The Minuteman Repeater Association

A non-profit organization providing communications infrastructure and volunteers for community and emergency events.

The Minuteman

Volume 48, Number 1 September 2018

We have TWO! (2) MMRA meetings this month!!!

Boxboro! 2018

Sunday, 9 Sept., 12:00—13:00 Board Room

Not Just a Bunch of Repeaters – A System

The Minuteman Repeater Association operates 22 repeaters across Eastern and Central Massachusetts. What makes them unique is they are all interconnected. The MMRA network is the largest system of linked analog repeaters in New England. At this presentation, we will show you how it's done and what the system is capable of.

And join us for dinner Saturday night!

Saturday Night Grand Banquet. Keynote speaker Abigail "Astronaut Abby" Harrison, founder of The Mars Generation. The meal will be buffet style with plenty of options to choose from. Doors will open at 6:30 PM on Saturday.

The price will be $35 per seat for a place at the MMRA table. Email John Spencer at WA1MDD@mmra.org with the number of seats you want.

Membership Meeting Wednesday, 19 September 7:00 PM

Host: Bob Phinney

Discovering Ham Radio through Makerspace

The traditional path into ham radio is an electronics or radio interest that leads to a license, and then talking on the radio.

NESCITECH is a new maker space venture started by Bob Phinney and has a different approach. They offer a variety of maker programs for kids and families. Their programs including building electronics, woodworking, metalworking, and a variety of other media. They then use or play with what they built, which leads to another more advanced project. The programs show how ham radio can be used to use, play with, and perhaps show off what they have built.

Several presenters will discuss this new approach. There will also be a tour of the facilities.

MMRA members *(and non members alike)* are encouraged to bring themselves, friends, kids, or grandkids as this is an environment which is of interest to all.

Location [see page 11]:

New England Sci-Tech Inc.

16 Tech Circle Natick MA

[Talk-in: 147.27 *pl 146.2*

MMRA Officer Election Results, from May Annual Meeting:

- KG1H David Wolfe – President
- WA1MDD John Spencer -- Vice President
- K1KWP Kevin Paetzold – Treasurer
- N1DCH David Hornbaker – Secretary
- ????? – Clerk (We need a volunteer!)
- N1NVK Clark Conti – Director → 2020
- N1DDK James Lee – Director → 2020

Table of Contents

About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets (usually) on the 3rd Wednesday of each month from September to June. Meeting times, locations, and talk-in frequency vary and are announced in this newsletter and on weekly nets. Meetings are open to all interested parties. Guest speakers and programs of general interest occur in September, November, January, March, and May. The intervening meetings are also open to all members and are for general business.

The Minuteman newsletter is Emailed one week before each general interest meeting. Members are encouraged to submit articles which can be sent to the editor at newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are $25 per individual or $35 per family. See our website for details.

Email to the club leadership should be sent to contact@mmra.org. The MMRA maintains a web site at: http://www.mmra.org/

An email distribution list for club members named "MMRA" is at: http://groups.yahoo.com/

You can also follow us on twitter @mmraham and like us on Facebook: https://www.facebook.com/mmraham.

MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at contact@mmra.org or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident. Measures are being taken to make audio recordings of repeater activity.

Repeater and Frequency Information

Band	XMTR Location	Freq	PL	Call	Linking To Hub 1	Linking To Hub 2
MMRA Voice Repeaters						
10m	Marlboro East	29.680	131.8	W1MRA	PTL	PTL
6m	Marlboro East	53.810	71.9	W1BRI	PTL	PTL
	Rmt receive Marlboro West: PL=100					
2m	Brookline	145.160	na	K1MRA	D-Star	
	Belmont	145.430	146.2	KC1CLA	PTL	FTL: DARI
	Mendon	146.610		K1KWP	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	North Reading	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
	Boston	146.820		K1BOS	FTL	PTL
	Remote receive in Brookline Boston: PL = 127.3					
	Marlborough	147.270	146.2	W1MRA	PTL	PTL
1¼m	Hopkinton	223.940	103.5	KB1LOY	PTL	FTL
	Quincy	224.400		N1KUG	PTL	FTL
	Weston	224.700		N1NOM	PTL	FTL
	Marlborough	224.880		W1MRA	PTL	FTL
70cm	Lowell	442.250	88.5	K1LVF	FTL	PTL: 446.775
	Weston *	442.700		KG1H	Network Hub 2 (PTL to Hub 1)	
	North Reading	446.775		W1DYJ	FTL	PTL
	Marlborough	448.225	na	W1MRA	D-Star	
	Marlborough	449.575		W1BRI	PTL	PTL
	Marlborough *	449.925		W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	PTL
	Marlborough *	927.700		W1MRA	PTL	PTL
	PL out = 131.8					
Marlborough		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	

*Internet

HUB1– 449.925: IRLP node 4133 / Echolink node 4133

HUB2 – 442.700: IRLP node 4136 / Echolink node 4136
Connected to 220 Reflector 9124 on Tuesdays

927.0625: IRLP 4977

927.700: IRLP 4978

Normally linked to the NE900 Reflector, 9125. Linked to MMRA via IRLP for the TIAOS net. Normally linked together.

Notes: FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)

President's Corner
David Wolfe ~ KG1H

It is evident from the lack of activity on our repeaters that hams are not interested in having conversations by voice with other hams, or if they do respond to a call they have little to say. The repeaters are our 'bread and butter.' This disturbs me, as several years ago the MMRA and other repeaters were a main conversational medium and a source of interesting discussions.

What has changed in ham radio? Is it the ages of the new hams who have radically different interests and/or the ages and interests of the older hams have dissuaded the new hams? What attracted the new/young hams in the first place to amateur radio? Maybe we should ask them.

Next MMRA Business Meeting:
Wednesday 17 October

??? PM

Location: TBD

It brings up the point, what can WE do to entice our 'old' hams to join in on discussions and attract the new comers to participate? Possibly publicize subjects-of-interest sessions that are hot topics of the month. We would need experts to lead the sessions and notices sent out announcing the events.

Looking for suggestions to revitalize our repeater activities, and good reason to continue upgrading our repeaters.

