficient prior notice. *
- Numerous trained ground search teams, some with credentialed Emergency Medical Technicians (EMT). *

* *Check with your CAP representative for local availability.*

MISSION REQUEST CONTACTS

- **For Search and Rescue (SAR) or life-saving missions**
(Including emergency blood, organ & tissue transport):
 - Air Force Rescue Coordination Center (AFRCC).
 - Manned 24/7/365. Number: (800) 851-3051.
NOTE: For SAR / life-saving operations *only*.

- **For all other mission requests**
(Including immediate response missions to prevent human suffering or to mitigate great property damage):
 - Civil Air Patrol National Operations Center (CAP-NOC).
 - Number during normal duty hours: (888) 211-1812.
 - Manned during normal duty hours (Mon through Fri, 0830 to 1730 Eastern time, excluding holidays).
 - On call duty officer available 24 / 7 / 365 outside of normal duty hours for emergency requests.
 - Can assist in contacting the appropriate USAF approval authority to execute missions. Can explain the Request for Assistance (RFA) process.

— Or —

- Contact USAF Office of Homeland Defense - Auxiliary (AF/A3SHA).
- Number during normal duty hours: (703) 696-0040.
- Manned during normal duty hours (Mon through Fri, 0830 to 1630 Eastern time, excluding holidays).

COST

- Typically \$110 - \$160 per hour of flight time, depending on aircraft used.
- Specialized sensors such as Satellite Digital Imaging System (SDIS) or Airborne Real-Time Cueing Hyperspectral Enhanced Reconnaissance imaging system (ARCHER) incur additional cost. Contact CAP National Operations Center (CAP-NOC) for more information.
- Possible food / housing expenses for volunteers for multi-day / multi-location missions.
- For Air Force assigned missions (i.e. federal missions), CAP members receive Federal Employees' Compensation Act / Federal Tort Claims Act (FECA / FTCA) benefits. These benefits normally do not apply to missions performed for state or local entities, unless the missions are specifically tasked by the Air Force. For missions executed solely for state or local entities, these entities may be requested to provide their equivalent of FECA / FTCA benefit coverage for CAP personnel and equipment before a mission can be performed for their agency.
- Contact the CAP-NOC for more details and information on specific mission types.

ADDITIONAL INFORMATION

- Local CAP contact:

- State / Federal contacts:

- Other contacts:

AIRCRAFT DESCRIPTIONS

CESSNA 172



- **Performance:**
 - Cruise Speed: 120 knots
 - Range: 520 nautical miles
 - Full Fuel Payload: 525 pounds
 - Passengers: 2 or 3
 - Endurance: 3½ hours (with 1 hour reserve)
 - Service Ceiling: 13,000 feet

- **Special Capabilities:**
 - Communications: VHF Only
 - Navigation: Enroute GPS, VOR
 - Reconnaissance: Direction Finder (all aircraft)
Visual

- **Number / Locations:**
 - 262 / Nationwide

AIRCRAFT DESCRIPTIONS

CESSNA 182



- **Performance:**

- Cruise Speed: 135 knots
- Range: 630 nautical miles
- Full Fuel Payload: 650 pounds
- Passengers: 3
- Endurance: 4 hours (with 1 hour reserve)
- Service Ceiling: 15,000 feet

- **Special Capabilities:**

- Communications: VHF, satellite telephone
(≈100 aircraft) *
- Navigation: Approach GPS, VOR
- Reconnaissance: Direction Finder (all aircraft)
Satellite Digital Imaging System
(≈100 aircraft) *
Camera Window (185 aircraft) *
Visual

- **Number / Locations:**

- 235 / Nationwide

* *Check with your CAP representative for local availability.*

AIRCRAFT DESCRIPTIONS

CESSNA 206 *



- **Performance:**
 - Cruise Speed: 145 knots
 - Range: 650 nautical miles
 - Full Fuel Payload: 725 pounds
 - Passengers: 5
 - Endurance: 4½ hours (with 1 hour reserve)
 - Service Ceiling: 15,000 feet

- **Special Capabilities:**
 - Communications: VHF, satellite telephone (≈10 aircraft) *
 - Navigation: Approach GPS, VOR
 - Reconnaissance: Direction Finder (all aircraft)
Satellite Digital Imaging System (≈10 aircraft) *
Camera Window (10 aircraft) *
Visual

