

SCCARA-GRAM



Santa Clara County Amateur Radio Association

Volume 32, Number 6

June 2016



Prez Sez

Field Day Prep

Those who have never been to a Field Day Exercise will certainly wonder what the exercise entails. The short answer taken from the ARRL information sheet: "Field Day is a picnic, a campout, practice for emergencies, an informal contest and, most of all, FUN!" Unsaid is Field Day may be a life changing experience. Like many life changing experiences you will probably not realize the change until years later.

Field Day Prep is a bit of a conundrum. How do you practice for emergencies when by definition emergencies are sudden crises of unplanned events? The answer is a simple one. You hone your toolbox. Again by definition your toolbox contains physical tools but it should be multifaceted and include mental skillsets as well. With physical tools you build, repair or even weigh down your blowing papers. Your mental skillset becomes your weighty foundation for higher learning.

Your mental skillset starts with your knowledge of basic terms. If you listen to FM at the VHF station and SSB modulation at the HF phone station it will be difficult to contrast the two unless you know 'Modulation' is the process of inserting data, usually voice data, onto a radio frequency signal. You also learn the good and the bad of different technologies or what engineers call a tradeoff. For instance a legal limit RF amplifier will give you a very powerful signal but that amplifier will be bulky, hard to transport, and will require a larger generator. Everything has a price.

Elsewhere you will find documents that tell you specifically what to bring to field day. I'm not going to waste space telling you to bring a flashlight, etc. I learned that in the Boy Scouts. The one thing I regret is in not keeping better records of my experiences. I have a very good memory but can't just unscrew my head and dump out those memories. I did find the Girls Scouts were prone to keep their memories in scrapbooks. However in retrospect I have seen many of those scrapbooks left behind to landfills because their owners no longer cared or more likely they were lost in what has become known as day to day living. I am going to suggest a modern scrapbook that doubles as a notebook, a diary, and even a briefcase. The device is called a flash memory, or thumb drive or USB flash drive, or computer removable memory.

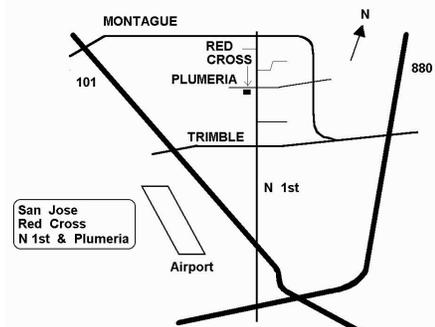
There are several types of physical packages but the USB form is by far the most popular. With such a modern scrapbook you'll be able to store still pictures as well as aural and video files. Furthermore you'll be able to store your notes, application

Calendar

- 6/11 Electronic Flea Market
- 6/13 SCCARA General Meeting
- 6/20 SCCARA Board Meeting--(San Jose Red Cross, 7:30p, all are welcome)
- 6/25-26 Field Day

General Meeting

- Day: Monday, June 13, 2016
Time: 7:30 PM
Place: Kaiser Santa Clara, Hospital B-06
Featuring: Field Day



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The deadline for articles is the last Monday of the month.

SCCARA was formed in 1921 and became a non-profit corporation in 1947. SCCARA is an affiliate of the American Radio Relay League (ARRL). The club station is W6UW.

Web page: <http://www.qsl.net/sccara>. (Webmaster: Wally Britten, KA6YMD, 408-293-3847, ka6ymd@arrl.net)

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SCCARA REPEATERS

SCCARA owns and operates two repeaters under the call W6UU:
2 meter: 146.985 - PL 114.8
70 cm: 442.425 + PL 107.2

Phone auto-dial and auto-patch is available. The two meter repeater is located at Eagle Rock near Alum Rock Park in the foothills of east San Jose. The 70 cm repeater is located at the Regional Medical Center (formerly Alexian Brothers Hospital), east of downtown San Jose, north of 280 and 101.

