



SMARC VHF Repeater Upgrade Committee Report & Recommendation

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Problem Statement Summary

Massive Shelter Repairs by Members 2020



The W4OLB VHF repeater is now 10 years old. An antenna problem has been discovered, the repeater & amplifier are no longer in production, backup generator is no more, and there is a desire to improve the link to club's UHF repeater plus a possible link to the TLARC UHF repeater.



Agenda

- Antenna (Install) Issues
- Upgrade Repeater System
- Backup Power Solution
- UHF Repeater Link & Option
- Questions/Issues/Options
- Funding
- Timeline



Antenna Issue Attention Needed ASAP

The present antenna connection seems to have an intermittent problem, potentially caused by improper install. The antenna has been in the weather for 10 years and a replacement is the best solution. This is the highest priority and involves the need for tower climbers with an estimated total cost of ~\$3,000.



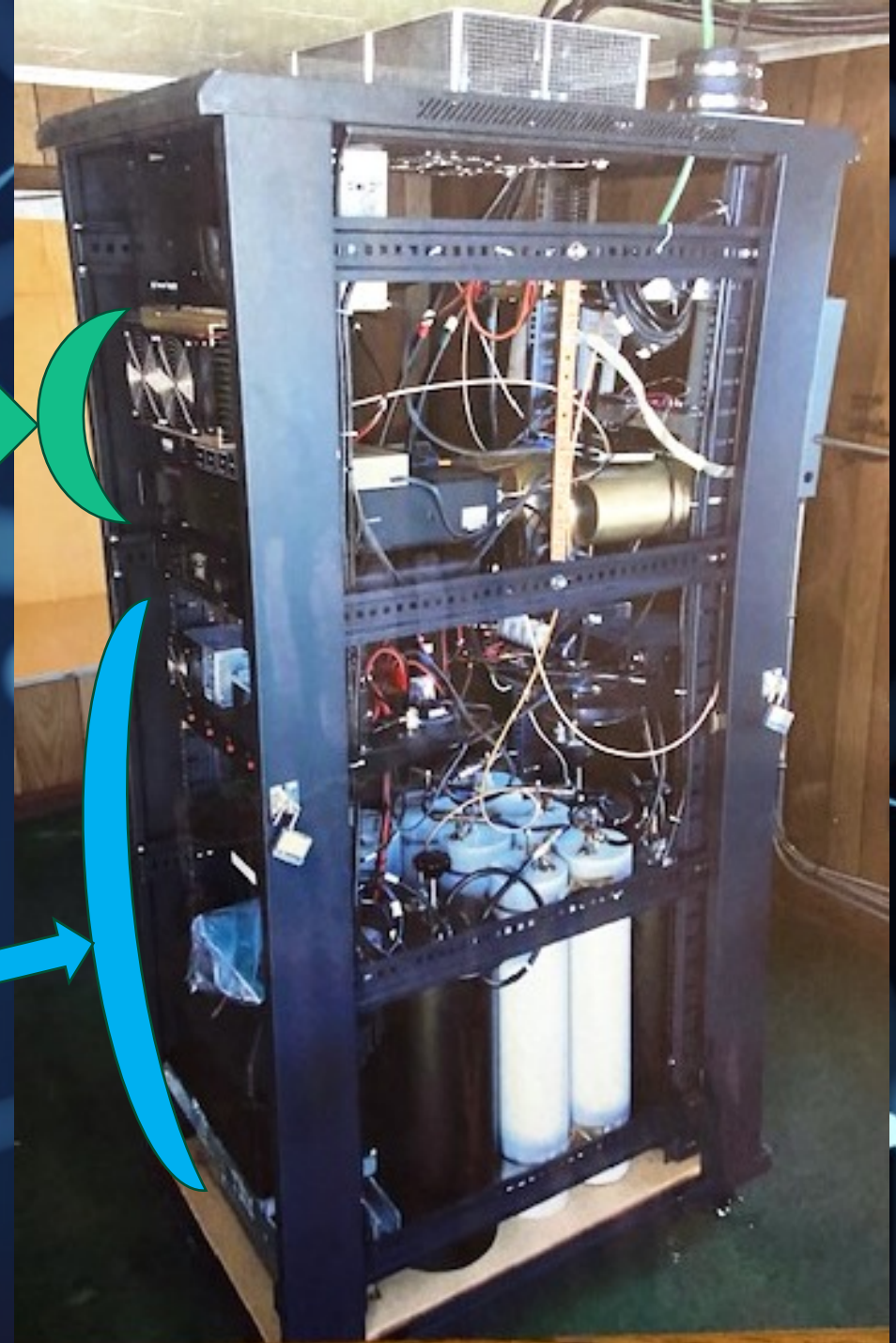
W4OLB VHF Antenna



Repeater Upgrade & Backup

The present repeater, controller and power amplifier works well but is 10 years old. It is proposed to upgrade and the existing system becoming a backup. Much of present system will be reused. Estimated cost for upgraded repeater system is \$4,300

Repeater,
Controller and
Amplifier



No Generator! Backup Battery Power System

The W4OLB repeater will quickly fail during a power outage as there is only an 80AH battery that supports both the W4OLB and KK4XA repeaters. A battery backup may be the optimal solution. A 2 to 3-day runtime for W4OLB repeater only is estimated to cost about \$2,000. To also power KK4XA repeater adds another \$2,000 or to increase back up run time adds more cost.