- **Number / Locations:**
 - 22 / Nationwide

* *Check with your CAP representative for local availability.*

AIRCRAFT DESCRIPTIONS

GIPPSLAND GA-8 *



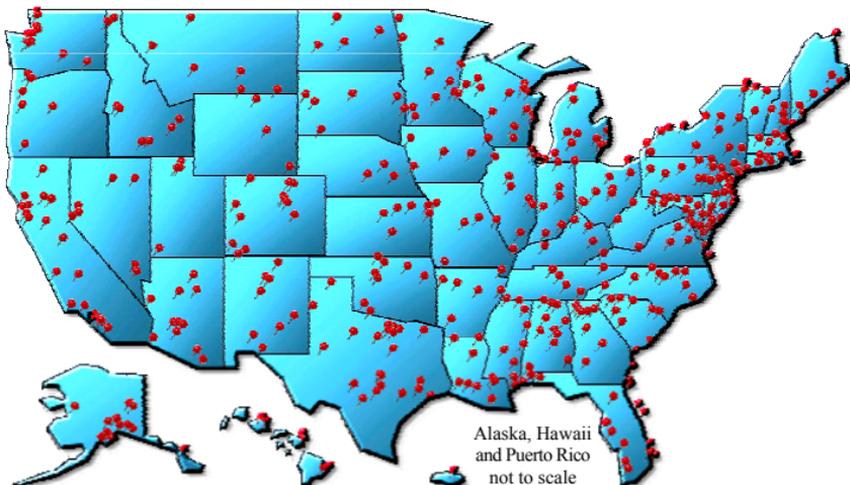
- **Performance:**
 - Cruise Speed: 125 knots
 - Range: 730 nautical miles
 - Full Fuel Payload: 1,000 pounds
 - Passengers: 7
 - Endurance: 5 hours (with 1 hour reserve)
 - Service Ceiling: 15,000 feet

- **Special Capabilities:**
 - Communications: VHF, satellite telephone (all aircraft)
 - Navigation: Approach GPS, VOR
 - Reconnaissance: Direction Finder (all aircraft)
Satellite Digital Imaging System (all aircraft)
Hyperspectral Imaging (all aircraft)
Camera Window (all aircraft)
Visual

- **Number / Locations:**
 - 16 / Nationwide

* *Check with your CAP representative for local availability.*

AIRCRAFT LOCATIONS



Approximate locations of home bases of CAP aircraft.

- **NOTE:** Check with your local CAP representative or the CAP National Operations Center (CAP-NOC) to determine local availability of a specific aircraft type desired.
- Aircraft equipped with specialized sensors such as the Satellite Digital Imaging System (SDIS) or the Airborne Real-Time Cueing Hyperspectral Enhanced Reconnaissance (ARCHER) hyperspectral imaging system may not always be locally available. Contact the CAP National Operations Center (CAP-NOC) as soon as your requirements are known, to minimize delay.

SENSOR DESCRIPTIONS

DIRECTION FINDER (DF)

- Designed to locate Emergency Locator Beacons (ELT) on downed aircraft or Emergency Position Indicating Radio Beacons (EPIRB) from ships in distress
- Can receive emergency signals on 121.5 Mhz (old civil frequency), 243 Mhz (old military frequency), and 406 Mhz (new universal frequency).
- Receiving units indicate approximate bearing and distance directly to the distress beacon.
- In addition to DF units on every CAP aircraft, DF ground teams can use handheld units to pinpoint the location of downed aircraft in the field.
- Urban DF teams can locate false alarms in buildings, marinas, airport parking ramps, etc. to prevent the masking of real distress signals by false transmissions.
- Airborne searches can generally locate a distress signal from as far away as 75-80 miles at altitude.
- Both airborne and ground receivers are available everywhere there are CAP units. Every aircraft currently in CAP service has a working DF receiver on board. Generally speaking, every CAP Squadron has at least one handheld DF unit, as well.
- Not all units may have DF units locally capable of receiving the new 406 Mhz emergency beacons. *

* *Check with your CAP representative for local availability.*

SENSOR DESCRIPTIONS

SATELLITE DIGITAL IMAGING SYSTEM (SDIS)

- Point-to-multi-point transmission of aerial digital photography delivered in-flight via satellite communications.
- Uses off-the-shelf hardware and customized software to produce near-real-time delivery of a 150 kb-sized image - about 2 minutes from digital photo to receipt by customer.
- An SDIS functional unit is comprised of an aircraft equipped with a photo window, a digital camera, laptop computer, aircraft satellite telephone equipment and a trained three-person crew. Since images are sent directly to customer's computer, no specialized ground equipment is needed.
- Photo is attached to standard MS Outlook e-mail, allowing for text information to accompany photo - e.g. latitude / longitude coordinates, time stamp, site identification, conditions, and other descriptive text.
- Satellite telephone allows two-way voice communication and text (e-mail) between aircraft and customer to refine or revise target information and requirements.
- SDIS can be used in conjunction with CAP's Airborne Real-Time Cueing Hyperspectral Enhanced Reconnaissance imaging system (ARCHER).
- The near real-time nature of SDIS images has proven effective in SAR; disaster response and damage assessment; environmental impact damage, destruction appraisal, and tracking; and facility security reconnaissance, among many other tasks.
- Approximately 100 SDIS units are operational nationwide. The units are carried in selected C-182, C-206, and all GA-8 CAP aircraft.