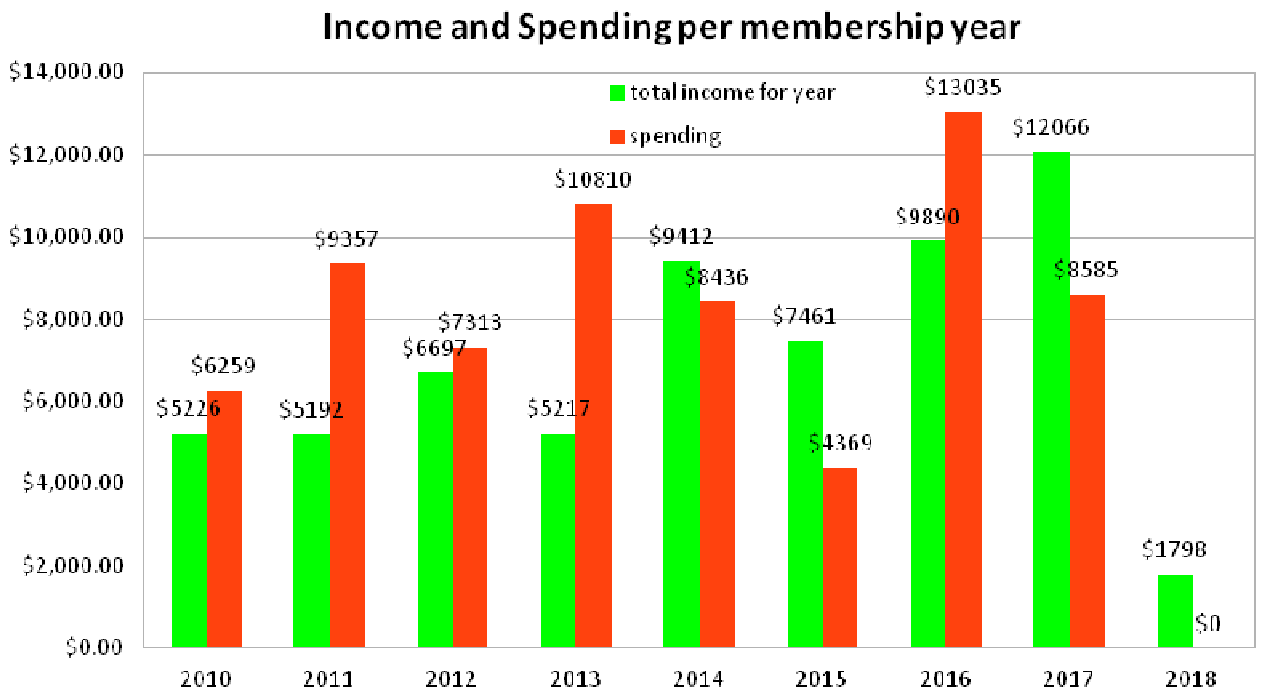
Treasurer's Report
Kevin Paetzold ~ K1KWP

I would like to thank John (W1JMC) for many years (a decade plus) of service to the club as the elected secretary of the club. Because the treasurer currently services the PO box and because the secretary is in charge of memberships the treasurer and the secretary are often interfacing. I would like to thank Dave (N1DCH) for agreeing to serve as secretary. The clerk position for the club has been open for two years. I would like to see someone step forward to fill this position.

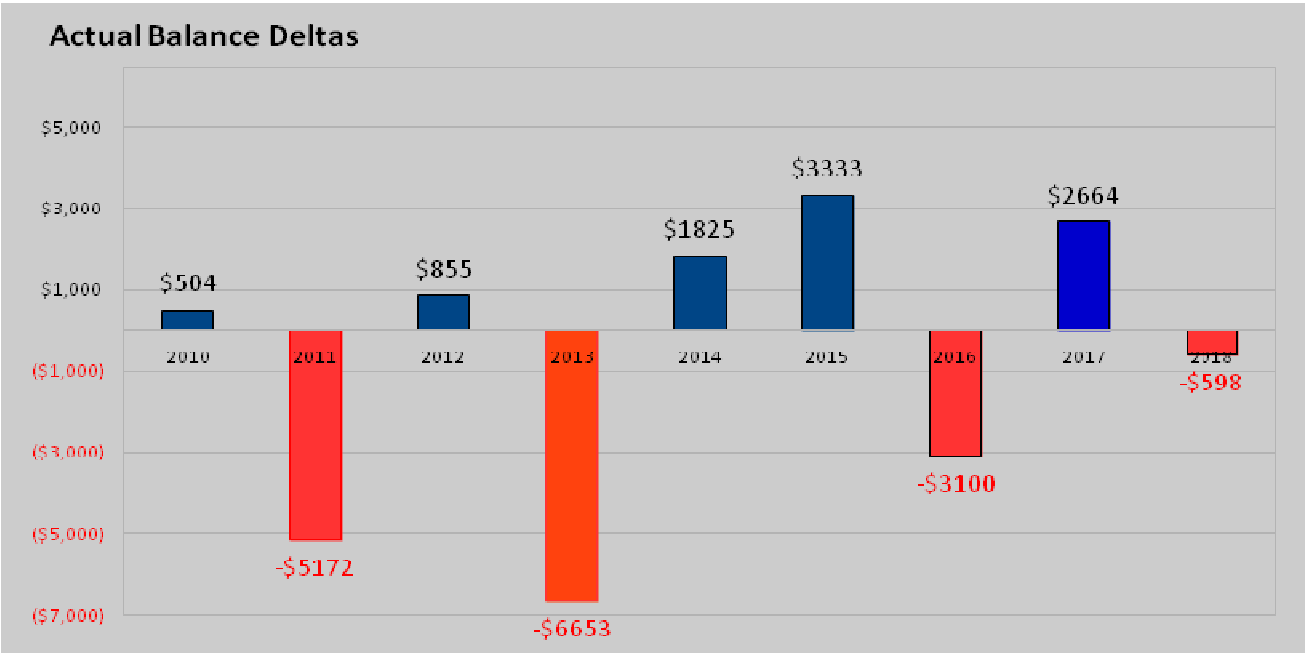
A new MMRA fiscal year started on June 1. This is now fiscal year 2018-2019. The membership year (dues) ends on August 31.

MMRA income exceeded expenses in the previous fiscal year. One significant financial event is that K1IW was able to sell all of the remaining LARCAN material which the club invested in the 2016-2017 fiscal year. A summary of the income and expense for the last 8 years is on the next page..

