Santa Clara County ARES®/RACES

Mutual Aid Communicator

Program Handbook

Version 2.3

Revised: 20-Jun-2018

Contents

Program Summary

Mutual Aid Communicators (MACs) are amateur radio operators who have volunteered their time, their expertise, and their equipment to provide communications services during times of need. These individuals are trained and prepared to provide a variety of communications services and are available for deployment throughout the county, according to the county mutual aid mechanisms.

The MAC program has certain minimum entrance requirements. These entrance requirements include online and onsite training; participation in exercises and events; minimum performance standards; and some administrative requirements. Candidates for the program are evaluated by their city ARES/RACES leadership, the people who know them best, to determine when they have met the minimum entrance requirements. Once the city Emergency Coordinator (EC) is satisfied that the candidate is ready for the MAC program, the EC makes a formal nomination of the candidate to the county RACES Chief Radio Officer (CRO). The CRO has final authority to accept or decline the recommendation. Once accepted into the program, the individual is referred to as a Mutual Aid Communicator or "MAC." The achievement of MAC status is a major accomplishment which should be celebrated and publicly acknowledged. It represents a high level of operator skill and a commitment to public service.

All MACs are expected to maintain and improve their skills by attending training courses and by participating in training exercises and public service events. MACs are expected to perform all activities, at all times, in accordance with the "Santa Clara County ARES®/RACES Performance Standards and Best Practices". These standards consist of itemized, objective performance criteria which cover several key areas, including: professionalism, communications technique, safety, methods and procedures, equipment, and documentation.

MACs can demonstrate advanced capabilities by earning additional qualifications. These qualifications are available in several areas, including: Field Communications, Net Control Operations, Shadow Communications, Packet Communications and HF Communications. Each resource category includes multiple types, representing different levels of capability and offering the best operators an opportunity to demonstrate their advanced capabilities. These qualifications provide excellent resource typing and are used for the assignment of resources to mutual aid requests.

MACs are evaluated for qualifications using objective criteria and a consistent process. The evaluations are conducted by MACs who have attained advanced qualifications and have also been trained to perform evaluations of other MACs. In this way, the evaluation process is similar to the Volunteer Examiner program which manages the administration of Amateur Radio licensing tests.

The entire program is managed under the auspices of Santa Clara County ARES/RACES in coordination and cooperation with the county Office of Emergency Services and other served agencies. The program maintains alignment and compliance with ICS and NIMS.

Program Updates

Revisions to this program take effect two weeks from notification. Notices of updates to this program are sent to the e-mail lists for Santa Clara County ECs and MACs. All program documents are posted on the www.scc-ares-races.org website. Updates are published no later than two weeks before a scheduled drill or event where they will be used and are not released more frequency than 30 days from the previous version.

Performance Standards

An important part of any organized emergency response is a set of performance standards to which all responders are committed. Standards allow planners to anticipate the resource requirements of various situations because the performance of each resource can be anticipated. Standards allow teams of responders to work together seamlessly, even if they have never met before. Standards help each responder prepare and train because they are able to understand exactly what is expected of him or her in a real situation.

This handbook frequently references the "Santa Clara County ARES®/RACES Performance Standards and Best Practices" (also called the "Performance Standards"). The "Performance Standards" include best practices in emergency communications as well as a distillation of the important points from the county's Advanced Emergency Communications Training courses. These standards cover a wide range of performance criteria, including: Professionalism and Training, Communications Technique, Safety, Methods and Procedures, Equipment, and Documentation.

The "Performance Standards" are maintained as a separate document to make it easy to keep a copy in the Go Kit. The document may be updated from time to time to correct errors or omissions, improve clarity, or align with new procedures.

The "Performance Standards" are recommended best practices for all ARES®/RACES communicators in Santa Clara County. These standards apply equally well at any organizational level: city, county, state or other.

The "Performance Standards" are the **minimum required standard** for all Santa Clara County Mutual Aid Communicators (MACs). All MACs should periodically check to make sure that they have the latest version. Changes will be announced to the e-mail list for Santa Clara County MACs.

Refer to the "Program Management" section of this document for URLs and pointers to document locations.

How to Become a Mutual Aid Communicator

Program Entrance Process

The process for entering the MAC program is straight-forward and involves four steps: signing up as a MAC in Training (MIT), completing the minimum nomination requirements, getting an approved nomination from the Emergency Coordinator, and receiving acceptance of the nomination by the County RACES Chief Radio Officer (CRO). The details of each step are defined in the sections that follow.
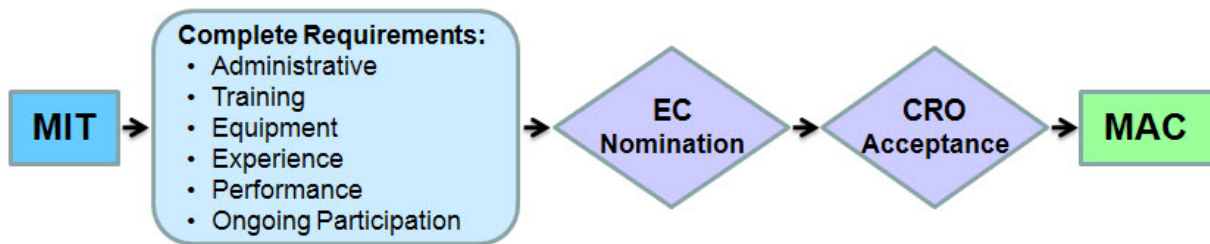
The "MAC in Training" (MIT)

An individual who wishes to become a MAC should contact his/her Emergency Coordinator to discuss a plan for completing all of the nomination requirements. If the EC believes the candidate has the potential to develop into a MAC, the EC should designate the candidate as a MAC in Training (MIT) by logging into the county activities database and checking the "MAC in Training" box on the candidate's record.

The MAC in Training designation indicates to the county that the candidate is working toward becoming a MAC and has completed at least partial training on county procedures and the "Performance Standards". It also enables the individual to participate in MAC evaluations for higher qualifications (explained later in this document).

Time Limit for MIT Status

The MAC in Training (MIT) designation will remain in place for a period of two years. If the candidate does not complete the steps to become a MAC within that two-year period, the MIT status will be removed. After that, a candidate who wishes to become a MAC will need to start the process over again by contacting his/her Emergency Coordinator and requesting to become an MIT again.

Minimum Requirements

All candidates must meet the following set of minimum requirements before they can be nominated for the MAC program:

Administrative

- Must live or work in Santa Clara County or the surrounding area and be willing and able to respond to mutual aid requests within Santa Clara County
- Must be 18 years of age or older
- Must have a valid Technician class or higher Amateur Radio license
- Must have a valid California Driver's license or California State-issued Identification card
- Must have reliable transportation capable of meeting the needs of the assignment
- Must have read the entire "SCCo ARES/RACES MAC Program Handbook" (this document)
- Must have read the entire "SCCo ARES/RACES Performance Standards and Best Practices"
- Must be registered with Santa Clara County as a Disaster Service Worker
- Must have completed or agree to complete a Live Scan electronic fingerprint capture and a background check by the Santa Clara County Sherriff's Office, or approved alternate agency. If not already completed, these steps will be performed upon acceptance into the MAC Program.

Training

- Santa Clara County ARES/RACES Training courses
  - Introduction to Emergency Communications (or equivalent training or experience)
  - Fundamentals of Emergency Communications (attendance required)
  - There is no requirement for completing any of the other county training courses prior to becoming a MAC. However, attending the monthly training courses will greatly improve the candidate's knowledge of county performance standards and operations and will help to accelerate readiness.
- FEMA requirements:
  - ICS-100 (or IS-100) – Introduction to the Incident Command System (see note)
  - ICS-200 (or IS-200) – ICS for Single Resources and Initial Action Incidents (see note)
  - IS-700 – Introduction to the National Incident Management System (see note)
  - **NOTE:** The actual FEMA certified courses (either instructor-led or online) are recommended but not required for entry into the MAC program. City-approved equivalents of these courses may be substituted as long as they meet FEMA requirements. However, completion of the actual FEMA-certified courses and display of FEMA-issued course completion certificates is required for any of the MAC qualifications.

Equipment

- 2-hour Carry Kit maintained to county standards
- 12-hour Go-Kit maintained to county standards

Knowledge

- Demonstrates personal radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
  - Simplex without tone
  - Simplex with tone and tone squelch
  - Repeater with offset and CTCSS tone
  - Save configurations to and recall from memory

- o   Lock keypad or mic controls, if so equipped
- o   Full/factory reset (clear all settings) [explain only; demonstration not required]
- Maintains positive control over radio to prevent open mic and unintended frequency or other settings changes

Experience

There is no hard and fast, minimum level of in-county experience required prior to entering the MAC program. This is because potential MACs may enter the program at varying levels of experience and capability. Therefore, it is up to the city Emergency Coordinator (EC) to determine when the candidate has sufficiently demonstrated his/her ability to perform according to the "Performance Standards".

Some candidates may need to attend more activities to raise their operating skills. Experienced operators may only need to attend one or two events to become acclimated to Santa Clara County emergency communications procedures.

As a general recommendation, experience in all the following activities should offer sufficient opportunity for the average amateur radio operator to demonstrate their readiness for the MAC program:

- Weekly SPECS or SVECS and city nets
- At least two quarterly ARES/RACES communications drills (participating at city or county)
- At least one county-wide ARES/RACES communications exercise
- At least one public service event or real emergency incident

Performance

Prior to being recommended as a Mutual Aid Communicator, the candidate must demonstrate to the satisfaction of the city Emergency Coordinator:

- That he/she has functioned effectively and professionally in support of a served agency
- That he/she has the maturity and experience to perform all assignments according to the "Santa Clara County ARES®/RACES Performance Standards and Best Practices".

Ongoing Participation

Membership in the MAC program involves ongoing training and participation. Procedures improve and evolve. Forms are updated and added. Equipment is added or changed. Skills and knowledge degrade over time. Regular training and participation helps to ensure that all MACs maintain their proficiency with current county operations. Prior to being nominated as a Mutual Aid Communicator, the candidate must agree to maintain his/her proficiency by participating in at least the minimum required training, drills and events, as defined in "MAC Roles and Responsibilities."

Tracking and Documenting Progress

Candidates track their own progress toward completion of the MAC program entrance requirements using the MAC Candidate Record form. The form can be found on the MAC Program web page at: http://www.scc-ares-

races.org/mac. The form provides a simple way to track completion of each individual entrance requirement. Each line item on the form must be signed off by the city EC or their designated AEC.

Nomination Process

Candidate Submits MAC Candidate Record

Upon completion of all entrance requirements, the candidate must forward a copy of the MAC Candidate Record form to the County RACES Chief Radio Officer (CRO). The CRO will hold the MAC Candidate Record until he/she receives the nomination by the candidate's EC.

Emergency Coordinator Submits Nomination

Upon completing all nomination requirements, candidates for the MAC program must be nominated by their city ARES/RACES Emergency Coordinator (EC). The EC makes this nomination when he/she determines that the candidate has met all the minimum nomination requirements and has the maturity and experience to perform his/her assignments according to the "Performance Standards". The nomination can be in the form of a letter, fax or e-mail to the County RACES Chief Radio Officer (CRO).

Note: It is strongly recommended that the city or agency Emergency Manager or their delegate be notified of the nomination, such as by copying them when the nomination is sent to the county CRO. This keeps the agency authorities informed and acts as a reminder that the county program exists and serves all cities.

Review and Acceptance Process

Upon receiving both the MAC Candidate Record form from the candidate and the nomination from the EC, the Chief Radio Officer (CRO) will review the candidate with the county RACES staff and either accept or decline the nomination within two weeks. Normally, the nomination is accepted. An example of a situation when the CRO might decline a nomination is when the CRO or the county RACES staff is aware of performance issues which were unknown to the candidate's EC.

Mutual Aid Communicator Status

Once the CRO has accepted the recommendation of a candidate, the individual becomes a Mutual Aid Communicator or MAC. The individual will be notified and given instructions for completing the LiveScan and background check (if not already completed) and will be asked to provide additional information, such as a picture for the MAC badge.

The Achievement of MAC status is a major accomplishment which should be celebrated and publicly acknowledged. It represents a high level of operator skill and a commitment to public service.

MAC Roles and Responsibilities

Performance

All MACs, regardless of qualification, are expected to perform their duties according to the "Santa Clara County ARES®/RACES Performance Standards and Best Practices".

Training

All MACs are encouraged to continue to learn more about emergency communications by regularly participating in the county Advanced Emergency Communications Training classes. In order to receive credit for attending a course, the individual must be present and actively participating in the course for at least 90% of the scheduled course time.

There are many aspects to emergency communications and it takes many classes to cover so many different topics. All MACs are encouraged to learn as many of the subjects as possible. Even if a particular subject is not of prime interest to an individual MAC, he/she may have a need to communicate with someone who specializes in that subject. Often, communication is enhanced if both parties know at least a little about what the other is doing. So, everyone benefits if all MACs know at least a little about each subject.

Each time the classes are taught, they are improved. The next version of the class may include information about new technologies, new procedures, or may incorporate interactive feedback and participation based on recent experiences. Therefore, all MACs are encouraged to retake classes at least every two years and to add their own experience to the interaction that occurs during the class. In this way, everyone learns from everyone else's experience. Even the most experienced operators have found that they continue to learn new things each time they attend a training class.

Participation

All MACs are encouraged to continue to practice and improve their operator skills by regularly participating in county drills, public service events, and actual emergency incidents (if they occur).

Participation in country drills and specialized MAC drills offer an opportunity to focus on particular skill areas in a pre-planned, controlled environment. They are a good time to gain experience with new roles and operating procedures without the chance of doing harm to a served agency.

Public service events provide the opportunity to put learned skills into action in a real situation. Interaction with a real served agency adds another dimension to the assignment and more opportunity to improve people skills.

Hopefully, actual emergency incidents are few and far between. But when they do occur, MACs are expected to participate if their situation allows. After all, that's what the training is all about. Real incidents are not a time to experiment. But operating "under fire" is a sure way to continue to build experience and improve operating skills.

Minimum Participation Requirements

The MAC program is a purely volunteer program. All participants have other priorities in their lives, including family, jobs and other hobbies. So, MACs are not expected to be able to attend all training courses and participate in all events. However, being a MAC carries with it the responsibility to maintain training and performance at a standard level.

In order to maintain an active status in the MAC program, all MACs must continue to meet the following minimum requirements:

Performance:
All MACs are expected to perform all activities according to the "Performance Standards".

Training and Participation:
All MACs are expected to maintain their currency in county procedures and operations. Two options are available:

1. Participate in at least two county activations within each two-year period. (Note that this is an average of just one activation per year but provides more flexibility in the case of travel or other scheduling limitations.) The activations may include: MAC drills, public service events, real emergency incidents, or other activations as approved by the RACES Chief Radio Officer.

    OR

2. Participate in at least one county activation and at least one county "End of Year Summary" class within each two-year period. (Note that this option will still ensure the minimum level of currency with county standards and procedures but is more difficult to schedule since there is only one "End of Year Summary" class each year.)

Participants who, for whatever reason, are unable to meet these requirements over any given two-year period will be considered inactive. A one-year extension may be granted, by and at the sole discretion of the county's Chief Radio Officer, for medical, family emergency or other unusual circumstances.

Loss and Reinstatement of MAC Status

Loss of MAC status can be voluntary or involuntary. Anyone can voluntarily withdraw from the program at any time. Involuntary loss of MAC status can occur if the individual no longer meets the requirements of the program.

