

KARS Repeater Strategy and Roadmap

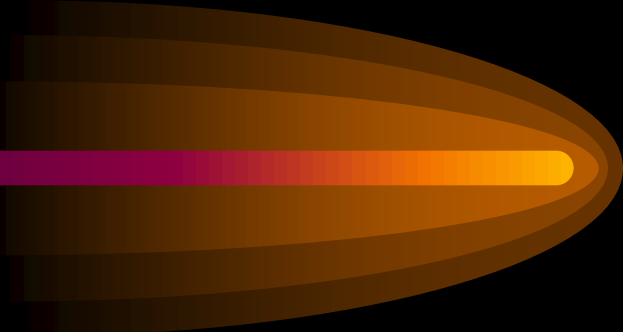


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W5SCL

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Acknowledgements

- Rod K9ROD
 - Ken KD3VR
 - Marsh WA5UBO
 - Stephen Schwarz KA5WJY
 - Greg Stone AB5I
 - Ron Wood KF5SIJ
 - Gerry Nunan K2HIG
 - Multiple Others
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Agenda



- Where we are- Current 64 machine
- What we are doing- Tower Road Site
- Where we want to go- suggested
- Discussion and Volunteers

KARS Repeater Vision:

- Establish a 2 meter FM repeater with wide area coverage “head and shoulders” above the existing machines in the area
- Support both “Pure” FM and emerging digital standards
- APRS capability
- Provide emergency communications capability
- Link- if desired- with other repeaters to expand range
- Ability to “call in” via internet to participate in NETS from a remote location
- Microwave link providing internet connection at repeater



Short Term Goals

- Late last summer (2017) the EMS tower was being re-configured to support the Kendall County Sherriff's radio needs
- This sent in motion :
 - Acquire new repeater site
 - Migrate KARS repeaters to new site
 - 145.19 is in downtown Boerne
 - 146.64 will be relocated to Tower road
 - Sherriff has not indicated when we need to be off current location

KARS Current 146.64 Repeater Site

KARS KB5TX 146.64, EMS, Commercial Repeater Site

- 1.2mi. S.W. off I-10 on Jennifer Rd.
1) Large Bldg=EMS, Roads & Bridges Repeaters
w/ Propane Tank behind, Generator adjacent
2) Medium Bldg=Commercial Tennant Equipment
3) Small Shed=KARS 146.64 & W5VEO 444.75 Repeaters & Link
4) Tower Base=1,863ft., Height=254ft., KARS Ant. at 187ft
98° 48' 09.50"W - 29° 51' 14.50"N

