The Minuteman Repeater Association

The Minuteman

Volume 35, Number 1 September 2005

MMRA Board Minutes

The MMRA Board met at 7:00 PM in Chin's Restaurant, Marlboro MA on June 15th. Present were K1IW, W3EVE, K1KWP, N1BDA, W1DYJ, W1JMC, N1NVK, N1QPR, N1VJE and N1BE. The following summarizes the items discussed.

The main item discussed was the availability of a new repeater site at the Clay Center in Brookline. By donating feedline and a dual band antenna, we can house a MMRA owned 2-meter repeater at this impressive site. Our equipment would include the 2-meter radios, duplexer, and a diplexer to share the antenna with the Clay Center 440 MHz repeater already on the site. Our repeater would utilize the controller already in place for the 70-cm repeater. Initially the repeater will operate on 146.61 MHz but a concern raised by several present was the need for an alternate frequency to avoid co-channel interference with the Marlboro repeater. We are seeking an alternate frequency. [The current repeater status is shown on page 2 of the newsletter. Check our website at www.mmra.org for the latest information.]

The board approved $70 to purchase an antenna for operating the old 449.925 repeater in Weston on 442.7. It would share a controller with 224.7.

The board decided to not purchase WAV files for custom voice ID's. K1IW will email text of the desired ID's to board members to see if we can generate satisfactory files without any club expense.

A new newsletter editor is being sought. In the spring, N1BE indicated his desire to turn over the task to someone else. The board is seeking a volunteer to learn help with this task. Starting with the November newsletter, the MMRA officers will do the task in rotation if a volunteer cannot be found.

Finally possible topics for next year's meetings were discussed. The ideas included: the Clay Center telescope, Todd Gross, Haystack Observatory, Weston Observatory, USS Salem, Mark Duff, NWS Taunton, Cape Cod Canal control center, and FEMA.

Informally, N1BE suggested a revival of live MMRA fox hunts. Since June 21, we have had Tuesday night hunts on 147.27 at 6PM. Consider joining the fun or calling in with signal reports from your QTH.

A New MMRA Year

The MMRA year begins on September first. A new volume of the newsletter is started; and we're now in our 35th year.

With the new year, memberships are due for renewal. Dues provide the funds to maintain the repeater systems and the MMRA would cease to exist without the support of the members.

Annual dues are $25.00 (individual) or $35.00 (family). Dues may be paid in three ways:

- Electronically via member login to www.mmra.org,
- By US Mail of a membership form and check,
- In person at the MMRA meeting.

Membership forms are available on the MMRA web site. A renewal form is also included in this newsletter.

Please renew your membership now and save us the additional expense that it will take to bill you!

Inside this issue:

MMRA Information	*2 - 3*
President's Corner	*3*
Brookline Revisited	*3, 6*
Repeater Report	*4 - 5*
Membership Form	*Insert*
Operating AO-51	*6*
Public Service	*7*
Next Meeting	*7-8*

About the Minuteman Repeater Association

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

The Minuteman newsletter is mailed 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.

The MMRA meets 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.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Feel free to 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 mmra@mmra.org. The MMRA maintains a web site at: http://www.mmra.org/

An email distribution list for club members named "MMRA" has been established on: http://www.yahoogroups.com/

MMRA requests that no part of this newsletter be copied or posted elsewhere without prior approval from the club. Your cooperation in this matter is greatly appreciated.

Repeater and Frequency Information

Location	MHz	PL	Call	Note
Bolton	29.620	131.8	W1OJ	Affiliated, FTL
Marlboro	53.810	71.9	W1BRI	PTL
Norwell	145.250	77.0	AC1M	Affiliated, PTL
Belmont	145.430	67.0	WA1RTT	Affiliated, PTL
Marlboro	146.610	100.0	N1BHI	PTL
Brookline	146.610	146.2	K5TEC	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.820	146.2	N1BE	PTL
Marlboro	147.270	146.2	W1MRA	PTL (to 10 Meters)
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	103.5	N1NOM	FTL
Marlboro	224.880	103.5	W1MRA	FTL (to 10 Meters)
Weston	442.700	88.5	N1NOM	FTL (Coming soon)
Norwell	443.600	88.5	NS1N	Affiliated, PTL
Brookline	446.325	146.2	W1CLA	Affiliated, PTL
Stoneham	446.725	88.5	N1NVK	FTL
Milford	446.825	100.0	WA1QGU	Affiliated, PTL
Brookline	447.875	136.5	K1IW	Affiliated, FTL
Shrewsbury	449.575	88.5	W1BRI	FTL
Belmont	449.650	67.0	WA1RTT	Affiliated, FTL
Marlboro	449.925	88.5	W1MRA	Network Hub

Marlboro	144.390	none	N1QPR-2	APRS Digipeater
???	145.630	146.2	W1MRA	Fox Box

Internet	Echolink node 94940 connects to the Network Hub

Notes: FTL = Full Time Linked (usually to the Hub).
PTL = Part Time Linked (on schedule or demand).
Most repeaters link to the MMRA hub. Several can link to an alternate destination.
Additional repeater information is on the MMRA web site.

