

LPNA Emergency Radio Project

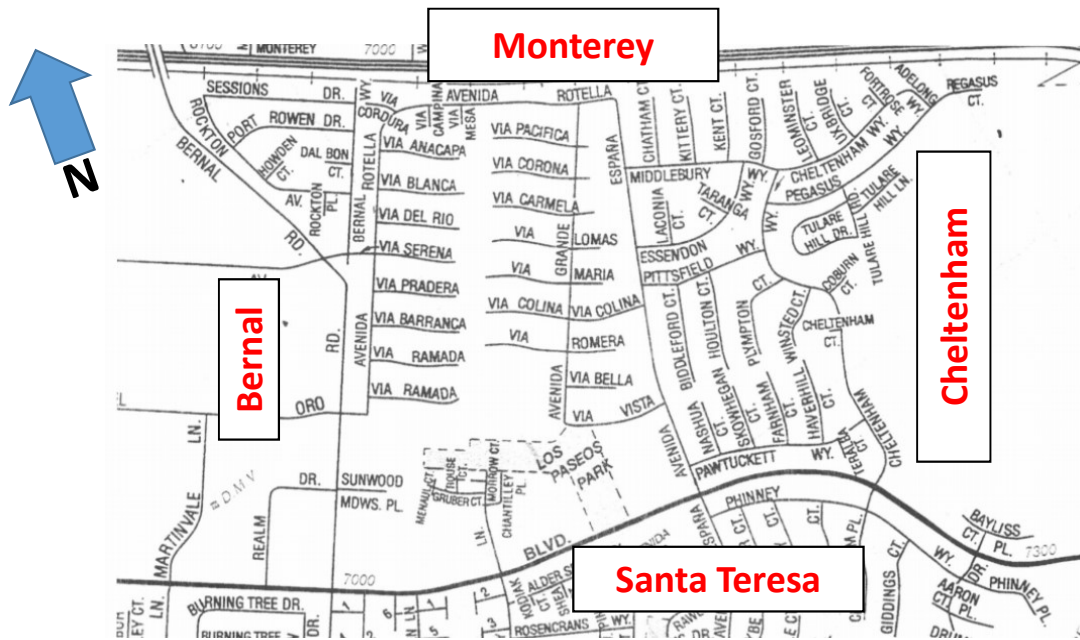
CERT Emergency Communications in our Los Paseos Neighborhood

Wyman Pang, AJ6HU, WRNV894

rmacwhy@gmail.com

11/6/2022

Our Los Paseos Neighborhood in South San Jose



Neighborhood Statistics

- 3500 Residents
- 1600 Homes (mainly single story)
- Area of 0.6 square miles
- Mostly flat
- Surrounded by hills on 3 sides: Santa Teresa Hills, Tulare Hill and SJ Foothills (Diablo Range)

- LPNA* Emergency Radio project started in early 2021
 - Our radio project is still a work in progress
 - Current Team: 13 homes with MURS walkie-talkies
 - More than half are CERT trained

*Los Paseos Neighborhood Association

LPNA Radio Project – Goals & Radios We Use

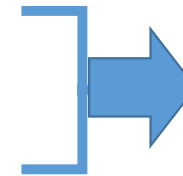
- Provide backup communications during a major emergency
 - 1. Communications “within” our neighborhood
 - Use **MURS** walkie-talkies (license free)
 - 2. Communications to reach “outside” our neighborhood
 - To the SJ EOC thru network* of radio repeaters/digipeaters (some still tbd)
EOC = Emergency Operations Center
 - Contact emergency services** **Disclaimer: Not guaranteed! ...But need to be prepared!
 - Provide info up the Chain of Command for response & planning
 - Use **GMRS** and **Ham** radios (license required) – higher power than MURS
 - GMRS & Ham radios capable to reach repeaters outside of Los Paseos
 - **VARA FM** with Ham radios to send digital files without the internet (spreadsheets, documents, texts and pictures) RACES = Radio Amateur Civil Emergency Services
 - *Network setup/maintained by SJ RACES, volunteer Ham operator group
- We can do with using only MURS & GMRS radios (not have VARA FM & Ham backup)
- MURS radios work well for Los Paseos
 - We are a smaller neighborhood...
 - May not be optimum for larger neighborhoods
- MURS, GMRS & Ham: Can only talk with the same type of radios

Los Paseos Radio Use Example

- Example: Major earthquake – What do we do? What radios?