Treasurer's Report (continued)
Kevin Paetzold ~ K1KWP

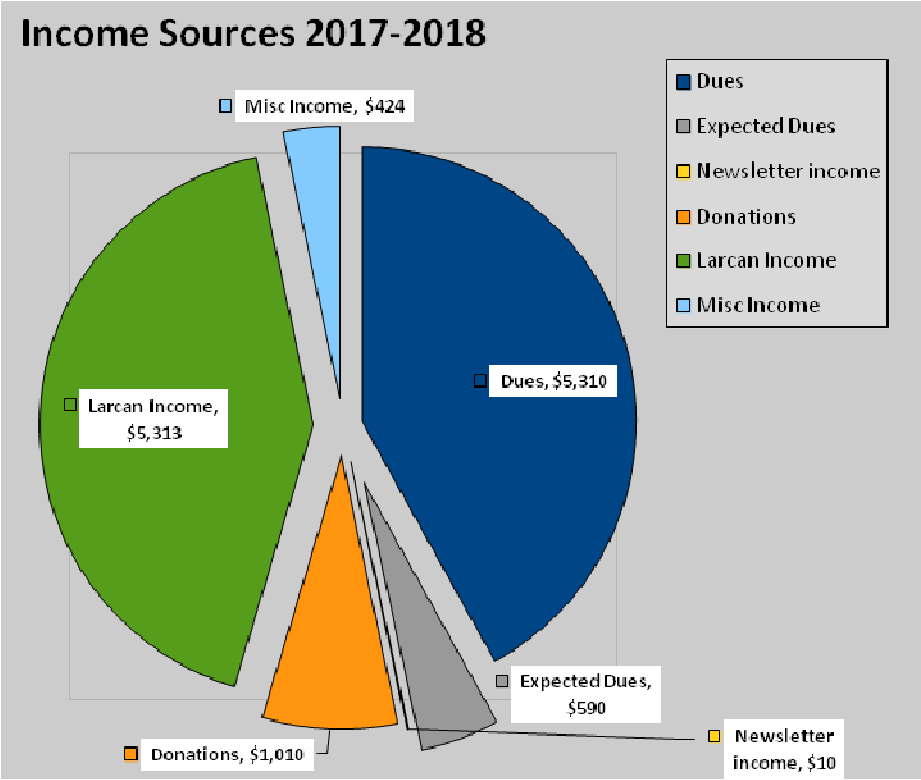


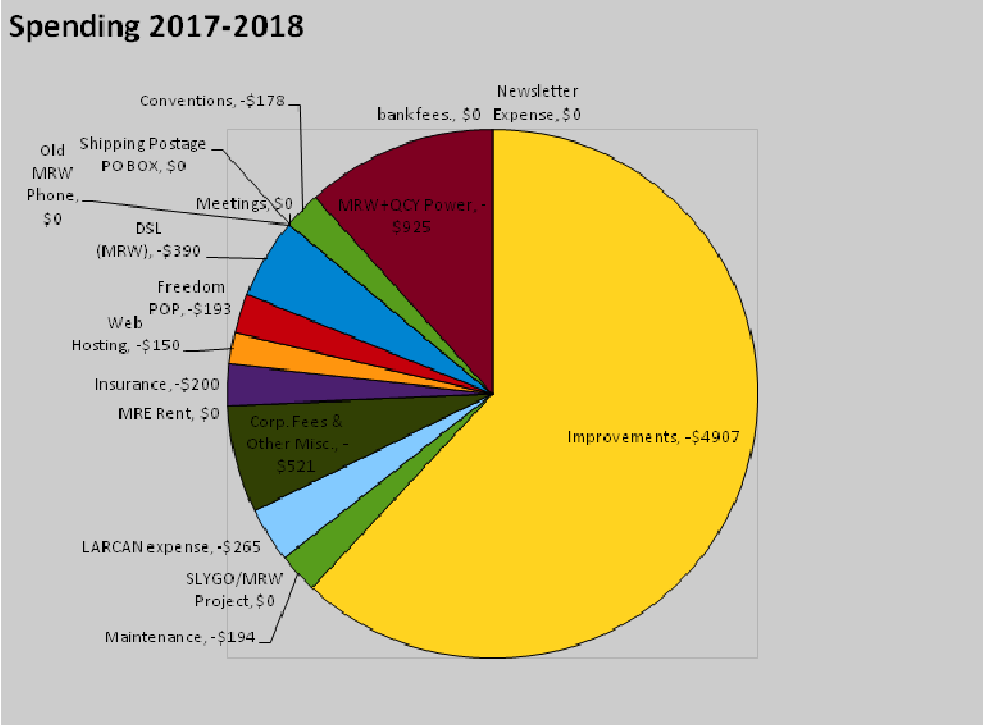
The chart (below) shows the funds balance delta for the last 8 years. Because the electric bills are paid ahead and because most people have not renewed yet this new fiscal year shows a slight deficit. With the information available to me at this time I expect income to exceed expense this year (unless the board spends more than I know of at this time).



Treasurer's Report (continued)
Kevin Paetzold ~ K1KWP

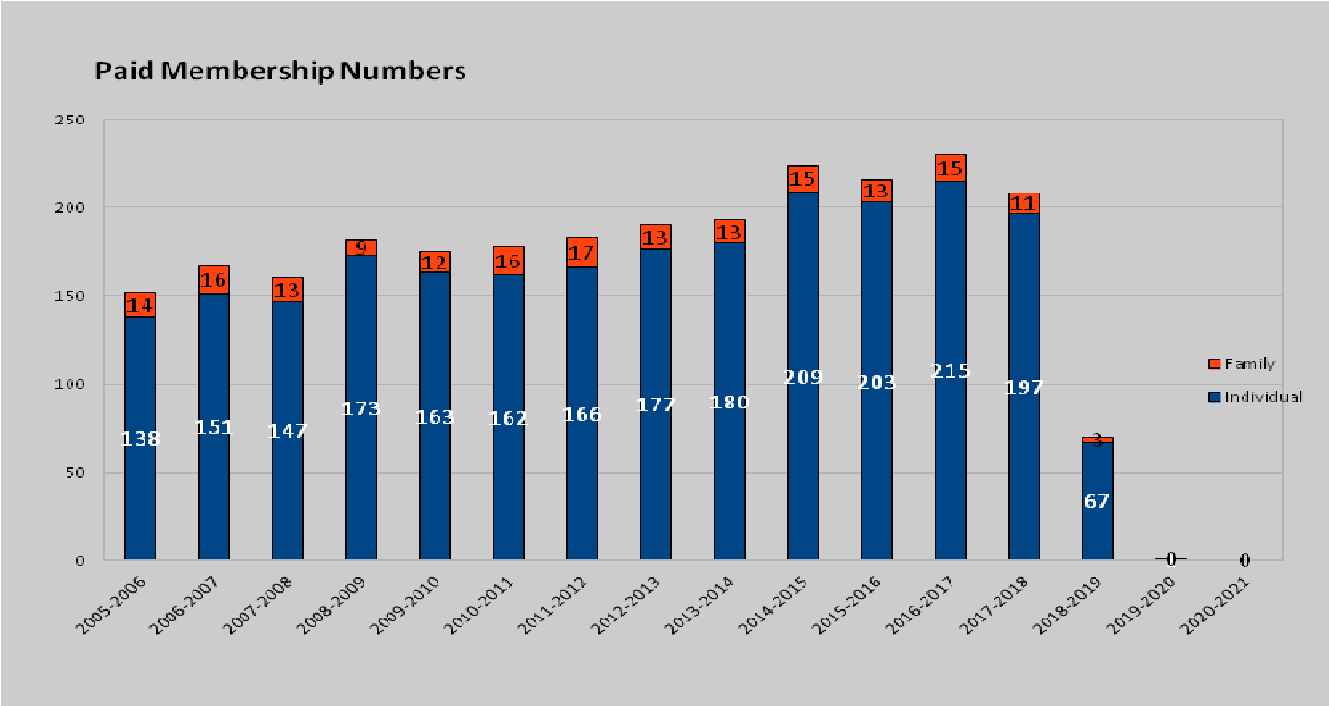
Income sources and spending areas are detailed below:





Treasurer's Report (continued)
Kevin Paetzold ~ K1KWP

Last year (2017-2018) the MMRA had 208 paid memberships. This is a decrease from the all time high (in my time frame) of 230 set in 2016-2017.



The MMRA receives a significant amount of donations each year. Most of this is in direct $ contributions. Some donations are of equipment which the club either uses or sells. Donation summary for the last 10 years is below. IMHO the club does not acknowledge those who donate enough. On behalf of the club I would like to thank people below who donated. Hopefully I did not leave anyone off (and if I did I am sorry):

2015-2016: AB1II K1DLM K1LTD K3FG K5TEC KB1EB KB1JKJ KB1TTF KC1CIC KD1TE KI6MEU N1COY N1DDK N1DDU N1HBR N1YDF N7FYO

2016-2017: AB1KT AB1KT KB1MSR KC1CLA K1REM KD1TE N1HBR KD1CY W1SBJ K5TC K1JS WA1JIM W1NZJ

2017-2018: AB1II K1ARG K1IW K1WVU KA1GDQ KC1CKZ KC1CLA KC1HPW KC1IEK KC1KZI KC1SO KD1TE N1BE N1COY N1DH N1HBR W1DYJ W1LSB WA1DX

Detailed financial information is presented at almost every business meeting. These meetings generally occur in the months which do not have general membership meetings. They are announced on the www.mmra.org website. All members are invited and encouraged to attend these meetings. Of course much more than the finances are discussed at these meetings including repeater status, repeater decisions, planning, etc…. 73, **K1KWP**

May Membership Meeting Presentation
Hub 1 (449.925) Rebuild
Technical Officer Bryan Cerqua W1BRI