Voluntary Withdrawal

Participation in the Mutual Aid Communicator program is voluntary. An individual may withdraw from the program at any time and for any reason. Some examples of reasons why an individual might need to withdraw from the program include: moving out of the area, a change in family situation or, perhaps, an illness or injury that prevents the person from performing the duties of a Mutual Aid Communicator.

Voluntary Withdrawal Process

Withdrawal from the MAC Program is initiated in one of two ways:

1) An existing MAC may withdraw from the program by sending an email to the MAC Program Manager requesting withdrawal
2) An existing MAC who permanently moves out of the area or is otherwise unable to perform the duties of a Mutual Aid Communicator in the future will be deemed to have withdrawn from the program

In either case, the MAC Program Manager will remove the MAC status from the individual's record in the activities database. An email will be sent to the individual confirming that they have been removed from the MAC program. The email will include the address to use for returning the MAC badge. The MAC badge is Santa Clara County property and must be returned.

The MAC Program Manager will also record the date that the individual originally achieved MAC status, plus the dates they achieved any additional qualifications. This information may be used to reinstate MAC status, as described below.

Individual MACs should also maintain their own record of participation and MAC status to protect against data loss.

Reinstatement Process

If the situation that necessitated withdrawal from the program is reversed, the individual may request to be reinstated in the MAC program. For example, if the individual moved back into the area or their family situation or illness/injury has been resolved, they may request reinstatement.

Reinstatement is subject to the Inactivity process described above and as follows:

- If the individual requests reinstatement while they still meet the minimum participation requirements, then they can be reinstated immediately. For example, suppose a MAC has been participating in most events right up until the time that they are relocated out of state. And suppose they move back to Santa Clara County within a year. In that case, their previous participation has not yet timed out. So, they still meet the minimum participation requirements. Therefore, they could be reinstated immediately.

- If the individual requests reinstatement within two years after they fail to meet the minimum participation requirements, then they will need to follow the Inactive reinstatement process outlined below. For example, suppose the above person moves back after three years instead of one year. At that point, all their past participation has timed out. But they are within the two-year Inactivity window that allows reinstatement. Therefore, they would need to restore their minimum participation level and pass a reinstatement review to be reinstated.
- Reinstatement more than two years after a MAC would have become inactive is not possible. The individual will have not been participating at the minimum level for at least four years and far too much will have changed in that timeframe. Therefore, the individual will need to start the process over again, beginning with the MIT status.

Involuntary Removal

When a MAC no longer meets the requirements of the program he/she will be considered Inactive and his/her MAC status will be removed. Examples of involuntary removal criteria include:

- Administrative, such as moving out of the area, loss of amateur radio license, loss of transportation, etc.
- Inactivity, such as failing to maintain minimum participation requirements
- Inappropriate behavior, such as refusal to abide by the MAC program standards and tenets
- Security issues, such as criminal activity

Once inactive, the individual has a limited time window during which to achieve reinstatement. Involuntary removal due to behavioral or security issues may prevent reinstatement, depending on the specifics of the issue.

Maintaining Administrative and Participation Requirements

All Mutual Aid communicators are responsible for monitoring their own adherence to all administrative and participation requirements. The administrative requirements are straight-forward. The county ARES/RACES activities database currently provides two helpful views for monitoring participation:

- My Activity Record: Shows all activities in which the MAC participated since the database was created.
- My MAC-Qualifying Events: Shows the events over the last two years that will be used to determine if the individual is meeting the minimum participation requirements of the MAC program.

Shortly after the end of each calendar year, the MAC Program Manager will review the activities database to determine if any MACs have failed to meet the minimum requirement participation level over the previous two years. Any MACs who meet that criteria will be considered "Inactive".

Behavior and Security Issues

The MAC Program Manager or ARES/RACES leadership may also observe or receive reports of inappropriate behavior. In addition, the Santa Clara County Sheriff's office will notify the MAC Program Manager and ARES/RACES leadership if security concerns arise. Any of these situations may result in removal from the MAC program. Appeals can be made to the MAC Program Manager. The final decision rests solely with the County's Chief Radio Officer.

Transition to Inactive Status

When a MAC becomes Inactive or otherwise needs to be removed from the program, the MAC status of the individual will be removed from the activities database. The individual will receive a notification email at his/her address as listed in the activities database. The email will contain the reason for the loss of MAC status and the address to use for returning the MAC badge. The MAC badge is Santa Clara County property and must be returned.

The MAC Program Manager will also record the date that the individual originally achieved MAC status, plus the dates they achieved any additional qualifications. This information may be used to reinstate MAC status, as described below.

Individual MACs should also maintain their own record of participation and MAC status, including proof of any MAC qualifications earned, to protect against data loss.

Reinstatement

Note: Reinstatement after involuntary removal due to behavioral or security issues may not be possible, depending on the specifics of the issue. Individuals will need to consult with the MAC Program Manager.

Reinstatement Timeframe

An individual may be reinstated as an Active MAC within a two-year period after becoming Inactive. For example, suppose a MAC has not met the minimum participation requirements for two calendar years. Shortly after the end of the second calendar year (usually, within the first two weeks of January), the individual's MAC status will be removed, and he/she will be considered Inactive. The individual has the remainder of that calendar year and the next calendar year to complete the reinstatement process.

Reinstatement more than two years after a MAC has become Inactive is not possible. The individual will have not been participating at the minimum level for at least four years (two years prior to becoming inactive plus two years after becoming inactive) and far too much will have changed in that timeframe. Therefore, the individual will need to start the process over again, beginning with the MIT status.

Reinstatement Process

To be reinstated to Active MAC status, the individual must meet the minimum participation requirements and pass a reinstatement review. Both must be accomplished within two calendar years of becoming Inactive.

The reinstatement review for Active MAC status will verify that the individual meets all the following requirements:
- Administrative
    - All administrative requirements for being a MAC
- Training
    - There is no specific training requirement for reinstatement, but …
    - Training classes are updated with new information and procedures every year. Anyone who has been inactive for two years or more is not prepared with the latest information and should resume a regular training schedule.

- Equipment
    - 2-hour Carry Kit maintained to county standards
    - 12-hour Go-Kit maintained to county standards
- Participation
    - The individual currently meets the minimum participation requirement for maintaining active MAC status
- Knowledge
    - Purpose and usage of county nets
        - See the Fundamentals of Emergency Communication course
    - Mobilization, Tracking and Demobilization process
        - See the Fundamentals of Emergency Communication course
    - Demonstrates personal radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
        - Simplex without tone
        - Simplex with tone and tone squelch
        - Repeater with offset and CTCSS tone
        - Save configurations to and recall from memory
        - Lock keypad or mic controls, if so equipped
        - Full/factory reset (clear all settings) [explain only; demonstration not required]

If the individual also possessed any MAC qualifications at the time he/she became Inactive, those qualifications may also be reinstated by extending the reinstatement review to cover the following items

- Equipment
    - Any additional equipment required for each qualification (see the qualification requirements
- Knowledge
    - All knowledge items required for each qualification (see the qualification requirements)
- Participation
    - Any participation requirements for each qualification (see the qualification requirements)
- Evaluation
    - An evaluation will be created to address the set of MAC qualifications to be reinstated. At the discretion of the MAC evaluator, the evaluation may be abbreviated and cover multiple qualifications in session.

When the minimum participation requirements have been met and the reinstatement review has been successfully completed, the MAC Program Manager will update the activities database to reinstate Active MAC status and any applicable MAC qualifications.

Resource Assignment and Typing

Overview

As individual MACs continue to learn more and become more experienced, differentiation in skill level develops between the individuals in the MAC program. Some individuals have very broad capabilities, while others prefer to specialize in one particular area. This differentiation in capabilities is good because it means the group consists of a broad range of capabilities and skills. But it also creates a resource assignment problem. Resource typing is a scalable and effective way to solve the resource assignment problem without interfering with the individual creativity and interest of the volunteers in the program.

The Resource Assignment Problem

The assignment of resources involves making the best possible match between the resource request and the resources available. Requests which are more specific have a better chance of being fulfilled properly. For example, it's not enough to request something as vague as "heavy equipment." It would be better to specify whether a bulldozer or a dump truck is needed. It would be even better to specify the size or type of bulldozer or dump truck needed so that the resource provided will be large enough to get the job done, yet not waste a larger resource on a smaller job.

The situation for requesting and assigning communications resources is similar. We need to be able to assign the right resource to the right job. A request for, and assignment of an amateur radio operator (*any* amateur radio operator), will likely result in some type of communications capability. But without more specific information about the skills being requested, and without more specific information about the capabilities of the available individuals, the assignment may not be ideal. For example, a seasoned and experienced HF operator may not have the equipment or knowledge to transmit county message forms via VHF packet.

The following diagram summarizes the dilemma faced by those requesting resources, as well as those assigning resources:

Resource requestors need a simple way to request resources for a specific assignment, or with skills and capabilities of a specific type. Resource assigners, such as the county ARES/RACES staff, need a simple way to match individuals MACs with resource requests. In order to make an effective match between resource requests and available resources, some basic information is needed.

Organizational Scale

In a small organization, where only a dozen or so individuals are regularly active, it is possible for the active individuals to know the skills and capabilities of all of the other active individuals. The one or two people responsible for resource assignment can make the right choice based on their own personal knowledge.

As the organization grows larger, there are multiple people involved with resource assignment, including: the county ARES/RACES staff, the resource net, staging managers, and city ECs receiving mutual aid, just to name a few. It quickly becomes impossible for all of these people to know the skills and capabilities of all individuals. Some standardized method of identifying and communicating individual capabilities is needed.

As the organization works with other organizations such as served agencies or other communications groups, it becomes necessary to be able to describe specific capabilities or service offerings in a standardized way. For a small group, it's easy to describe what an individual can do. For a larger organization, it's impossible to describe a standard service offering which may be delivered by multiple individuals over multiple shifts, without there being a standard in place.

Resource typing allows requests for resources to be made according to type and allows assignment of resources by type in a scalable and distributed way. It provides a common language by which the requesting agency can ask for exactly what it needs and the supplying organization can match the need to the resources on hand in an optimal way.

Inter-County or Inter-State Mutual Aid

When an incident is larger than any one county can handle, resources from other counties within the state may be used. If the incident is even larger, resource from other states may become involved. In both cases, the capabilities of the incoming resources must be quickly assessed so that they can be used in the most effective manner. If those resources are already typed according to a common system, then they can be deployed quickly. But even if the incoming resources are not typed, or are not typed the same way, then the resource typing program in place within our county can be used as the framework for quickly assessing the incoming resource capabilities and assigning them to appropriate jobs.

Benefits of Resource Typing

In assigning communications resources, there are three groups which can benefit from well-defined resource types:

Served Agencies: Served agencies need to know what skill sets are available and what services can be provided. They need to know how to go about requesting a specific skill set or service and what to expect when that person arrives. Served agencies typically have their own training programs and can appreciate and respect well defined training and standards. Having well-documented standards and qualifications allows them to plan how amateur radio resources would be used to augment their own capabilities.

City/County ARES/RACES Groups: ARES/RACES teams need to have a common set of qualifications which they can use to satisfy resource requests. When a resource request is received, the city or county ARES/RACES leadership

needs a way to match the request to the skill sets of the available operators. If the city requests mutual aid, they need to know that the operators coming from other cities will have the same skills sets. Personnel responsible for resource assignment need to be able to quickly identify individuals with the required skill sets and match them up with assignments.

Individuals: Radio amateurs interested in emergency communications need to know what is expected of them. They need to know what they should be learning and what training and participation will help them learn the required skills and techniques. In addition, volunteers receive no compensation for their work, except for the respect, admiration and recognition received from their supervisors and peers. Earning qualifications provides an opportunity to recognize the achievements of these volunteers in a meaningful way.

Advanced Qualifications – Beyond the Basics

Summary

Acceptance into the MAC program is a great achievement and marks an important milestone for an emergency communicator. It is also the beginning of a whole new level of learning and improvement. MACs are expected to continue their training and participation in order to continue to improve their skills and capabilities.

There are multiple skill areas to master in emergency communications. Some examples include: Field Communications, Net Control Operations, Shadow Communications, Packet Communications, and HF Communications. Each skill area has its own unique operational challenges and equipment needs. MACs have the opportunity to earn qualifications in each of these skill areas. Some MACs may be interested in broadening their skills to all areas. Other MACs may prefer to focus on a few areas or just one.

Some assignments are tougher than others: some involve higher traffic rates, while others involve more complicated equipment configurations. So, within each skill area, MACs may also earn higher qualifications by demonstrating higher levels of proficiency and performance.

This two-dimensional approach to defining qualifications, including multiple resource categories as well as multiple types of capabilities within each resource category, provides an excellent platform for resource typing. Resources can be requested according to resource category and type. These requests can then be matched to MACs who have those qualifications. The agency requesting the resource knows what they're getting, and the MAC who accepts the assignment knows what he/she is expected to be able to do.

Qualifications are Voluntary

Participation in the MAC program is voluntary, as is participation in any advanced qualifications. It is expected that some highly capable individuals may choose not to earn advanced qualifications. These people continue to be valued members of the organization who can contribute to the overall emergency communications capability of the county. But everyone is encouraged to pursue advanced qualifications for several reasons:

- Earning qualifications does not take additional time or resources. Qualifications can be earned by participating in the same type of county training and drills and mutual aid events as before.
- The evaluation process used in the qualification process is open, objective and consistent. There are no "gotchas" and everyone is held to the same standard.
- Qualifications solve the resource assignment problem by providing a common language when requesting and assigning resources.
- MACs are more likely to receive assignments that match their specific capabilities because those capabilities will be known to the people making resource assignment decisions. That usually results in assignments which are more enjoyable.

Qualification Program Goals

The MAC qualification program has four principle goals:

Standardization (a.k.a. "Resource Typing"): Establish county-wide standard levels of performance of the skills and capabilities required to be an effective emergency communications resource. These standards help to ensure that MACs arriving from one place in the county will fit in and work well alongside MACs from elsewhere in the county.

Identification: Designations based on resource category and type can make it easy to identify and communicate the specific type of resource needed and to match individuals to the resource requests. If an exact match is not available, both the requesting agency and the person assigning the resource have a common language to use when discussing alternatives.

Qualification: Train, evaluate, and "qualify" individual MACs who meet standard, objectively measurable levels of performance and knowledge. The MACs know, in advance, exactly what is expected and are free to choose the qualifications that interest them.

Recognition: Everyone appreciates a "job well done." Certificates and other awards contribute to a sense of pride and achievement and make the extra effort that much more rewarding.

Qualification Structure

Qualifications are defined for several different Emergency Communications resource categories. Currently defined resource categories are:

- Field Communications
- Net Control Operations
- Shadow Communications
- Packet Operations
- HF Operations [Preliminary – Work in Progress]

Each resource category is also defined with several types of capability:

- **Type V –** Any licensed amateur radio operator with the proper DSW registration.
- **Type IV (Basic)** – Any Mutual Aid Communicator, including those just entering the program, is expected to have basic skills which meet the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- **Type III (Independent)** – Capable of fully independent operation, without coaching or assistance, in the qualified skill area. Capable of basic troubleshooting.
- **Type II (Advanced)** – Capable of more difficult assignments, requiring more equipment and more complicated configurations, operations and troubleshooting. Also capable of coordinating emergency communications for smaller events or incidents.
- **Type I (Specialist)** - Capable of the most critical and complicated assignments. Capable of planning, designing, deploying and operating complex multi-radio, multi-antenna equipment configurations for larger events or incidents. Capable of functioning as the primary resource and liaison for planning communications for large events. Also capable of extended duration and out of county operations.

The following table summarizes the structure of the qualifications.