- 1. Get Neighborhood Teams on the ground

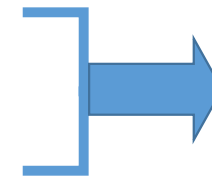
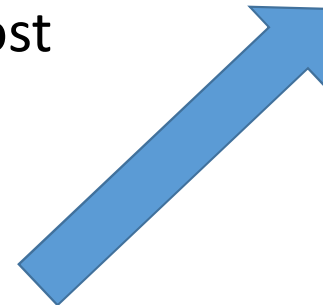
- Teams include CERTs, Radio Team member & other volunteers
 - Assess injuries and damage, perform welfare checks, etc. (CERT training)
- Use **MURS** radios for
 - Communications between Neighborhood Teams
 - Neighborhood Teams to Neighborhood Command Post



MURS
Communications
“within” Los
Paseos

- 2. Set-up Neighborhood Command Post

- Responsibilities
 - Coordinate Neighborhood Teams
 - Relay info up the Chain of Command
- Use **MURS, GMRS & Ham radios**
 - **MURS**: Communicate with Neighborhood Teams
 - **GMRS & Ham**: Relay information by voice to Repeaters
 - **VARA FM** by Ham: Relay digital files to Digipeaters



**GMRS, Ham &
VARA FM**
Communications
to “outside” of
Los Paseos

Radio Project: What we do & our capabilities

- Conduct periodic MURS radio exercises within the neighborhood
 - Exercises keep Radio Team in practice & reminder to charge radio batteries
 - Every 3-6 months
 - 2 sessions: morning & evening, 15 minutes max.
- Participate in community events using radios
 - 7/4/22 – 4th of July event at Lake Almaden Park
 - 10/8/22 – Los Paseos Neighborhood dumpster day
 - 11/19/22 – SJ District 10 dumpster day
- GMRS repeaters – participate in weekly SJ CERT2 check-in
 - Also able to use: SJ CERT1, Zello Repeater, WRNM907 South County CERT
- Ham Repeaters (2m)
 - Able to use: SJ RACES W6UU, WA2IBM (maintained by Almaden Radio Club)
- VARA FM (70cm) – participate in weekly check-in
 - Capability demonstrated with AI6EH and others

***Practice,
Practice &
Practice!***

SJ RACES = Radio Amateur Civil Emergency Service (volunteer Ham radio team)