449.925 Hub 1 – Rebuild

Old 449.925
Motorola
MICOR repeater
built back in 2005

449.925 Hub 1 – Rebuild

New 449.925
(HUB1) Kenwood
NXR-810 repeater

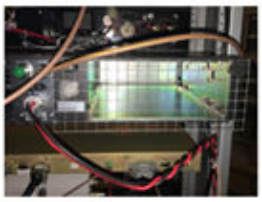
Went online on
May 4th, 2018

449.925 Hub 1 – Rebuild

Rear view
of new repeater

449.925 Hub 1 – Rebuild

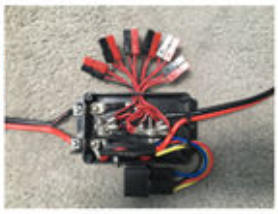
Mouse home
prevention fence



Power
measurement
panel

449.925 Hub 1 – Rebuild

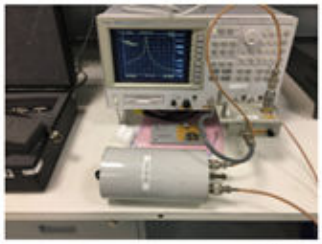
Power distribution and
battery back up relay



Measuring battery
load current,
about 5 Amps

449.925 Hub 1 – Rebuild

Testing out the new
Henry RF power
amplifier using IC706



Checking out the
preamp pre-selector

May Membership Meeting Presentation (Cont'd)

Hub 1 (449.925) Rebuild

449.925 Hub 1 – Rebuild

Reason for initial output power problem. Chinese N-TEE connector, no electrical connection, JUNK.

Custom tuned notch filter to eliminate interference from Nation Grid system operating on 454 to 455 MHz.

MMRA Hub 1 Rebuild 8

449.925 Hub 1 – Rebuild

Builder, Bryan, W1BRI with Mathew, KA1MAT, nephew

MMRA Hub 1 Rebuild 9

449.925 Hub 1 – Rebuild

Hello test, nobody around as usual.

20 June Business Meeting ~ David Hornbaker , N1DCH , *secretary*

Attendees:

David Wolfe, KG1H
John Spencer, WA1MDD
Kevin Paetzold,K1KWP
David Hornbaker, N1DCH
Clark Conti, N1NVK
James Lee, N1DDK
Brian Cerqua, W1BRI
Bob Evans, N1BE

Old Business:

The April board meeting passed the following:

Moved (K1IW), seconded (N1NVK), and voted that we draft a proposal, to be voted on at the Annual Meeting, to the effect that we set aside $2500 in an emergency fund. This fund will be available to replace existing assets only in the event of a repeater system component failure. Using this fund will require a vote of the Board of Directors. The specific language of this proposal must be drafted.

David, N1DCH mentioned that the specific proposal still needs to be drafted.

Kevin, K1KWP, reported that Marlborough Country Club has not cashed the check for MRE in six months. Kevin has been in contact with MCC lawyer and is currently waiting to hear from the MCC Board.

New Business:

Location of September meeting: Boxborough or at the New England Sci-Tech (NEST) facility in Natick.

- No decision. Group to visit (NEST) to check it out. Contact Bob Phinney (K5TEC) to inquire about availability.
- Boxborough – tentative plan is to do repeater system presentation

Future location of Board meetings:

- New England AirGun, Hudson
- Marlborough Library, Marlborough
- New England SciTech, Natick

No decision made. David, KG1H and David, N1DCH favored staying at the library. Location to be finalized in September via e mail.

Motion by Bob, N1BE and seconded by David, KG1H to give Bob Phinney a quarter page ad (or as approved by Larry, W1DYJ) for New England SciTech in the newsletter for 6 months. Motion passed.

Repeater discussion:

Investigate state of Weston repeaters

- 10 Meter receiver. Investigate relocation
- 146.790 repeater issues
- Other issues at Weston

220 repeaters underutilized

- Link all 220 repeaters to hub2
- Link 220 and 6 meter repeaters

Motion by Roger, WA1NVC and seconded by David, KG1H to link 6 meter and 220 repeaters. Motion approved.

Suggestions for future meeting presentations:

- Microcontroller and microprocessor presentations
- Grounding
- Powering station with Solar and 12 V battery
- Skywarn presentation

Discussion of linking repeaters if weather event was forecast. No decision.

Kevin, K1KWP gave Treasurer's report for last fiscal year, including planned spending for this fiscal year.

Respectfully,
David Hornbaker, N1DCH
MMRA Secretary

May Membership Meeting Presentation

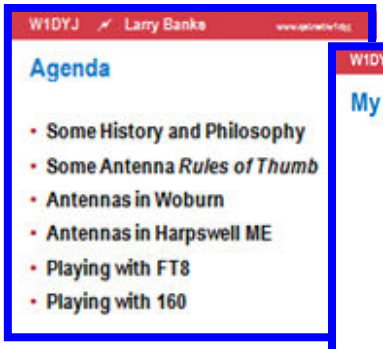
Larry Banks ~ W1DYJ

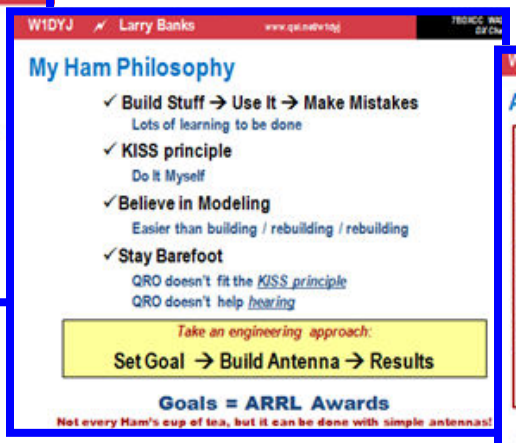
One Ham's Journey with Antennas

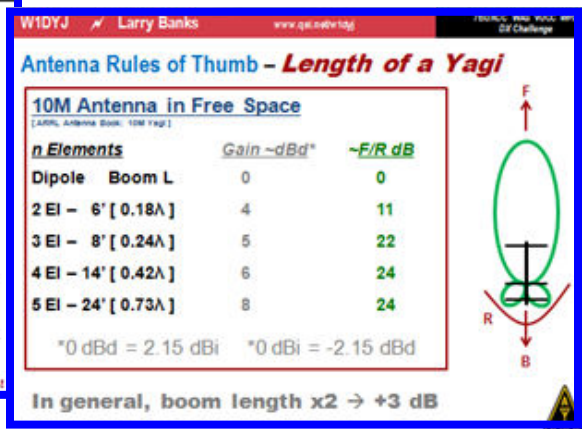
Not a "How To"... ...it's a "You Can Do It Too"...

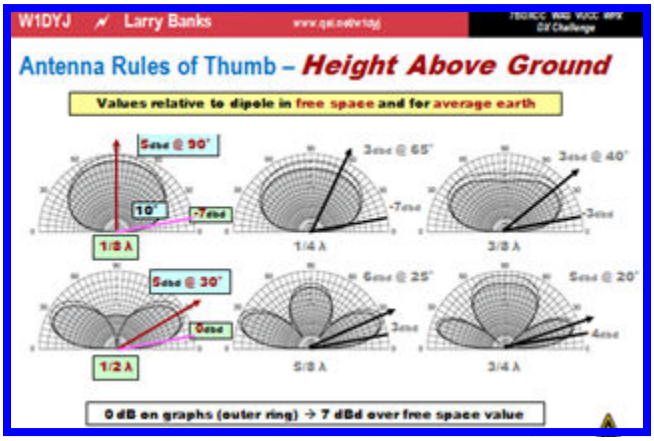
Hopefully this talk will get you thinking about your antenna situation!