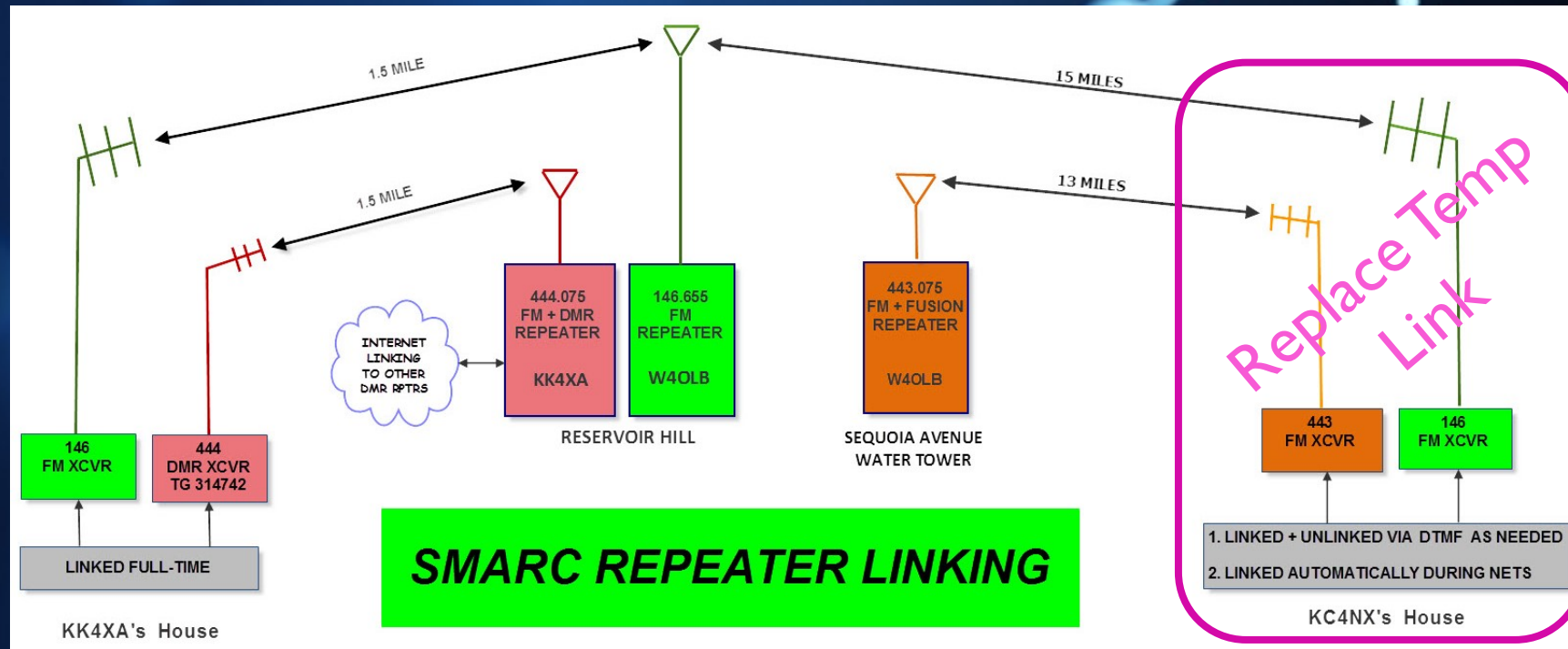
LPG Generator has
been shut down



Linking:

1. Radio at Site
2. Link TLARC

Club VHF and UHF repeaters are linked on-demand with off-site link radios, and this was an experiment to see if the feature was worthwhile. Now link is used routinely, thus install link radio at repeater site plus remote control. Estimated cost: \$200. As an option, could link to the TLARC repeater at an estimated cost of \$950.



Possible Project Timeline

Final Upgrade Design and Member Approval of the Repeater Upgrade Project

Request Funds from Club Members with Initial Effort for Repeater Followed by Link System and Batteries

Acquire the Upgraded Link System and Battery System as Funds Become Available

Club Approval

Antenna

Raising Funds

Upgrade Repeater

Complete Upgrade

Authorize the Purchase of Equipment, Request Climbers to Install Antennas and Complete Work ASAP with funding from Club budget.

Acquire Upgraded Repeater System and Install as Funds Become Available



Recommended Solution:

ESTIMATED COST

- ANTENNA	\$3,000
- REPEATER	\$4,300
- BATTERY SYS	\$2,000
- LINK SYS	<u>\$ 200</u>
TOTAL:	\$9,500

❖ USE ~\$3,000 IN THE REPEATER FUND.

❖ PLEDGED TO DATE: \$2,000

❖ REMAINING NEED: ~\$4,500

RECOMMENDATION:

1. USE REPEATER FUND FOR NEW ANTENNA.
2. UPGRADE REPEATER & LINK WHEN WE REACH \$3,000.
3. UPGRADE BATTERY SYSTEM WHEN WE REACH \$4,500.