Legend

-  KARS KB5TX 146.64 Repeater Location



KARS Current 146.64 Repeater Site



146.64 Repeater Shack

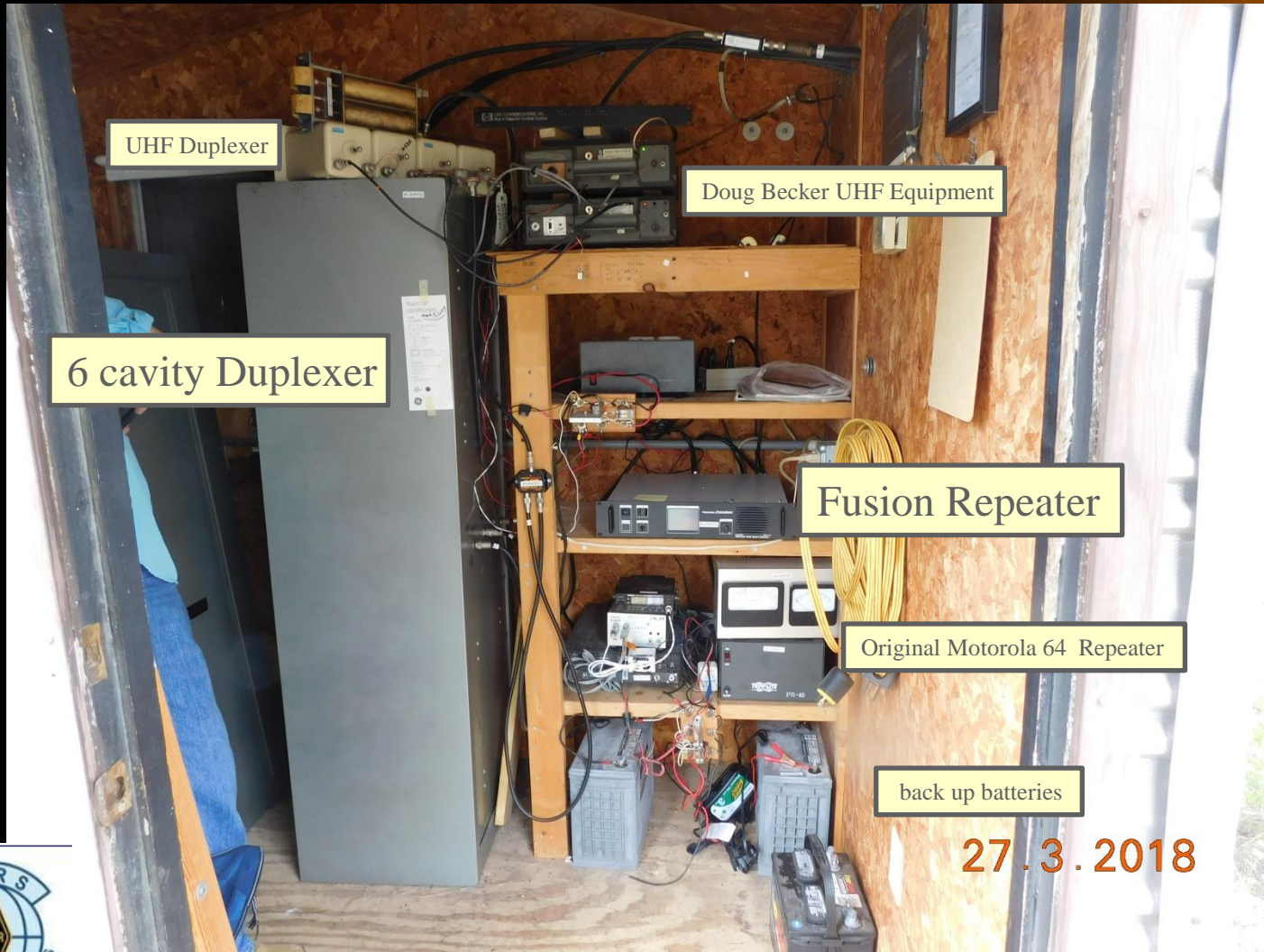


146.64 Antennas



27.3.2018

146.64 Repeater Equipment



EMS Repeater Co-Located on Site



The “New “ County Radio System installation w/o needing to dismantle KARS
Unknown as to how long this will continue thus move to Tower Road



What we are doing



Tower Road Site

Tower Road Installation Phase 1

- Ken and Rod did a great job in the acquisition of the site
- Established a long term agreement with the county for our repeater home
- This was 3-4 Qtr. 2017



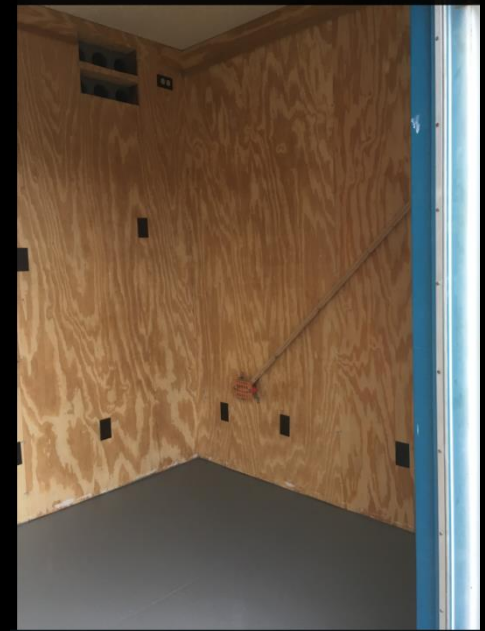
Tower Road Installation Phase 2

Prior to renovation



Tower Road Installation Phase 2

- Marsh and team are refurbishing the existing structure bringing it up to the 21 Century standards.