Expertise	Category				
	Field Comms	**Net Control**	**Shadow**	**Packet**	**HF**
Type I Specialist	Field Comm I	Net Control I	Shadow I	Packet I	HF I
Type II Advanced	Field Comm II	Net Control II	Shadow II	Packet II	HF II
Type III Independent	Field Comm III	Net Control III	Shadow III	Packet III	HF III
Type IV Basic	Mutual Aid Communicator				
Type V	Licensed Amateur Radio Operator (w/ DSW)				

Type V: In times of need, any licensed amateur radio operator who has registered with the appropriate Disaster Service Worker program may be useful for basic tasks. But without the proper training and experience in county procedures, without the standard equipment, and without some knowledge of their performance level, individual amateur radio operators will not be able to step into critical emergency communications roles.

Type IV: The Mutual Aid Communicator is the foundation for quickly deployable, intra-county resources because the MAC program incorporates standards for training, experience, equipment and performance. Even the basic Mutual Aid Communicator with no additional qualifications has met a minimum set of requirements for training, experience, equipment and performance according to county procedures. Therefore, even without additional qualifications, a Mutual Aid Communicator is going to be able to deliver a consistent and known performance level.

Types III – I: Additional qualifications may be earned by completing additional training, gathering additional experience, acquiring additional equipment, and demonstrating higher levels of performance. These qualifications are purely voluntary and serve to further define the capabilities of a given MAC. Any member of the MAC program may choose which qualifications they are most interested in earning. Some individuals will be interested in learning about and qualifying for Type III capability in all skill areas. Other individuals will have a keen interest in a particular area and pursue more advance qualifications in that particular skill area. Still other individuals will prefer to simply maintain their existing MAC status. All options are perfectly valid and the contributions by all members of the program are appreciated and respected.

Use of Qualifications for Resource Assignment

Standardization and Identification of Resources

Qualifications solve the resource assignment dilemma described earlier. Qualifications provide the key information necessary for resource assignment:

- Standardization – the qualifications provide "resource typing" by standardizing the resource categories and the capabilities of the individuals who hold those qualifications

- Identification – a common language for identifying the types of resources needed. This makes it easy for resource requestors to communicate with resource assigners. Designations such as Field Communicator Type III can easily be communicated via radio as "Foxtrot Three" (F3). This makes it efficient for the Resource Net NCO to communicate resource categories and types with individual MACs. The county activities database is able to provide a list of MACs according to qualification.

Enhanced Resource Assignment Workflow

The following diagram illustrates the enhanced process for resource assignment using qualifications. Resource requests can be made according to resource type. Where a specific type of capability is requested, the county ARES/RACES staff can fill that request with a MAC who has the corresponding qualification. This makes the best use of the MAC's abilities and provides the requesting agency with the best resource for its needs. If no MAC is available with that qualification, or if the resource request is more general, the request may be fulfilled with a general MAC, just as the practice has been in the past. Performance during assignments is evaluated and provides a closed feedback loop which helps to improve the program and earn the MAC additional qualifications.
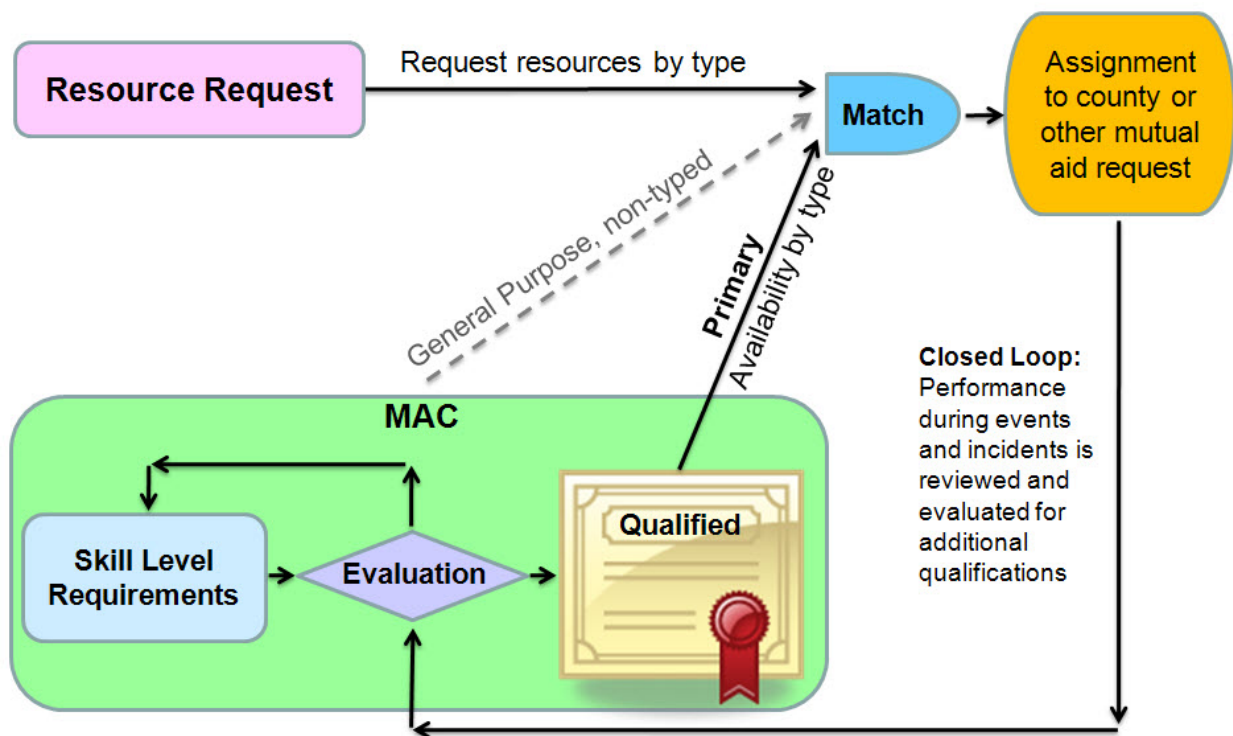
Benefits of the Enhanced Resource Assignment Workflow

There are several main benefits to the enhanced workflow, including:

- The served agency receives a resource that is known to be capable of performing the required service
- The MAC receives assignments that are more tailored to his/her capabilities and strengths and, therefore, typically more enjoyable
- The person or organization responsible for assigning resources can more effectively and efficiently match requests with resources
- Disaster Service Worker (DSW) requirements, such as making assignments according to training, are more efficiently managed than when using other methods

Evaluations

Summary

A critical component of the advanced qualifications in the Santa Clara County MAC program is the individual performance evaluation that is part of each qualification. Performance is evaluated according to relevant and objective criteria and the evaluations are conducted in a consistent and fair manner. Trained and qualified MAC Evaluators are responsible for conducting the performance evaluations.

Key Attributes of MAC Evaluations

Efficient

Most emergency services organizations and commercial enterprises require certain training and testing of their employees. After all, these people are paid to do a job and that job has been defined to include training and testing.

But MACs are volunteers. All of them have jobs, families and/or other obligations which limit the time they can spend on amateur radio and emergency service.   So, while performance evaluations may be necessary, they must be done in a way that does not add to the time or resource commitment of these volunteers.

The Santa Clara County MAC program includes performance evaluations that are designed around the key principle of: "what we already do, where and when we already do it." Simply put, evaluations are conducted without the need for separate test environments. The program uses existing drills, public service events and real incidents as the evaluation venue ("where and when we already do it). MACs are monitored and evaluated as they perform their normal functions ("what we already do").

Of course, it does take more planning effort to be able to fold evaluations into the normal drill and event schedule. But the amount of effort saved across the many MACs in a larger organization is well worth the effort.

Relevant

Performance evaluations must be designed in a manner that tests the actual skills to be used. As an example, one does not become an airline pilot by simply reading about flying or by attending an online class. Nor is one qualified to fly a 747 because one tested for a pilot's license in a single engine turbo prop. Instead, an airline pilot must undergo specific performance evaluations in which he/she demonstrates the ability to pilot the particular type of aircraft, to act according to established FAA and airline procedures, and to deal with various types of problems that may arise in that particular type of aircraft. Similar parallels can be drawn with other roles, including emergency services roles such as fire fighters and other emergency responders.

The Santa Clara County MAC program includes performance evaluations that test the candidate's ability to perform the specific duties required, at the specific level of performance required, for each qualification. This ensures that the candidate will be able to deliver the specific services expected of individuals who hold that qualification. The evaluations verify the candidate's ability to perform the specific traffic handling role associated with the qualification, including sending and receiving traffic effectively and efficiently. They check for equipment

readiness and proper use of documentation. They also examine the candidate's understanding of and ability to solve problems that are likely to be encountered. Served agencies are encouraged to review the evaluation criteria and make suggestions for how to make them even more relevant.

Objective

MAC performance evaluations are conducted according to objective criteria. All activities are to be performed according to the "Performance Standards". These standards objectively define how MACs are to perform their work. The "Performance Standards" cover such areas as: Professionalism, Communications Technique, Safety, Methods and Procedures, Equipment, and Documentation. Throughout the performance evaluation, the MAC Evaluator will be checking to see that the candidate adheres to all the "Performance Standards".

Consistent

Evaluations must be conducted in a consistent manner in order to achieve consistent and meaningful results. MAC performance evaluations are conducted according to a set list of evaluation criteria. These criteria are open and available to candidates to review prior to the evaluations (although they won't know which problems or what specific traffic situations they'll be dealing with). The individuals who conduct the evaluations are trained and qualified to conduct the evaluations fairly, objectively and consistently.

Scalable

A county-wide (or larger) program needs to be scalable and evaluations are the largest scalability challenge. The MAC performance evaluations are performed by a "MAC Evaluator" (ME).   These volunteers come from the ranks of the MACs with higher qualification (Types II and I). So, the more MACs that join the program, and the more they achieve higher qualifications, the larger the pool of people that will be available as potential MAC Evaluators.

Evaluation Opportunities and Locations

Evaluations are conducted at approved drills and events or at specially arranged evaluation sessions. In order for a drill or event to include evaluations, it must use standard county operating practices and procedures, standard county ICS documentation, and must provide sufficient operating time and traffic levels for the candidate's performance to be accurately assessed. Finally, one or more MAC Evaluators must be present to conduct the evaluations. Therefore, not all drills or events will include evaluations and some drills or events may include evaluations of only a subset of the qualifications.

Specially arranged evaluation sessions may also be used. These sessions create more opportunities for candidates to be evaluated, thereby making the program more flexible and accommodating of busy schedules. Some examples include a group go-kit check or a net simulation.

MACs are encouraged to attend different types of events in different cities throughout the year so that they can be better acquainted with the various operating environments, facilities and personnel throughout the county. Most MACs find that it adds to the enjoyment and challenge of the assignment if they are operating in a new or unfamiliar location.

Requesting an Evaluation

The following criteria have been established to ensure that candidates are properly prepared for an evaluation:

For any Type III or higher evaluation:

- The candidate must already be a MAC or MAC in Training (MIT)
- It is strongly recommended that candidates should have previously completed all training and participation requirements defined for that qualification in order to maximize the chances of passing the evaluation
- The candidate must have already passed the evaluation for the prerequisite qualification

For any Type II or Type I evaluation:

- The candidate must have already passed the evaluation for the prerequisite qualification

To request an evaluation at a drill or event:

- Check the county activities database entry for the drill or event. It will list which types of evaluations will be available. Follow the instructions.

To request a specially arranged evaluation session for a large group, contact the MAC Program Manager.

Preparing for an Evaluation

Preparing for an evaluation involves little more than properly preparing for any drill, event or real incident. The two main concepts are having the right equipment and making sure that all operating activities are done according to the "Performance Standards". The only real added requirement for an evaluation is that the candidate bring along some extra documentation, such as training or participation certificates. Following is a recommended way to prepare for an evaluation:

1. **Go-Kit List**: The candidate should download and print out a current copy of the county standard Go Kit list. The candidate should make sure he/she has all of the required items in the required minimum quantities. By design, the text in the list is brief to keep the list short. If the candidate has any questions about the meaning of any of the items on the list, the candidate should seek answers on the available MAC discussion group prior to the evaluation. The county standard Go-Kit list is listed in the Operations section of the county website.
2. **Program Handbook:** The candidate should download and print out a current copy of the MAC Program Handbook (this document). It is located in the MAC Program section of the county website. In particular, the candidate should read the specifics of the desired qualification. Be sure to add any additional equipment required for the desired qualification to the Go-Kit.
3. **Performance Standards:** The candidate should download and print out a current copy of the "Performance Standards". The document is located in the Operations section of the county website. The candidate should read through the standards carefully, make sure he/she understands them fully, and make sure he/she performs all activities according to the standards. Candidates are free to refer to the standards as they perform their assignments. This is a great way to make sure assignments are completed correctly.

4. **Personal Records:** The candidate should print out the "My Activity Record" report from the county activities database and bring it with him/her to the evaluation. This report lists the training and activities completed by the candidate.

5. **Other Certificates:** The candidate should bring any FEMA or other agency certificates required for the desired certification

6. **Qualification Record:** The candidate should print out and bring a copy of the appropriate qualification record form to the evaluation. This form acts as a receipt for the completed parts of the evaluation and serves as a backup in case the county records become lost or are in error.

Another tip for preparing for an evaluation is to talk with other MACs. Candidates can learn about the experiences of others and share best practices. Most candidates will discover that success is easily achieved by having the right equipment and by following the "Performance Standards".

Participating in an Evaluation

The evaluation process is simple and straight-forward. The process is designed to fit within the constraints of typical activities, such as drills, events and incidents, without impacting the activity. The goal is to mimic real-world processes as much as reasonably possible. The specific details depend on which part of the qualification criteria are being evaluated:

- Prerequisites
  - o The evaluator will consult the county activities database to determine whether the candidate has met the prerequisites.
- Mobilization and Demobilization
  - o MACs will be monitored on the Resource Net for proper mobilization/demobilization process and use of the Resource Net according to the "Performance Standards". The arrival and check-in process will also be monitored.
- Training and Participation
  - o These items are typically reviewed at a staging area. Candidates should bring a copy of the "My Activity Record" report from the county activities database, as well as any other required certificates, such as FEMA training certificates. This is similar to the real world, where staging is often used to verify credentials and qualifications prior to making an assignment.
  - o Santa Clara County training course attendance will be verified using the "My Activity Record" report from the county activities database.
  - o For other training requirements, such as FEMA courses, the candidate must show a certificate of completion to the MAC Evaluator.
  - o Participation in certain nets, such as city nets and SPECS or SVECS nets will be verified by the evaluator asking the candidate, on their honor, if they have completed the requirement.
  - o Drill and event participation will be verified using the county activities database. But the database does not record what duties were performed at each event. So, the candidate will be asked, on their honor, to indicate at which event they performed the required duty.
- Equipment
  - o Equipment is usually checked at a staging area, where there is easy access to vehicles. This reduces or eliminates the time and effort involved in moving Go-Kit gear around. This is also

similar to the real world, where staging may be used to assemble and check equipment prior to deployment.

- o The MAC Evaluator will examine the candidate's equipment to ensure it meets the requirements.
- o Some qualifications require the same equipment as another qualification. If the equipment was previously evaluated for another qualification within the past year, the MAC Evaluator is not required to recheck the equipment.

- Knowledge
  - o Knowledge is usually checked at a staging area where it is easy to conduct a one-on-one or small group interview. This is also similar to the real world, where staging can be used to assess individual capabilities.
  - o The MAC Evaluator will pass out a written set of questions or conduct an interactive discussion covering certain knowledge areas such as radio operation, managing problems and other areas listed in the qualification requirements.

