December 2014

County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

The Next OCRACES Meeting Is

January 5, 2015
1930 Hours

840 N. Eckhoff Street, Suite 104, Orange

Disaster Mitigation Site Hardening
by Ray Grimes, N8RG

Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner
by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

40 Meters

As mentioned in the article on page 3 of this issue, we have started an ACS net on 40 meters (7250 kHz) at 10:00 AM every Saturday morning. Why 40 meters?

During the day, 40 meters provides excellent communications around most of Orange County. That's important, if we should lose our VHF and UHF repeaters due to a severe earthquake or an extended power outage lasting several weeks. Furthermore, there are some locations in Orange County, such as in some beach areas and deep in the canyons, where repeater coverage is spotty, but where 40-meter signals might penetrate. 40 meters also covers into surrounding counties, should it be necessary to communicate with them or Cal OES for mutual assistance. One of the purposes of our 40 meter net is to observe 40-meter propagation and the effects of adding, modifying, and testing our antennas.

We will be investigating NVIS (near vertical incident skywave) antennas for close-in communications, although it appears that ground-wave propagation is more prominent than NVIS throughout the County. NVIS takes over when going beyond 50 miles.

40 meters supports DX communications between late afternoon and past sunrise. Vertical antennas with a good ground radial system provide a low angle of radiation, which is advantageous for DX contacts. High horizontal antennas are also effective for DX. NVIS antennas need to be horizontal and less than 20 feet above

ground. Contacts between about 50 miles and 200 miles are made via the first hop against the D-layer of the ionosphere. A second hop could extend NVIS communications to 600 miles. Signal strength will change with varying ionospheric conditions. Close-in communications are accomplished via ground wave, where added height and matched antenna polarity contribute to signal strength. Vertical-to-vertical antennas are effective for ground wave, and we are finding vertical-to-horizontal can be better than horizontal-to-horizontal if the ends of the horizontal antennas are toward each other, even though there is about a 20 dB drop in signal strength with cross polarity. Horizontal antennas have directional lobes, whereas vertical antennas are omnidirectional.

We are observing interesting ground-wave conditions around Orange County, plus we are making some very strong NVIS contacts into San Diego and San Bernardino Counties, as well as over to Arizona. As our net grows, we will learn more and experience some propagation surprises.

Having so much fun on 40 meters (and having greater emergency-communications capabilities) is an incentive for RACES and MOU members holding a Technician Class amateur radio license to upgrade to at least a General Class license.

We are reviving our OCEMCOMM Yahoo! Group for sharing our 40-meter observations and other technical discoveries related to emergency communications. To join, go to http://groups.yahoo.com/group/OCEMCOMM.

OCRACES Activates for Approaching Storm

At 1318 hours on Friday afternoon, October 31, 2014, OCSD Emergency Communications Manager Delia Kraft, KF6UYW, called OCRACES Chief Radio Officer Ken Bourne, W6HK, to inform him that the Orange County EOC on Loma Ridge would be activated to a Level 2 at 1500 hours, and that shifts of OCRACES members were needed to be established for deployment to the EOC RACES Room. The activation was due to activating the Silverado Post Fire Debris Flow Annex Draft, because of an expected significant rain event. An Evacuation Advisory was to be issued for the Silverado Burn Area (a section of Silverado Canyon scorched by a September wildfire that destroyed 968 acres) because of the potential impact of the expected rain to public safety. All agencies with EOC responsibilities were notified to respond to Loma Ridge.

The EOC Public Information Hotline was also activated at 1500. An AlertOC message was released to the residents directly affected by the Silverado Fire, notifying them of the evacuation advisory.

OC Public Works delivered sand bags to residents directly between 0800 and 1700 hours. The sand bags could also be picked up at Fire Station 14 in Silverado Canyon.

An incident command post was established at Fire Station 15 at 1800 hours. American Red Cross activated a shelter at 1900 hours at the Santiago Canyon College gymnasium at 8045 E. Chapman Avenue in Orange to support residents. Red Cross Planning & Information Specialist Tom Woodard, KI6GOA, communicated with OCRACES and reported to the EOC.

A soft closure of Silverado Canyon Road was used for this event. A soft road closure means that residents are allowed in and out of the area. A hard closure is used only if conditions become unsafe and pose a risk to public safety. A hard closure prevents any traffic other than first responders.

ECM Delia Kraft, KF6UYW, reported to the EOC immediately upon notification of the activation, and requested Capt. Bourne to activate RACES. At 1342, Capt. Bourne sent an activation e-mail to all members, requesting availability so a deployment schedule could be established.