Current structure

New Interior



Tower Road Site

- Antennas on Tower road site
 - We have 2 working two meter antennas and a possible 150 MHz antenna system.
 - Functionality of 450 Antennas needs to be confirmed.
- Power – primary power will be from AC lines with battery backup. This is adequate for DR-1 but as we add additional capability this will need to be reviewed.
 - There is a power generator on site however no immediate effort will be put forth on re-furbishing this.
- Initially use **DR-1X fusion repeater - the existing 64 Radio**

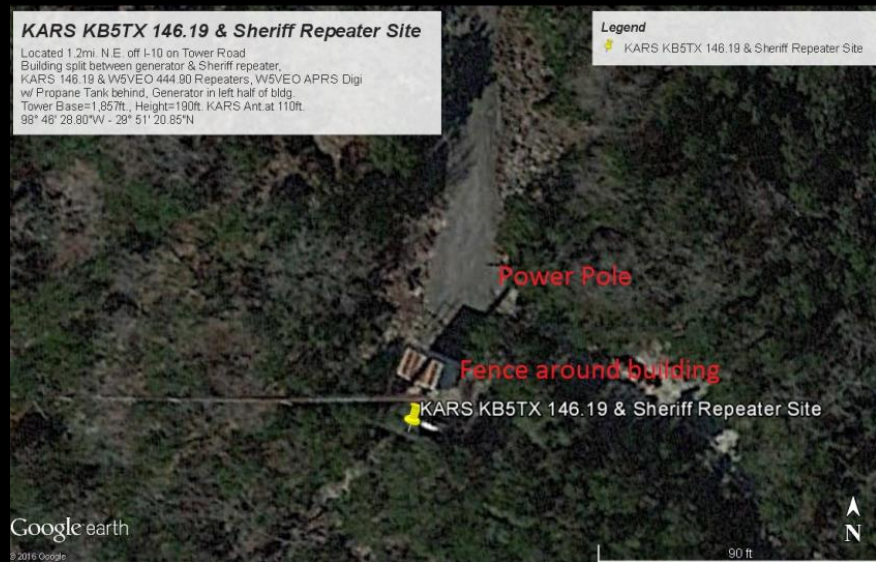


Tower Road Site

KARS KB5TX 146.19 & Sheriff Repeater Site

Located 1.2mi. N.E. off I-10 on Tower Road
 Building split between generator & Sheriff repeater,
 KARS 146.19 & W5VEO 444.90 Repeaters, W5VEO APRS Digi
 w/ Propane Tank behind, Generator in left half of bldg
 Tower Bases=1,857ft., Height=190ft. KARS Ant.at 110ft.
 98° 46' 28.80"W - 29° 51' 20.85"N

Legend
 * KARS KB5TX 146.19 & Sheriff Repeater Site



Google earth

© 2016 Google

90 ft



Tower Road site

Boerne



72 MHz
 Directional
 Antenna – 7/8”
 Hardline

UHF 440 to 446 MHz
 Antenna – 7/8” Hardline

UHF Ham Antenna
 – 1/2” Hardline

Directional 154.4
 Unusable Antenna –
 7/8” Hardline

Dual Band Ham Antenna
 – 1/2” Hardline

Dual Band Ham Antenna
 – 1/2” Hardline

Tower base 1857 Ft
 Tower Height 190 feet
 VHF Antennas 110 Ft




Tower Road Site

KARS KB5TX 146.19 & Sheriff Repeater Site

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 KARS KB5TX 146.19 & Sheriff Repeater Site