- Traffic Handling and other performance-based skills
  - o The MAC Evaluator will monitor performance as the candidate goes about his/her assignment at drills and events. The evaluator will usually try to remain out of the way so as not to impede normal activities. For some requirements, like evaluating relief briefings, direct observation may be used. For most traffic handling activities, the evaluator will monitor via radio.

- Logs and Records
  - o The MAC evaluator may have the opportunity to review the various forms, logs and other records during the candidate's operational shift. Otherwise, these items will be reviewed after the shift is completed.

Throughout the evaluation process, there are no trick questions and no "gotchas." Candidates who follow all of the "Performance Standards" will do just fine.

Evaluation Scoring

Evaluations are scored based on the candidate's ability to perform all evaluation activities in an efficient and effective manner and without the need for any coaching or help. Scoring of performance is based on the objective standards defined in the "Performance Standards". By relying on the objectivity of those standards, the candidate knows exactly what is expected of him or her in advance of the evaluation, and the evaluators have a fair and consistent way to score evaluations.

- Training and Participation
  - o Training and participation are not really a part of the evaluation. But the evaluation setting is used as a convenient time and place to verify training and participation records. If the required training or participation has been performed, the candidate will receive credit for these portions of the qualification.

- Equipment
  - o If all required items are present, the candidate passes this portion of the evaluation. If a required item is missing, the equipment portion of the evaluation will need to be repeated.
  - o Equipment requirements for one qualification which are the same as the equipment requirements for another qualification can be credited by the MAC Evaluator if the candidate

passed the equipment evaluation for the other qualification within the past year. Otherwise, they will need to be evaluated again.

- Knowledge
  - o Radio Familiarity
    - ▪ If the candidate can properly and efficiently configure his/her radio without hesitation, the candidate passes this portion of the evaluation. If the candidate has difficulty configuring his/her radio or is not able to complete the exercise without hesitation or delay, then this portion of the evaluation will need to be repeated.
  - o Managing Problems
    - ▪ If the candidate can clearly and concisely define a solution to each problem presented, the candidate passes this portion of the evaluation. If the candidate does not know how to solve one of the problems, hesitates, or has difficulty articulating a clear and concise solution to the problem, then this portion of the evaluation will need to be repeated.
  - o Other knowledge areas
    - ▪ If the candidate can efficiently and effectively demonstrate his/her knowledge in the required area, the candidate passes this portion of the evaluation. If the candidate displays hesitation or has trouble with the required area, the evaluation will need to be repeated.
- Operator Skills
  - o Performance of all operator skill areas will be evaluated according to the most current version of the "Performance Standards".
  - o If the candidate performs his/her duties according to all the "Performance Standards" which are applicable and/or relevant to that activity, the candidate passes the operator skills portion of the evaluation. If the candidate has difficulty completing the assignment according to the "Performance Standards", or displays hesitation, or otherwise fails to effectively and efficiently meet at least 90% of each of the applicable areas of the "Performance Standards", then the operator skills portion of the evaluation will need to be repeated.

The MAC Evaluator

MAC Evaluators (MEs) are MACs who are trained and qualified to perform evaluations of other MACs. MAC Evaluators are the key to scaling up the MAC program. As the number of people in the MAC program grows, a larger pool of people will be available to become MAC Evaluators. All MACs are encouraged to help their fellow MACs by volunteering to be MAC Evaluators. The MAC Evaluator program is patterned after the very successful Volunteer Examiner program which is used to administer Amateur Radio license examinations.

The MAC Evaluator program is based on two main concepts which are taken from the successful Amateur Radio Volunteer Examiner program: advanced qualifications and evaluation process training. These two key concepts ensure that Santa Clara County MACs will receive consistent, fair and objective evaluations, regardless of who is performing the evaluation.

Advanced Qualifications

The Amateur Radio Volunteer Examiner program requires that VEs hold a General class license in order to administer a Technician class examination. VEs must hold an Extra Class license in order to administer a General or Extra class examination.

Similarly, MAC Evaluators must hold a Type II qualification in a particular skill area (such as Field Communicator) in order to evaluate a candidate for a Type III qualification in that same skill area. MEs must hold a Type I qualification in a particular skill area to evaluate a candidate for a Type I or Type II qualification in that same skill area. If a MAC evaluator with a Type I qualification is not available in a particular skill area, two or more MAC Evaluators with a Type II qualification can evaluate a Type II candidate in that same skill area.

Evaluation Process Training

The Amateur Radio Volunteer Examiner program requires that VEs study the procedures for administering Amateur Radio license examination and pass a review which is similar to an open book test. They may then join a local VE team and the team will determine the role most suitable for them.

Similarly, MAC Evaluators must take a training class on the process of administering MAC evaluation process. Upon completing the class, they must perform at least one evaluation under the supervision and review of an existing ME. If the evaluation is performed correctly, the candidate may be granted MAC Evaluator status.

MAC Evaluators must also maintain currency by attending at least one ME update class per year and by conducting at least one county-level evaluation per year in the presence of other MAC Evaluators. This ensures that MAC Evaluators have the opportunity to share their lessons learned and helps to keep the evaluation process consistent from MAC Evaluator to MAC Evaluator.

Recognition

The achievement of MAC status is a significant accomplishment which should be celebrated and recognized. Likewise, the achievement of any of the advanced qualifications demonstrates an even higher level of capability and is yet another reason to celebrate.

Not everyone wants or even likes public recognition. But just about everyone appreciates a "job well done" from their peers. The program provides the tools to recognize individuals for their service and achievements but does not require any particular method of public recognition.

MAC Badge

Individuals who have achieved the status of Mutual Aid Communicator and have passed the county's background check receive a county-issued MAC badge.

MAC Wallet Card

Individuals can log in and print their own MAC wallet card. The wallet card includes the individual's name, call sign, MAC status, and qualifications earned. The wallet card can be used in conjunction with the MAC badge when checking into events to easily and quickly show the MAC's capabilities.

Peer Recognition

Recognition by one's teammates is often the most valuable form of recognition. City Emergency Coordinators may wish to individually acknowledge the achievements of individuals in their cities with a phone call or e-mail. Recognition during a city ARES/RACES team meeting is also an option. But ECs should bear in mind that some individuals may not desire any type of public recognition.

Advanced MAC Qualification Definitions

Overview

The following pages define a set of optional advanced qualifications that may be earned by Mutual Aid Communicators as well as some general rules which apply to all qualifications.

The following types of qualifications are currently defined. If additional needs are identified, additional qualification types may be added.

- Field Communications
- Net Control Operations
- Shadow Communications
- Packet Operations
- HF Operations [preliminary - Work in Progress]

Each qualification is defined in specific detail. This level of detail is important for three main reasons:

1. It provides served agencies with a clear and specific definition of the capabilities of the resource type
2. It makes it clear to the qualification candidate exactly what is expected of him/her so there are no surprises or misunderstandings
3. It ensures an objective and consistent review process, regardless of who performs the evaluation

The details of each qualification include the following attributes:

- **Capabilities and Services:** a high-level statement about what a MAC with this qualification can do

- **Typical Assignments:** a list of assignments that are commonly performed by a MAC with this qualification

- **Experience Criteria:** These activities are usually performed by the candidate prior to requesting an evaluation. Doing so gives the candidate the best preparation for being evaluated. However, for flexibility, evaluations may be performed before all of these criteria are complete.

    o **Prerequisites:** a list of the training, qualifications, licenses, or other credentials that are required prior to beginning work on this qualification

    o **Required Training:** a list of the training that must be completed as part of this qualification

    o **Required Participation:** the minimum participation required for this qualification. Note that all participation must be completed according to the "Performance Standards".

- **Evaluation Criteria:** These criteria are reviewed in the presence of a qualified MAC Evaluator.

    o **Required Equipment:** The minimum equipment required as part of this qualification

    o **Knowledge:** A list of the items to be discussed or reviewed in an interactive interview format

o **Operator Skills:** a list of the activities to be performed during the evaluation for this qualification. All evaluation activities must be performed according to the "Performance Standards".

General Qualification Rules

Timeframe for Completing Qualifications

All requirements and evaluations for a given qualification must be completed within a two-year period. This is required to ensure that the training, participation and evaluations are conducted according to reasonably current County standards and that the candidate has reasonably current experience implementing these standards.

Requirements or evaluations older than two years will need to be repeated. For example, suppose a candidate completes all requirements and evaluations for a given qualification, but it takes him/her longer than two years to do so. The oldest requirements or evaluations will need to be repeated such that all requirements and evaluations are current within the last 2 years.

Performance According to Standards

All training, participation and evaluation activities must be performed according to the "Performance Standards". For example, when passing traffic, all of the "Performance Standards" related to that activity must be observed. Any activities which are not performed according to the "Performance Standards" do not count toward completion of a qualification.

Training Courses

Santa Clara County Advanced Emergency Communications Training has continued to evolve and improve over the last several years. Course content has changed over time, as have course names. At this time, the qualification requirements specify training course names based on the current course offerings. Prior courses of similar content can be substituted, if they occurred within the required time interval.

A FEMA-issued certificate of completion is required to receive credit for any FEMA courses. The online FEMA courses are strongly recommended since they can be taken at any time and the course completion certificate is e-mailed directly to the student within a day or two. Certificates from other agencies cannot be accepted due to the extremely high overhead of determining which courses from which agencies met the FEMA requirements at the time they were taught.

Approved Public Service Events

The term "approved public service event" in the qualification requirements refers to any public service event which meets the Santa Clara County ARES/RACES mutual aid requirements for a public service event. These requirements are posted on the county website: http://www.scc-ares-races.org.

Requirements for Maintaining Qualifications

To ensure MACs maintain current knowledge of the latest procedures, forms and standards, some manner of maintenance requirement will apply to the individual qualifications. This is currently under review. When a proposal is ready, a future version of this document will outline the details.

Field Communicator Qualifications

Summary of Field Communicator Qualifications by Type

	Type III	**Type II**	**Type I**
Expertise	Independent	Advanced	Specialist
Prerequisite	• Active Status MAC	• Field Comm Type III	• Field Comm Type II
Capabilities & Services	• Basic field communications • Fully independent • Low-to-medium traffic	• Type III, plus: • Medium-to-high traffic • Simultaneous participation in 2 nets • Cross-band repeat • Plan small events • Helps plan large events	• Type II, plus: • Most critical, complicated assignments, highest traffic levels • Plan, design, deploy, operate complex multi-radio, multi-antenna for larger events, incidents
Assignments	• Field checkpoints, observation posts, rover • Damage surveys • Crowd observation & information assistance • CERT team communicator • Shelter	• Lead operator for advanced assignments • Mobile operator • Large checkpoint, shelter • Served agency HQ or ICP	• Lead operator for largest, most complex assignments • Primary liaison for planning field communications ops
Equipment	• Std 2-hour carry kit, including dual-band HT • Std 12-hour go kit • Copy of Performance Stds	• Type III, plus: • Dual-band, 25W radio w/ cross-band repeat • Mobile antenna, portable base antenna with mast, base, coax • 12 hrs. power	• Type II, plus: • DC supply • Battery charger • Sustained power > 12 hrs.
Training	• ICS/IS-100, ICS/IS-200, IS-700 • SCCo Field Operations Type III/II • SCCo Message Passing	• Field Type III, plus • SCCo Cross-band Repeat	• Field Type II, plus: • ICS-300 • SCCo Event Planning
Participation & Experience	• 8 SPECS/SVECS • 8 City Nets • 1 County Drill • 1 Public service	• Type III, plus: • 8 SPECS/SVECS • 8 City Nets • 1 County Drill • 1 Public service	• Type II, plus: • 8 SPECS/SVECS • 8 City Nets • 1 County Drill • 1 Public service

Knowledge	• HT radio familiarity • County Nets • Mike-Mike reports • Managing problems	• Type III, plus: • Mobile radio familiarity • Cross-band repeater ops • Managing problems	• Type II, plus: • Radio familiarity • Managing problems
Evaluation	• Performance Standards • Mobilization/demob • Low-to-medium traffic • ICS-213 and informal msgs • ICS-211, ICS-214, ICS-309	• Type III, plus: • Medium-to-high traffic • ICS-205	• Type II, plus: • Plan, design, setup an event • ICS-201, ICS-202

Field Communicator Type III (F3)

Phonetic designation for radio transmission is "Foxtrot Three"

Capabilities and Services

- Fully independent operator
- Capable of performing basic field communications assignments without assistance or coaching
- Capable of handling low-to-medium traffic levels
- May be deployed for up to an 8 to 12-hour shift (but is prepared for 12 hours in the event of unforeseen problems)
- Equipped for portable and low-power mobile operations

Typical Assignments

- Field checkpoints and observation posts
- Damage surveys: Windshield surveys, Modified Mercalli surveys,
- Rover
- Crowd observation and information assistance
- Lost child / lost parent assistance
- CERT team communicator
- Communicator at a shelter

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- Current MAC in active status

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Field Operations Type III/II
  - Message Passing
- FEMA Certified Training (no expiration) [must show FEMA-issued certificate]
  - ICS-100 (or IS-100) – Introduction to the Incident Command System
  - ICS-200 (or IS-200) – ICS for Single Resources and Initial Action Incidents
  - IS-700 – National Incident Management System, An Introduction

Required Participation:
- Minimum of 8: monitor weekly SPECS or SVECS net
- Minimum of 8: check-in on weekly city net
- Minimum of 1: field communicator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: field communicator duty (at least 1 hour) at approved public service event or emergency incident

Evaluation Criteria

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:

Equipment will be evaluated by sampling the required items from the equipment listed below:

- 2-hour Carry kit with all required items according to county standards
- 12-hour Go-Kit with all required items according to county standards
- Copy of the "Santa Clara County ARES/RACES Performance Standards and Best Practices"

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **HT** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
    - Simplex without tone
    - Simplex with tone and tone squelch
    - Repeater with offset and CTCSS tone
    - Save configurations to and recall from memory
    - Lock keypad or mic controls, if so equipped
    - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Explains the purpose and appropriate usage for the following main net types
    - Resource Net Level 1
    - Resource Net Level 2
    - Resource Net Level 3
    - Message Net
    - Command Net
    - Hospital Net
    - City/Tactical Net
    - EOC Net
- Explains the Mike-Mike (Modified Mercalli) scale and the correct use of the scale to report damage
- Explains how to deal with problems, such as:
    - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
    - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
    - Loss of repeater (how to recognize, how to handle)
    - Excessively hot environmental conditions which affect equipment performance
    - Heavy rain
    - Insufficiently defined assignment
    - Need to transmit/receive a form that you have not seen before

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas:

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Demonstrates the proper county process for mobilization/demobilization
    - o Documentation of assignment
    - o Proper Resource Net usage during mobilization
    - o Proper Resource Net usage during demobilization
    - o Proper safety is observed at all times
- Functions as a Field Communicator to accurately and effectively manage **low to medium** rate traffic for at least one hour
    - o If deployed as part of a field team, functions for at least one-half hour as the primary field communicator for the team
- Demonstrates ability to prioritize and handle the following traffic
    - o Send and receive at least two (in each direction) ICS 213-SCCo Message forms – fill out, send/receive, log and track
    - o Send and receive at least two (in each direction) informal messages – send/receive and log
- Properly and accurately maintains logs and records:
    - o ICS 211A-SCCo Communications check-in form for all operators at the location
    - o ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
    - o ICS 309-SCCo Communications Log of incoming and outgoing transmissions
    - o Submits logs and records to supervisor at end of shift/event

Field Communicator Type II (F2)

Phonetic designation for radio transmission is "Foxtrot Two"

Capabilities and Services

- All Field Communicator Type III (F3) capabilities and services, plus:
- Advanced level operator
- Capable of performing advanced field communications assignments
- Capable of handling medium-to-high traffic levels
- Capable of providing cross-band repeater service
- Capable of simultaneously participating in two nets (one active; one light duty/occasional)
- Can plan small events; help plan larger events
- Equipped for portable and high-power mobile or base operations