SCCARA NETS

On our two meter repeater: Mondays at 7:30 PM, (not the second Monday--our meeting night). Coordinator: Don Village, K6PBQ. On ten meters, 28.385 MHz USB, Thursdays at 8:00 PM. Net control: Wally Britten, KA6YMD. Visitors welcome.

N0ARY PACKET BBS

SCCARA hosts the packet BBS N0ARY (connect to n0ary-1). User ports: 145.09 MHz at 1200 baud, 433.37 MHz at 9600 baud, and telnet sun.n0ary.org (login "bbs"). Sysop: Gary Mitchell, WB6YRU For general packet info, see the NCPA web site ncpa.n0ary.org.

TELEPHONE NUMBERS

SCCARA contact Clark KE6KXO:	408-262-9334
Amateur license testing, ARRL/VEC Silicon Valley VE group,	
Morris Jones, AD6ZH:	408-507-4698

software such as logging, repertory keyer scripts and finally even 'how to' videos. You'll be able to copy our PowerPoint meeting presentations and FD logs showing all your contacts. When you see someone else shooting pictures or videos you can always ask if you can have a copy of their shoot. I have never had anyone refuse me. It is nice if you have your own computer along to facilitate copying but unnecessary since with PowerPoint and computerized logging there is already a computer in play. Data may be shared by email as well.

A few words about buying flash media. The drives come in 1, 2, 4, 8, 16, 32, 64, 128, and 256 Gigabyte (GB) sizes. Unless you are shooting lots of videos, an 8 or 16 GB drive will do nicely. If you have lots of videos or shoot video you may want a 32 or 64 GB size.

There are several other parameters to watch. Flash memory has speed ratings for reading and writing of memory. The slower 'USB 2' memory is usually not marked. If the memory is marked '3' or 'USB 3' then the memory will work better with video. Memory 32 GB or above should always be 'USB 3' or you may wait an hour or more for a big copy.

To get an idea about good pricing divide the price of the memory by the size in GB. For instance a 128 GB drive costing \$25 would be 20 cents a GB, an excellent price for USB 3 and poor price for USB 2. Good prices are 20 to 30 cents a GB for USB 3 and 5 to 15 cents for USB 2. Costco has good prices for USB 3 but tends to only carry 32 or 128 GB sizes. Fry's has good prices for all sizes but requires a 'promo code' for the better prices. Of late there have been several flea market vendors selling new, but obsolete, SanDisk USB 2, 32 GB drives at poor prices. This is one case where the stores have better prices than the flea market but this is not to say the flea market vendors will not sell out at more reasonable prices. There are other personal preference items as well. For instance I find the removable dust caps to be a PITA. Retractable covers never get lost. Also the drives are available in extra small physical sizes that fit nicely on your keychain. On your keychain they are always available but expect to pay more to get less size.

Finally if you will be storing videos larger than 2 GB, such as feature movies, you will need to reformat the flash drive's FAT file system to a NTSC file system. You will want to do this before you store anything on the drive since reformatting destroys all existing data. Right clicking on the flash drive will bring up the formatting option on any WINDOZ operating system. It should take 30 seconds or less. Of course be sure you are clicking on the flash drive rather than your hard drive. Formatting the hard drive will definitely ruin your day, so double check. I routinely format all my flash drives to NTSC as soon as I buy them. That way there is no chance of losing data.

Speaking of losing data, you may want to know storing data on a DVD or CD ROM, or floppy may last only 5 years or so. These types of media are sensitive to the storage environment. Too hot and the media may erase itself. Hard drives are good for about 50 years, one drive crash, or one drive drop on a hard surface, whichever comes first. Flash drives are good for 50 to 100 years and immune to anything short of nuclear war and are even washable should you put them through the washing machine. Just be sure they are well dried out before attempting to access your data. Nobody enjoys soggy data.

See you at the park!

