The Minuteman Repeater Association

The Minuteman

Volume 41, Number 2 November 2011

Membership Meeting ~ Wednesday, 16 November 2011 @ 7:30 PM

Ham Radio at The Boston Marathon

MEMA Headquarters in Framingham

Organizers of this event will give a behind the scenes look at what goes into running the ham operations each year.

Directions to the MMRA Meeting

From the West:

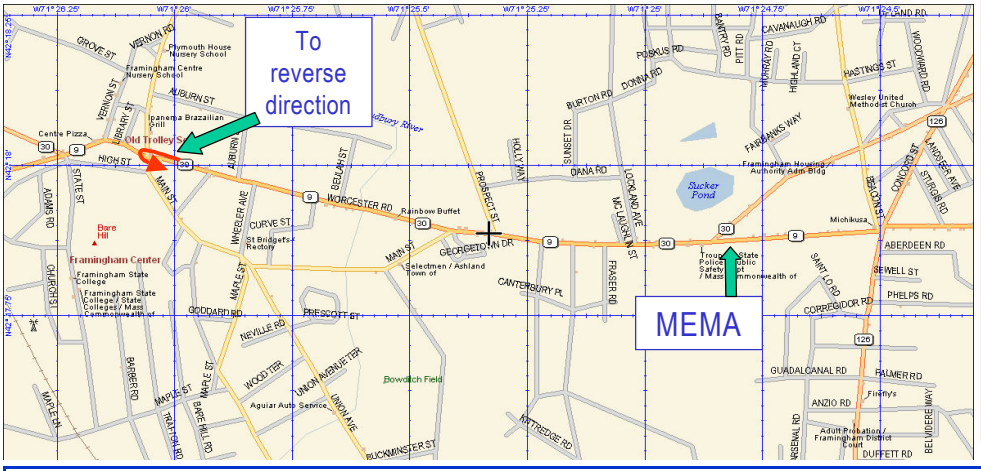
1. Take Mass Pike East to Exit 12 (Framingham Route 9).
2. Travel ~ 2 miles to MA State Police Headquarters.
3. MEMA is immediately after the State Police (MEMA has several tall communications towers).
4. Enter through the gate.
5. MEMA is underground. Enter building and follow the ramp to the reception desk.

From the East:

1. Take the Mass Pike West to Exit 13 (Route 30).
2. Take Route 30 West ~2 miles going through all lights until the end.
3. Bear right onto Route 9 Westbound.
4. The MEMA communication towers are visible across Route 9 on the eastbound side. Continue approximately 1.2 miles on Route 9 Westbound to intersection with Main Street/Edgell Street.
5. Bear right at this intersection to exit Route 9, then follow the signs to make a U-turn.
6. Follow Route 9 back east for ~1.2 miles to MA State Police Headquarters on the right. Now follow "From the West" # 3

From the North or South:

1. Take Route 128 (95) to Route 9 West (Exit 20B).
2. Follow Route 9 for approximately 8 miles. Now follow "From the East" #4



It's Another Year!
Dues are due.
$25/year — $35/family

($10 extra for snailmail Newsletter)

http://www.mmra.org/

...or mail your check, with your callsign listed, to:
MMRA
P.O. Box 669
Stow, MA. 01775-0669

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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 September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is Emailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to 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: www.yahoogroups.com/

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

Up-to-date information about both MMRA repeaters and affiliate repeaters can be found at http://www.mmra.org/repeaters/index.html

Band	Location	Freq	PL	Call	Linking	
					To Hub 1	To Hub 2
MMRA Voice Repeaters						
10m	Marlboro	29.680	131.8	W1MRA	PTL	PTL
6m	Marlboro	53.810	71.9	W1BRI	PTL	PTL
2m	Belmont	145.430	67.0	WA1RTT	—	—
	Mendon	146.610	146.2	AE1C	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	Burlington	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
	Brookline	146.820		K5TEC	FTL	PTL
	Marlboro	147.270		W1MRA	PTL	PTL
1¼m	Hopkinton	223.940	103.5	K1KWP	FTL	PTL
	Weston	224.700		N1NOM	FTL	PTL
	Marlboro	224.880		W1MRA	PTL	FTL
70cm	Lowell	442.250	88.5	K1LVF	FTL	PTL to 446.775
	Weston	442.700		W1MRA	**Network Hub 2** (PTL to Hub 1)	
	Burlington	446.775		W1DYJ	FTL	PTL
	Southboro	449.575		W1BRI	PTL	PTL
	Marlboro *	449.925		W1MRA	**Network Hub 1**	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	—
	Marlboro *	927.700		W1MRA	PTL	—
MMRA "Other" Systems						
Marlboro		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
* Internet	449.925: **Echolink ; IRLP node 4133**					
	927.0625: **IRLP node 4977**			**Normally linked to the NEAR-900 Reflector, 9125. Linked to MMRA via IRLP for the TIAOS net. Normally linked together.**		
	927.700: **IRLP node 4978**					