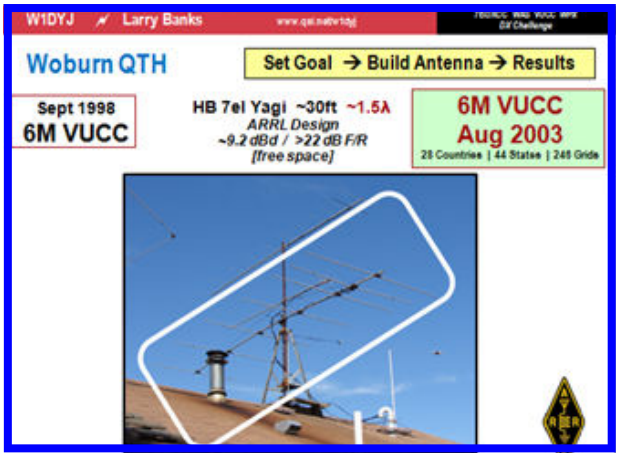
Some of the slides are presented below.

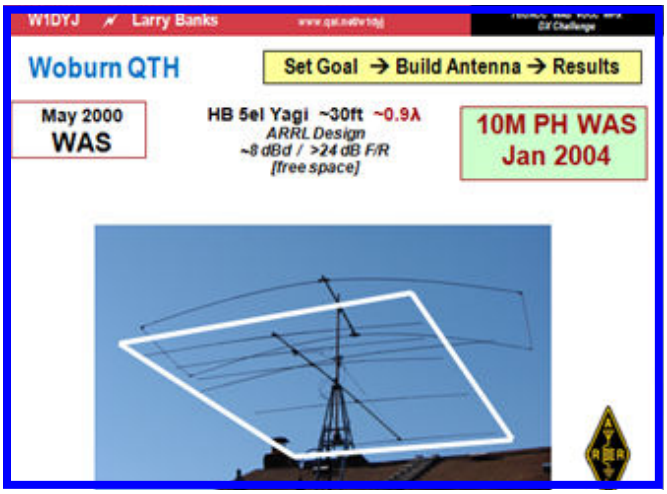


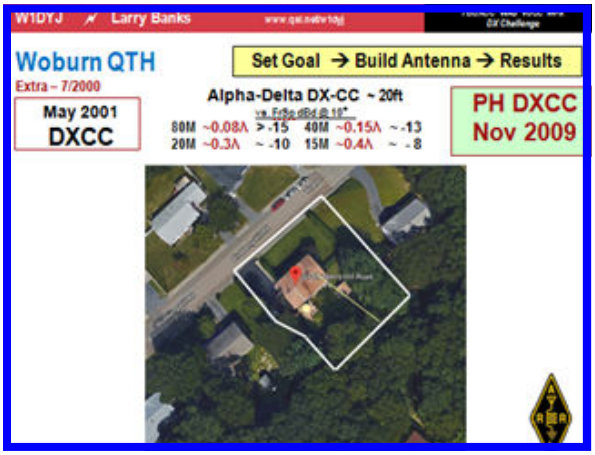






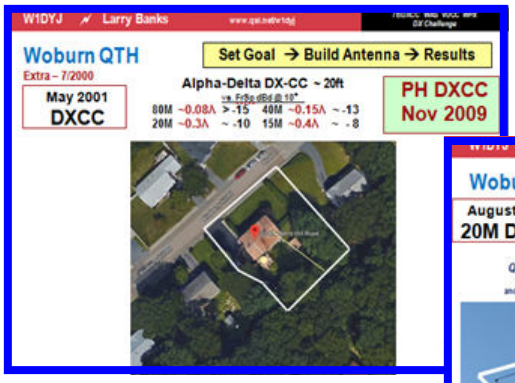


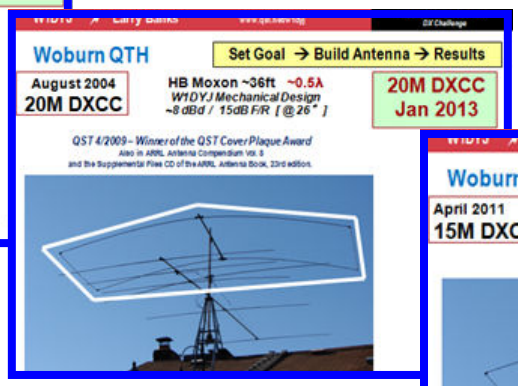


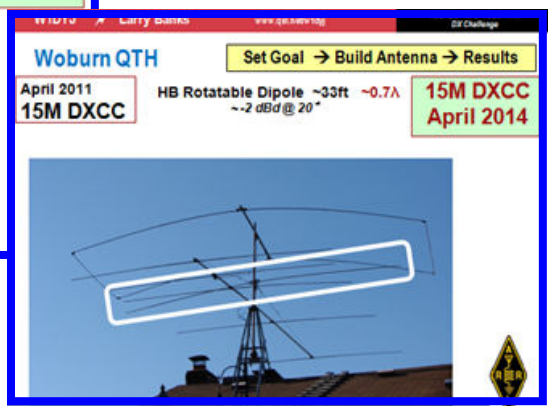


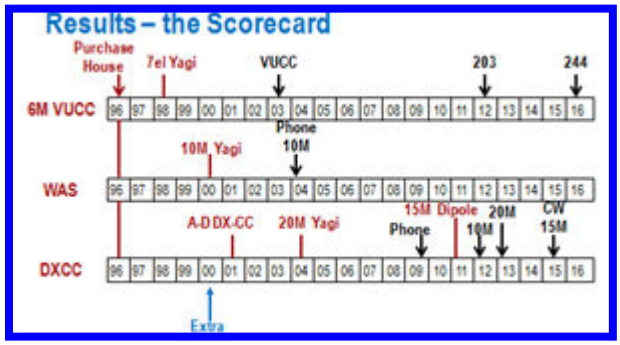
May Membership Meeting Presentation (cont'd)