73, Fred, AE6QL, ae6ql@arrl.net



Del K6JPX, SK

SCCARA member Del Harbold, K6JPX, died May 2016. Del became an amateur in 2002 and has been a SCCARA member since 2004. Services were held on May 20, 2016. His wife, Betty KI6UII is also a member.

ARRL News

From *The ARRL Letter*, April 28, 2016

FCC Invites Comments on Petition to Eliminate 15 dB Gain Limit on Amateur Amplifiers

The FCC has put on public notice and invited comments on a Petition for Rule Making RM-11767 (<http://apps.fcc.gov/ecfs/comment/view?id=60001536394>), filed on behalf of an amateur amplifier distributor, which seeks to revise the Amateur Service rules regarding maximum permissible amplifier gain. Expert Linears America LLC of Magnolia, Texas, which distributes linears manufactured by SPE in Italy, wants the FCC to eliminate the 15 dB gain limitation on amateur amplifiers that's spelled out in §97.317(a)(2). Expert asserts that there should be no gain limitation at all on amplifiers sold or used in the Amateur Service.

“There is no technical or regulatory reason [that] an amplifier capable of being driven to full legal output by even a fraction of a watt should not be available to Amateur Radio operators in the United States,” Expert said in its Petition.

Expert maintains that the 15 dB gain limitation is an unneeded holdover from the days when amplifiers were less efficient and the FCC was attempting to rein in the use of Amateur Service amplifiers by Citizens Band operators. While the FCC proposed in its 2004 Notice of Proposed Rulemaking and Order in WT Docket 04-140 to delete the requirement that amplifiers be designed to use a minimum of 50 W of drive power and did so, it did not further discuss the 15 dB amplification limit in the subsequent Report and Order in the docket.

“Although no party advocated retention of the 15 dB limit, it remains in place today,” Expert pointed out in its filing. “In the intervening years, advancements in Amateur Radio transmitter technology have led to the availability of highly compact, sophisticated, low-power transmitters that require more than 15 dB of amplification to achieve maximum legal power output. Therefore, Expert seeks to remove the 15 dB limit from §97.317 so that Amateur Radio manufacturers and distributors will not be forced to needlessly cripple their amplifiers for sale in the United States.”

From *The ARRL Letter*, May 5, 2016

FCC Action Anticipated on ARRL's “Symbol Rate” Petition for Rule Making

The FCC has put “on circulation” its decision on the ARRL's Petition for Rule Making (RM-11708), seeking to change the Amateur Service Part 97 rules to delete the symbol rate limit in §97.307(f) and replace it with a maximum bandwidth for data emissions of 2.8 kHz on amateur frequencies below 29.7 MHz. Proceedings on circulation are pending action by the full

Commission, although there is a current backlog, and FCC action is not likely in the near future. ARRL General Counsel Chris Imlay, W3KD, said the League has remained patient.

“While we had hoped for more responsive handling, it is understood that the large number of comments from radio amateurs on the Petition took some time to sort out,” he said. “It was good to note that the Wireless Telecommunications Bureau has circulated a draft of what we presume to be a Notice of Proposed Rule Making responsive to our Petition to the Commissioners for their consideration. We hope to see the proposal released soon.”

In its petition, the League asserted that the changes proposed would “relieve the Amateur Service of outdated, 1980s-era restrictions that presently hamper or preclude Amateur Radio experimentation with modern high frequency (HF) and other data transmission protocols” and would “permit greater flexibility in the choice of data emissions.”

Symbol rate represents the number of times per second that a change of state occurs, and should not be confused with data (or bit) rate. Current FCC rules limit digital data emissions below 28 MHz to 300 baud, and between 28.0 and 28.3 MHz to 1200 baud. At one point, the 2013 petition topped the FCC's list of “Most Active Proceedings,” attracting hundreds of comments.