Power Pole

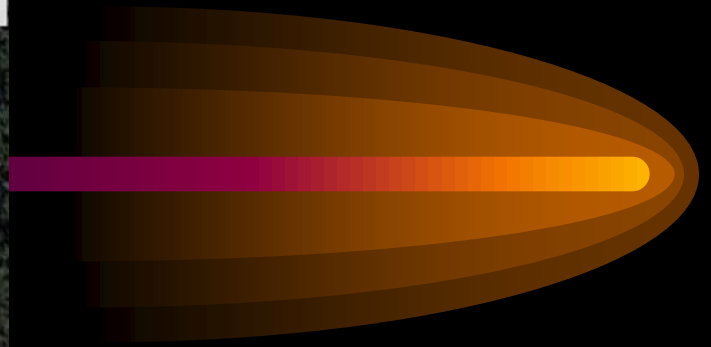
Fence around building

KARS KB5TX 146.19 & Sheriff Repeater Site

Google earth

© 2018 Google

90 ft



Tower Road site

Boerne

Google



Phase 3 Suggested Vision

- FM is the mainstay for 2 meter radios. They are plentiful, in-expensive and the majority of hams have this capability. Our primary goal will be to provide support for this venue on 2 meter traffic. Part of this activity is shared thru public service and again 2 Meter FM is the back bone for this traffic.
- APRS- Greg stone has donated TinyTrak4 and Ericson 20 watt radio which is functioning and will be located at Tower Road
- Emerging Digital Standards
 - Yaseau Fusion- Our DR-1 provides 2 meter support and we should continue encouraging club members to utilize this venue. This should be the 146.64 frequency. The club should consider the \$300 upgrade to the DR-2 for increased functionality.
 - DMR- A 450 DMR machine would allow inter tie with wide area, radios are available and in-expensive. This would occur in the future after completion of the 2 meter machines.
- Microwave Link for Internet Access
- GMRS Repeater to support Kendall County CERT