SENSOR DESCRIPTIONS

AIRBORNE REAL-TIME CUEING HYPERSPECTRAL ENHANCED RECONNAISSANCE (ARCHER)

- Most sophisticated unclassified hyperspectral imaging system available.
- Has direct applications for Search and Rescue (SAR); Counterdrug (CD); Disaster Relief and Impact Assessment (DRIA); and Homeland Security (HLS).
- ARCHER is a non-invasive reflected light technology that uses three separate methods for target identification:
 - **Spectral signature matching:** Evaluates reflected light against a library of spectral signatures to identify specifically-targeted objects.
 - **Anomaly detection:** Compares reflected light against a continuously calculated background spectrum. Anomalies are flagged as potential targets for further evaluation.
 - **Change detection:** Executes a pixel-by-pixel comparison of current image against ground conditions that were obtained in a previous mission over the same area. Scene changes are identified, and new, moved or departed targets are highlighted for evaluation.
- As a mission is flown, the image is plotted on the airborne monitor in real time. Identified targets are highlighted with circumscribed squares. Target location is recorded in latitude, longitude, and elevation.
- At any time during the flight, target images and their location information can be transmitted to ground observers using the Satellite Digital Imaging System (SDIS).
- All missions are recorded for later post-flight analysis with the ARCHER ground station.