No Need for Panic Regarding Synthetic Aperture Radars on 70 Centimeters, ARRL CTO Says

A recent BBC news article regarding a synthetic aperture radar (SAR) contract award for operation within the 70 centimeter band has raised some concern within the Amateur Radio community. The contract to Airbus Space would involve determining the density of Earth's forests using a P-band (432-438 MHz) SAR. That band segment was allocated for use by the Earth Exploration Satellite (Active) Service (EESS Active) at World Radiocommunication Conference 2003 (WRC-03). ARRL Chief Technology Officer Brennan Price, N4QX, said SAR activity has not been found to be a significant problem to Amateur Radio activity on the 70 centimeter band. Both EESS (Active) and Amateur Radio are secondary on the band in International Telecommunication Union (ITU) Regions 2 and 3 (Amateur Radio is co-primary with the Radiolocation Service in ITU Region 1), and Price said SAR operation is subject to significant constraints.

“The interference potential from one orbiting SAR to one fixed Amateur Radio station is on the order of less than 1 minute over an orbital period of more than 10 days,” Price said. “Practically speaking, nearby electrical lines and Part 15 devices are more likely to be bothersome.”

Price said news items in articles aimed at the general public are “often notoriously short” on technical details. ITU-R Recommendation RS.1260-11 -- incorporated by reference in the ITU Radio Regulations and binding on EESS (Active) stations -- spells out the WRC-03 consensus on SARs operating at 70 centimeters. Among other things, RS.1260-1 states that EESS (Active) instruments operation profile “shall be campaign-oriented, targeted to specific geographical areas and shall limit the instrument active time to the minimum required to achieve the campaign objectives.”

From *The ARRL Letter*, May 12, 2016

Missouri Radio Amateur Petitions FCC to Designate “Symbol Communication” Subbands

James E. Whedbee, N0ECN, of Gladstone, Missouri, has petitioned the FCC to designate Morse (radiotelegraphy) Amateur Radio band segments as “symbol communication” subbands. The FCC has invited comments on his Petition for Rule Making RM - 11769 (<http://apps.fcc.gov/ecfs/comment/view?id=60001692464>), filed on May 2. Arguing that retaining the current regime of “legacy” CW subbands has proven “grossly inefficient,” Whedbee said he'd like to see the FCC delete all privilege restrictions that limit any part of the Amateur Radio spectrum to Morse code to the exclusion of other modes.

“Nostalgia for retention of Morse code telegraphy-only subbands is also an insufficient reason to avoid moving forward to [the] elimination of such subbands, because nothing about this Petition suggests the elimination of the mode itself, only that it not be the sole authorized mode in the subject subbands,” Whedbee told the FCC.

Whedbee characterized CW-only subbands as “an excessive regulatory constraint, as well as a poor use of the spectrum concerned.” He proposed that the FCC's Part 97 rules reflect the “ultimate form of communication reproduced at the receiving end.” As he explained it, his regulatory scheme would break down modes into three categories: “Symbol communication mode” -- for CW, digital, and other emission modes that reproduce a discrete symbol on the receiving end; “voice mode,” and “image mode.”

“[C]ontinuing regulation by specific emission designator is proving to be onerous with changes to the state of the art,” Whedbee said. “Accordingly, to continue developing the state of the art in radiocommunications, Amateur Radio needs to clearly get away from regulating in that fashion and return to consideration of what the receiving end of the communication reproduces.” Commenters have 30 days to respond to Whedbee's Petition.

Rare de Forest Audion Donated to ARRL, Mated with Vintage Radio for Museum Display

An ARRL member from Virginia has donated a rare de Forest “round bulb” Audion vacuum tube to the League, which has paired the groundbreaking triode with a de Forest receiver of similar vintage. Walt Bain, W4LTU, recently wrote ARRL Headquarters to see if the League would give the antique tube a home. Radio pioneer Lee de Forest filed his first patent for the Audion in 1907, describing it as a detector of sound, and he is generally credited with having invented the vacuum tube. First used as the detector in the de Forest Audion Receiver, the Audion subsequently was heralded as the world's first electronic amplifying device. Bain, who is 86, said he inherited the Audion from his father, George Bain, a graduate of Wesleyan University in Connecticut in the 1920s, who went on to work for Westinghouse.



