

# SWEAT Infrastructure Assessment Contingency Plan

**AM-3  
CONPLAN 17-2**

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# SWEAT / INFRASTRUCTURE ASSESSMENT

## 1. BACKGROUND

Incident Awareness and Assessment (IAA) is conducted in support of Defense Support to Civil Authorities (DSCA) operations, on U.S. soil, and Humanitarian Assistance Disaster Relief (HADR), on foreign soil. IAA emphasizes that the DOD does not collect Intelligence on US persons. IAA operations focus on providing timely and usable information to all levels of command and State, Civil, and Federal leaders in order to save lives, reduce human suffering and protect property.

IAA focused on gathering technical information on the condition and capacity of existing public systems, municipal services, and facilities within an assigned area of operations. IAA seeks to assess awareness concerning Sewage, Water, Electricity, Academics, Trash - Medical, Safety and Other Considerations (SWEAT-MSO). SWEAT-MSO is the common memory aid that reminds users of categories of concern within the infrastructure. See Figure 1.

MARS provides IAA on conditions in communities throughout the United States by communicating directly with local citizens and civil authorities. It is an important distinction that while MARS is communicating with U.S. persons, MARS does not collect information on individuals. Additionally, MARS is always in support of the DOD or other federal agencies when requested. This capability is requested due to the unique DOD capability that MARS provides.

MARS members have firsthand knowledge of the conditions in communities where they live. By asking nearby Amateur Radio operators about their local infrastructure conditions, MARS members are able to expand their awareness of the conditions in nearby communities. The ability to establish two way radio communications within the Amateur Radio Service (ARS) is assumed to be simple two way, local area, free-form communications using the Tactics, Techniques and Procedures (TTP) that are commonly in use throughout the ARS. Organizing and formatting the information is the task of MARS, no special TTP or message format with the ARS is required or desired.

## 2. SWEAT-MSO

Each letter in the memory aid SWEAT-MSO refers to a major areas within the assessment. Refer to Figure 1 below:

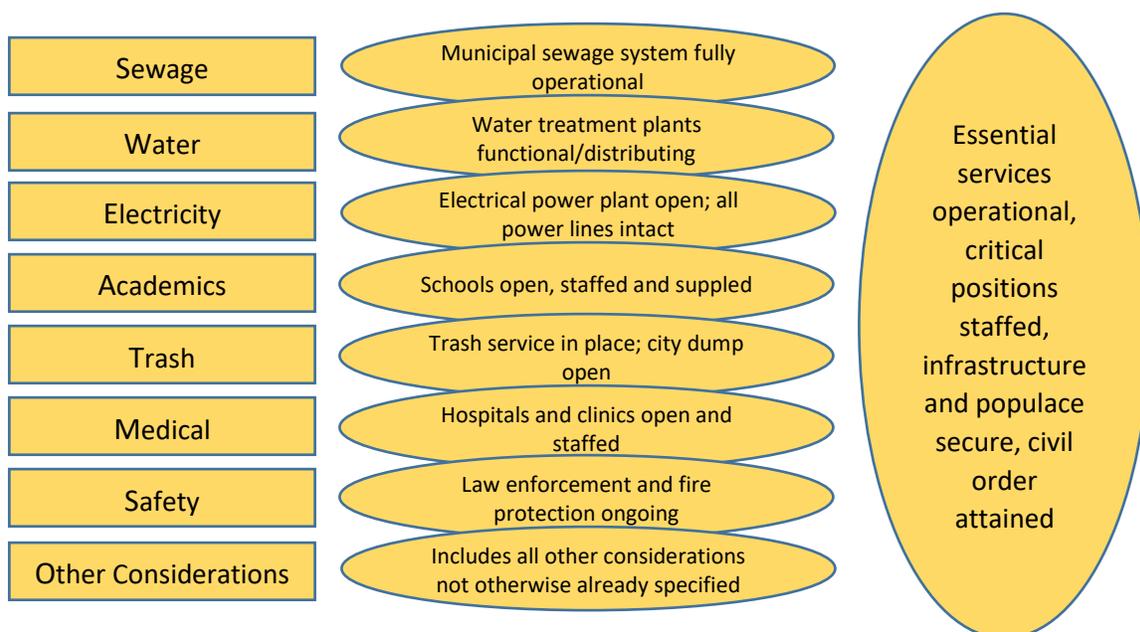


Figure 1 Infrastructure Assessment and survey model from the MCWP 3-17.4 Engineer Reconnaissance manual.