Notes: FTL = Full Time Linked (or default state)
PTL = Part Time Linked (on schedule or demand)
Note — a repeater can be linked to only one Hub at a time.

PL: PL is required to prevent interference. .

President's Corner
Bob DeMattia — K1IW

Although many club members are familiar with MMRA's seven two meter repeaters and perhaps our 449.925 HUB, the club also operates many other repeaters that get a lot less use.

Is 449.925 too busy or tied up with a net? Consider our Southborough machine on 449.575. It's got excellent coverage, and we normally don't link it. This system provides an alternate to our primary HUB.

Going north? 442.25 provides fill-in coverage for the Lowell area and is linked to our HUB.

If the 1.25cm band interests you, we've got three repeaters on this band: 224.7 in Weston, 223.94 in Hopkinton, and 224.88 in Marlborough. The first two are normally linked to our HUB, so there's usually someone to talk to. 224.88 is collocated with 449.925, but is normally linked to HUB2. A fourth 222 machine is in the works for our Quincy site and will operate on 224.4.

Why not try our ten meter repeater on 29.68? You never know when the band will open and you'll hear stations from all over Europe?

Rounding out the bands, we operate a six meter system on 53.81 and two repeaters on 900 MHz - one in Marlborough on 927.7 and a second at the top of One Financial Center in Boston on 927.0625.

So whatever band you like to operate — from 29 MHz to 927 MHz, MMRA has a repeater for you. Take a look at our repeater list on page 2, then try out some of MMRA's best kept secrets.

Bob

The Amateur's Code

The Radio Amateur is:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

Paul M. Segal, W9EEA, 1928

HUB 1 Renovation Update

On October 22, we completed most of the work on MMRA's longest running project: the HUB1 shelter renovation. Forward movement on this project was encouraged when the shelter developed some moisture issues during the August rainstorms and again during tropical store Irene. The work began in earnest on Friday the 21st when all of the equipment was removed from the old shelter. By Sunday, 147.27, 449.925, and 927.7 were back on the air. The APRS and 224.88 shortly followed. All of the systems at this site are now back to normal. Keep an eye on our January issue when we will publish a full report.

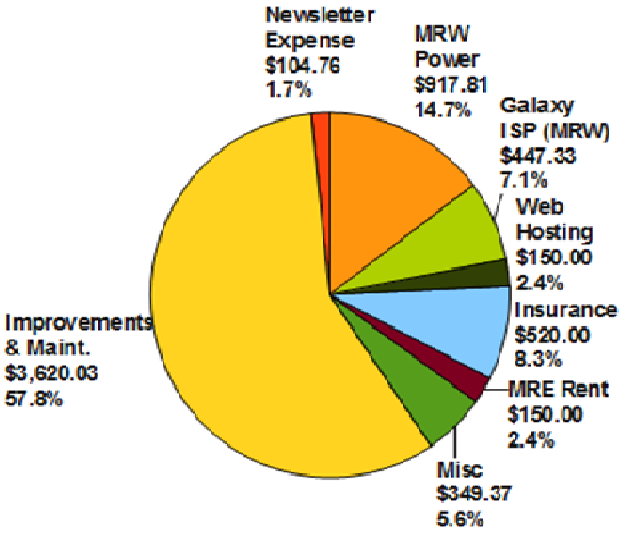
Treasurer's Report
Kevin Paetzold — K1KWP

The MMRA **2010-2011** fiscal year ended on May 31. In this report I will refer to the **2010-2011** year as "**last year**". We are now in the **2011-2012** fiscal year which I will refer to as "**this year**".