Lt. Scott Byington, KC6MMF, called Capt. Bourne immediately upon receiving activation notification, and asked how he could serve. Lt. Byington had just returned from an exhaustive five-week work assignment out-of-town and was craving some family time, but, nevertheless, he responded to the EOC RACES Room by 1445 hours and remained there past 1900 hours. Sgt. Tom Tracey, KC6FIC, then contacted Capt. Bourne and sent an AlertOC message to all members, which went by e-mail and to home and cellular telephone numbers of all members. Capt. Bourne's car had just been "confiscated" by dealer mechanics for major work, so he had to work on scheduling from home rather than from the EOC RACES Room. Fortunately, the response was excellent from the members via telephone, e-mail, and over the air on the 2-meter repeater. Fran Needham, KJ6UJS, and Lt. Ralph Sbragia, W6CSP, Sue Mickelson, KJ6LCJ, Sgt. Ernest Fierheller, KG6LXT, Sgt. Jack Barth, AB6VC, Randy Benicky, N6PRL, John Bedford, KF6PRN, Lt. Harvey Packard, KM6BV, Joe Selikov, KB6EID, Sgt. Bob McFadden, KK6CUS, and Walter Kroy, KC6HAM, called or e-mailed within minutes after the activation was preannounced, to advise of their availability. Later, Brian Turner, KI6WZS, Ken Tucker, WF6F, Tom Riley, K6TPR., and Kenan Reilly, KR6J, also advised of their availability. Capt. Bourne e-mailed the deployment schedule and updates to the RACES Room, where it was posted on the white board at Position 6. He and Lt. Byington also communicated via Winlink.

After attending briefings, ECM Kraft interfaced with Lt. Byington in the RACES Room. Lt. Byington was relieved by Needham, who was later relieved by Mickelson, remaining until about 2200 hours. Bedford relieved Mickelson and worked until about 0200 Saturday morning. Sgt. Barth took over for the "wee-hours" 0200-0800 shift, but, fortunately, was notified shortly after 0400 that the EOC was deactivated and that OCRACES could also be deactivated. He informed Capt. Bourne of the deactivation via the 2-meter repeater at approximately 0415, and then notified Sgt. Fierheller, who had been scheduled for the Saturday 0800-1200 shift, that RACES was deactivated. Capt. Bourne then texted Sgt. McFadden, who had been scheduled for the 1200-1630 shift, and Turner, who had been scheduled for the 1630 to 2230 Saturday shift, that the activation had ended. Capt. Bourne also e-mailed all members that the EOC and OCRACES were now deactivated.

OCSD Communications & Technology Assistant Director Joe Saddler, WA6PAZ, also reported to the EOC and worked many hours until deactivation after 0400 Saturday morning. In the latter part of the activation, he was able to spend time with Sgt. Barth in the RACES Room.

Although Sgt. McFadden did not have a shift at the time, he reported to the EOC RACES Room anyway on Friday night, Saturday, and Sunday to work on the new HF Winlink setup, using a Kenwood TS-480HX transceiver and SCS PACTOR III modem. He successfully made several HF Winlink contacts on Saturday and Sunday.

OCRACES Holiday Dinner: December 1st

OCRACES Members will celebrate their annual Holiday Dinner on Monday, December 1, 2014, at 6:30 PM, at Ricardo's Don José, 1230 E. Katella Avenue, in Orange. There will be no regular meeting or net that evening. The next regular OC-RACES meeting will be on Monday, January 5, 2015, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. Ray Grimes, N8RG, will be the featured speaker at the January 5th meeting, talking about disaster mitigation site hardening.

KJ6LCJ Hides in Stanton

Four teams participated in the cooperative T-hunt on Monday, November 10, 2014. OCRACES Member Sue Mickelson, KJ6LCJ, was the fox, transmitting on the input of OCRACES 2 -meter repeater. She hid in Stanton Park, just south of the Sheriff's Station in Stanton. Signal reflections were not too bad, but peaks were strong in the shopping area on the southwest corner of Beach Boulevard and Katella Avenue, where OCRACES Assistant Radio Officer Bob McFadden, KK6CUS, started, and was the first to find the fox. Bob's advanced Doppler system made it easy. High tension lines just south of the fox were probably causing some signal reflections, plus the fox box was on the ground, shielded to the north by Sue's open car door. Next to arrive was OCRACES Chief Radio Officer Ken Bourne, W6HK. Riding shotgun with Ken was Roger Kepner, W6SQQ, with his "tape measure" yagi. They were helped with a hint from Randy Benicky, N6PRL, via the 449.100 MHz repeater,