The de Forest Audion.

[Bob Allison, WB1GCM, photo]

“In the 1930s he was chief engineer at Ken-Rad Tube and Lamp

Company,” Bain told ARRL. “He would have met de Forest anytime during college, at Westinghouse, or Ken-Rad.” This particular Audion likely dates back to the early 1910s and appears to be a somewhat later version of the device that de Forest had submitted on his patent application a few years earlier. An intact Audion such as this one is considered extremely rare.

ARRL Lab Test Engineer Bob Allison, WB1GCM, who curates the League's museum collection, accepted the Audion and had it installed on the League's own de Forest Audion Receiver, which lacked a tube. “Each year, we have about 2000 visitors to the Lab; they will get to see that tube,” Allison said. The League's Audion Receiver bears the patents of de Forest's Radio Telephone and Telegraph Company.

The Audion's three elements are clearly visible within the blown-glass envelope. Connections to the Audion's rectangular plate and squiggly grid were made via wires exiting one end of the bulb. The other end features a candelabra-style lamp base, which screws into a socket, providing the filament connection. The Audion is mounted with the lamp base up, to prevent the filament from sagging and touching the tube's other two elements.



The de Forest Audion in its natural habitat, installed in a de Forest Audion Receiver.

[Bob Allison, WB1GCM, photo]

In developing the Audion, de Forest had built on the work of John Ambrose Fleming, who invented a two-element vacuum tube in 1905. De Forest discovered that applying a radio signal to a grid instead of to the filament, or cathode, would yield a more sensitive RF detector. De Forest came up with the idea of using a series of Audions to enhance their amplifying capabilities, an attribute American Telephone & Telegraph company capitalized upon, after securing de Forest's patents.

In time, vacuum tubes supplanted solid-state mineral detectors in radio receivers, although in a “what goes around, comes around” turn of events, solid-state devices called “transistors” replaced the vacuum tube in the 1950s and 1960s. Today's iPhones have the equivalent of 2 billion transistors packed inside.

From *The ARRL Letter*, May 26, 2016

ARRL “Strongly Supports” Petition to Drop 15 dB Restriction for Amateur Amplifiers

In comments filed on May 26, the ARRL said it “strongly supports” a petition to the FCC seeking to eliminate an Amateur Service rule, spelled out in §97.317(a)(2), that amateur amplifiers not be able to boost the RF input signal by more than 15 dB. The Petition for Rule Making (RM-11767), was submitted in April on behalf of an amateur amplifier distributor, Expert Linears America LLC of Magnolia, Texas.

“The Petition proposes relief that is in the nature of eliminating unnecessary regulatory underbrush, and it continues an effort started by the Commission on its own motion in 2004...to do precisely that,” the ARRL said in its comments. “The rule proposed to be eliminated is outdated; it constituted overregulation when it was adopted long ago, and it now substantially limits the flexibility of Amateur Radio operators to experiment with the current generation of software-defined Amateur Radio equipment.”

The 15 dB provision came into the rules during an era when the FCC initiated various actions to rein in a major interference problem resulting from the use of illegal 11 meter amplifiers during the Citizens Band radio boom of the 1970s. “In its effort to address that problem, the Commission enacted a series of largely redundant and overlapping regulations that, in their overall effect, unnecessarily (and inappropriately) penalized the wholly innocent Amateur Radio operators,” the League asserted. “There was created a plethora of restrictions on manufacturers of external RF power amplifiers.”

The ARRL noted that while the FCC eliminated some of the unnecessary regulations in 2004, others remain, including the 15 dB gain restriction. The rules adopted in 1978 also called for type acceptance (certification) of manufactured RF power amplifiers operating below 144 MHz, including a 50 W minimum drive power requirement and a ban on amplifiers capable of operation between 24 and 35 MHz.