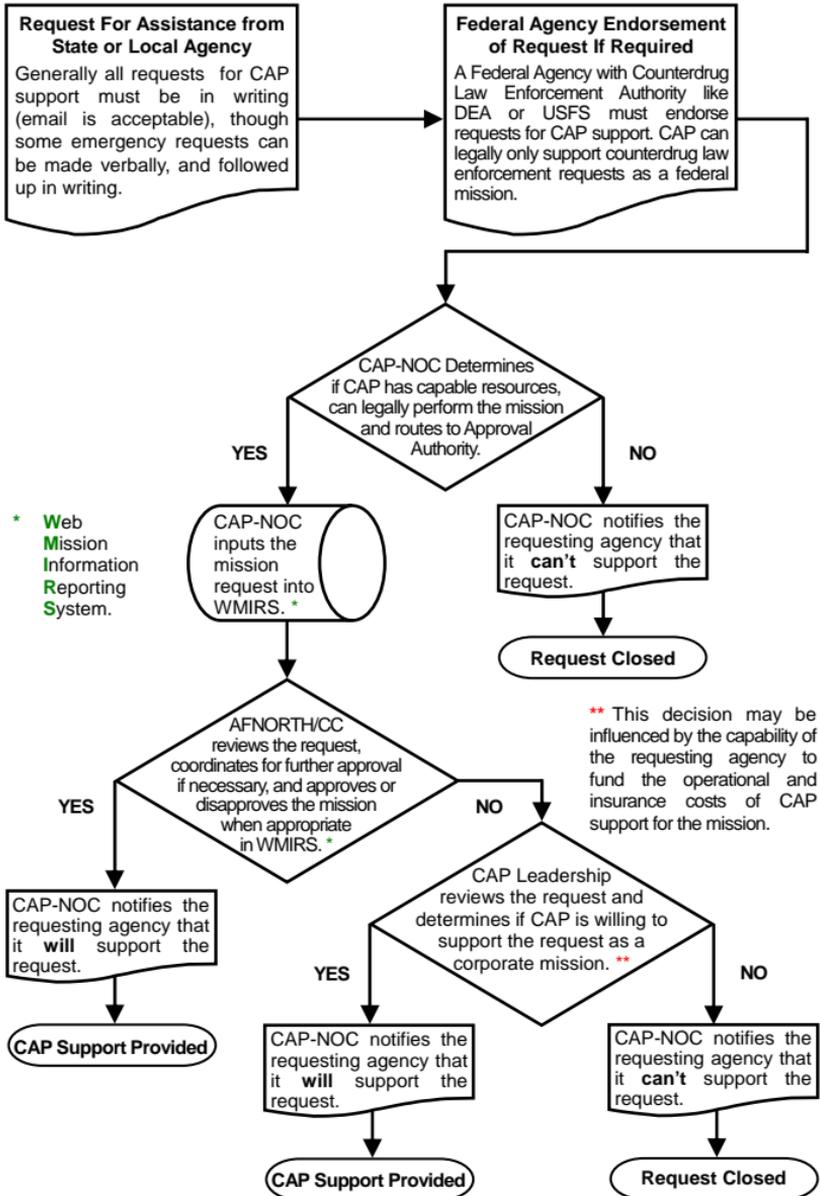
TASKING DECISION TREES

FOR ALL LOCAL, STATE OR FEDERAL AGENCIES

- The Tasking Decision Trees on the following pages are designed *only* to show the internal CAP workflow when a customer request comes in. This does *not* mean a prospective customer must go through all these steps to receive CAP mission support.
- In every case, your first call should be to the CAP-NOC. There, a Duty Officer will initiate appropriate steps to determine whether or not a mission can be accepted, and if so, whether it falls under the State / Local or Federal request guidelines.
- The existence of a Memorandum of Understanding (MOU) between the customer and CAP does not affect the workflow from your point of view. In every case, your first call should be to the CAP-NOC. From that point on, the existence of an MOU will serve to *significantly* expedite the approval process.
- If a requested mission is turned down, the CAP-NOC will inform you as to why we were unable to accept the tasking. They may be able to suggest alternate ways that such a mission could possibly be accomplished by CAP in the future.
- For contingency or disaster response with a Lead Federal Agency (LFA), CAP support is requested through that LFA.
 - Even though CAP is technically not a military organization, you can request CAP missions using the Request For Assistance (RFA) procedures outlined in the National Response Plan.
 - State and local agencies may bypass the LFA and the federal request process by going directly to the CAP NOC. CAP support will be functionally the same *but your organization will be financially responsible for the mission instead of the LFA*. If response time is critical, this may be the quicker option. It does not prevent CAP support from being provided via an RFA at a later date.
- If after hours or immediate needs missions arise, please use the point of contact numbers listed on page 7, as appropriate.

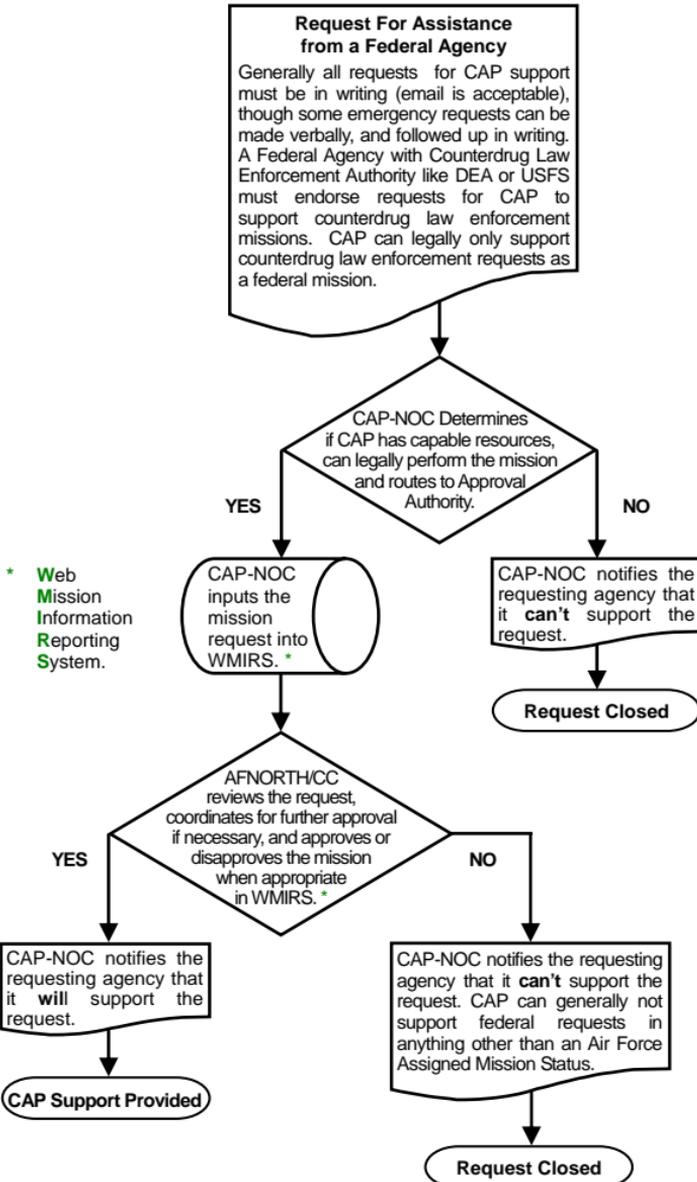
TASKING DECISION TREES

STATE / LOCAL REQUEST



TASKING DECISION TREES

FEDERAL REQUEST



REGISTRATION INFORMATION

- Please send us your registration information so that we may send you regular updates to keep your CAPabilities Handbook up to date:

Name: _____

Title: _____

Agency: _____

Address: _____

City: _____

State: _____ Zip: _____

Telephone: _____

E-mail Address: _____

- This is a: New registration Address change
(Please check one)
- Please mail to:

Civil Air Patrol National Headquarters
105 South Hansell Street, Building 714
Maxwell AFB, AL 36112-6332
Attention: Operations Support

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Name: _____

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