Ron Allerdice, WA6CYY, Ken Bourne, W6HK, Bob McFadden, KK6CUS, and Ken Tucker, WF6F (left to right), found the fox, Sue Mickelson, KJ6LCJ, shown with the yellow fox box and "Fiona."

who knew about the park behind the Sheriff's station. The park could only be entered from the north on a one-way street that exited onto Beach Boulevard. Next to find the fox was OCRACES Member Ken Tucker, WF6F, using his Arduino-based Doppler system. The fourth hunter, Ron Allerdice, WA6CYY, from Costa Mesa, started far north of the area, but soon arrived at the fox's den. Afterwards, the hunters drove to a Denny's and exchanged T-hunting "war stories."

The next cooperative T-hunt will be held on Monday, December 8, 2014, immediately following the OCRACES net on the 146.895 MHz repeater. The fox will begin transmitting at approximately 7:20 PM on 146.295 MHz. Hunters will compare bearings on the 449.100 MHz repeater, and are encouraged to beacon their positions via APRS throughout the hunt. The fox will hide within a City or sector of Orange County, to be announced a few days prior to the hunt. We are always looking for volunteers to be the fox.

The cooperative T-hunts provide excellent practice in working together to locate the source of interference. The hunts are not official RACES events, so DSW (Disaster Service Worker) coverage does not apply. Please drive carefully!

Fox-hunt loops and beams are available from Arrow Antenna and HRO. Doppler systems will work on 2 meters and 440 MHz, depending on the length of the antenna elements. For some good information about T-hunting, see http://www.homingin.com/.

RACES and MOU Members Start 40-Meter Net

Because the new 40-meter component worked so well during the October 4th City/County RACES & MOU drill, OCRACES Chief Radio Officer Ken Bourne, W6HK, and Costa Mesa RACES (MESAC) Chief Radio Officer Ted Bohrer, N7QY, discussed establishing a Saturday ACS net at 10:00 AM on 7250 kHz lower sideband. The first net occurred on November 22, 2014, with 19 check-ins, and the latest net, on November 29th, had 16 check-ins (very good for a holiday weekend). The net allows county and city RACES and MOU members in Orange County to exchange information and observe 40-meter propagation. Members of Cal OES ACS and San Bernardino County ECS also participate.

RACES and MOU Units Assist with Election

City and County RACES and MOU units provided communications for ballot transportation from 33 Collection Centers to the Vote Tally Center (VTC) on Tuesday, November 4, 2014, at the close of the General Election. Communicators recorded the precinct numbers of the boxes being loaded into the vans, and transmitted them to Net Control when the vans departed from the Collection Centers to the VTC. Three OCRACES repeaters were used for this election.