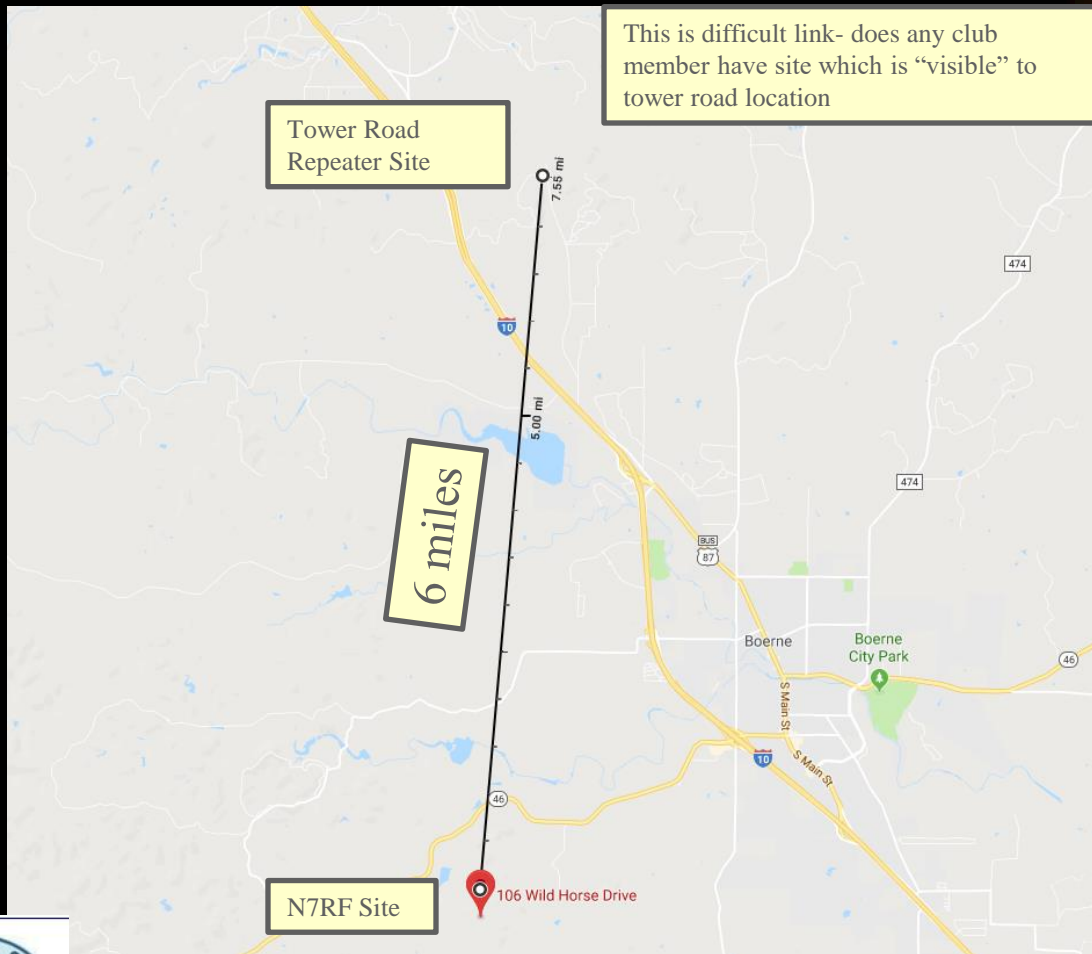


APRS

- Installation of APRS digipeater system at Tower Road.
- Antenna – initial plan would be to use one of the existing 2 meter antennas. When we have moved the antennas from the EMS site we can re-configure which antenna is connected where (we should have 3 workable 2 meter antennas as varying heights).



2.4 GHz Potential Microwave Link



No internet capability exists at the site

Dave (N7RF) believes he has LOS to tower and this is being considered as possible path

Ideally if a club member with internet has direct LOS closer than 6 miles this would benefit the club
Would provide "Link" between 19 and 64 machines if at separate sites



145.19 Machine

- Currently located at downtown Boerne site. Our primary focus will be on getting 64 machine up and running on the Tower road site.
- Currently this is Ken's DR-2X Fusion machine
- Once we are satisfied the 64 machine is functional we can consider moving 19 machine to Tower road.

Some options we need to consider:

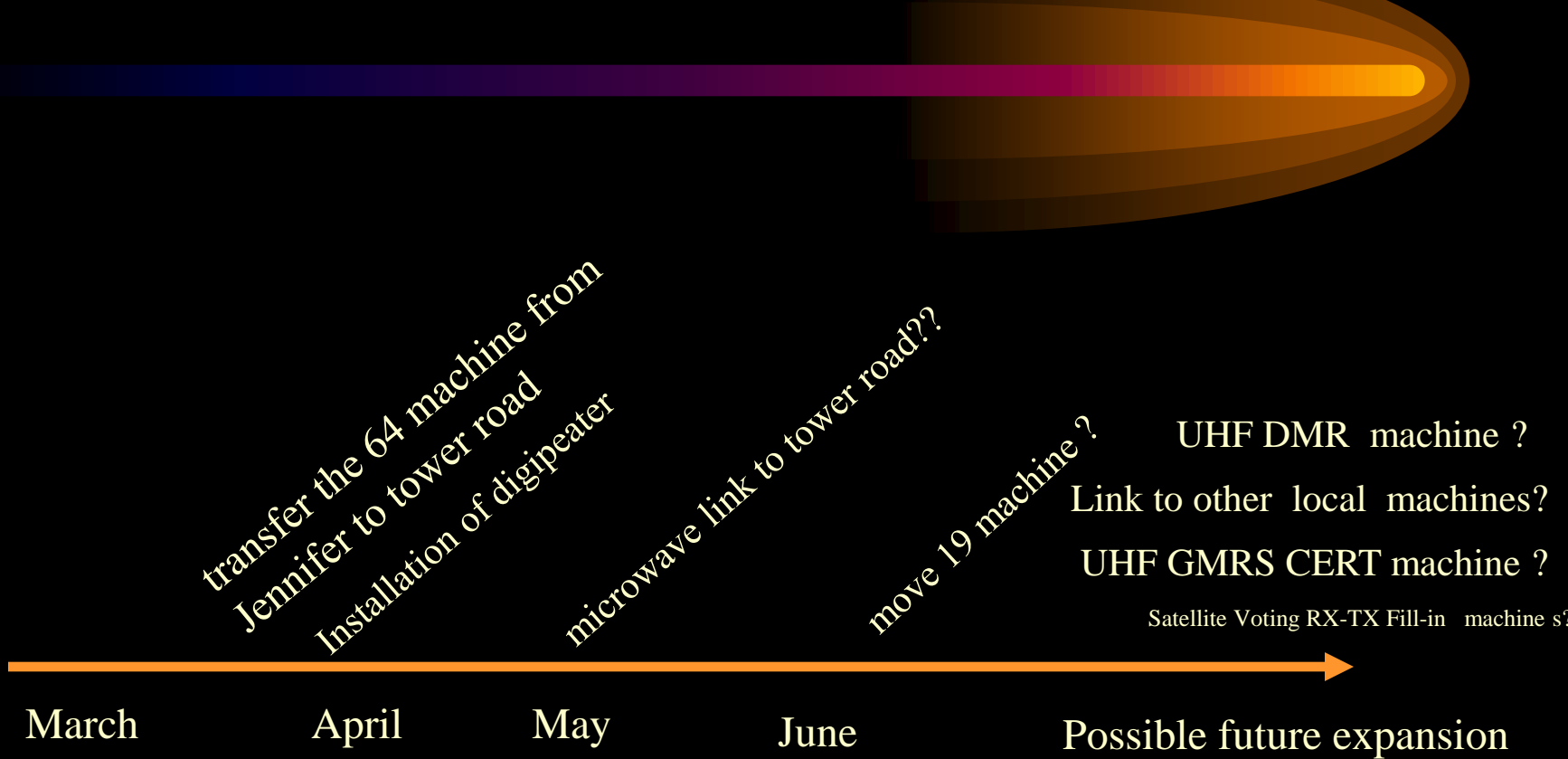
What Function do we want this machine to serve?

Acquire Ken's DR-2 for use as 19 machine?

Migrate to GE master pro (175-200 watt TX)-pure FM only



Strawman Schedule



Yaesu's promotions regarding the Fusion repeaters?

- Through June 30th, 2018 we are offering the DR-2X and DR-1XFR (factory refurbished as the DR-1X) is discontinued. The DR-2X comes with either an IMRS (LAN) board option or not. As well as we accept trade-ins on the DR-1X for the purchase of a DR-2X.
- DR-2X with trade-in no IMRS \$300
- DR-2X with trade-in with IMRS \$500
- DR-2X no trade-in no IMRS \$900
- DR-2x no trade-in with IMRS \$1,100
- DR-1XFR flat rate \$400 (no trade-in deal)

You MUST keep the repeater for one year, have it on the air for one year, and that year of operation MUST be AMS or Digital modes. Analog mode only violates the program and we do have people check for us.

Discussion Points



- Activity on 64 machine is Sparse
 - 2-3 Contacts / week on average
- Little to No Digital Activity
- What does Club want from Repeater(s)
- How do we generate Activity?

Summary of Tower Road Installation

- Phase 1 Complete Rod and Ken finalized the contract with the county for the tower road site
- Phase 2- about to complete - Marsh leading numerous volunteers are “re-modeling” the existing structure
- Phase 3 –
 - Move 64 machine after finishing Phase 2
 - Establish two committees
 - Roadmap committee establish the Clubs desired requirements for the repeaters
 - Survey Cub Membership
 - Technology committee to implement the requirements
- Does the club Membership agree with this Plan?