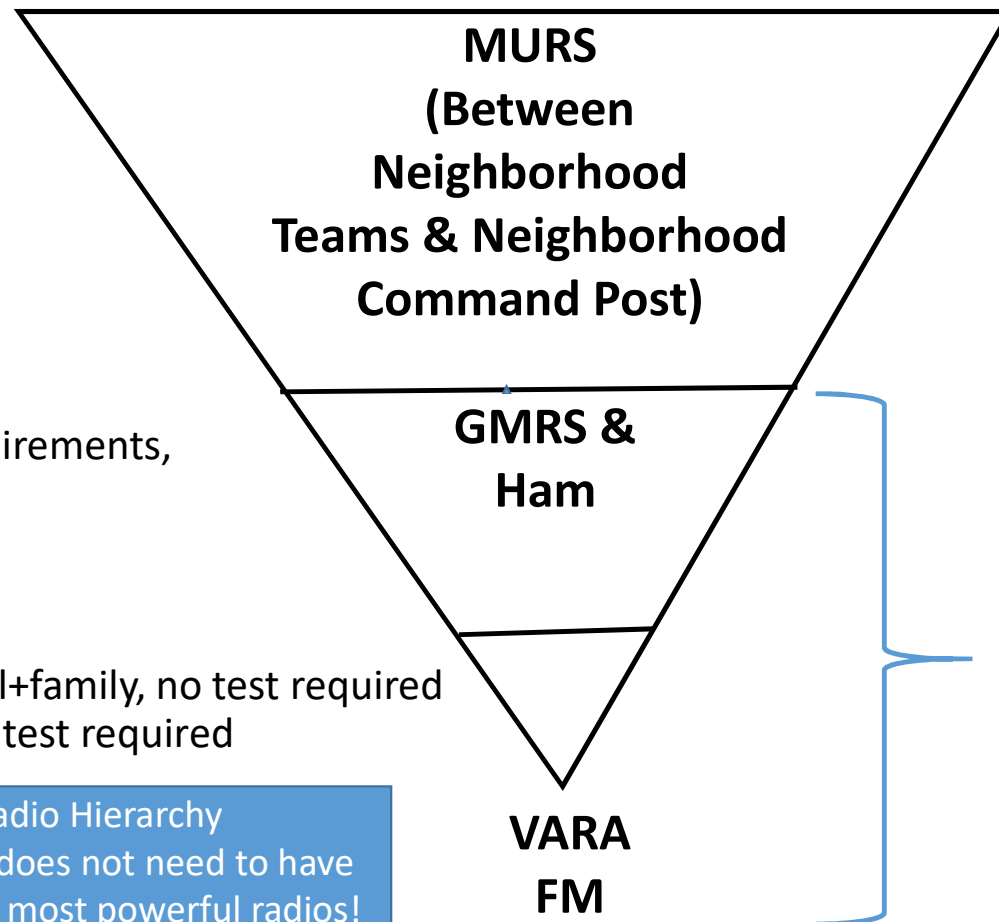
Summary - LPNA Emergency Radio Project

- LPNA Emergency Radio Project is a work in progress
- We have a Radio Team of 13 homes with MURS walkie-talkie radios
 - MURS is used for communications “within” Los Paseos
 - Over half of the Radio Team are CERT trained
- Radio Team also has members with GMRS & Ham radio licenses
 - GMRS & Ham radios are able communicate “outside” of Los Paseos via Repeaters
 - VARA FM capable for digital communications
- LPNA Radio Project Improvement Goals
 - Grow the Radio Team with more members & CERT trained
 - Expand the number of people who can use GMRS, Ham & VARA FM
- Acknowledgements
 - Thank you to my radio mentor John Nourse!
 - A shout-out to our Radio Team members!
 - Also the LPNA Board of Directors!

Backup Charts

Los Paseos Radio Hierarchy

- Teams on the ground
MURS – between Teams & CP
- Command Post (CP)
MURS – between Teams & CP
GMRS – to Repeaters
Ham – to Repeaters
VARA FM – to Digipeaters
- Options for your Neighborhood
Choose depending on your requirements, resources & budget
- Which radios need a license?
MURS – license free
GMRS - \$35/10 yrs for individual+family, no test required
Ham - \$35/10 yrs for individual, test required



MURS = Multi-Use Radio System
GMRS = General Mobile Radio System
Ham = Amateur Radio

Radio Hierarchy
Everyone does not need to have
the best & most powerful radios!

On Los Paseos experience with MURS

- MURS radios work well for Los Paseos (...Your performance may vary)
 - Pros
 - Simple to use, good for beginners
 - No license required
 - Inexpensive radios (starting at \$20)
 - Suggestion: Get MURS walkie-talkie radio with a removable antenna
 - Radio range can be extended with better antennas
 - With stock stubby antenna – approx. 0.25-0.33 mile
 - With telescopic antenna – approx. 0.5+ mile (\$5 antenna)
 - With stationary base antenna – approx. 0.75+ mile (\$75 antenna & cable) → use as a Neighborhood Command Post radio
 - Prices shown are for “low cost” products we use
 - Cons
 - Maximum transmit power of 2 watts – limited transmit range
 - Los Paseos cannot transmit very far “outside” of the neighborhood
 - MURS not used for repeaters
 - We use MURS for:
 - Communications “within” the neighborhood & Teams on the ground
 - Neighborhood Command Post radio (best with a base antenna)

Radio Comparison: MURS vs. GMRS

- Your neighborhood will need at least one GMRS mobile radio (to reach Repeaters)
- GMRS radio is superior → Higher power, repeater capable & greater range
- License fee and higher radio cost may prevent widespread adoption in your neighborhood
- If you choose GMRS walkie-talkies only, will you have enough people with radios?
- Option: Some GMRS with mostly MURS

	MURS	GMRS
License Requirement	License Free	License Required - \$35/10 yrs for individual+family No test required
Radio & Antenna Cost	Handheld \$20+ Telescopic antenna +\$5 Base antenna/cable +\$75	Handheld \$50+ Mobile \$120+ plus need Base antenna/cable +\$75
Transmit Power	Handheld 2W	Handheld 5W, Mobile 20-50W
Repeater Capable	No	Yes
Radio Range	0.5-0.75++ mile	Handheld 2-3 miles Mobile 10 miles w/repeater

Los Paseos Radio Team – How to get in touch on the radio during an emergency?

- Recent SJ 5.1 earthquake on Oct. 25th was a wakeup call!
- Rolling out to the Los Paseos Radio Team → Use of the “Wilderness Protocol”
 - We have pre-scheduled a radio meeting time
 - When an emergency happens → Get on the radio (MURS channel 3)
 - ➔ • During the first 5 minutes of the hour (example: 10:00-10:05)
 - ➔ • Every hour for first 3 hours (...can be more than first 3 hours)
 - ➔ • Then monitor every 3 hours in following time slots (7AM, 10AM, 1PM, 4PM, 7PM, 10PM, 1AM, 4AM)
 - During an emergency: the Radio Team will “likely” find others on the air at these times
 - **Note: For medical & life threatening emergencies → Contact 911 directly**