OCRACES members operating Net Control from the OCRACES van at the VTC included Sgt. Tom Tracey, KC6FIC, Fran Needham, KJ6UJS, Tom Riley, K6TPR, and Joe Selikov, KB6EID. Sgt. Jack Barth, AB6VC, directed traffic. Anaheim RACES members (including "Ducky" Breton, KW6ACK, Barry Gilbert, AF6XY, and Frank Lansner, KJ6NDQ) worked at the Anaheim PD, Canyon Hills, and West Anaheim Youth Center Collection Centers. OCRACES Member Sue Mickelson, KJ6LCJ, worked at the Buena Park Collection Center. Costa Mesa RACES (MESAC), namely Mike Oviatt, KE6IWM, handled the Costa Mesa Collection Center, while MESAC Chief Radio Officer Ted Bohrer, N7QY, worked with the Registrar of Voters and had 45 precincts in Costa Mesa to shepherd. Santa Ana RACES (SART), namely Kathleen Nelson, K6IBH, worked at the Santa Ana Collection Center. Fountain Valley RACES members (including Chief Radio Officer Jerry Fullerton, KD6JBL, Alan Hill, W6ARH, and Garry Jones, N6NQN) handled the Santa Ana and Santa Ana High School Collection Centers. Fullerton RACES members (including David Reed, KJ6PQT, etc.) handled the Fullerton and La Habra Collection Centers. OCRACES Member Walter Kroy, KC6HAM, worked at the Garden Grove Collection Center. Huntington Beach RACES Assistant Radio Officer Steven Albert, KE6OCE, coordinated the HBRACES operation at the Huntington Beach and Faith Church Collection Centers. Irvine RACES (IDEC) members, including Radio Officer Peter Bergstrom, K6PB, and Oliver Sanchez, F4BWG), handled the Irvine and Irvine High School Collection Centers. Laguna Beach RACES Chief Radio Officer John Kountz, WO1S, coordinated the Laguna Beach Emergency Communications Team operation at the city's Collection Center. Laguna Woods RACES members (including Assistant Radio Officers Jim Riedel, K6EEE, and Ernie Senser, W6ETS) handled the Laguna Woods Collection Center. Seal Beach RACES Member Samuel Sher, KK6HMP, worked at the Los Alamitos Collection Center. City of Orange RACES (COAR) members (including Rich Helmick, KE6WWK, etc.) handled the Orange PD and Orange School Collection Centers. OCRACES Member Randy Benicky, N6PRL, worked at the Rancho Santa Margarita Fire Station #45 Collection Center. Placentia RACES Radio Officer Mark Garrett, KG6CAV, handled the Placentia Collection Center, and Hospital Disaster Support Communications System (HDSCS) Assistant Coordinator Paul Broden, K6MHD, worked at the Methodist Church Collection Center in Placentia. Tri-Cities RACES provided Clark Croisette, KI6IZE, and Ed Ginn, K6MFI, at the San Juan Capistrano Collection Center, Knute Josifek, K6HIV, and Brian Croisette, KI6MKG, at the Laguna Niguel Fire Station #49 Collection Center, and Chief Radio Officer Joe Lopez, W6BGR, and John Stewart, AG6RG, at San Clemente. Mission Viejo members (led by Radio Officer Charley Speelman, WA6RUZ), worked at the Mission Viejo Collection Center and Saddleback Collection Center (Jay Center, AD6AT). OCRACES Chief Radio Officer Ken Bourne, assisted by OCRACES Applicant Jacob Lee, W6DTM, handled the Tustin PD Collection Center. Westminster RACES Radio Officer Chi Nguyen, KE6MVS, worked at the Westminster Collection Center. OCRACES Sgt. Bob McFadden, KK6CUS, handled the Aliso Viejo Collection Center. OCRACES Member John Bedford, KF6PRN, worked at the Corona Del Mar Collection Center.

N8RG Donates Service Monitor to OCRACES

Ray Grimes, N8RG, has generously donated an IFR FM/AM 1000S communications service monitor to OCRACES, and it is now on the test bench in the EOC RACES Room. The instrument consists of an FM/AM receiver, FM/AM signal generator, RF spectrum analyzer, RF frequency meter, RF wattmeter, dual-tone generator, RF demodulator, frequency standard, sweep generator/tracking oscilloscope, and DC to 1 MHz oscilloscope. Transmitter tests include frequency error, FM deviation, percent AM modulation, power output, harmonic content, frequency stability, and spurious outputs. Receiver tests include sensitivity, distortion, frequency stability, and frequency response. We caution whoever uses it never to transmit into it directly, and to turn it off and unplug it when finished with your tests.

RACES Sgt. Bob McFadden, KK6CUS, has already put this IFR FM/AM 1000S to good use on the EOC RACES Room test bench.

RACES Participates in MARRITE

Mobile command post vehicles from various agencies at the Multi-Agency Regional Radio Interoperability Training Exercise.
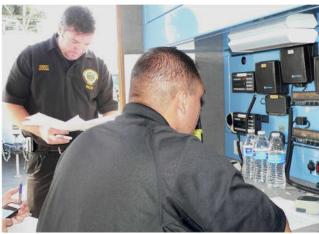
The California Statewide Interoperability Executive Committee (CalSIEC) Southern Planning Area (SPA) conducted the Multi-Agency Regional Radio Interoperability Training Exercise (MARRITE) on Tuesday, November 18, 2014, from 8:00 AM until noon, at the Orange County Public Works (OCPW) facility in Orange. The purpose of this exercise was to test the interoperable capability of radio communications equipment inside mobile command post vehicles. Participants confirmed proper re-naming/labeling of interoperability and mutual-aid channels, verified frequency and PL compliance on VHF, UHF, 700-MHz, and 800-MHz channels, and tested communications on pre-identified interoperability channels with other Operational Areas, including Riverside. RACES/ACS units also participated, testing their radios on amateur radio frequencies.