Typical Assignments

- Lead operator at a large checkpoint
- Lead operator at a shelter
- Lead operator at served agency headquarters, communications unit, or incident command post
- Coordinates communications for smaller events
- Assist with communications coordination for large events

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Field Communicator Type III (F3)

Required Training:

- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Cross-band Repeating

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 8: monitor weekly SPECS or SVECS net
- Minimum of 8: check-in on weekly city net
- Minimum of 1: field communicator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: field communicator duty (at least 1 hour) at approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type III (F3)

The following additional equipment is also required for this qualification:

- 2m/70cm dual-band radio, 25 Watt minimum (typically, a mobile-style radio)
    - Dual-VFO required (dual-receive recommended)
    - Cross-band repeat capability required
    - Must be capable of deployment independent of vehicle (may be easily removable mobile rig)
- Headphones for the above radio (headset and foot switch or hand switch recommended)
- Charged batteries for 12 hours of operation (20 AH minimum; 26 Ah recommended)
- Power cable adapters to connect mobile radio to the following types of connectors:
    - Powerpole
    - Cigarette lighter (12 VDC accessory) socket
    - Vehicle battery terminals
- 2m/70cm dual-band portable base antenna (such as a roll-up or portable J-pole)
- Portable push-up antenna mast; must raise base of antenna at least 10 feet above ground
- Tripod or other self-supporting base for mast (must be independent of vehicle)
- Minimum of 25 feet of 50 Ohm coaxial cable (50 feet recommended)
- Coax adapters to connect mobile unit, via the above coaxial cable, to the following types of antenna connectors:
    - BNC plug (male) and BNC socket (female)
    - UHF plug (PL-259) and UHF socket (SO-239)
    - N-type plug and N-type socket

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **mobile** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
    - Simplex without tone
    - Simplex with tone and tone squelch
    - Repeater with offset and CTCSS tone
    - Save configurations to and recall from memory
    - Lock keypad or mic controls, if so equipped
    - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Demonstrate ability to set-up personal mobile unit as cross-band repeater without hesitation or delay
    - Local HTs access cross-band repeater

- o   Cross-band repeater accesses city or county frequency
- Explains how to deal with problems, such as:
  - o   Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
  - o   Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
  - o   Loss of repeater (how to recognize, how to handle)
  - o   Excessively hot environmental conditions which affect equipment performance
  - o   Heavy rain
  - o   Insufficiently defined assignment

Operator Skills

Operator skills will be evaluated by observing performance in the following areas:

- Properly perform any of the Field Communicator Type III (F3) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a Field Communicator to accurately and effectively manage **medium to high** rate traffic for at least one hour
  - o   If deployed as part of a field team, functions for at least one-half hour as the primary field communicator for the team
- Demonstrates ability to prioritize and handle the following traffic
  - o   Send and receive multiple (at least three in each direction) ICS 213-SCCo Message form – fill out, send/receive, log and track
  - o   Send and receive multiple (at least two in each direction) informal messages – send/receive and log
- Able to operate on one frequency while monitoring and participating in light activity on another frequency
- Properly and accurately maintains logs and records:
  - o   ICS 205-SCCo Communications Plan
  - o   ICS 211A-SCCo Communications check-in form for all operators at the location
  - o   ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
  - o   ICS 309-SCCo Communications Log of incoming and outgoing transmissions
  - o   Submits logs and records to supervisor at end of shift/event

Field Communicator Type I (F1)

Phonetic designation for radio transmission is "Foxtrot One"

Capabilities and Services

- All Field Communicator Type II (F2) capabilities and services, plus:
- Specialist level operator
- Capable of the most complicated, highest traffic levels and most critical assignments
- Capable of planning, designing, deploying, and operating complex multi-radio, multi-antenna equipment configurations for larger events or incidents.
- Equipped as for Field Communicator Type II (F2), plus
- Equipped for and capable of out-of-county and extended deployments

Typical Assignments

- Plan, design, set-up, and operate a field operation involving multiple frequencies and multiple operators
- Primary resource and liaison for planning of information flow and communications for a large event involving multiple operators and multiple frequencies
- Lead or primary operator for large, complex field communications assignments
- Out of county assignments

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- MAC Qualification: Field Communicator Type II (F2)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
    - Event Planning
- FEMA Training
    - ICS-300 – Intermediate ICS for Expanding Incidents

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 8: monitor weekly SPECS or SVECS net
- Minimum of 8: check-in on weekly city net
- Minimum of 1: field communicator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: field communicator duty (at least 1 hour) at approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type II (F2)

The following additional equipment is also required for this qualification:

- Regulated DC power supply
- Battery charger
- Ability for sustained operation without commercial power for extended periods (> 12 hours), such as with a generator, solar, or other alternate power source.

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal radio familiarity by configuring radio to perform any of the following without hesitation or delay
    - Any Field Communicator Type III radio familiarity capabilities
    - Any Field Communicator Type II radio familiarity capabilities
- Effectively deals with (or explains how they would deal with) problems
    - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
    - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
    - Loss of repeater(s) (how to recognize, how to handle)
    - Excessively hot environmental conditions which affect equipment performance
    - Inter-county, inter-section traffic flow
    - Staffing shortages

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas

- Properly perform any of the Field Communicator Type II (F2) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Plan, design, and set-up field information flow and communications support for an approved county drill, event or incident
- Properly and accurately maintains logs and records:
    - ICS 201 Incident Briefing

- o ICS 202 Incident Objectives
- o ICS 205-SCCo Communications Plan
- o ICS 211A-SCCo Communications check-in form for all operators at the location
- o ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
- o ICS 309-SCCo Communications Log of incoming and outgoing transmissions
- o Submits logs and records to supervisor at end of shift/event

Net Control Operator Qualifications

Summary of Net Control Qualifications by Type

	Type III	**Type II**	**Type I**
Expertise	Independent	Advanced	Specialist
Prerequisite	• Field Comm Type III	• Net Control Type III	• Net Control Type II
Capabilities & Services	• Net control or scribe • Fully independent • Low-to-medium traffic	• Type III, plus: • Medium-to-high traffic • Simultaneous participation in 2 nets • Cross-band repeat • Plan small events • Helps plan large events	• Type II, plus: • Most critical, complicated assignments, highest traffic levels • Plan, design, deploy, operate complex multi-radio, multi-antenna for larger events, incidents • Primary resource for planning, operating
Assignments	• Small city nets • Small staging area net • Small tactical nets	• Lead operator for advanced assignments • Large city net • County nets • Large staging areas nets • Liaison between 2 nets	• Lead operator for largest, most complex assignments • Primary liaison for planning net control operations
Equipment	• Field Comm Type III	• Field Comm Type II	• Field Comm Type I
Training	• SCCo Net Control Type III, Parts A & B	• Type III, plus: • SCCo Net Control Type II • SCCo Cross-band Repeat	• Type II, plus: • ICS-300 • SCCo Event Planning
Participation & Experience	• 2 City Nets • 1 SPECS/SVECS • 1 County Drill • 1 Public service	• Type III, plus: • 2 City Nets • 1 SPECS/SVECS • 1 County Drill • 1 Public service	• Type II, plus: • 2 City Nets • 1 SPECS/SVECS • 1 County Drill • 1 Public service
Knowledge	• HT radio familiarity • Mike-Mike reports • Managing problems	• Type III, plus: • Mobile radio familiarity • Cross-band repeater ops • Managing problems	• Type II, plus: • Radio familiarity • Managing problems

| Evaluation | • Performance Standards
• Low-to-medium traffic
• Formal & informal msgs
• ICS-211, ICS-214, ICS-309 | • Type III, plus:
• Medium-to-high traffic
• ICS-213 & informal msgs
• Operate on 2 frequencies
• ICS-205 | • Type II, plus:
• Plan, design, setup an event
• ICS-201, ICS-202 |

Net Control Operator Type III (N3)

Phonetic designation for radio transmission is "November Three"

Capabilities and Services

- Fully independent operator
- Capable of performing basic net control assignments without assistance or coaching
- Capable of handling low-to-medium traffic levels
- Equipped as for Field Communicator Type III (F3)

Typical Assignments

- Low-to-medium traffic city nets
- Small staging area net control
- Low-to-medium traffic tactical net

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Field Communicator Type III (F3)

Required Training:

- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Net Control Operator Type III (Part A & B)

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 2: net control for weekly city net or hospital net
- Minimum of 1: net control for weekly SPECS/SVECS net or other approved net
- Minimum of 1: net control duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: net control duty (at least 1 hour) at approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type III (F3)

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **HT** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
  - Simplex without tone
  - Simplex with tone and tone squelch
  - Repeater with offset and CTCSS tone
  - Save configurations to and recall from memory
  - Lock keypad or mic controls, if so equipped
  - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Explains
  - The Mike-Mike (Modified Mercalli) scale
  - The proper way for Net Control to collect and summarize damage reports using the M-M scale
  - How to properly send an all-station or multi-station message
  - How to transition a net to new remote net control
- Explains how to deal with problems, such as:
  - Loss of power at the net control station
  - Field operator with poor skills disrupting or slowing down the net
  - Sending same message to multiple stations (selecting one station to pace)
  - Loss of repeater (how to recognize, how to handle)
  - High environmental temperatures effecting equipment performance
  - Need to transmit/receive a form that you have not seen before
  - You are net control taking Mike-Mike reports for moderate earthquake. Reports coming in faster than you can record them. Describe two methods of handling the traffic overload
  - You are net control during a parade and one station has an intermittent open mike. You can still transmit but some stations are blocked on receive.
  - You are taking messages on a low-to-medium volume net with no scribe and no runner when an EMERGENCY (life threatening) message comes to you from the field and must go to Incident Command immediately.
  - You have been net control for 6 hours of your 12-hour shift and because of exhaustion you cannot complete your assignment.
  - Your net is being disrupted by deliberate harmful interference.

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"

- Functions as a Net Control Operator to accurately and effectively manage a **low-to-medium** rate traffic net for at least one hour
    - o If a scribe is present for the net, functions at least one-half hour in the net control position and one-half hour in the scribe position.
- Demonstrates ability to prioritize and handle the following traffic
    - o Send and receive multiple (at least three in each direction) formal and/or Informal messages - send/receive, log, and track
- Properly and accurately maintains logs and records:
    - o ICS 211A-SCCo Communications check-in form for all operators at the location
    - o ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
    - o ICS 309-SCCo Communications Log of incoming and outgoing transmissions
    - o Properly maintains status for field operators, including assignment and time of last H&W check using T-cards, note cards, computerized logging, or other appropriate method
    - o Submits logs and records to supervisor at end of shift/event

Net Control Operator Type II (N2)

Phonetic designation for radio transmission is "November Two"

Capabilities and Services

- All Net Control Operator Type III (N3) capabilities and services, plus:
- Advanced level operator
- Capable of handling medium-to-high traffic levels
- Simultaneous participation in two nets (one active; one light duty/occasional)
- Capable of providing cross-band repeater service
- Plans and coordinates nets for smaller events; helps plan larger events
- Equipped as for Field Communicator Type II (F2)

Typical Assignments

- Large city net control or scribe
- County net control or scribe
- Large staging area net control
- Liaison operator between 2 nets
- Medium-to-high traffic tactical net control
- Resource Net Control during medium-to-high traffic event

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- MAC Qualification: Net Control Operator Type III (N3)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Net Control Operator Type II
  - Cross-band Repeating

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 2: net control for weekly city net or hospital net
- Minimum of 1: net control for weekly SPECS/SVECS net or other approved net
- Minimum of 1: net control duty (at least one hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: net control duty (at least one hour) at approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type II (F2)

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **mobile** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
  - Simplex without tone
  - Simplex with tone and tone squelch
  - Repeater with offset and CTCSS tone
  - Save configurations to and recall from memory
  - Lock keypad or mic controls, if so equipped
  - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Demonstrate ability to set-up personal mobile unit as cross-band repeater without hesitation or delay
  - Local HTs access cross-band repeater
  - Cross-band repeater accesses city or county frequency
- Explains:
  - Message prioritization method
  - Role of network/traffic manager
- Explains how to deal with problems, such as:
  - Loss of power at the net control station
  - Field operator with poor skills disrupting or slowing down the net
  - Loss of repeater (how to recognize, how to handle)
  - High environmental temperatures effecting equipment performance
  - You are net control taking Mike-Mike reports for moderate earthquake. Reports coming in faster than you can record them. Describe two methods of handling the traffic overload.
  - You are net control during a parade and one station has an intermittent open mike. You can still transmit but some stations are blocked on receive.
  - You are taking messages on a low-to-medium volume net with no scribe and no runner when an EMERGENCY (life threatening) message comes to you from the field and must go to Incident Command immediately.
  - You have been net control for 6 hours of your 12-hour shift and because of exhaustion you cannot complete your assignment.
  - Your net is being disrupted by deliberate harmful interference.

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas

- Properly perform any of the Net Control Operator Type III (N3) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a Net Control Operator to accurately and effectively manage a **medium-to-high** rate traffic net for at least one hour
  - o If a scribe is present for the net, functions at least one-half hour in the net control position and one-half hour in the scribe position.
- Demonstrates ability to prioritize and handle the following traffic
  - o Send and receive multiple (at least three in each direction) ICS 213-SCCo Message forms - fill out, send/receive, log, and track
  - o Send and receive multiple (at least three in each direction) informal messages - fill out, log, pass, and track informal messages
- Able to operate on one frequency while monitoring and participating in light activity on another frequency
- Properly and accurately maintains logs and records:
  - o ICS 205-SCCo Communications Plan
  - o ICS 211A-SCCo Communications check-in form for all operators at the location
  - o ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
  - o ICS 309-SCCo Communications Log of incoming and outgoing transmissions
  - o Status for field operators and city/agency EOC status, including assignment and time of last H&W check using T-cards, note cards, computerized logging, or other appropriate method
  - o Submits logs and records to supervisor at end of shift/event

Net Control Operator Type I (N1)

Phonetic designation for radio transmission is "November One"

Capabilities and Services

- All Net Control Operator Type II (N2) capabilities and services, plus:
- Specialist level operator
- Capable of the most complicated, highest traffic levels and most critical assignments
- Capable of planning, designing, deploying, and operating complex multi-radio, multi-net configurations for larger events or incidents
- Equipped as for Field Communicator Type I (F1), plus
- Capable of out-of-county and extended deployments

Typical Assignments

- Plan, design, set-up, and operate a radio room (multi-operator net control station) handling multiple radios, frequencies, and nets
- Primary resource and liaison for planning of information flow and communications for a large event involving multiple operators and multiple frequencies
- Lead or primary operator for critical nets for large city or county during major event or incident
- Out of county assignments

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- MAC Qualification: Net Control Operator Type II (N2)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
    - Event Planning
- FEMA Training
    - ICS-300 – Intermediate ICS for Expanding Incidents

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 2: net control for weekly city net or hospital net
- Minimum of 1: net control for weekly SPECS/SVECS net or other approved net

- Minimum of 1: net control duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill)
- Minimum of 1: net control duty (at least 1 hour) at approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type I (F1)