“Indeed, precisely the same rationale for elimination of the 50 W minimum drive power rule in 2006 applies to the elimination of the 15 dB gain rule for amateur amplifiers,” the ARRL said in its comments. “There is no continued justification for retaining the 15 dB gain limitation.”

Old Smart Phone

I upgraded from a Samsung Galaxy S2 to a Samsung Galaxy S6 Edge smart phone. I bought the new phone on EBAY as an unlocked phone which theoretically meant I could move my SiM Card from the old phone to the new phone and be on my way.

Not so fast! The original phone had a standard SiM Card and would not fit into the new phone. SiM Cards had undergone two downsizings, first to Micro and then to Nano size. So I got out some nippers and began peeling away the excess material. Some fine tuning with a file and the chip fit into the new Nano sized tray. It was lovely to see the new phone come to life and allow me to make a call.

I then downloaded the android app called Smart Switch and it brought everything from my old phone to my new phone. My joy at seeing all the old applications reincarnated on the new phone was boundless. My euphoria was cut short by a message from AT&T that said moving a SiM card from the old phone to the new would not provide all services. Sure enough, no data would come to my phone over the air.

Down to the AT&T store to see what could be done. A very helpful clerk programmed a new SiM card and inserted it for free. She had a good laugh when she removed the old chewed up card that I had so carefully chiseled to size. Now I have a fully functioning smart phone with all the pizzazz one would expect from a four generation upgrade.

So now we come to the point of this article, namely what to do with the old brain donor phone? One would think that a lobotomy of this kind would leave it brain dead and on life support.

Not so! It does just about everything except make phone calls. I have it blue toothed to my Comcast cable modem and it has access to the internet. It now sits on my radio bench in the shack and is

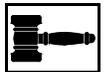
plugged permanently into its charger where it provides two very important functions. As net control for the Rhubarb net, I take great pride in starting at exactly 9:30AM. I use the Android App “UTC Time” to display the exact WWV time and hit the MIC button when the seconds switch from 59 to 00. The second useful function in the shack is the QRZ lookup of call signs. Once downloaded to the phone, QRZdroid will display the details of a call sign with a speed that will simply amaze. This is invaluable when running a net or just DXing and wanting a little more information about your contact.

The camera is of course superb and has access to my Google Albums. Even Google Maps will plan a trip and take you to your destination, but you must not exit the application. So the old phone works much like a computer, only sheds the acreage that a laptop steals from your bench.

Goetz Brandt, K6GKB

Meeting Minutes

General Meeting, May 9, 2016



{No minutes were submitted. -- Editor}

Board Meeting, May 16, 2016



{No minutes were submitted. -- Editor}

Need Help?

Amateurs have a long history of helping each other. An experienced amateur who helps another is traditionally called an “Elmer.” If you have a question or problem, you are encouraged to ask one of SCCARA's Elmers. Below is a list of topics and who to contact for each. If your topic isn't listed, ask one of the Elmers under the topic that comes closest and we'll ask around.

If you consider yourself to be reasonably competent in at least one area of amateur radio and would be willing help others, please fill out an Elmer form from the club secretary.

Topics:

Antennas, feed-lines, tuners: NV6W, W6JPP, K6PBQ

Lightning protection, grounding: WB6YRU

Station set-up, equipment: K6PBQ, W6JPP

TVI/RFI: WB6YRU

Homebrew projects, construction: WB6YRU

Packet Network (BBS, forwarding): WB6YRU

Code operating and installations: NV6W, K6PBQ

DX (long distance/propagation): NV6W

Emergency operating/preparedness: WA6QYS

HF operating techniques (SSB, CW): NV6W, K6PBQ

Legal/FCC rules: WB6YRU

SCCARA (club inner workings): K6PBQ, WB6YRU, WA6QYS

EchoLink: KK6MX

License testing, new amateurs: W6JPP

Contacts:

NV6W, James D. Armstrong, Jr.,
evening & msg: 408-670-1680

KK6MX, Don Apte, 408-629-0725
e-mail: kk6mx@aol.com

W6JPP, John Parks, 408-309-8709
e-mail: w6jpp@arrl.net

K6PBQ, Don Village, 408-263-2789
e-mail: donvillage7@yahoo.com

WA6QYS, Lou Steirer, 408-241-7999
e-mail: wa6qys@arrl.net

WB6YRU, Gary Mitchell, 408-269-2924
packet: home BBS N0ARY
e-mail: wb6yru@ix.netcom.com

Newsletter Notes

In the notice about SCCARA member Del K6JPX, I would have liked to put more there, but the only information I received was the location and date of the funeral services. The rest came from the roster.

73, Gary WB6YRU, editor

Houge Park -- where we'll be for Field Day

Location:

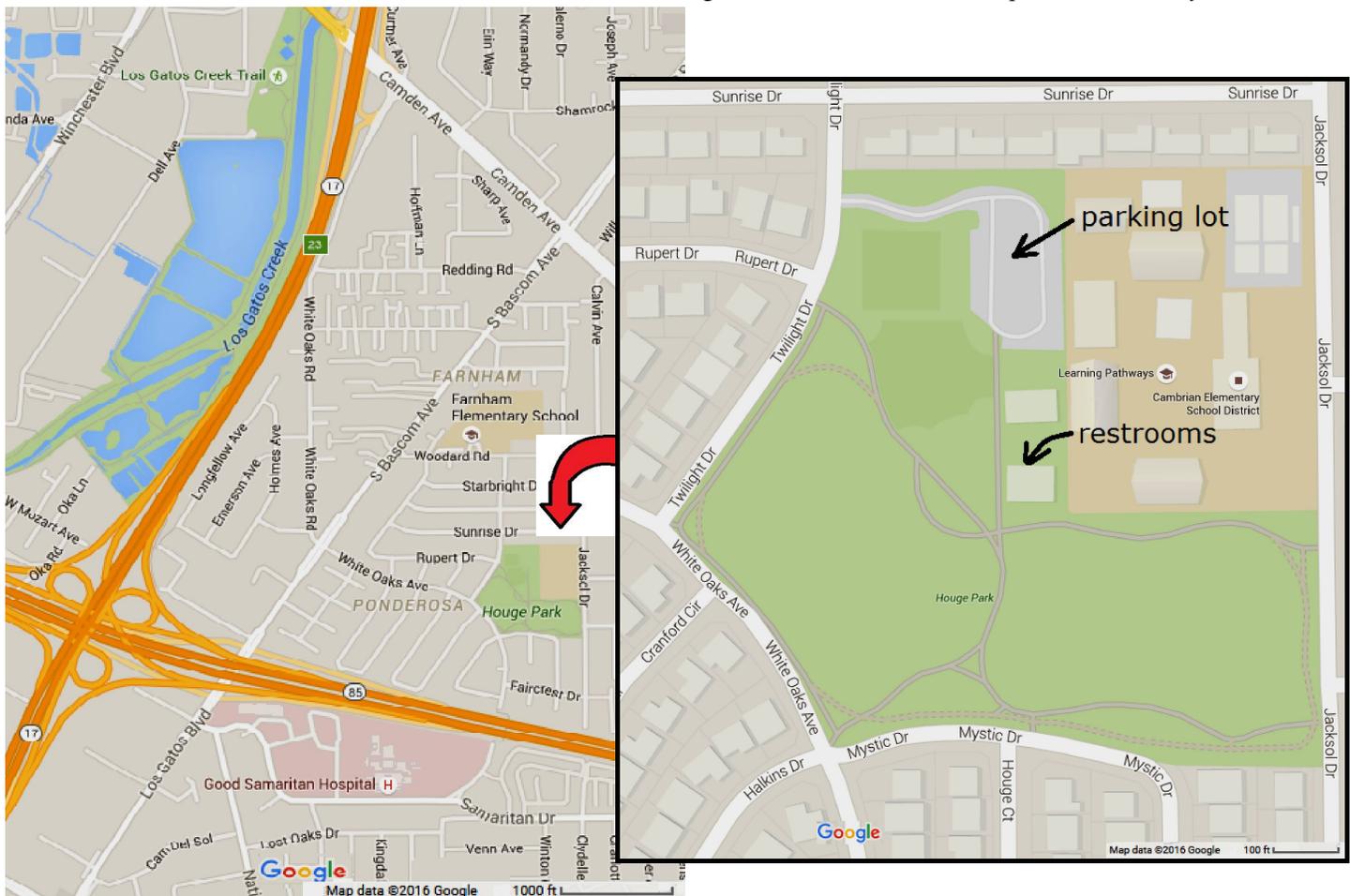
Houge is a neighborhood park in South-West San Jose, about 1/4 mile North of the Good Samaritan Hospital.
3962 Twilight Dr, San Jose, CA 95124 Lat/Long coordinates: 37.256798, -121.942083