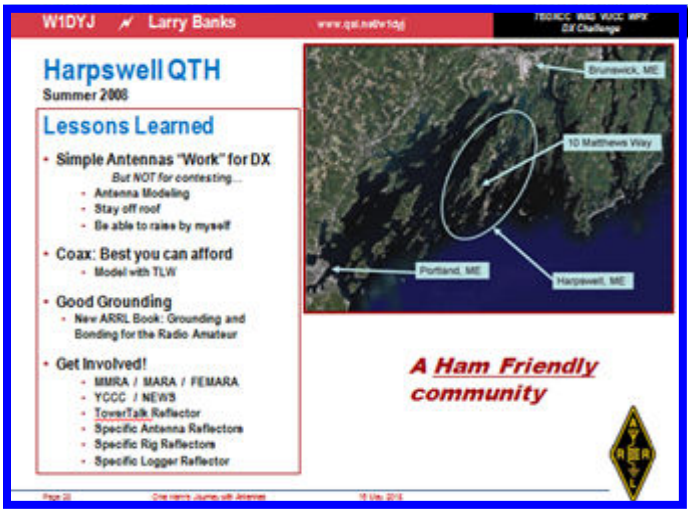
One Ham's Journey with Antennas

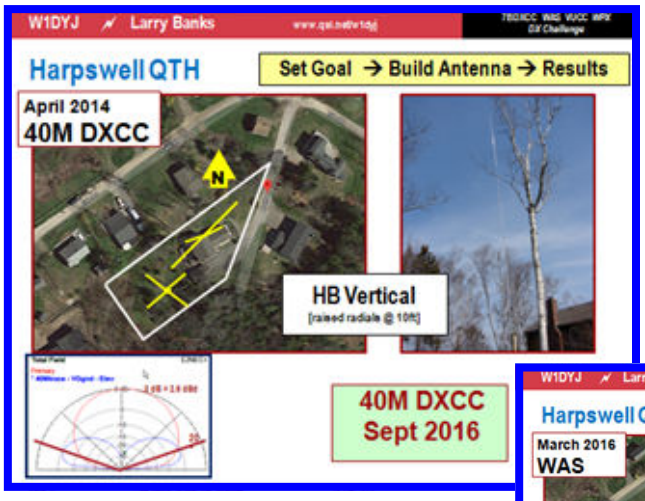


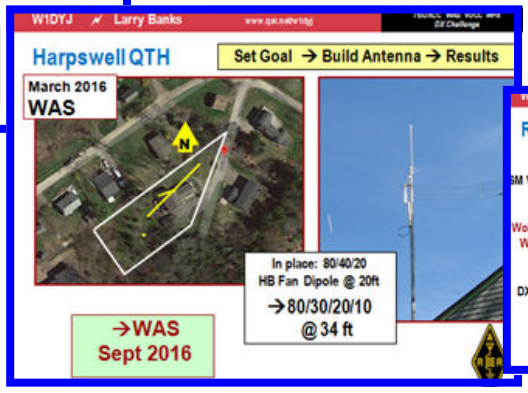


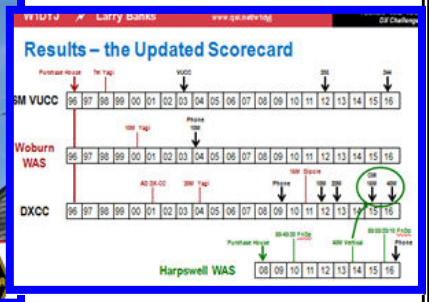






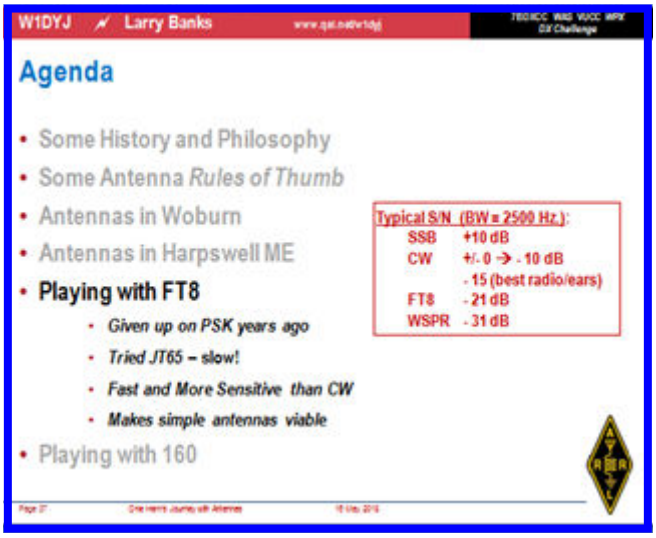


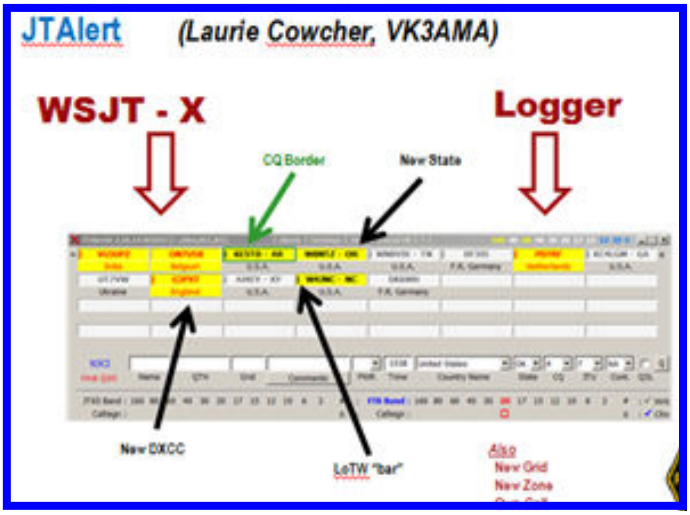


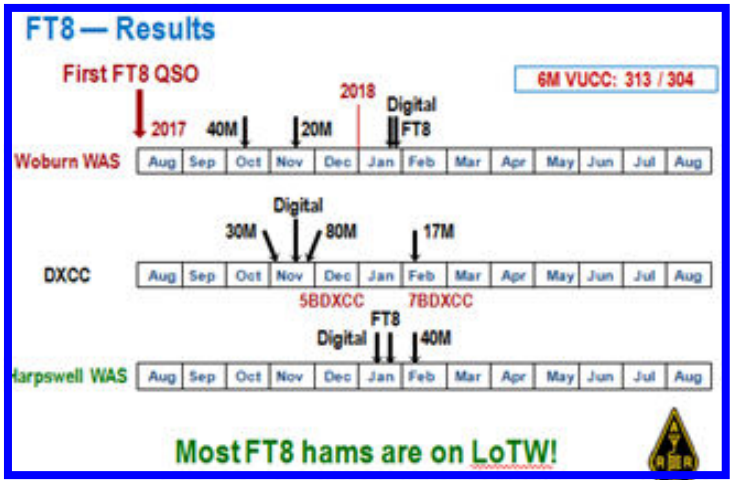


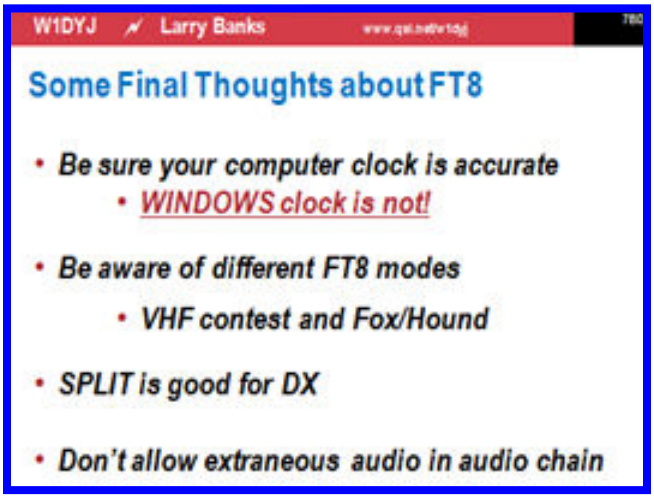
May Membership Meeting Presentation (cont'd)