More than **$3600** was spent on expanding and improving the MMRA repeater system last year. Some of the projects and improvements included:

- Preparation/Rehab of the new shelter for MRW
- Purchase of a modified MASTR-II for Quincy 220
- Purchase of additional SCOM 7K controllers allowing the retirement of the remaining 5K controllers.
- Addition of the Lowell repeater
- Modification of the D-STAR repeater to use a MASTR-II

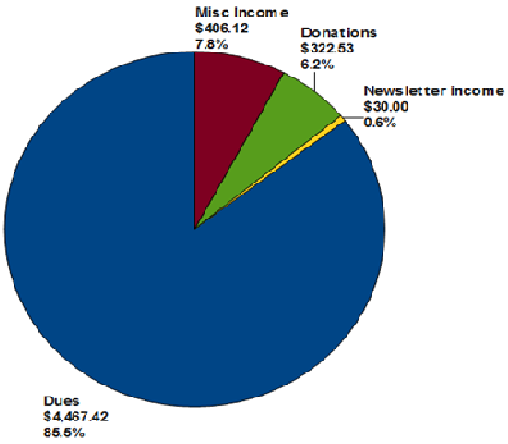
Spending 2010-2011



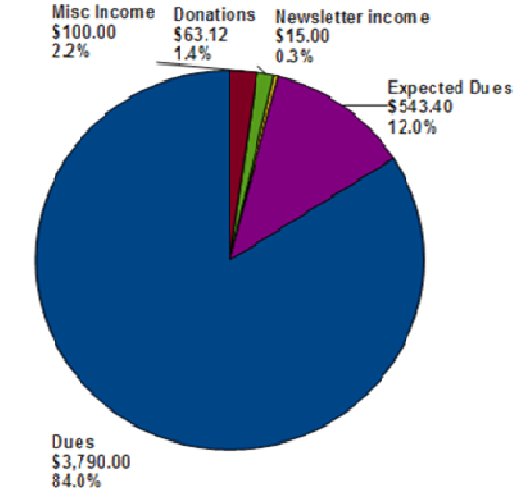
Some of these projects are still in progress but of those still in progress all are expected to complete in the first half of this year. The MMRA is now responsible for **21 repeaters on 6 bands** (10M(1), 6M(1), 2M(8), 220(4), 440(5), and 900(2). The pie chart above details these costs.

Last year was a "Boxborough Year". This means that a significant amount of memberships (> 50) were renewed for 2 years at the convention and significant amount of dues for this year were actually collected last year. From a gross receipts point of view MMRA income last year was **$6763**. However **$1645** of that income was for this years dues so the actual income **for** last year was **$5118**. The Pie charts below give details for the income for last year and for this year.