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal radio familiarity by configuring radio to perform any of the following without hesitation or delay
    - Any Net Control Type III radio familiarity capabilities
    - Any Net Control Type II radio familiarity capabilities
- Effectively deals with (or explains how they would deal with) problems:
    - Loss of power at the net control station
    - Field operator with poor skills disrupting or slowing down the net
    - Loss of repeater (how to recognize, how to handle)
    - High environmental temperatures effecting equipment performance
    - You are net control taking Mike-Mike reports for moderate earthquake. Reports coming in faster than you can record them. Describe two methods of handling the traffic overload
    - You are net control during a parade and one station has an intermittent open mike. You can still transmit but some stations are blocked on receive.
    - You are taking messages on a low-to-medium volume net with no scribe and no runner when an EMERGENCY (life threatening) message comes to you from the field and must go to Incident Command immediately.
    - You have been net control for 6 hours of your 12-hour shift, and because of exhaustion you cannot complete your assignment.
    - Your net is being disrupted by deliberate harmful interference.
    - Inter-county, inter-section traffic flow
    - Staffing shortages

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas:

- Properly perform any of the Net Control Operator Type II (N2) evaluation criteria if asked

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Plan, design, and set-up net control/radio room information flow and communications support for an approved county drill, event or incident
- Properly and accurately maintains logs and records:
    - ICS 201 Incident Briefing
    - ICS 202 incident Objectives
    - ICS 205-SCCo Communications plan
    - ICS 211A-SCCo Communications check-in form for all operators at the location
    - ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
    - ICS 309-SCCo Communications Log of incoming and outgoing transmissions
    - Status for field operators and city/agency EOC status, including assignment and time of last H&W check using T-cards, note cards, computerized logging, or other appropriate method
    - Submits logs and records to supervisor at end of shift/event

Packet Operator Qualifications

Summary of Packet Operator Qualifications by Type

	Type III	**Type II**	**Type I**
Expertise	Independent	Advanced	Specialist
Prerequisite	• Field Comm Type III	• Packet Operator Type III	• Packet Operator Type II
Capabilities & Services	• Fully independent • Set up existing, pre-installed packet station (PC, TNC, radio, antenna, cables) • Operate Outpost & PacFORMS • Send, receive, print, log • Low-to-medium traffic	• Type III, plus: • Medium-to-high traffic • Install Outpost & PacFORMS • Send/receive without Outpost • Helps build & test packet networks • Plans small events • Helps plan large events	• Type II, plus: • Most critical, complicated assignments, highest traffic levels • Plan, design, deploy, operate complex multi-radio, multi-antenna for larger events, incidents
Assignments	• Small city EOC • Small staging area • Small aid station or shelter	• Lead operator for advanced assignments • County EOC • Large city EOC • Large staging area or shelter • Served agency HQ or ICP	• Lead operator for largest, most complex assignments • Install, troubleshoot BBS • Plan, design, set-up, operate packet network • Primary liaison for planning, operating
Equipment	• Field Comm Type III	• Field Comm Type II, except cross-band and headphones, plus: • Packet computer • TNC, cables • Outpost & PacFORMS • Power for 1 hr. operation • USB flash drive	• Packet Op Type II, plus: • DC supply • Battery charger • Sustained power > 12 hrs.
Training	• SCCo Packet Op Type III Parts A & B	• Type III, plus: • SCCo Packet Op Type II	• Type II, plus: • ICS-300 • SCCo Event Planning
Participation & Experience	• 4 Weekly check-ins • 1 drill or public service	• Type III, plus: • 6 weekly check-ins • 1 drill or public service	• Type II, plus: • 6 weekly check-ins • 1 drill or public service

Knowledge	• HT radio familiarity • Operations of standard county packet station • Diagnose, repair basic problems	• Type III, plus: • Mobile radio familiarity • Setup & config radio, TNC, computer, software • Diagnose, repair problems	• Type II, plus: • Radio familiarity • Set-up TNC-based BBS • Set-up digipeater • Set-up software BBS • Manages problems
Evaluation	• Performance Standards • Low-to-medium traffic • ICS-213 & informal msgs • ICS-211, ICS-214, ICS-309	• Type III, plus: • Medium-to-high traffic • ICS-213, other PacFORMS, & informal msgs • With & without Outpost • ICS-205	• Type II, plus: • Plan, design, setup an event • ICS-201, ICS-202

Packet Operator Type III (P3)

Phonetic designation for radio transmission is "Papa Three"

Capabilities and Services

- Fully independent operator
- Set-up an existing, pre-installed system which is currently disconnected and stored
  - Connect PC to TNC, connect TNC to radio, connect radio to antenna, all using pre-assembled and supplied cables
- Turn everything on and verify connectivity (between TNC and radio, and between TNC and PC)
- Operate a PC that has Outpost and PacFORMS already pre-installed
- Configure Outpost options like call sign, tactical call, polling, etc. to county standard
- Operate a packet station to send, receive, print, log and track packet messages
- Properly send three standard PacFORMS messages
- Capable of handling low-to-medium traffic levels
- Equipped as for Field Communicator Type III (F3)

Typical Assignments

- Locations with low-to-medium traffic and pre-installed packet station
- Small city EOC
- Small staging area
- Small aid station or shelter

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Field Communicator Type III (F3)

Required Training:

- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Packet Operator Type III (Part A and B)

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 4: weekly packet check-ins
- Minimum of 1: packet operator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:
Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type III (F3)

Knowledge
An interactive review will assess knowledge in the following areas:

- Demonstrates personal **HT** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
    - Simplex without tone
    - Simplex with tone and tone squelch
    - Repeater with offset and CTCSS tone
    - Save configurations to and recall from memory
    - Lock keypad or mic controls, if so equipped
    - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Demonstrates familiarity with basic functionality of a county standard packet station. These tests to be conducted using any packet station which meets the county standard:
    - Demonstrate how to tune radio to proper frequency, simplex, no tone, etc.
    - Demonstrate how to verify proper connectivity between TNC and radio, including: audio level, squelch/carrier detect settings, reset to factory defaults
        - Note: Various types of TNCs exist (hardware, software, built-into-radio, etc.) Packet Operator Type III is only required to understand the County standard KPC-3+ TNC.
    - Demonstrate how to verify proper connectivity between TNC and PC using Ipserial, PuTTY, HyperTerminal, or other terminal emulation tool, including serial baud rate
    - Demonstrate how to configure Outpost settings to county standard settings, including
        - Configure a BBS for County backbone node using a tactical call
        - Configure at least one other BBS not using a tactical call
        - All other settings as defined in the county packet station standards
- Able to diagnose and repair basic problems or errors:
    - Radio tuned to the wrong frequency
    - Radio or TNC has wrong audio level or squelch or carrier detect setting
    - Computer not connected to TNC; wrong baud setting; etc.
    - TNC/radio not on
    - Outpost configured to wrong BBS and/or call sign

Operator Skills
Operator skill will be evaluated by observing performance in all of the following areas:

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a Packet Operator to accurately and effectively manage **low to medium** rate traffic for at least one hour
    - If a scribe/assistant is present for the net, functions at least one-half hour in the lead packet operator.
- Accurately and effectively passes message traffic
    - Formats packet message subject lines correctly with message number, priority, severity
    - Via Outpost & PacFORMS
        - Send and receive at least two (in each direction) ICS 213-SCCo message forms – fill out, send/receive, print, log and track
    - Via Outpost
        - Send and receive at least two (in each direction) informal messages - fill out, log, pass, print and track informal messages
    - Formats packet message subject lines correctly with message number, priority, severity
- Properly and accurately maintains logs and records:
    - ICS 211A-SCCo Communications check-in form for all operators at the location
    - ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
    - ICS 309-SCCo Communications Log of incoming and outgoing transmissions
    - Submits logs and records to supervisor at end of shift/event

Packet Operator Type II (P2)

Phonetic designation for radio transmission is "Papa Two"

Capabilities and Services

- All Packet Operator Type III (P3) capabilities and services, plus:
- Advanced level operator
- Capable of handling medium-to-high traffic levels
- Able to install Outpost and PacFORMS
- Able to send and receive PacFORMS and non-PacFORMS messages without Outpost, including:
  - Manual conversion of PacFORMS to text
  - Manual send via TNC commands
  - Manual receive via TNC commands
  - Manual conversion from text to PacFORMS
- Assists with building and testing packet networks
- Can plan small events; help plan larger events
- Equipped as for Field Communicator Type II (F2), except for cross-band repeat, plus complete packet station

Typical Assignments

- County EOC
- Large city EOC
- Large staging area or shelter
- Served agency headquarters, main communications unit, or ICP
- Install and set-up packet station

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- MAC Qualification: Packet Operator Type III (P3)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Packet Operator Type II

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 6: weekly packet check-ins

- Minimum of 1: packet operator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type II (F2), except:
    - Mobile radio need not be capable of cross-band repeat
    - Headphones are not required

The following additional equipment is also required for this qualification:

- Laptop, netbook or other portable, battery operated style of PC capable of running Outpost and PacFORMS (Currently supported version of MS Windows)
- Outpost and PacFORMS installed and properly configured according to county standard settings
- Sufficient battery power to operate entire packet station (including PC and printer) continuously for at least one hour on battery (to handle AC power gaps, generator refueling, etc.)
- USB flash drive (i.e. "USB Key")
- Configured and working 1200 baud TNC (may be hardware or software or built into radio)
- All appropriate radio, audio and data cables
- Printer for printing messages (recommended but not required)

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **mobile** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
    - Simplex without tone
    - Simplex with tone and tone squelch
    - Repeater with offset and CTCSS tone
    - Save configurations to and recall from memory
    - Lock keypad or mic controls, if so equipped
    - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Demonstrates ability to setup and configure personal packet station
    - Power, audio and serial cabling
    - Set up Radio: band, frequency (simplex, no tone)
    - Set up TNC: baud rate, date, time, MYCALL, carrier detect, audio level calibration, restore to factory defaults (as applicable)
    - Install and configure Outpost according to county standards
    - Install PacFORMS according to county standards

- Able to diagnose and repair basic problems or errors:
    - Radio tuned to the wrong frequency
    - Radio or TNC has wrong audio level or squelch or carrier detect setting
    - Computer not connected to TNC; wrong baud setting; etc.
    - TNC/radio not on
    - Outpost configured to wrong BBS and/or call sign

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas:

- Properly perform any of the Packet Operator Type III (P3) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a Packet Operator to accurately and effectively manage **medium to high** rate traffic for at least one hour
    - If a scribe/assistant is present for the net, functions at least one-half hour in the lead packet operator
- Accurately and effectively passes message traffic
    - Via Outpost/PacFORMS
        - Multiple ICS 213-SCCo Message forms - fill out, send/receive, print, log, and track
        - At least one other PacFORMS type - fill out, send/receive, print, log, and track
    - Via Outpost
        - Send and receive multiple (at least three in each direction) informal messages - fill out, log, pass, print and track informal messages
    - Without Outpost
        - Send and receive at least one (in each direction) non-PacFORMS message
        - Send and receive at least one (in each direction) PacFORMS message (manually convert to text, send, receive, manually convert back to HTML, all without Outpost)
    - Formats packet message subject lines correctly with message number, priority, severity
- Properly and accurately maintains logs and records:
    - ICS 205-SCCo Communications Plan
    - ICS 211A-SCCo Communications check-in form for all operators at the location
    - ICS 214-SCCo Unit Activity Log, including time on scene; actions taken; events that occur; and time when assignment ends
    - ICS 309-SCCo Communications Log of incoming and outgoing transmissions
    - Submits logs and records to supervisor at end of shift/event

Packet Operator Type I (P1)

Phonetic designation for radio transmission is "Papa One"

Capabilities and Services

- All Packet Operator Type II (P2) capabilities and services, plus:
- Specialist level operator
- Capable of the most complicated, highest traffic levels and most critical assignments
- Capable of designing, deploying, operating and coordinating complex multi-radio, multi-band, multi-node packet networks for larger events or incidents
- Set-up, manage and troubleshoot a packet BBS (e.g. J-NOS)
- Equipped as for Packet Operator Type II (P2), plus
- Equipped for and capable of out-of-county and extended deployments

Typical Assignments

- Install or troubleshoot a city or county packet BBS
- Plan, design, set-up and operate a packet operation involving multiple nodes and multiple operators
- Primary resource and liaison for planning of information flow and packet communications for a large event involving multiple operators and multiple frequencies
- Lead or primary operator for large, complex packet assignments
- Out of county assignments

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification

Prerequisites:
- MAC Qualification: Packet Operator Type II (P2)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Event Planning
- FEMA Training
  - ICS-300 – Intermediate ICS for Expanding Incidents

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 6: weekly packet check-ins
- Minimum of 1: packet operator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment
Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Packet Operator Type II (P2)

  The following additional equipment is also required for this qualification:

- Regulated DC power supply
- Battery charger
- Ability to sustain operation without commercial power for extended periods (> 12 hours) , such as with a generator, solar, or other alternate power source.

Knowledge
An interactive review will assess knowledge in the following areas:

- Demonstrates personal radio familiarity by configuring radio to perform any of the following without hesitation or delay
    - Any Packet Operator Type III radio familiarity capabilities
    - Any Packet Operator Type II radio familiarity capabilities
- Describe the difference between a digipeater and a node and explain when to use each
- Demonstrate the ability to set-up a digipeater and explain the meaning of all configuration parameters used
- Demonstrate the ability to set-up a node and explain the meaning of all configuration parameters used
- Demonstrate the ability to set-up a TNC-based BBS (multi-user) and explain the meaning of all configuration parameters used
- Demonstrate the ability to set-up a software-based BBS (e.g. JNOS) with at least two radios ports and explain the meaning of all configuration parameters used
- Effectively deal with (or explain how to deal with) problems
    - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
    - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
    - Excessively hot environmental conditions which affect equipment performance
    - Inter-county, inter-section traffic flow
    - Staffing shortages

Operator Skills
Operator skill will be evaluated by observing performance in all of the following areas:

- Properly perform any of the Packet Operator Type II (P2) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"

- Plan, design, and set-up packet information flow and communications support for an approved county drill, event or incident
- Properly and accurately maintain logs and records:
    o ICS 201 Incident Briefing
    o ICS 202 Incident Objectives
    o ICS 205-SCCo Communications Plan
    o ICS 211A-SCCo Communications Check-in
    o ICS 214-SCCo Unit Activity Log
    o ICS 309-SCCo Communications Log
    o Submits logs and records to supervisor at end of shift/event

Shadow Communicator Qualifications

Summary of Shadow Communicator Qualifications by Type

	Type III	Type II	Type I
Expertise	Independent	Advanced	Specialist
Prerequisite	• Field Comm Type III	• Shadow Comm Type III	• Shadow Comm Type II
Capabilities & Services	• Communications shadow for small or low complexity events • Fully independent • Low-to-medium traffic	• Type III, plus: • Medium-to-high traffic • Simultaneous participation in 2 nets • Cross-band repeat • Plans small events • Helps plan large events	• Type II, plus: • Most critical, complicated assignments, highest traffic levels • Plan, design, deploy, operate shadow comms for larger events, incidents
Assignments	• Shadow for: general event staff or general city or county staff	• Lead operator for advanced assignments • Shadow for: primary event officials or primary city or county staff • Shadow net liaison • Combination portable & mobile assignments	• Lead operator for largest, most complex assignments • Shadow for: senior government officials • Plan, design, set-up, operate shadows • Primary liaison for planning, operating
Equipment	• Field Comm Type III, plus: • Backpack, vest or harness for portable operations	• Field Comm Type II, plus: • Backpack, vest or harness for portable operations	• Shadow Type II, plus: • DC supply • Battery charger • Sustained power > 12 hrs.
Training	• SCCo Shadow Comm Type III	• Type III, plus • SCCo Cross-band Repeat	• Type II, plus: • ICS-300 • SCCo Event Planning
Participation & Experience	• 1 drill or public service	• Type III, plus: • 1 drill or public service	• Type II, plus: • 1 drill or public service
Knowledge	• HT radio familiarity • MAC standards for shadows • Managing problems	• Type III, plus: • Mobile radio familiarity • Cross-band repeater ops • Managing problems	• Type II, plus: • Radio familiarity • Manages problems
Evaluation	• Performance Standards • Low-to-medium traffic • Multiple informal msgs • ICS-211, ICS-214, ICS-309	• Type III, plus: • Medium-to-high traffic • Multiple informal msgs • ICS-205	• Type II, plus: • Plan, design, setup an event • ICS-201, ICS-202