One Ham's Journey with Antennas ~ FT8



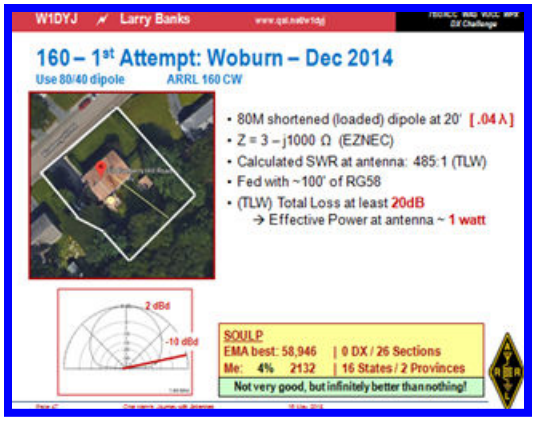


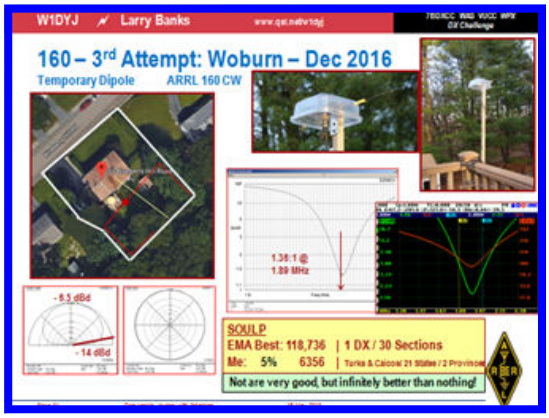


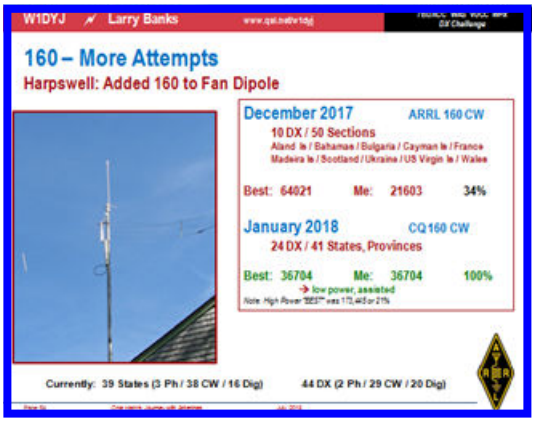


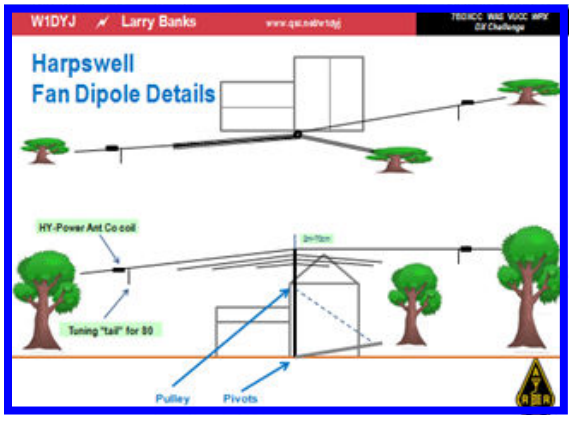
May Membership Meeting Presentation (cont'd)

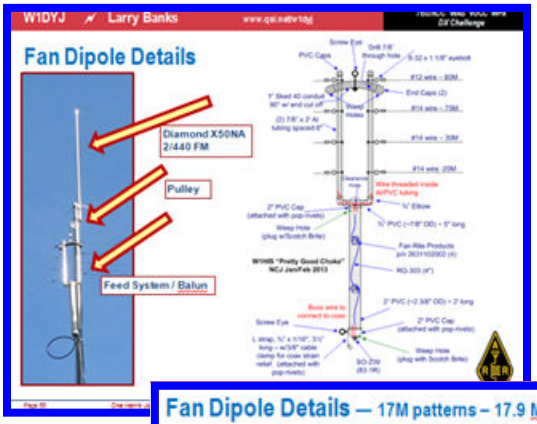
One Ham's Journey with Antennas ~ 160M

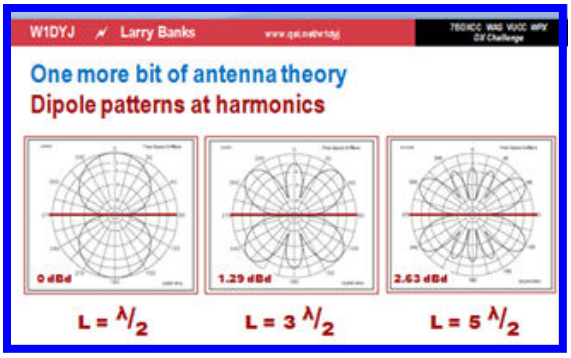


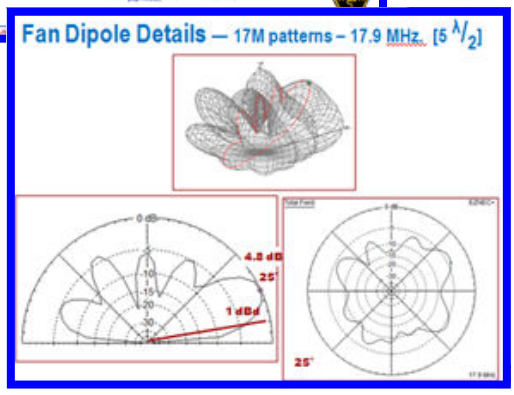


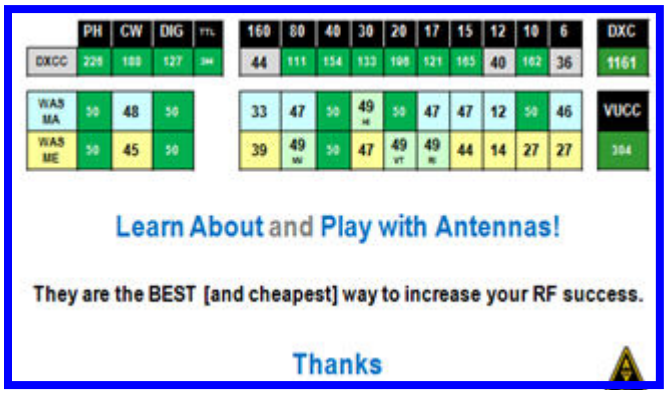












New Center for STEM Education and Amateur Radio
Bob Phinney ~ K5TEC

New England Amateur Radio (NEAR) has a new home in Natick at New England Sci-Tech Inc., a non-profit STEM education center and maker space. NEAR will also host a new startup ham radio club for youth and families called STARS - Sci-Tech Amateur Radio Society. STARS will replace the Clay Center Amateur Radio Club in Brookline (CC-ARC), which was one of the largest youth and family oriented clubs in New England with over 350 members, of which over a hundred are (or were) youth. NEAR had supported CC-ARC and other clubs with equipment, radio classes, and VE sessions. CC-ARC has now disbanded and members are encouraged to join STARS and NEAR instead. Both clubs have space in New England Sci-Tech (NESciTech), located near the Wellesley-Natick line near Rt 30. NE Sci-Tech offers classes in amateur radio, electronics, astronomy, and many other STEM topics for adults, families with children, and high school youth.

High on a hill with 5 acres and ample parking, perfect for doing amateur radio and public astronomy nights, the facility contains several classrooms, woodworking shop, machine room, maker space, meeting spaces, kitchenette, and storage. NESciTech will be directed by amateur radio operators Bob Phinney K5TEC, Ted Reimann KB1NTJ, and Norman Wittels KC1JLB. They encourage you to check out the facility and programs on line at www.nescitech.org, at one of the upcoming open houses, or email Bob Phinney to schedule a visit: bobphinney@nescitech.org.