MARRITE participants at the Orange site included Anaheim PD mobile command post (MCP), Anaheim RACES, California DOT Heavy Vehicle, California Highway Patrol, City of Orange Police MCP, City of Orange RACES (COAR), Costa Mesa PD/RACES (MESAC), Garden Grove PD MCP, Huntington Beach PD MCP, Huntington Park PD MCP, Irvine PD MCP, Irvine RACES (IDEC), Laguna Beach RACES (LBECT), LASD, OC Fire Authority, OCPW, OCSD Samantha II, OCSD Communications & Technology OASIS Trailer, OCRACES, Santa Ana PD MCP, Santa Ana RACES (SART), and West-Comm MCP.

The MARRITE Incident Commander was OCSD Communications & Technology Division Program Support Manager Denis Marin, K6OLU. Operations Chief was OCSD Emergency Communications Manager Delia Kraft, KF6UYW. The OCRACES emergency communications response vehicle was used as the Division's communications command post. OCRACES Assistant Radio Officer Bob McFadden, KK6CUS, and OCSD Communications Technician II Peter Jimenez, KI6UTE, were the Public Safety Net Control operators, and OCRACES Chief Radio Officer Ken Bourne, W6HK, was the RACES Net Control operator. Assisting were OCRACES Members Fran Needham, KJ6UJS, Martin La Rocque, N6NTH, and Radio Officer Harvey Packard, KM6BV.

Net Control in the OCRACES van successfully communicated with KM6BV in the Samantha II trailer, and with the other on-site "players," including Anaheim RACES, MESAC, IDEC, LBECT, COAR, and SART on the OCRACES 2-meter repeater, three 70-centimeter repeaters, two 2-meter simplex frequencies, and a 70-centimeter simplex frequencies. Coordination was on the main OCRACES simplex frequency.

RACES testing with Riverside County was conducted on a 70-centimeter repeater on Santiago Peak, arranged by Riverside County, as well as on the OCRACES 449.100 MHz repeater and on the Cactus Intertie linked repeater system. Also checking in on Cactus were Ventura County RACES, Cal OES ACS, and Yuma County (Arizona) RACES. Cactus offered to allow the use of their system again for next year's MARRITE, and urges participation by more counties. Inter-county HF communications on 40 meters was also encouraged for next year's exercise.

OCRACES Sgt. Bob McFadden, KK6CUS (left), and OCSD Communications Technician II Peter Jimenez, KI6UTE, operate Public Safety Net Control at MARRITE.

RACES/MOU News from Around the County

Anaheim RACES

Anaheim RACES hosted OCSD Communications & Technology Division Robert Stoffel, KD6DAQ, on Monday, November 24, 2014, who taught his "800 MHz and Beyond" training with an emphasis on RACES. In addition to the 800 MHz law, fire, and public-works trunked radio system, Robert also gave details on VHF high-band and UHF public-safety communications in Orange County, the OASIS satellite system, and much more.

American Red Cross

Tom Woodard, KI6GOA, Planning, Readiness & Situational Awareness Manager, Disaster Cycle Services, American Red Cross, Serving Orange, Riverside & San Bernardino Counties, has resigned as an American Red Cross employee to accept a position with the Orange County Transit Authority (OCTA) as their Emergency Management Specialist, and transitioned to a volunteer role with the Red Cross, as of the close of business on November 28, 2014. Tom still plans to volunteer with the Red Cross in the areas of Disaster Technology, Exercise Design, and Operations Management.

Kaiser Permanente
Amateur Radio Network (KPARN)

Duane Mariotti, WB6RER, of the Kaiser Permanente Amateur Radio Network, submitted the following comments after reading the "Captain's Corner" column ("Power Outage to the Max") in the October 2014 issue of *NetControl*:

In the past I have lived on the east coast and Puget Sound region where I had a security clearance. Long before 9/11 there was a number of studies of east coast power grid and I believe it was more chilling than current studies. At one time the power companies themselves had identified one or two transmission towers that if damaged (explosives at base of tower) would cause collapse of significant power structure. Of course this was experienced in 2003.

The same commentary exists for coastal areas (including California). I believe there remains an open inquiry into how vandals damaged a single fiber-optic vault, resulting in multiple counties in Washington State losing 911, cellular, and basic local telephone service for hours. This was repeated in another area when a construction crew damaged one fiber-optic cable. The area was on the Canadian border and we communicated with them via repeaters in Canada as they had no long distance or 911 service—and this occurred in last ten years.

Most recently with the Nuclear Power Plant in San Diego going off line, if not for the natural-gas self contained peak generating stations, San Diego was in serious risk of power shortages. New high-power lines just installed prior to this summer has negated that risk.