4. NO BATTERY POWER FOR KK4XA REPEATER DURING OUTAGE AND NO TLARC LINK.

As a Reminder, SMARC is now a 501(c)(3) and donations may be tax deductible.

Questions & Issues

❖ Why replace vs. attempt to fix antenna?

- ✓ Number of climbs needs to be minimized and old antenna likely can be rebuilt.
- ✓ SMARC Repeater Upgrade Fund can support \$3,000 now.

❖ Why upgrade now?

- ✓ Equipment age and as system is still operating, thus the existing antenna and equipment could serve as backup spares.

❖ How long should battery system operate the W4OLB repeater?

- ✓ 2-3 days (\$2,500) or longer? How about the KK4XA repeater? (Both will raise the cost.)

❖ How Do We Fund the Project?



Smoky Mountain Amateur Radio Club has been active in Blount County for over 75 years. With continued SMARC member's support plus City of Alcoa providing a free site for the W4OLB repeater, the system continues to provide valuable emergency backup services. This crew volunteered and upgraded the building in 2020. Now SMARC members need to step up and make this needed upgrade happen.

The Repeater Upgrade Committee

So, Now what's Next?

- ❖ Answer any remaining questions and modify plan per discussion
- ❖ If required, send project back to Repeater Upgrade Committee to:
 - Modify proposal & update estimated costs per discussion

THEN:

- ❖ Take needed official actions to move forward
 - ❖ Motion and vote
 - ❖ Fund raising per approved timeline