PL: PL is required to prevent interference. The code **750** will temporarily disable the MMRA PL requirement.

Using the Autopatch: Only the hub has a telephone line.
(1) Link to the hub if necessary.
(2) Then bring up the patch using the 449.925 autopatch codes.

Control codes are sent to members upon receipt of dues.

President's Corner - by Bob DeMattia, K1IW

I hope everyone had an enjoyable summer. The weather was hot and dry, I think the way summer should be. Technically, things are going well. Many thanks go to Bryan, W1BRI for this. Our thirteen FM repeaters have been keeping him busy. Over the summer, repairs were made to the Shrewsbury repeater, and Bryan has been busy constructing our 14th repeater which as I write is due to go on the air in two days.

Last year, I started off my first president's corner urging members to become more active. It is certainly a lot of work to keep all this equipment running, and the only reward we get is to see them get used. A friendly conversation on the way to or from work will make the commute more enjoyable. For those members who are retired, it is a great way to keep in touch with old friends and new ones. A number of members have contacted me saying they are no longer active because their radios have fallen into disrepair. MMRA has dozens of members that are ready to help you get back on the air. Just drop an email to mmra@mmra.org and we'll find someone to help you.

A disappointment for me this past year has been poor meeting attendance. We had a peak at the beginning of the year with the WGBH transmitter tour, but attendance after that dropped off significantly. This is disappointing because the board has worked hard to feature interesting topics and events. We have also moved the meeting locations to favor different geographic areas and away from the Campion Center, which we were told was difficult for many members to find. Even offering free food at our January meeting, something that almost always works, didn't bring many people out of the woodwork. With over 175 paid members in our club, we should easily be able to see meetings with fifty people in attendance.

With your help by participating, we can reverse the trend of the last decade. It would be all to easy to turn MMRA into the "Minuteman Repeater Corporation", an entity that collects dues to keep repeaters running. This sort of thing would really not be in the spirit of Amateur Radio, which should be a hobby about friendships and mutual interests among people, not just a collection of electronic machines.

Our September meeting will feature Rob Macedo, who is heavily involved with the Amateur Radio Emergency Service (ARES) and with the National Weather Service SKYWARN program. Rob is very knowledgeable in these areas and has graciously accepted our request to present at our meeting. We will be meeting at the Massachusetts Emegency Management Agency Headquarters in Framingham, which is very centrally located for our membership base. If you need a ride, just send an email to mmra@mmra.org and we can hook you up with somebody else that will be attending from your area. Let's give Rob the courtesy of a plentiful audience. His topic should be of high interest not only to hams involved with public service, but to all of us. Public service is not only important for helping the public; it helps our hobby by justifying our frequency allocations, many of which are being sold off to the highest bidder.

So write September 21st in your calendar and stop by our meeting- we miss seeing you!

Brookline Revisited — by Bob DeMattia, K1IW

Many of our members are aware that MMRA had an affiliated repeater on 146.985 MHz in Brookline. This repeater is privately owned, but had the capability to be linked into the MMRA system when required. Because this repeater has its own users, and because it is an IRLP node, it was not often possible to link it to the network.

This situation has changed with the addition of an MMRA owned repeater on Mt. Walley in Brookline. This repeater is about 2 miles South of the formerly affiliated repeater. The table shows how the two repeaters compare. *(Continued on page 6)*

Repeater	Linked	Ant Ht. (ASL)	Equipment	TX ERP
Affiliated 146.985	Rarely	304'	Motorola GR400 Repeater, TE Systems Power Amp	236W
MMRA 146.610	Full-Time	374'	GEMastr II	300W

MMRA Leaders

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
Director	Larry Banks	W1DYJ
Director	Tom Muise	W1CDA
Director	Steve Schwarm	W3EVE
Director	Bill Thorpe	WA1NLR
Emergency Coordinator	Bill Northup	N1QPR
Net Manager	Tim Nau	W1NAU
Newsletter Editor	Help Wanted	
Public Service Coordinator	Kevin Paetzold	K1KWP
VEC Liaison	Bill Wade	K1IJ
Web Page Editor	Bob DeMattia	K1IW