Income Sources 2010-2011



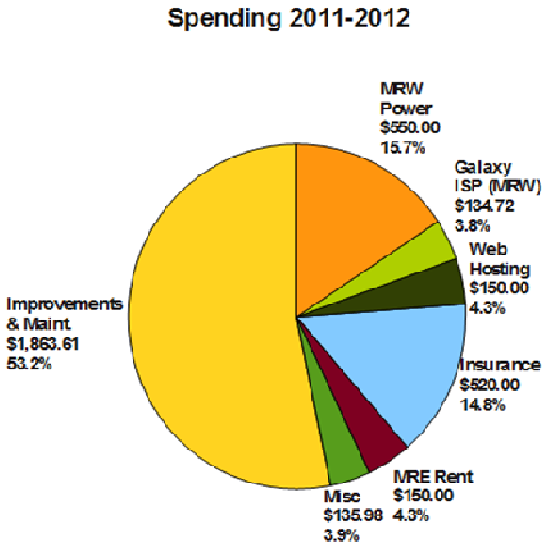
Income Sources 2011-2012

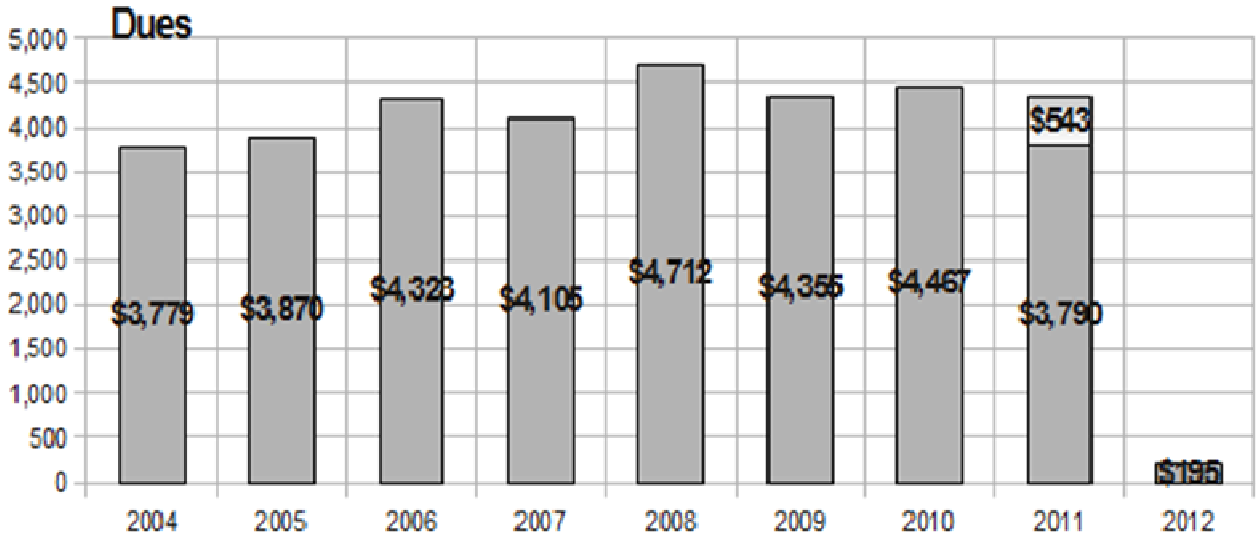


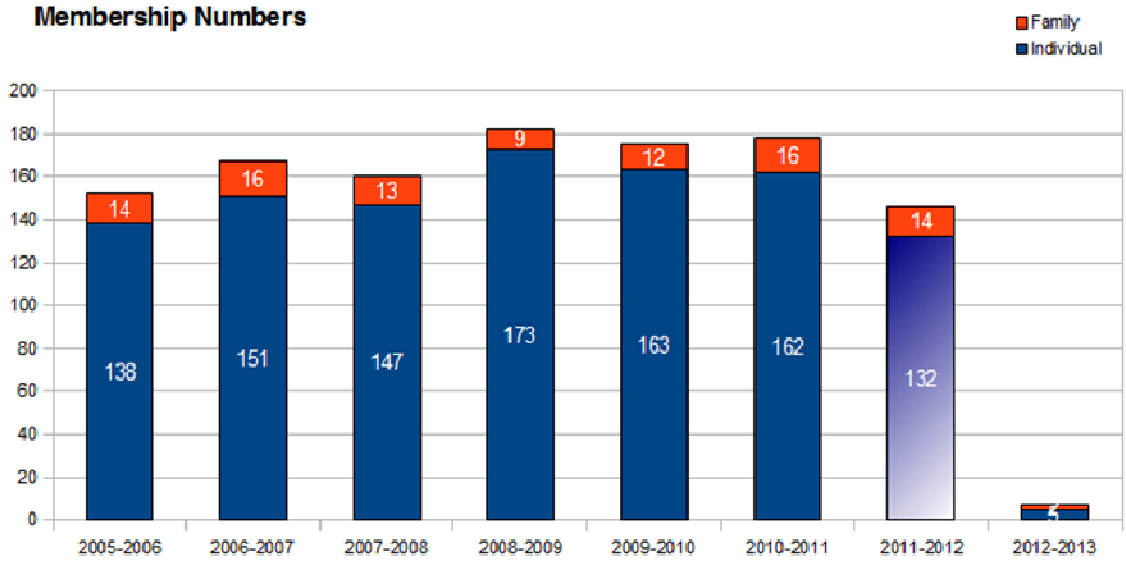
Treasurer's Report ~ continued

Total spending last year was **$6259** vs. the gross income of **$6763**. From that perspective the MMRA had a surplus year as income exceeded spending by **$503**. However when the dues for this year (collected last year) are subtracted our spending (last year) exceeded our income by **($1141)**. The pie chart to the right gives details on the overall spending so far for this year.