NEW ENGLAND SCI-TECH

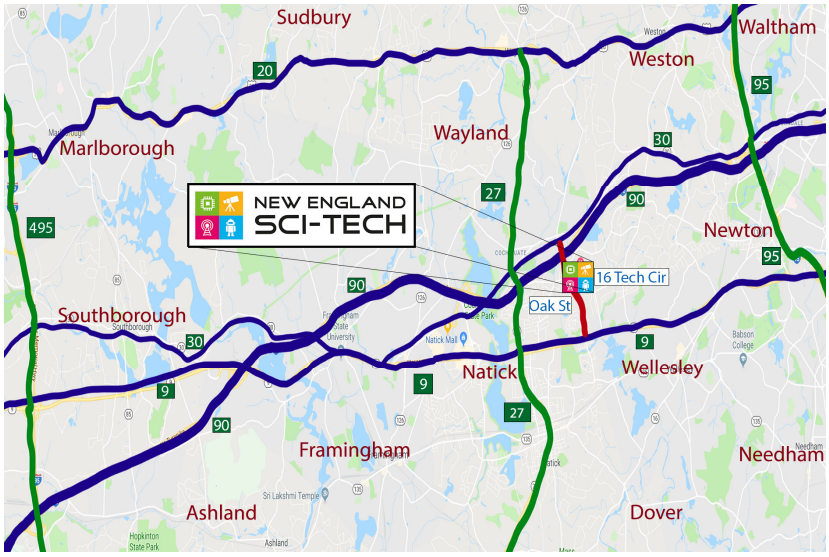
New England Sci-Tech Inc is a new 501(c)(3) STEM education center, amateur radio training center, and maker space located at 16 Tech Circle, Natick. It is home to New England Amateur Radio Inc (NE1AR) and the youth radio club Sci-Tech Amateur Radio Society (STARS). NE Sci-Tech welcomes memberships and donations via www.NESciTech.org or www.NE1AR.org.

Directions to New England Sci-Tech Inc.
16 Tech Circle Natick MA 01760

From the north: take Rt 95 or Rt 27 or Rt 495 south to Route 30 toward Wayland. Once in Wayland, turn South on Oak Street and in 1/2 mile look for Tech Circle on your left. Follow Tech Circle to the end.

From the south: take Rt 95 or Rt 27 or Rt 495 north to Route 9 toward Natick. At the Wellesley-Natick line, turn North on Oak Street and in 1/2 mile look for Tech Circle on your right. Follow Tech Circle to the end.

From the east or west: follow either Rt 30 or Rt 9 toward Natick, turn onto Oak Street at a set of traffic lights, and in 1/2 mile look for Tech Circle. Follow Tech Circle to the end.



Upcoming MMRA Meetings

Note: Meeting locations are subject to change. Consult the MMRA website for the most up-to-date information.

Sunday, 9 Sept ~ Boxboro! 2018 Noon

Wednesday, 19 September ~ Membership Meeting
Topic: Discovering Ham Radio through Makerspace
Location: New England Sci-Tech Inc., Natick

Wednesday, 17 October ~ Business Meeting
Location: tbd

Wednesday, 21 November ~ Membership Meeting
Topic: tbd
Location: tbd

Wednesday, 19 December ~ Business Meeting
Location: tbd

Wednesday, 16 January ~ Membership Meeting
Topic: tbd
Location: tbd

Wednesday, 20 February ~ Business Meeting
Location: tbd

Tuesday, 20 Mar ~ Membership Meeting
Topic: tbd
Location: tbd

Wednesday, 17 April ~ Business Meeting
Location: tbd

Wednesday, 15 May ~ Annual Meeting
Topic: tbd
Location: tbd

Don't Forget! Join Us.

Every Tuesday @ 8 PM
Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIOS Net. Keep up with what's happening in the MMRA and ask your ham related questions.

Net Control Operators:

Week 1	**WA1JIM**	**Jimmy Devaire**
Week 2	**W1DYJ**	**Larry Banks**
Week 3	**KC1CLA**	**Ed Curley**
Week 4	**K1KWP**	**Kevin Paetzold**
Week 5	**KB1OQA**	**Tom Turner**

To connect using Echolink / IRLP during the Net:

- **Echolink Conference *NEW-ENG2***
- **IRLP node 4133**

Previous issues of the MMRA Newsletter are available at: www.mmra.org ➔ Newsletter Archive (on the left)

MMRA Leaders

Executive Board — Officers

President	David Wolfe	KG1H
Vice President	John Spencer	WA1MDD
Secretary	David Hornbaker	N1DCH
Treasurer	Kevin Paetzold	K1KWP
Clerk	open	

Executive Board — Directors

Director »2019	Bob DeMattia	K1IW
Director »2019	Roger Coulson	WA1NVC
Director »2020	Clark Conti	N1NVK
Director »2020	James Lee	N1DDK

Technical Officer

* Technical Officer	Bryan Cerqua	W1BRI

Repeater Trustees

* Belmont 145.430	Ed Curley	KC1CLA
* Boston 146.820	John Mullaney	K1BOS
* Brookline Rcv 146.82	Bob Phinney	K5TEC
* Boston 927.0625	Rick Zach	K1RJZ
* Hopkinton 223.940	James Cahill	KB1LOY
* Hopkinton 449.575	Bryan Cerqua	W1BRI
* Lowell 442.250	Vince De La Flor	K1LVF
* Marlborough 53.810, Quincy 146.670;	Bryan Cerqua	W1BRI
* Marlborough: 29.68, 144.390, 147.270, 224.880, 448.225, 449.925, 927.700 — all as W1MRA	Bill Northup	N1QPR
* Mendon 146.610	Kevin Paetzold	K1KWP
* N. Reading 146.715	Bruce Pigott	KC1US
* N. Reading 446.775	Larry Banks	W1DYJ
* Quincy 224.400	Bill Dunn	N1KUG
* Weston 146.790	Bob Evans	N1BE
* Weston 224.700	Eddie Mulhern	N1NOM
* Weston 442.700	David Wolfe	KG1H

Additional, non-Voting

* Newsletter Editor	Larry Banks	W1DYJ
* Emerg. Coord.	Kevin Paetzold	K1KWP
* Pub. Serv. Coord.	David Wolfe	KG1H
* VEC Liaison	Bill Wade	K1IJ
* Net Manager	Larry Banks	W1DYJ
* Web Page Editor	Bob DeMattia	K1IW

* Appointed

MMRA VE Sessions

Check here for the schedule:
http://www.mmra.org/exam.html

Contact: Bill Wade, K1IJ 617-699-3670
Evenings 6 - 10 PM Weekends 8 AM to 10 PM.
Accredited by the ARRL VEC

Two Meetings!!!

Boxboro! 2018 ~ Sunday, 9 Sept., noon

Membership Meeting: Wednesday, 19 September 7:00 PM

New England Sci-Tech Inc. 16 Tech Circle Natick MA

Calendar of Ham Radio Flea Markets

For more information: http://mit.edu/w1gsl/Public/ne-fleas

8,10 Sep Boxboro MA FEMARA NE Conv

8 Sep	Windsor CT	VR+C Mus 115 Pierson LN
9 Sep	Ballston Spa NY	SCRACES @FG
15 Sep	Alexander ME	StCVARC @ElSch
16 Sep	Cambridge MA	Flea at MIT
6 Oct	Brookline NH	NEARC antique
7 Oct	Queens NY	HOSARC @HOS

12-13 Oct Deerfield NH NEARfest XXIV @FG

21 Oct	Cambridge MA	Flea at MIT
27 Oct	Gales Ferry CT	TCARC @FireCo
28 Oct	Hicksville NY	LIMARC @LevitHall
3 Nov	Bourne MA	FARA @UpperCC VoTech
1 Dec	Windsor CT	VR+C Mus 115 Pierson LN @8AM

THE MINUTEMAN REPEATER ASSOCIATION

MMRA
P.O. Box 669
Stow, MA. 01775-0669

Email: contact@mmra.org

WE'RE ON THE WEB
HTTP://WWW.MMRA.ORG/