A couple of years ago, my organization, Kaiser Permanente Amateur Radio Network (KPARN), went back and reviewed risks due to power issues. We outlined a plan that improved all of our infrastructure to local (in rack) battery back-up, emergency power via multiple (simultaneous) generators that we have at our medical centers, and solar power as funding permits.

We are not nearly finished, but we have installed a number of low-level "hot" back-up repeaters that are available and cover good geographic area to capture multiple hospitals. We are hoping to install solar power as a grant project on one of our mountaintop sites, as we now believe that a single generator site is too great a risk for failure, and with cost of solar going down we can keep batteries charged along with line and generator redundancies.

What is interesting is the simple local battery backup has protected radio systems due to blown fuses and construction power shutoffs at our radio sites. It is amazing how often simple unplanned events, traffic accidents, and over-anxious construction crews can create local large or small power outages.

We have also experimented more with simplex. As we cover Bakersfield to San Diego, simplex is not ideal, but simplex in the LA Basin and Inland Empire combined with HF at outlying areas provides us with a fourth level of redundancy. We have been very pleased with simplex performance on 220 MHz and are installing new antennas and 220 MHz radios at all of our hospitals to support same.

Very nice article and, while you started with a "sky is falling" catastrophic incident, history has shown that assuring ability to operate independent of purchased power locally and with redundant infrastructure will be a benefit to any amateur radio emergency communications organization.

December 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 *OCRACES Holiday Dinner*	2	3	4	5	6 *40 m ACS Net*
7	8 *2 m Weekly ACS Net* & *Cooperative T-Hunt*	9	10	11	12	13 *40 m ACS Net*
14	15 *2 m Weekly ACS Net*	16	17	18	19	20 *40 m ACS Net*
21	22 *2 m, 70 cm, 6 m, 1¼ m ACS Nets*	23	24	25 *Christmas*	26	27 *40 m ACS Net*
28	29 *2 m Weekly ACS Net*	30	31			

Upcoming Events:

- **December 1:** OCRACES Holiday Dinner, 1830, Ricardo's Don José, 1230 E. Katella Avenue, in Orange.
- **December 8:** Cooperative T-Hunt, 1920
- **December 22:** 2-m/70-cm/6-m/1¼-m ACS nets
- **December 25:** Merry Christmas!
- **January 1**: Happy New Year!
- **January 5:** OCRACES Meeting, 1930, 840 N. Eckhoff Street, Suite 104, Orange
- **January 12:** Cooperative T-Hunt, 1920
- **January 26:** City/County RACES & MOU Meeting, 1915, 840 N. Eckhoff Street, Suite 104, Orange

www.ocraces.org

Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

County of Orange RACES Frequencies

40 m: 7250 kHz SSB (City/County Net—Saturdays, 1000 hours)
6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
2 m: 147.480 MHz simplex
1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
70 cm: 446.000 MHz simplex
70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, –12 MHz inputs, 88.5 Hz PL

*Primary Net—Mondays, 1900 hours

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Assistant Radio Officers (Sergeants)
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Ernest Fierheller, KG6LXT
Bob McFadden, KK6CUS
Tom Tracey, KC6FIC

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Questions or Comments?
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"W6ACS ...
Serving
Orange County"

Meet your County of Orange RACES Members!

Ken Bourne W6HK	**Scott Byington** KC6MMF	**Harvey Packard** KM6BV	**Ralph Sbragia** W6CSP	**Delia Kraft** KF6UYW	**Marten Miller** KF6ZLQ	**Robert Stoffel** KD6DAQ
Jack Barth AB6VC	**Jim Dorris** KC6RFC	**Ernest Fierheller** KG6LXT	**Bob McFadden** KK6CUS	**Tom Tracey** KC6FIC	**John Bedford** KF6PRN	**Randy Benicky** N6PRL
Bill Borg KG6PEX	**Nancee Graff** N6ZRB	**Ray Grimes** N8RG	**Walter Kroy** KC6HAM	**Martin La Rocque** N6NTH	**Sue Mickelson** KJ6LCJ	**Fran Needham** KJ6UJS
Kenan Reilly KR6J	**Tom Riley** K6TPR	**John Roberts** W6JOR	**Joe Selikov** KB6EID	**Ken Tucker** WF6F	**Brian Turner** KI6WZS	**Tom Wright** KJ6SPE	**Jeff Yost** KE7EWG