From North-bound 85, take the **Bascom Ave / Los Gatos Blvd exit** (just before Hwy 17). Go North (right).
From South-bound 85, take the **Bascom Ave / Los Gatos Blvd exit** (just past Hwy 17). Go North (left).
Either way, after exiting 85 go a couple of blocks North, then right at the light onto White Oaks.

From South-bound 17, take the **Camden Ave / San Tomas exit**. Go East (under the overpass) then take the first possible right, that's White Oaks. Continue, crossing S. Bascom Ave.

From North-bound 17, take the **Camden Ave / San Tomas exit**. This exit actually drops you off onto White Oaks -- turn RIGHT onto White Oaks. Continue, crossing S. Bascom Ave..

Now that we're all on White Oaks: Go a few short blocks East. Twilight Ave is the first left and the park is in front of you.



Our Field Day Site Plan

We'll begin set-up on Friday, June 24, noon. Tear down finished by 3 PM on Sunday.
The contest itself runs from 11 AM Saturday through 11 AM Sunday.

The **parking lot entrance** is at the North end of the park off Twilight Ave.



Key:

HF1, HF2 = High Frequency Stations
VHF = Very High Frequency Station
Class = Training Class Area

ICP = Incident Command Post
PIO = Public Information Officer
GOTA = Get-On-The-Air Station

Restrooms: the North side of the southern-most building, (just to the right of the "First Aid" label).



SCCARA
 Santa Clara County Amateur Radio Association
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FIRST CLASS

ADDRESS SERVICE REQUESTED

SCCARA Membership Form for 2016

If renewing and none of your info has changed, we only need your name and call

Name: _____ Call: _____ Class: _____

Address: _____ Licensed since (yyyy): _____

City: _____ State: _____ Zip: _____ Licence Expiration
 Date: (mm/dd/yyyy): _____

Telephone: _____ New Member Renewal I'm also an ARRL member

E-mail: _____
 (only for club communications and the SCCARA-GRAM (pdf) newsletter)

Memberships start January 1 and expire December 31. Annual dues are: **\$20 Individual \$25 Family \$10 Student** (under 18)
 For family memberships (members at the same address), please include the above info for each member, (use separate forms).

New members:

- If joining in January: normal dues
- If joining in February through October: dues x (11 - month) x 10% (e.g. for July, that's: \$20 x 4 x 0.1, which is \$8)
- If joining in November or December: normal dues. That's for next year, and the rest of this year is included free

I want the newsletter on paper delivered by U.S. Mail for an additional \$30 per year, prorated (\$2.50 per month).
 So that's \$27.50 if starting in February, \$25 if starting in March, \$22.50 if starting in April, \$20 starting in May, etc.

\$ _____ **Total membership payment for:** **individual** **family** **student**

Give this completed form and payment to the Secretary or Treasurer at any meeting or mail to the club address.