Shadow Communicator Type III (S3)

Phonetic designation for radio transmission is "Sierra Three"

Capabilities and Services

- Fully independent operator
- Non-critical, small or low complexity events
- Capable of handling low-to-medium traffic levels
- Equipped as for Field Communicator Type III (F3), plus shadow-specific equipment

Typical Assignments

- Shadow for general event staff
- Shadow for general city or county staff

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Field Communicator Type III (F3)

Required Training:

- Santa Clara County Advanced Emergency Communications Training topics (or approved equivalents)
  - Shadowing Type III

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 1: shadow duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type III (F3)

The following additional equipment is also required for this qualification:

- Small backpack, vest, chest harness or other similar method for carrying HT radio and other items while operating portable

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **HT** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
    - Simplex without tone
    - Simplex with tone and tone squelch
    - Repeater with offset and CTCSS tone
    - Save configurations to and recall from memory
    - Lock keypad or mic controls, if so equipped
    - Full/factory reset (clear all settings) [explain only; demonstration not required]
- Explain the MAC Standards for Shadowing
- Explains how to deal with problems, such as:
    - Loss of repeater
    - Loss of principal
    - Lost (took wrong turn/path and now don't know where you are)
    - High environmental temperatures effecting equipment performance
    - Heavy rain

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a shadow to accurately and effectively manage **low** rate traffic for the assigned principal for at least one hour
- Accurately and effectively passes message traffic
    - Send and receive multiple (at least three in each direction) informal messages - fill out, log, pass, and track
- Properly and accurately maintains logs and records:
    - ICS 211A-SCCo Communications check-in form for all operators at the location
    - ICS 214-SCCo Unit Activity Log, including time on scene; messages sent/received (optional); actions taken; events that occur; and time when assignment ends
    - ICS 309-SCCo Communications Log of incoming and outgoing transmissions (if appropriate)
    - Submits logs and records to supervisor at end of shift/event

Shadow Communicator Type II (S2)

Phonetic designation for radio transmission is "Sierra Two"

Capabilities and Services

- All Shadow Communicator Type III (S3) capabilities and services, plus:
- Advanced level operator
- Capable of handling medium-to-high traffic levels
- Capable of handling large or complex events
- Simultaneous participation in two nets (one active; one light duty/occasional)
- Capable of providing cross-band repeater service
- Can plan small events; help plan larger events
- Equipped as for Field Communicator Type II (F2), plus shadow-specific equipment

Typical Assignments

- Shadow for primary event officials
- Shadow for primary/senior city or county officials
- Shadow net liaison

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Shadow Communicator Type III (S3)

Required Training:

- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
    - Cross-band Repeating

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 1: shadow duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type II (F2)

The following additional equipment is also required for this qualification:

- Small backpack, vest, chest harness or other similar method for carrying HT radio and other items while operating portable

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal **mobile** radio familiarity by manually (via the keypad) configuring radio to perform each of the following without hesitation or delay and without the use of documentation
  - o Simplex without tone
  - o Simplex with tone and tone squelch
  - o Repeater with CTCSS tone and offset
  - o Save configurations to and recall from memory
  - o Lock keypad or mic controls, if so equipped
  - o Full/factory reset (clear all settings) [explain only; demonstration not required]
- Demonstrate ability to set-up personal mobile unit as cross-band repeater without hesitation or delay
  - o Local HTs access cross-band repeater
  - o Cross-band repeater accesses city or county frequency
- Effectively deals with (or explains how they would deal with) problems
  - o Loss of repeater
  - o Loss of principal
  - o Lost (took wrong turn/path and now don't know where you are)
  - o High environmental temperatures effecting equipment performance
  - o Heavy rain

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas:

- Properly perform any of the Shadow Communicator Type III (S3) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Functions as a shadow to accurately and effectively manage **medium to high** traffic rates for the assigned principal for at least one hour
- Accurately and effectively passes message traffic
  - o Send and receive multiple (at least three in each direction) informal messages - fill out, log, pass, and track
- Able to operate on one frequency while monitoring and participating in light activity on another frequency
- Properly and accurately maintains logs and records:
  - o ICS 205-SCCo Communications Plan

- o ICS 211A-SCCo Communications check-in form for all operators at the location
- o ICS 214-SCCo Unit Activity Log, including time on scene; messages sent/received (optional); actions taken; events that occur; and time when assignment ends
- o ICS 309-SCCo Communications Log of incoming and outgoing transmissions (if appropriate)
- o Submits logs and records to supervisor at end of shift/event

Shadow Communicator Type I (S1)

Phonetic designation for radio transmission is "Sierra One"

Capabilities and Services

- All Shadow Communicator Type II (S2) capabilities and services, plus:
- Specialist level operator
- Capable of the most complicated, highest traffic levels and most critical assignments
- Capable of designing, deploying, operating and coordinating complex multi-radio, multi-band, multi-shadow configurations for larger events or incidents
- Critical situations involving senior officials and advanced training from the served agency
- Equipped as for Shadow Communicator Type II (S2), plus
- Equipped for and capable of out-of-county and extended deployments

Typical Assignments

- Plan, design, set-up, and operate a shadowing operation involving multiple frequencies and multiple operators
- Primary resource and liaison for planning of information flow and communications for a large event involving multiple operators and multiple frequencies
- Shadow for senior state officials or senior public safety officials
- Shadow for situations where advanced training from served agency is required
- Out of county assignments

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:

- MAC Qualification: Shadow Communicator Type II (S2)

Required Training:

- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Event Planning
- FEMA Training
  - ICS 300 – Intermediate ICS for Expanding Incidents

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 1: shadow duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria:

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Shadow Communicator Type II (S2)

The following additional equipment is also required for this qualification:

- Regulated DC power supply
- Battery charger
- Ability to sustain operation without commercial power for extended periods (> 12 hours) , such as with a generator, solar, or other alternate power source.

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrates personal radio familiarity by configuring radio to perform any of the following without hesitation or delay
    - Any Shadow Communicator Type III radio familiarity capabilities
    - Any Shadow Communicator Type II radio familiarity capabilities
- Effectively deals with (or explains how they would deal with) problems:
    - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
    - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
    - Loss of repeater(s)
    - Excessively hot environmental conditions which affect equipment performance
    - Inter-county, inter-section traffic flow
    - Staffing shortages

Operator Skills

Operator skill will be evaluated by observing performance in all of the following areas:

- Properly perform any of the Shadow Communicator Type II (S2) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Plan, design, and set-up shadow information flow and communications support for an approved county drill, event or incident
- Properly and accurately maintain logs and records:
    - ICS 201 Incident Briefing
    - ICS 202 Incident Objectives
    - ICS 205-SCCo Communications Plan
    - ICS 211A-SCCo Communications Check-in

- o   ICS 214-SCCo Unit Activity Log
- o   ICS 309-SCCo Communications log
- o   Submits logs and records to supervisor at end of shift/event

HF Operator Qualifications

[NOTE: All HF Operator qualifications are PRELIMINARY – Work in Progress]

HF Operator Type III (H3)

Phonetic designation for radio transmission is "Hotel Three"

[PRELIMINARY – Work in Progress]

Capabilities and Services

- Fully independent operator
- Set-up an existing, pre-installed station which is current disconnected or stored
    - Connect radio, antennas, antenna tuner, headset, hand/footswitch, other accessories
- Turn everything on and verify proper operation
- Operate an HF station to send, receive and log messages
- Low-medium traffic rate

Typical Assignments

- Locations with low-to-medium traffic and pre-installed HF station
- Small city EOC
- Small staging area
- Small aid station or shelter

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- General Class or higher Amateur Radio license
- MAC Qualification: Field Communicator Type III (F3)

Required Training:
- Santa Clara County Advanced Emergency Communications Training course (or approved equivalents)
    - HF Operations Level 1

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 4: weekly ARES HF net check-ins
- Minimum of 4: weekly NTS Section net check-ins

- Minimum of 2: weekly OES net check-ins
- Minimum of 1: HF operator duty (at least 1 hour) at county drill (such as a MAC/annual county-wide exercise or county position during quarterly drill) or approved public service event or emergency incident

Evaluation Criteria

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:

Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for Field Communicator Type III (F3)

Knowledge

An interactive review will assess knowledge in the following areas:

- Demonstrate familiarity with basic functionality of county, city or personal HF station:
    - o Band selection
    - o Mode selection
    - o RF Power adjustment
    - o RF Gain adjustment
    - o MIC gain and preprocessing
    - o Antenna tuning and SWR reading
    - o Pre-amp
    - o Automatic Gain Control
    - o Filtering IF bandpass (crystal, DSP or both)
    - o RIT
- Demonstrate familiarity with propagation:
    - o Best band(s) to use for daytime, evening, night time
- Demonstrates knowledge of NTS structure and protocols:
    - o Describes NTS net hierarchy
    - o Describes NTS protocols for interfacing with ARES®
- Demonstrated knowledge of State OES HF net structure and protocols:
    - o Describes state OES net structure
    - o Describes state OES HF net protocols for interfacing with RACES
- Demonstrated knowledge of ARRL Radiogram handling
    - o Preamble fields
    - o Sending/receiving protocol
- Effectively deals with (or explains how they would deal with) problems:
    - o Band is excessively noisy
    - o Band is excessively crowded (such as during a contest)
    - o Skip is long on the selected band
    - o Selected frequency is already in operation

- o   Strong signals on both sides of the chosen operating frequency
- o   Excessively hot environmental conditions which affect equipment performance

Operator Skills

Operator skills will be evaluated by observing performance in the following areas:

- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Accurately and effectively passes medium to high rate message traffic for at least one hour
- Demonstrates ability to prioritize and handle the following traffic
    - o   Multiple ARRL Radiograms
    - o   Multiple informal messages
- Able to operate on one frequency while monitoring and participating in light activity on another frequency (for example, operate HF with light participation on VHF)
- Properly and accurately maintains logs and records:
    - o   ICS 205-SCCo Communications Plan
    - o   ICS 211A-SCCo Communications Check-in for all operators at the location
    - o   ICS 214-SCCo Unit Activity Log
    - o   ICS 309-SCCo Communications Log
    - o   Submits logs and documentation to supervisor at end of shift

HF Operator Type II (H2)

Phonetic designation for radio transmission is "Hotel Two"

[PRELIMINARY – Work in Progress]

Capabilities and Services

- All HF Operator Type III (H3) capabilities and services, plus:
- Advanced level operator
- Equipped with HF station capable of operation on 10m, 15m, 20m, 40m and 75/8m
- Medium-high traffic rate

Typical Assignments

- Lead operator at county radio room
- Lead operator at served agency headquarters, communications unit, or incident command post
- Coordinates communications for smaller events
- Assists with communications coordination for larger events

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- MAC Qualification: HF Operator Type III (H3)

Required Training:
- TBD (HF data modes?)

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 8: check-in on weekly ARES HF net
- Minimum of 8: check-in on daily NTS HF net

Evaluation Criteria

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:
Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for HF Operator Type III (H3)

The following additional equipment is also required for this qualification:

- HF radio capable of operating on 10m-80m (100W minimum)
- HF antenna(s) capable of operating on 10m, 15m, 20m, 40m and 75/80m bands
  - Antenna tuner, if necessary for the antenna(s)
  - Must be able to reach …
- Batteries or other emergency power source for 12 hours of operation

Knowledge

An interactive review will assess knowledge in the following areas:

- Effectively deals with (or explains how they would deal with) problems:
  - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
  - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
  - Loss of repeater(s)
  - Excessively hot environmental conditions which affect equipment performance

Operator Skills

Operator skills will be evaluated by observing performance in the following areas:

- TBD
- Properly perform any of the HF Operator Type III (H3) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Accurately and effectively passes medium to high rate message traffic for at least one hour
- Demonstrates ability to prioritize and handle the following traffic
  - Multiple ARRL Radiograms
  - Multiple informal messages
- Able to operate on one frequency while monitoring and participating in light activity on another frequency (for example, operate HF with light participation on VHF)
- Properly and accurately maintains logs and records:
  - ICS 205-SCCo Communications Plan
  - ICS 211A-SCCo Communications Check-in for all operators at the location
  - ICS 214-SCCo Unit Activity Log
  - ICS 309-SCCo Communications Log
  - Submits all logs and documentation to supervisor at end of shift

HF Operator Type 1 (H1)

Phonetic designation for radio transmission is "Hotel One"

[PRELIMINARY – Work in Progress]

Capabilities and Services

- All HF Operator Type II (H2) capabilities and services, plus:
- Specialist level operator
- Capable of the most complicated, highest traffic levels and most critical assignments
- Capable of planning, designing, deploying, and operating complex multi-radio, multi-band, multi-net configurations for larger events or incidents
- Equipped for and capable of out-of-county and extended deployments

Typical Assignments

- Plan, design, set-up, and operate HF station involving multiple frequencies and multiple operators
- Primary resource and liaison for planning information flow and communications for a large event involving multiple operators and multiple frequencies
- Lead or primary operator for critical nets for large city or county during major event or incident
- Out of county assignments

Experience Criteria

All of the following criteria must be met in order to qualify for this qualification.

Prerequisites:
- Amateur Extra Class license
- MAC Qualification: HF Operator Type 2 (H2)

Required Training:
- Santa Clara County Advanced Emergency Communications Training courses (or approved equivalents)
  - Event Planning
- FEMA Training
  - ICS 300 – Intermediate ICS for Expanding Incidents

Required Participation:

The following participation is required in addition to the participation required by any prerequisites:

- Minimum of 12: check-in to weekly ARES HF net
- Minimum of 12: check-in to daily NTS section net

Evaluation Criteria

Candidates must undergo an evaluation where they must demonstrate the following in the presence of a qualified MAC Evaluator. The evaluator may also review any of the prerequisite criteria. For more information about evaluations, consult the "Evaluations" section of this handbook.

Equipment:
Equipment will be evaluated by sampling the required items from the equipment listed below:

- All required equipment for HF Operator Type II (H2)

The following additional equipment is also required for this qualification:

- Portable HF station
- Regulated DC power supply
- Battery charger
- Ability for sustained operation without commercial power for extended periods (> 12 hours) , such as with a generator, solar, or other alternate power source.

Knowledge
An interactive review will assess knowledge in the following areas:

- Effectively deals with (or explains how they would deal with) problems:
    - Loss of commercial power (including lights, heat or A/C, ATM machines, gas pumps, etc.)
    - Loss of telephone connectivity (including ATM machines, gas pumps, store registers, etc.)
    - Loss of repeater(s)
    - Excessively hot environmental conditions which affect equipment performance
    - Inter-county, inter-section traffic flow
    - Staffing shortages

Operator Skills

Operator skills will be evaluated by observing performance in the following areas:

- TBD
- Properly perform any of the HF Operator Type II (H2) evaluation criteria if asked
- Performs all duties in accordance with the "Santa Clara County ARES/RACES Performance Standards and Best Practices"
- Plan, design, and set-up HF information flow and communications support for an approved county drill, event or incident
- Properly and accurately maintains logs and records:
    - ICS 201 Incident Briefing
    - ICS 202 Incident Objectives
    - ICS 205-SCCo Communications Plan
    - ICS 211A-SCCo Communications Check-in
    - ICS 214-SCCo Unit Activity Log
    - ICS 309-SCCo Communications Log
    - Submits logs and records to supervisor at end of shift/event

MAC Response Teams

Overview

The MAC program provides a way to "type" individual MACs according to their capabilities and the services they can offer. But the program also provides a methodology for assembling meaningful amateur radio communications support teams.