Details on the dues income and on the membership statistics are shown in the two histograms below. It is expected that $543 in additional dues will be collected for this year. 44 members from last year have not yet renewed for this year.







MMRA Repeater Controller Primer – Part 1 - Standardization

Bob DeMattia — K1IW

The repeater controller is the heart of any repeater system. It takes the audio, signal detect, and "PL" tone detect lines from the receiver, injects voice and CW messages, and generates the audio and PTT signals to control the transmitter. In addition, other inputs such an intrusion and power fail detection are processed by the controller.

With the upgrade of the Hopkinton repeater outlined in our September issue, all MMRA repeaters except 145.43 are now controlled by SCOM Industries controllers. Our two HUBs, 449.925 and 442.700 utilize the newer SCOM 7330 controller, while all other systems have SCOM 7K controllers. Due to historical reasons, 145.43 has an Arcom RC210 controller.

Prior to "standardization," the MMRA sites had different configurations. Some used SCOM 7Ks, others used older SCOM 5Ks, and some used even older types. Sites with two repeaters had a separate controller for each. If these sites were link capable, a specially built hardware box was use to cross connect the two controllers to the link radio. Each hardware box was slightly different. There was much work involved in keeping all the control code for the different controllers in sync. DTMF commands across the MMRA network were inconsistent.

The first step was combining the separate controllers at the dual repeater sites. This began at the Weston site when the 224.700 5K controller and the custom built hardware linking box was removed. Everything was then connected directly to the 2m repeater's 7K.

Because a 7K only has two and one-half ports, getting it to operate with three full ports requires a trick. The vestigial third port is receive only; it doesn't have the audio or control lines to control a transmitter. To accomplish this, one of the 7K's logic outputs is set up to operate the PTT line. The transmit audio for the third port comes from the audio line that would normally be used for the autopatch audio. Since none of our sites have the autopatch board installed, this works out nicely. The last two pieces of the puzzle are to (1) configure the macros on the controller to turn the logic output on and off based on activity from a connected receiver and (2) change a capacitor in the autopatch audio circuit to provide the correct frequency response to the transmitter audio input. With all the hardware and firmware in place, it is a simple task to tell the controller which receivers should activate which transmitter.

Once the Weston site was converted, it was left to run as a trial for several months. After the kinks were worked out on Weston, I performed identical conversions on Quincy, Stoneham, Marlborough East, and Marlborough West. At a later time, Stoneham and Marlborough East were moved to their present day locations in Burlington and Mendon respectively. The latter move created a bit of a setback, as the controller at Marlborough East was running both 53.81 and 146.610. When '61 was moved, it took the controller with it. 53.81 went back to using its old Hamtronics controller. It remained this way until the 29.68 machine was installed, at which time a new 7K controller was installed to handle 6m and 10m. The new single repeater sites at Brookline and Lowell were built using 7K's. Finally, the older 5K-based single repeater sites at Shrewsbury (now Southborough), and Hopkinton were converted to 7Ks.

All of the linking is controlled with the SCOM. The 7330 is capable of operating any combination of three repeaters or link radios. At HUB1, port #1 is the 449.925 repeater, port 2 is the IRLP RF link, and port 3 is unused. At HUB2, port #1 is the 442.700 repeater, port 2 is the RF link to HUB1, and port 3 is unused. Sometime in the future, HUB2 will have an IRLP placed on port 2 and the RF link will move to port 3.

At all the non-HUB sites, ports 1 and 2 are repeaters while port 3 is the RF link back to the HUBs. For example, at Marlborough West, 147.27 is on port 1 and 224.88 is on port 2. At sites with only one repeater, for example Mendon, port 2 is unused. If MMRA wanted to add a second repeater, the controller code is already set up to operate port 2.

In the next installment of this article, I'll review how MMRA linking commands work.

September Membership Meeting

Rob Macedo, KD1CY Tornadoes and Hurricanes

(Notes from Kevin Paetzold, K1KWP)

Meeting started at about 7PM. There were 24 attendees. K1IW led the meeting and after the usual introductions showed a slide deck from the treasurer showing overall 2011-2012 membership renewal status.