The basic services or categories evaluated depend on the situation, mission, and commander's intent. The categories assess not only physical conditions, but the function of the community and its institutions. For instance, if schools are open and widely attended despite problems with physical infrastructure, it indicates a working local administration with a high level of public confidence.

Typically planners use this information to define immediate needs and determine priorities of work. While the assessment is typically performed by engineers, it may be accomplished by others when an engineer is not available, depending on the expertise available and the desired type and quality of information required. If available, nongovernmental organizations, units, and agencies in the area contribute to the assessment. In the case of the reports completed by MARS members, only the most basic information is expected.

Some of the primary considerations for the assessment are:

- **Sewage.**  
What is the status of the local sewage system?  
What health and environmental risks exist?  
When is service expected to be restored?  
What are the immediate needs?
- **Water.**  
Status of water treatment plants or distribution systems  
Status of potable water in commercial or residential properties  
Status of storage capacity  
When is service expected to be restored?  
What are the immediate needs?
- **Electricity.**  
What is the status of electrical generation facilities?  
What is the status of the transmission infrastructure?  
What critical facilities (hospitals, government buildings, schools) are not having their needs met?  
When is service expected to be restored?  
What are the immediate needs?
- **Academics.**  
Are Schools attended?  
What schools are in need of repair and rebuilding?  
Status of teachers and supplies
- **Medical.**  
Are medical services available and operational?  
Does an emergency service exist?  
Status of physicians and supplies  
Are veterinarian services available for animals?  
When are services expected to be restored?  
What are the immediate needs?
- **(Public) Safety.**  
Is there a police and fire service?  
When are services expected to be restored?  
What are the immediate needs?
- **Trash.**  
Is there a system in place for removing waste?  
What hazardous waste streams are being generated that may have detrimental impacts on health and the environment?  
What is the ultimate disposal system for trash?  
When is service expected to be restored?  
What are the immediate needs?

**Other considerations.** Other considerations that leaders may consider as a part of the assessment include:

- **Transportation networks.**  
Are roads, bridges, and railroads trafficable?  
Is the airport operational?  
Do helicopter landing sites exist and are they useable?  
Can they sustain the local humanitarian assistance traffic?  
What are the immediate needs?
- **Fuel distribution.**  
Is there a fuel distribution system available to commercial and residential customers?  
What are the immediate needs?
- **Housing.**  
Are the homes structurally sound and habitable?  
Do they include basic utilities?  
What are the immediate needs?
- **Explosive hazards.**  
Are there ordnance hazards observed?  
What are the immediate needs?
- **Environmental hazards.**  
Are environmental hazards observed?  
What are the immediate needs?
- **Communications.**  
Is the telephone network available and operational?  
What is the status of television, radio, and newspapers?  
Are Public Safety Answering Points (PSAP) and associated communications systems operating?  
When are services expected to be restored?  
What are the immediate needs?
- **Places of worship.**  
Are there adequate facilities to support religious activities for all groups?
- **Attitude.**  
Are local people and community leaders supportive?  
Is there ethnic tension?

These considerations exceed the requirement for the MARS county report at this time, but are included to prepare MARS for expanded IAA missions such as Humanitarian Assistance Disaster Relief (HADR) operations, and to orient MARS members to the much larger scope when interviewing Amateurs and other citizens in respect to local conditions.

## 2.1. COUNTY STATUS REPORT

The county status message reports the status of critical services within a particular county and provides a quick “snapshot” of local conditions. Although it does not capture all the SWEAT-MSO elements it does meet the requirements for IAA for a specific mission assigned to MARS.

This report is completed by MARS stations based on information received from local officials or an on-air interview of Amateur Radio operators. This report is NOT generated by amateur radio.

This format is specifically designed to relay information about a variety of critical services in a compact and efficient manner using low data rate systems that is both human and machine readable. County Status lines and messages are drafted using software available in the MARS programs. MARS members focus on the collection and categorizing of information elements.

Example County Status Line:

CNTY/048503/232215/Y/Y/Y/Y/Y/Y/-/YOUNG CNTY TX//

The primary data elements of the County Status message are as follows:

FIPS CODE: The FIPS code with leading zeros so that the number always contain six numerals.	Y – Yes: Fully functioning sanitation service in the county except for routine maintenance.
REPORT TIME: Date-time in Zulu of when the information was obtained. Use DDHHMM for the format. <b>Do not</b> place the letter for the time zone.	P – Partial: Unplanned interruption of sanitation service only in part of the county.
POWER STATUS Y – Yes: Fully functional commercial power in the county except for routine maintenance.	N – No: Complete unplanned sanitation service interruption.
R – Rolling Blackout: Planned outages with little warning intended to ease stress on the power grid.	- Unknown Information is Unknown
P – Partial Blackout: Unplanned interruption of commercial power only in parts of the county.	MEDICAL FACILITY STATUS Y – Yes: Fully functioning and staffed hospitals and clinics with spare capacity available.
B – Brownout: Reduction in voltage used as an emergency measure to prevent system failure.	P – Partial: Unplanned decrease of capacity in the county due to loss of facilities.
N – No: Blackout. Complete unplanned commercial power interruption in the county.	R – Partial due to personnel: Unplanned decrease in capacity due to loss of personnel.
- Unknown Information is Unknown	F – Full. Facilities are at maximum capacity and can't handle new patients.
WATER STATUS Y – Yes: Fully functional water service in the county except for routine maintenance.	N – No: Not available. Medical facilities are unusable due to loss of personnel or infrastructure.
P – Partial: Unplanned interruption of water service only in parts of the county.	- Unknown: Information is Unknown
C – Contaminated: Water service is available but contaminated and should not be used.	COMMUNICATIONS STATUS Y – Yes: Fully functioning commercial and civil government local communications.
N – No: Complete unplanned water service interruption.	P – Partial: Commercial communications out but local government communications operational.
- Unknown: Information is Unknown	N – No: Complete loss of local commercial and government communications.
SANITATION STATUS	- Unknown: Information is Unknown
	TRANSPORTATION STATUS

Y – Yes: Fully functioning mass transit, roads, and rail systems except for routine maintenance.

P – Partial: Unplanned interruption in service or loss of roads/rail in parts of the county.

N – No: Complete loss of mass transit systems. Road remain available except for those damaged.

- Unknown: Information is Unknown

#### SOURCE

C – Commercial Broadcast. This includes non-validated sources such as local radio and TV news.

E – EAS. Government Broadcast. Information received from EAS/IPAWS over any media.

G – Government. Civil government or public officials other than EAS/IPAWS such as from an EOC.

A – Amateur. Information originated by amateur radio operators and not validated or coordinated by public officials.

REMARKS: This is a thirty character field. Place whatever relevant comments are required. Each CNTY line entry should be kept to no more than 69 characters long. Typical use here would be to spell out the county or place name, the reporting station call-sign, or organization.

## 2.2. SWEAT-MSO REPORT (APAN)

For other IAA missions, use a generic, plain text SWEAT-MSO report. These missions include Humanitarian Assistance and Disaster Relief (HADR) and Defense Support to Civil Authorities (DSCA), where MARS stations are processing information from Amateur Radio and forwarding to DoD planners through the DoD All Partners Access Network (APAN). For this type of reporting, it is assumed MARS stations have access to internet and are able to post to the MARS forum of the APAN website. The specific APAN community of interest to be used for each mission will be published as it becomes available.

Format of plain text SWEAT report.

On the first line, title the report using the words “SWEAT-MSO REPORT” followed by the date and time of the report. Use the standard military date time format as shown in the example below.

On the second line, the words “Posted by:” followed by the name or plain language address, email and telephone number of the reporting MARS station. See example below.

On the third line, the words “Source of Information:” followed by the source of the information and location of the report. Include the radio frequency if known. Do not assume the personnel reading these reports recognize or understand radio station call signs. Refer to stations in the ARS by prefacing the call sign with the words “Amateur Radio Station”. If there is additional relevant information regarding this source, such as a radio schedule, include it here.

On the following lines, utilize the bulleted list in section 1.2, and include only the bullet titles that represent known information. Use concise but descriptive free text. Use the focus questions under each bullet heading as general guides for asking questions but do not use them as a format for the report.

Post the report to the appropriate forum on APAN, and type your reports in a consistent, easy to read and understand manner. For example:

SWEAT-MSO REPORT: 21 SEP 2017, 1800Z

Posted by: MARS STATION AAR4ZZ email: [first.lastname@domain.com](mailto:first.lastname@domain.com) / telephone (123)456-7890

Source of Information: Radio report from Amateur Radio Station KP4AA, San Juan PR, 14,300.0 kHz. This station advises he will make radio contact daily at 2000Z.

Water: Municipal water system not functioning. Drinking water collected from rain and stored.

Electricity: Mains are down. Local fire and hospital operating on generator power.

Medical: Local hospital is staffed but short on medicine and supplies.

Safety: Police are escorting fuel trucks to prevent theft.

It is possible you may be contacted by DoD officials or other personnel/organizations on APAN for follow up information from the reporting ARS station in the disaster area. To the extent possible, establish a means to follow up and re-contact the reporting station.