The Team Concept

Examples of Teams from Other Disciplines

In order to understand how MAC teams can be assembled and deployed, it is useful to examine a few examples from other emergency service agencies as well as commercial entities.

When an airline orders a crew for a particular aircraft type, they don't simply order a set number of employees who have attended a training session on that aircraft. They order a specific combination of trained and certified individuals for that aircraft type. The crew for a given aircraft type might include a "pilot-in-command" or "Captain", a first officer, a purser and several flight attendants. Each of those individuals has met specific licensing, certification and other criteria for their particular role (e.g. pilot vs. flight attendant) and has been specifically "checked out" on that particular aircraft type (e.g. 737 vs. 747).

When fire departments assign individuals to an engine company, they typically assign a Captain (or Lieutenant), an engineer/driver and one or more firefighters. If HazMat or EMT capabilities are required, a separate company, or a specially trained company may be used. In each case, the individuals that make up the team have had specific training and have passed an evaluation for their particular role and the specific equipment they are using.

In both of the above examples, each individual is highly trained and their capabilities and performance are assessed for their particular position. Once the individual resource types are well defined, they can be grouped together into teams. The teams may be predefined, as above, when the requirements are known in advance. Ad-hoc and dynamic teams may also be assembled when the requirements are not known in advance or change over time.

Because each individual is trained not only on how to perform their specific job, but also on how to work as part of a team, each individual could also be re-assigned to another team or crew, and that new team would still perform well. This works because the specific capabilities and qualifications required of each position on the team are well defined and standardized and because each individual filling a position on the team has been individually evaluated and found to be competent in their particular role.

ICS Strike Teams and Task Forces

The Incident Command System defines a "Strike Team" as multiple units, often five in number, of the same resource category that have an assigned strike team leader. ICS defines a "Task Force" as any combination of single resources, but typically two to five, assembled to meet a specific tactical need.

MACs as Individual Units vs. Strike Teams and Task Forces

Most of the intra-county mutual aid requests will be for individual resources. Individual cities or agencies will typically need an individual to fill in at one or more particular roles in one or more specific locations. The resource net provides a mechanism to assign, activate, track and deactivate individual MACs within the county borders.

Depending on the situation, mutual aid outside the county may be handled as individuals or as teams – either strike teams or task forces. It may be simple enough to dispatch one or more individuals to a neighboring county. But if mutual aid is to be provided further away, or on a larger scale, or for an extended period of time, then the structure and mutual support of a strike team or task force response may be more appropriate.

Types of MAC Response Teams

MAC Teams Will Probably Be Dynamic in Nature

Amateur Radio provides backup communications capability to a variety of agency types including both government and non-government organizations. Communications services are provided for a variety of situations, ranging from public service events such as parades and bike-a-thons, to full-scale emergency incidents such as tornadoes, earthquakes, and other natural and man-made disasters. Therefore, a one-size-fits-all approach to organizing communications resources into static, predefined teams will not be very practical or effective for many, if not most situations.

Most situations where amateur radio communications are involved will be dynamic in nature. Agencies are constantly evolving their own planning and capabilities and their communications needs will change over time. Real emergency incidents tend to be very dynamic in nature and communications needs can change many times over the course of the incident.

 The MAC program qualifications provide a way to dynamically assemble the category and type of communications resources needed for a particular situation. That response can be adjusted over time on an individual communicator basis as the situation changes.   Where more static needs can be defined, then either predefined or ad hoc teams can be deployed.

MAC Strike Teams

Depending on the type of mutual aid request received, the county ARES/RACES staff may assemble a strike team of MACs and appoint a team leader to manage the team and report on their health and welfare. An example might be a request for 5 field communicators to provide communications at a particular out-of-county event or incident.

MAC Task Forces

A mutual aid request for a specific set of communications requirements may be better served by MAC Task Force which includes a variety of skill sets. A county ARES/RACES official, working with the served agency, can pre-define the typical complement of resources required. In some cases, the requesting agency knows exactly what is needed and is able to order the right number of resources for the job. As an example, an Emergency Coordinator who is familiar with the MAC program designations could easily make a specific resource request such as:

- Qty 1 of N2 (advanced net control)
- Qty 2 of N3 (independent net control)
- Qty 1 of P2 (advanced packet operator)
- Qty 4 of F3 (independent field communicator)
- Qty 2 of S3 (independent shadow)

Because each of the team members has already been individually typed and qualified, MAC Task Forces can be quickly assembled for any number of unique situations.

Staging of MAC Teams

Larger events and incidents often require pre-staging of resources. If MACs are staged as teams, then the flexibility to deal with dynamic or ad hoc situations may be lost or degraded. Staging can be more efficient and effective if MACs are staged according to individual qualifications. Teams can then be assembled from the MACs in the staging area as the specific needs become known.

ICS and NIMS

Summary

The Santa Clara County MAC program is aligned with and complies with both ICS and NIMS principles. This is important because MACs will regularly interact with and support individuals and agencies which are operating within and according to the ICS and NIMS structure.

Incident Command System (ICS)

ICS Training

ICS training is central to the training of all MACs. All MACs are required to complete at least the following three ICS training classes. FEMA certificates are required for MAC qualifications.

- ICS-100 (or IS-100) – Introduction to the Incident Command System
- ICS-200 (or IS-200) – ICS for Single Resources and Initial Action Incidents
- IS-700 – National Incident Management System, An Introduction
- **NOTE:** The actual FEMA certified courses (either instructor-led or online) are recommended but not required for <u>entry</u> into the MAC program. City-approved equivalents of these courses may be substituted as long as they meet FEMA requirements. However, completion of the actual FEMA-certified courses and display of FEMA-issued course completion certificates is required for any of the MAC qualifications.

Additional ICS training courses may be required for higher MAC qualifications. The MAC program team keeps an eye on current ICS requirements at the federal, state and local level and may add additional ICS training requirements in the future.

ICS Operations

All MAC exercises are conducted according to ICS principles. ICS principles are used to define the organizational structure, documentation and procedures to be used. ICS forms are regularly used in exercises and are required in each MAC's go-kit.

National Incident Management System (NIMS)

Applicability of NIMS

Although the MAC program is designed to serve the needs of Santa Clara County, there is nothing inherent in the program definition that limits its use to Santa Clara County or even to the State of California. For example, by adding additional specialty areas, the program could easily include SKYWARN, Hurricane Watch Net, or other emergency operations topics which are more commonly found in the Southeastern United States. Because the program can be used elsewhere and because MACs will likely interact with other agencies which function within the NIMS framework, the program was designed such that it meets the requirements for NIMS credentialing.

Adherence to NIMS Credentialing Requirements

The following points are summarized from "NIMS Guideline for the Credentialing of Personnel, Draft, August 2011" (https://www.fema.gov/media-library/assets/documents/25633).

Applicability

Compliance with the NIMS guideline for credentialing is voluntary but recommended for non-Federal agencies to promote interoperability, commonality, and consistency. For these reasons, the MAC Program includes credentialing of the MAC status and advanced qualifications.

Identification

The NIMS guidelines suggest that personnel identity should be vetted. The MAC Program performs identity and security vetting through the Santa Clara County Sheriff's office, including Live Scan, local wants and warrants, State Department of Justice, and the FBI.

Qualifications

The NIMS guidelines suggest that personnel and volunteers should be identified and qualified in accordance with the organization's standard. The MAC Program uses the "Santa Clara County ARES/RACES Performance Standards and Best Practices" as its standard and identifies function-specific qualifications.

Certification

The NIMS guidelines suggest that personnel be certified based on completion of identity vetting and meeting the qualifications of the position. The MAC Program awards MAC status and any advanced certifications based on both identity vetting and meeting the qualification requirements.

Badging

The NIMS guidelines suggest that personnel should only receive a badge after their identity and qualification has been determined. The MAC Program awards the MAC badge after identity and basic qualifications have been verified. Advanced qualifications are only awarded after the individual demonstrates that he/she is qualified at that level.

Other Important Activities

The NIMS guidelines make additional suggestions regarding authorization, access, affiliation and revocation. The MAC Program includes training in how to deploy with the proper authorization. The program is affiliated with the county Office of Emergency Services to ensure that the program participants will have the proper access. And the program includes provisions for revocation of credentials when the individual no longer meets the requirements of the program.

Focus and Priority of Future Efforts

In the near term, the bulk of the effort in the MAC Program will be on meeting the needs of Santa Clara County. This includes fine tuning the qualification requirements to meet the needs of our served agencies and managing the program to streamline administrative overhead through improved procedures and automated database tracking. Nevertheless, alignment with and support of ICS and NIMS is an important component of how the program is structured and will continue to be part of the planning effort as the program develops.

Records Management

Individual Responsibility

Every MAC is responsible for maintaining their own personal records. This includes keeping printed copies of licenses, training certificates, event participation records, qualification and certification records, credentials, and other records. The county provides an online activities database to assist with this process. But in a disaster situation, the database may not be readily available to everyone. (Offsite backups are maintained in a few places and are accessible by several individuals). If documentation of a qualification or capability is needed, the individual should be able to produce printed documentation of their training, activities and achievements.

Online County Records

County Activities Database

The county maintains an online activities database for tracking contact information and individual participation in various activities. The database includes a variety of information, such as: personal contact information, training course, event and incident participation, and MAC status information. The database is located at:

> http://www.scc-ares-races.org/activities

Personal Records

Certain personal information, including contact information, is stored in the Santa Clara County activities database. Each MAC is responsible for keeping their personal information in the activities database up to date. It is especially important that address, e-mail, phone and SMS records be kept up to date since these are all methods that may be used to alert county MACs when an incident has occurred. A privacy policy is published on the website and the activities database limits the distribution of this information according to the privacy policy.

Training Records

A record of each training course attended by each MAC is maintained in the Santa Clara County activities database. After each training class is completed, the course instructor updates the database to record attendance. Each person should check to make sure they received credit for the class and should print out a course completion certificate and keep it as part of their individual records.

Event Records

A record of each event attended by each MAC is maintained in the Santa Clara County activities database. Events may include drills or public service events or other approved types of events. After each event is completed, the event coordinator will update the activities database to show attendance.   Each person should check to make sure they received credit for attending the event and should print out a participation certificate and keep it as part of their individual records.

Incident Records

A record of each incident attended by each MAC is maintained in the Santa Clara County activities database. Incidents may include natural or man-made disasters or other situations where MACs are activated for an emergency situation.   After an incident is completed, the county RACES staff will update the activities database to show attendance.   Each person should check to make sure they received credit for participating in the incident and should print out a participation certificate and keep it as part of their individual records.

Printed Certificates

Certificates are available for printing from the Santa Clara County activities database. Each MAC may log into the database and print his or her own certificates. When printed in color and on appropriate paper, they are suitable for framing.

Training Course Certificates

Anyone who has attended a training course may print a certificate of completion for that course. The certificate contains the individual's name and call sign, as well as the course name and date.

MAC Wallet Card

MACs are able to download and print a wallet card that indicates MAC status, plus any additional MAC qualifications earned. This card can help speed up the check-in process at events.

Credentials

MACs are able to print their MAC wallet card directly from the Santa Clara County activities database. These credentials can be cut-out, laminated and placed in a wallet, or may be inserted in an ID holder along with the MAC ID card.

MAC credentials identify the individual as a MAC and include their name, call sign and a list of any advanced qualifications which are current. They are useful as a communications tool to quickly show a staging manager, city EC or other official which qualifications the MAC has earned.

Program Management

Organization

The Santa Clara County MAC Program is by MACs, for MACs. It is managed under the auspices of Santa Clara County ARES/RACES under the direction of the Santa Clara County Chief Radio Operator (CRO). The CRO may appoint one of the Deputy CROs as "MAC Program Manager" to manage the program.

The CRO coordinates and cooperates with the county Office of Emergency Services and with various served agencies, including both governmental and non-governmental organizations. This relationship ensures that the needs of both government and non-government agencies taken into account in the development of the program.

Program Information

All documentation and information about the Santa Clara County MAC Program is available on the Santa Clara County ARES/RACES website, at:

> http://www.scc-ares-races.org/mac

Individual MAC status information is maintained in the Santa Clara County ARES/RACES activities database, at:

> http://www.scc-ares-races.org/activities

General operations information, such as the "Performance Standards" and the Go Kit checklist, is available on the Operations page of the Santa Clara ARES/RACES website, at:

> http://www.scc-ares-races.org/operations.html

A MAC discussion/e-mail group is available for MACs and those interested in becoming MACs. One need not be a MAC to join. Recommended membership includes ECs, AECs, MACs and those interested in becoming MACs. To join the group: Visit our Discussion Groups page to learn how to subscribe to our main Announce group. Once approved for the Announce group, subscribe to the MAC group.

> https://www.scc-ares-races.org/discuss-groups.html

Program Feedback

This program will only succeed if it satisfies the needs of the Santa Clara County MACs. Feedback is welcomed and appreciated. Please submit feedback via the scc-mac-discuss list. In that way, new ideas, comments, suggestions and criticism can all be shared and reviewed collectively.

Revision History

Version Date	By	Description
2.3 Jun-2018	N6MEF Michael Fox	Added higher-power radio requirement to N2, P2. Added cross-band repeat training, equipment and knowledge requirement to F2, N2, S2. Added Event Planning training requirement for all type 1 qualifications. Updated Field Communicator training course names. Added Loss and Reinstatement of MAC Status section. Rewrote NIMS Credentialing section. Corrected a few typographical errors. Updated discussion group info.
2.2 Apr-2014	N6MEF Michael Fox	Program entrance requirements updated to require attendance of training course Fundamentals of Emergency Communications.
2.1 Mar-2014	N6MEF Michael Fox	Clarified F2 equipment section. Fixed typo in Yahoo groups URL. Added dates to Revision History section.
2.0 Apr-2013	N6MEF Michael Fox	Renamed qualifications according to standard resource typing order: Type I is now the highest qualification (specialist), Type II is the middle qualification (advanced), and Type III is the lowest qualification. Renamed training courses to align with new qualification names.
1.1 Jul-2010	N6MEF Michael Fox	Clarified program entry process. Defined "approve public service events." Replaced training topics list with new training course names. Clarified participation requirements as in addition to participation for prerequisites. Clarified operator skills time requirements for situations involving a team or a scribe. Removed "preliminary" status for F3, N3, P3, S3 qualifications. Various other minor edits.
1.0.3 Dec-2009	N6MEF Michael Fox	Adjusted text to refer to renamed "Performance Standards". Added description of "MAC in Training" status. Updated minimum participation requirements. Clarified and expanded the Evaluations section. Updated the managing problems section of N1. Updated the N2 evaluation criteria. Added more details for Level 3 and HF qualifications (still preliminary). Added URLs to county database.
1.0.2 Oct-2009	N6MEF Michael Fox	Minor typographical corrections. Added clarification of N2 traffic handling. Changed Mike-Mike scale requirement from traffic handling to explanation. Reorganized evaluation items to make it clearer which items were involved in the MAC evaluations. Added "Preparing for an Evaluation" and "Participating in an Evaluation" sections. Changed name to "… Program Handbook".
1.0.1 Oct-2009	N6MEF Michael Fox	Minor typographical corrections. Clarified headphones vs. headset requirement in equipment sections. Added "Evaluation Method and Process" section. Added several clarifications to packet equipment section
1.0 Sep-2009	N6MEF Michael Fox	First public release of document