The presentation also had details and pictures to guide the discussion on:

- repeater status of each machine
- three spending items (see below)

1 The need for an antenna mast/guy line repair at the Weston site. *This is essentially an emergency situation as the tower on top of the building is now leaning.*

- Cost Estimate for labor and materials from professional climbers in $1640.
- Motion to spend this money was made by N1NVK.
- Motion was seconded by K1JWB.
- Vote of membership was unanimous in the affirmative.

2 Proposal to purchase a new PA for Weston HUB2 transmitter.

- Cost estimate is $700.
- Motion was made by W1DYJ.
- Motion was seconded by K1KWP.
- Vote of membership was unanimous in the affirmative.

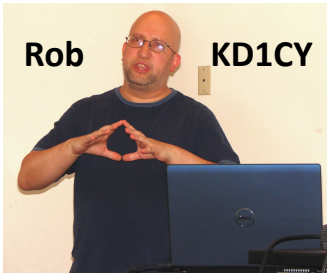
3 Proposal to fund the WA1NVC project to replace the Weston HUB2 repeater with a Motorola MSF5000. The new PA purchased as part of #2 above would then be moved to Burlington UHF repeater when this new MSF5000 repeater becomes functional.

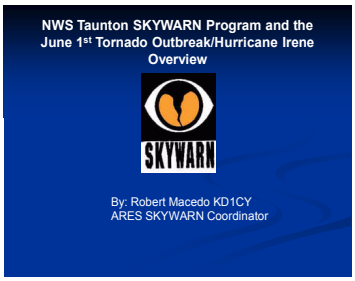
- Cost estimate is $500.
- Motion was made by K1IW.
- Motion was seconded by N1DDK.
- Vote of membership was unanimous in the affirmative.

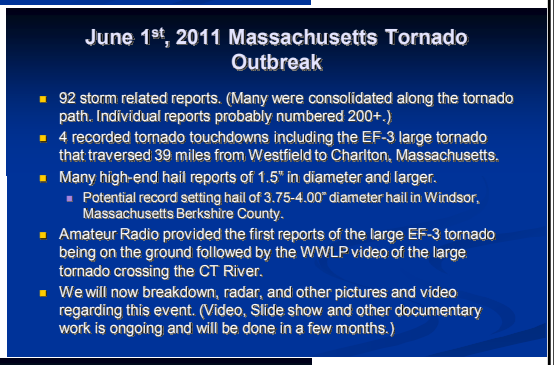
K1IW announced that next meeting (which would have been called a Board meeting) will be on Weds, Oct 19 at Southboro House of Pizza.

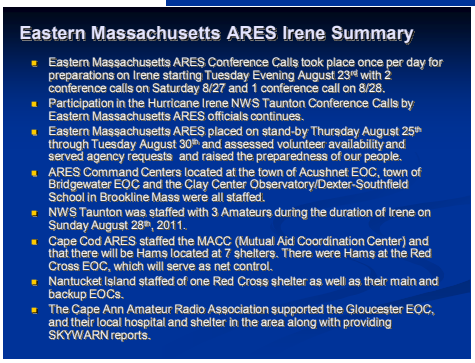
At this point the meeting was handed over to KD1CY who gave an interesting talk on SKYWARN and the June 1 Tornado and Hurricane Irene. (See part of Rob's presentation to the right.)

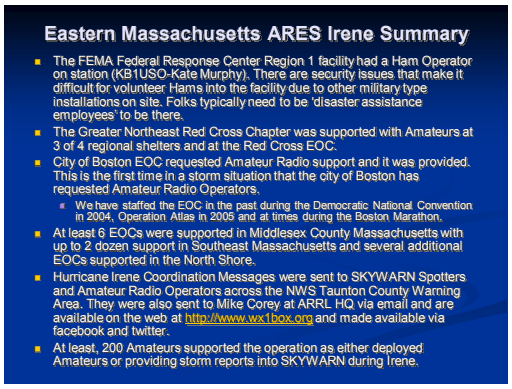
Meeting Adjourned at about 8:45 PM.











MMRA October Board of Directors meeting

Bob Evans ~ N1BE ~ Clerk

The MMRA Board held a business meeting at 7:00 PM on October 19th at the Southborough House of Pizza. In attendance were: K1IW, N1BDA, N1NVK, W1BRI, WA1NVC, N1BE, K1KWP, W1MPN, W3EVE, AB1IV, K1VEA, K3FG, KB5JR and W1LSB.