Other reportable information includes what ARS networks are operating in the disaster area locally, either HF-NVIS or VHF/UHF. Personnel in the area may monitor these networks for information or make contact as required. Report this information under the Communications Status bullet.

### 3. MISSION

In the event of a national emergency, in which normal communications between government agencies are severely disrupted or impaired, MARS will commence IAA operations for all counties in the United States. Operations will continue until status reporting of local communities can be assessed by other means.

In the event of a natural disaster in which the US Department of Defense is providing humanitarian assistance or Defense Support to Civil Authorities, MARS stations will make contact with stations in the Amateur Radio Service (ARS) to establish a flow of relevant and current information resulting in SWEAT-MSO reports in APAN.

### 4. EXECUTION

#### 4.1. INTENT

Upon awareness of established trigger conditions, MARS will interface with local government officials and other known reliable local persons, make personal observations, communicate with stations in the Amateur Radio Service, and provide national leadership County Status or SWEAT-MSO Reports as appropriate.

#### 4.2. CONCEPT OF OPERATION

MARS stations are trained to communicate on both Military and Amateur radio networks, as well as to process information into established report formats.

- A. During a national emergency within the United States, it is expected an unprecedented amount of activity on Amateur Radio will exist, although in a relatively chaotic manner. Amateurs who would otherwise go about normal activities will have taken to the radio, eager to talk about the conditions they are experiencing, as well as seeking information.

The MARS station's role is to process the relevant information exchanged in this chaotic environment into a standardized, formatted IAA product. By establishing enduring relationships with local Amateur Radio leaders, MARS stations focus on communicating with local Amateur Radio stations using VHF, UHF, and HF-NVIS bands (75/80, 60 and 40 meters).

At this time, the product delivered to national leaders is the COUNTY REPORT. See section 2.1.

- B. During disasters in foreign countries when US Department of Defense is conducting HADR activities, MARS members determine if initial communications are only possible by Amateur Radio. In those cases, MARS members interface with the appropriate amateur radio networks and establish a conduit for relevant information to flow to HADR planners by posting SWEAT-MSO reports to the APAN website.

When MARS is reporting conditions for HADR operations, COUNTY REPORTS are not appropriate. Free-form reporting of SWEAT MSO elements on the APAN website is utilized. See section 2.2.

## Triggers

This plan is implemented when:

- 1) direction from higher authority / headquarters is received; OR
- 2) a nation-wide emergency condition exists throughout the United States, infrastructure is damaged, and communications with in the government is impaired to the point that other means of national assessment is not possible; OR
- 3) a disaster condition involving human suffering exists in a foreign country in which the United States Department of Defense is providing HADR, and amateur radio is the only existing medium for initial IAA.

This plan does not trigger when normal communications is in place, or when other means of national assessment are functioning.

## Training / Exercises

This plan is trained four times per year in National Level Exercises. Skills and tasks required for members to execute this plan are integrated into basic and in-service training tracts.

### 4.3. TASKS TO SUBORDINATES

#### MARS Region and States

- Incorporate IAA activities and the required skill tasks into routine training and drills conducted in the Region. Ensure appropriate software is distributed and all MARS members are trained and ready to conduct all aspects of IAA operations.
- Incorporate IAA into Region operational plans. List key personnel, organizations, relationships, and amateur radio network resources. Assign responsibilities in the event the trigger conditions established in this plan are realized.
- Ensure an appropriate number of Region MARS members have access to APAN, as required by this mission.
- Appoint Civil Affairs officers in each State to establish strong relationships with local Amateur Radio clubs and organizations. Socialize MARS IAA mission with local Amateur Radio leaders and promote integrating the IAA mission into local Amateur Radio operations.
- Ensure Civil Affairs officers in each state within the region identify Amateur Radio networks that operate locally and throughout the state that are likely to remain operational following a nationwide complex catastrophe, and oversee liaison with the managers of those networks that are likely to support IAA operations.
- Identify key Amateur Radio individuals in the Region with leadership roles in Amateur Radio networks providing international disaster communications, such as the SATERN, Pacific Seafarers Network, hurricane watch net, etc. Establish enduring working relationships with these individuals now in order to facilitate information flow during an HADR event in the future.

## 5. COMMUNICATIONS PLAN

- Refer to AM-6 Army MARS NetPlan: TTP 60 Meter Operations.
- Amateur Radio operation: Refer to 47 CFR Part 97.
- All Partners Access Network (APAN): Selected personnel refer to region leadership for access.