The meeting began with a Treasurer's Report by K1KWP. This report compared income from various sources for the current and several prior fiscal years. It then looked at various expenses for the current and prior years. Some of the larger planned expenses include antenna repair, a replacement repeater and UHF PA at the Weston site. Although Kevin projects a deficit for this year, MMRA is making planned expenditures and we generally have income exceeding the expenses with only one small deficit in the prior seven years. With dues as the primary source of MMRA funds, the report concluded with a review of membership numbers. Fifty more members need to pay dues to reach the number of club members that we had last year.

K1KWP then asked the board to consider what to do about the club liability insurance the MMRA purchases each year. This insurance is part of a pool coordinated by the ARRL. The League previously made available club insurance from Marsh but now they are working with a different insurance company. We discussed whether to stay with Marsh or to change to the new insurance company recommended by the League. Without costs or coverage terms to compare, the board did not have the information to make a decision. The board gave Kevin guidelines for making the choice once he has complete information from both companies. If the terms offered by the insurance companies are outside those guidelines, Kevin will request an email vote by the board to decide which option to choose.

K1IW then discussed status of various repeaters in the MMRA system. Problems and planned work noted in May 2011 have been rectified or performed on 29.68, 145.16, 146.61, 223.94, 224.4 and 442.7. New problems were noted on two repeaters, Buzz-Buzz interference on the input to 146.67 and a PA issue on 147.27. Bob will provide more details of the repeater status elsewhere in the MMRA newsletter.

This weekend MMRA will be doing repairs at the MRW shelter. This will include repeater downtime for several days and it may provide an opportunity to do some work on 147.27. Marlborough is presently doing work at the location of the MRW site. We expressed some concerns that work on the tower by the city might disconnect our antennas without notice to the MMRA.

W1JMC has donated a radio to the MMRA for APRS. The board previously voted to accept this donation. We discussed but did not reach a conclusion on where to use this equipment. K1IW asked K1KWP and W1BRI to work up a proposal offline.

KB5JR approached the MMRA requesting affiliation for a new UHF repeater he has installed on Oak Ridge in Harvard, MA. This led to a discussion of terms for affiliation. The board unanimously approved these terms:

1) The MMRA must have codes to link and unlink affiliated repeaters.
2) Control codes must be accepted on the link Rx frequency and on the repeater input.
3) If the affiliated repeater is individually owned, the owner must be an MMRA member in good standing.
4) The repeater must be coordinated.
5) The MMRA reserves the right to terminate affiliation at any time for any reason.

The board then returned to considering affiliation of the KB5JR repeater. We unanimously approved affiliation once it is on the air and the above terms are met. The repeater will need to be programmed for linking and unlinking codes that are coordinated with other codes used in the MMRA system. Also, the repeater will be moving to a new frequency upon the recommendation of the 70cm frequency coordinator. Look for this new repeater on 448.475!

Considering that there are 20 MMRA members with board meeting voting rights we had a brief discussion about the large number of Officers, Directors and Trustees who are eligible to vote at board meetings. This is a little more than 10 percent of the membership. But only for the last several years did Trustees have a board vote. Also we have no trouble getting a quorum for a board meeting. No action was taken.

The meeting adjourned at 8:13 PM.

2011—2012 Meetings

21 September
Rob Macedo, KC1CY — Tornadoes and Hurricanes
Westborough Public Library ~ 7:00 PM

19 October — Business Meeting
Southborough House of Pizza

16 November
Ham Radio at The Boston Marathon
MEMA Hqtrs, Framingham ~ 7:30 PM

14 December — Business Meeting
Stratus, Maynard

18 January
All About D-Star — Terry Stader, KA8SCP
Cary Memorial Library (Lexington, MA) ~ 7:00 PM

15 February — Business Meeting
Conexant, Waltham

21 March
TBA
TBA ~ 7:00 PM

18 April
No meeting in April

16 May
TBA & MMRA General Elections
TBA ~ 7:00 PM

20 June — Business Meeting
Kennedy's Pub, Marlboro

Don't Forget!

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

The MMRA's repeaters are linked Tuesday nights for the TIAOS Net. Join us! This is a good way to keep up with what is happening in the MMRA and ask your ham related questions.

If you would like to try your hand at Net Control contact me at W1DYJ@mmra.org – we have a script you can use.

Current Net Control Operators:

Week 1	WA1JIM	Jimmy Devaire
Week 2	W1DYJ	Larry Banks
Week 3	KQ1Y	Tim Wortley
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks

To connect using the digital modes during the Net:
Use the New England Reflector: connect via ***NEW-ENG*,** node 9123**.** You can find this under "Node Types" >> "Conferences."
For the HHTN, use *NEW-ENG2*, node 9127

MMRA Leaders

Officers

President	Bob DeMattia	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Technical Officer	Bryan Cerqua	W1BRI

Board of Directors

Director »2012	Clark Conti	N1NVK
Director »2012	Mike Neilsen	W1MPN
Director »2013	Steve Schwarm	W3EVE
Director »2013	Roger Coulson	WA1NVC

Repeater Trustees, Appointed

Belmont 145.430	Larry Arone	WA1RTT
Boston 927.0625	Rick Zach	K1RJZ
Brookline 146.820	Bob Phinney	K5TEC
Burlington 146.715	Bruce Pigott	KC1US
Burlington 446.775	Larry Banks	W1DYJ
Hopkinton 223.940	Kevin Paetzold	K1KWP
Lowell 442.250	Vince De La Flor	K1LVF
Marlboro 53.810, Quincy 146.670, Southboro 449.575		
	Bryan Cerqua	W1BRI
Marlboro 144.390, 47.270, 224.880, 449.925,		
Weston 442.700, 927.700 — all as W1MRA		
	Bill Northup	N1QPR
Mendon 146.610	Jim Podsiadlo	AE1C
Weston 146.790	Bob Evans	N1BE
Weston 224.700	Eddie Mulhern	N1NOM

Appointed, non-Voting

Newsletter Editor	Larry Banks	W1DYJ
Emergency Coord.	Kevin Paetzold	K1KWP
Public Service Coord.	Bruce Pigott	KC1US
VEC Liaison	Bill Wade	K1IJ
Net Manager	Larry Banks	W1DYJ
Web Page Editor	Bob DeMattia	K1IW

MMRA VE Sessions

3rd Saturday of each Month
9 AM at the
Marlboro Public Library

Contact: Bill Wade, K1IJ
781-891-9079
Evenings 6 - 10 PM
Weekends 8 AM to 10 PM.

Accredited by the ARRL VEC

Membership Meeting ~ Wednesday, 16 November 2011 @ 7:30 PM

Ham Radio at The Boston Marathon

MEMA Headquarters in Framingham

Calendar of Ham Radio Flea Markets

See this web site for more information: http://mit.edu/w1gsl/Public/ne-fleas

12 Nov	Bourne MA	FARA @UpperCC
3 Dec	Windsor CT	VR+C Mus
25 Feb	S Burlington VT	HAM-CON @HI
3 Mar	Feeding Hills MA	MtTARA @TurnverneinClb
4 Mar	Hicksville NY	LIMARC @LevitHall
18 Mar	Southington CT	SARA @HS
25 Mar	Framingham MA	FARA @KeefeTech
15 Apr	Cambridge MA	FLEA at MIT
28 Apr	Gales Ferry CT	RASON Auction @FireCo
4,5 May	Deerfield NH	Nearfest XI @FG
12 May	E Greenbush NY	EGARA @FD
20 May	Cambridge MA	FLEA at MIT
16 Jun	Newington CT	NARL @StMarySch
17 Jun	Cambridge MA	FLEA at MIT
15 Jul	Cambridge MA	FLEA at MIT
12 Aug	Adams MA	NoBARC @BoweFld
19 Aug	Cambridge MA	FLEA at MIT
8 Sep	Ballston Spa NY	SCRACES @FG
15 Sep	Forestdale RI	RIAFMRS @VFW
16 Sep	Cambridge MA	FLEA at MIT
27 Oct	Gales Ferry CT	TCARC Auction @FireCo
28 Oct	Hicksville NY	LIMARC @LevitHall

THE MINUTEMAN REPEATER ASSOCIATION

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