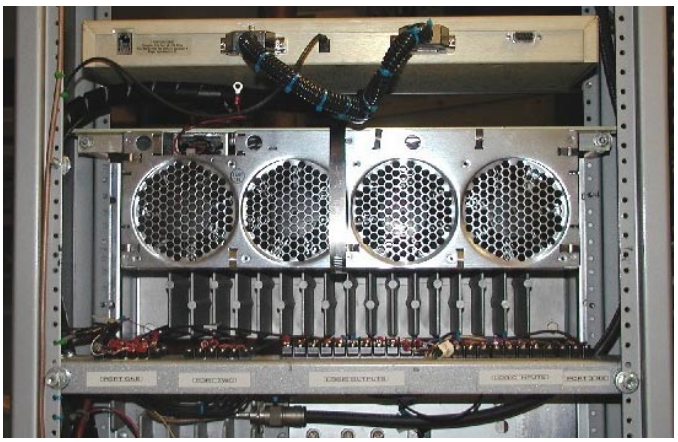
Repeater Report — by Bryan Cerqua, W1BRI

New Marlboro 449.925 HUB: This Motorola Micor was donated by Tom Muise, W1CDA. It is a fully solid state 75W repeater with built-in transmit isolator. The duplexer was obtained by trading our old 2-meter GE MASTR II Quincy repeater to Wayne, N1WPN. Conversion to ham band was straight forward and most of the information was obtained from the repeater builders web site. The most time consuming part of building this repeater was the custom wire interface harness and terminal strip breakout panel. All the SCOM 7K connections are accessible from this from this panel.

Controller Interface Panel

For easier testing, the station control module was modified so the transmitter could be manually keyed or disabled; a green TX LED was also added. As pictured in the last newsletter, a Motorola power meter was built into the cabinet.

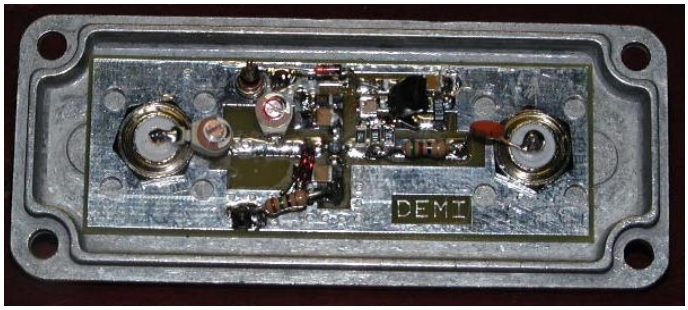
I had a nice array of 12V fans that mounted up very nicely across the back of the power amplifier. A small control circuit using a power MOSFET with a large capacitor and diode on the gate provide a few minutes of hold time to keep the fans on while the repeater is in use.



Fans mounted below SCOM 7K

Jason, KB1CKI, donated an 85AH gel-cell for battery backup. A nice thing about Micors is the backup battery can be directly connected across the power supply output. The supply has an adjustment to set the proper float voltage for the gel cell.

The repeater was first used with a commercial receive preamp. This preamp was from a combining panel system also donated by W1CDA. Since this preamp is designed for handling large amplitude signals, it is not optimized for low noise operation. Later I replaced it with a single cavity pre-selector and a GaAs FET preamp that I built from a Down East Microwave kit. The new preamp provides about 17 dB of gain with a very low noise figure and it made a noticable improvement.



Inside the Preamp

The new repeater sounds very good and has much better coverage than the old one. While exchanging repeater cabinets, I took the opportunity to clean up the site, removing power wires and coaxial cables that were no longer in use.

Many thanks to Wayne, N1XXI, for helping me remove the old 925 repeater and transporting the new repeater to the Slygo site. Also thanks to Tim, W1NAU, for helping install the new repeater. And thanks to Bob, K1IW, for programming the SCOM 7K controller with all new code. The code is already in place for adding a multi-channel link radio to connect to repeater networks in New Hampshire and Rhode Island. Outbound Echolink commands are also now possible.

Clay Center 146.61 and 446.325 UHF repeaters: The new two meter repeater is ready to go: The UHF repeater was initially built by Bob, K1IW, with some minor improvements by W1BRI for increased cooling and duplexer mounting.

The UHF repeater consists of two Motorola M120 mobile radios. The two meter repeater is a GE MASTR II donated by Andy, N1BHI. The controller is an ARCOM RC 210 that supports 3 radios. The duplexer for the two meter repeater was made possible by a generous donation by Keith Wheeler of Lands Towing. The link for connecting to the 449.925 HUB repeater is a GE MASTR II mobile that was excess once the older 147.27 repeater system was removed. The link radio is tucked away on the inside of the low boy rack. Tim, W1NAU, and I fired up this system one Friday afternoon using a V2000 antenna mounted on my sun deck with a small UHF beam for the 925 link radio. Plans are to install this repeater by the end of August.

(Continued on page 5)

Minuteman Repeater Association
Quick Membership Renewal

(**Renew online** — Use the Member's Login on www.mmra.org)

Name: _____

Callsign: _____

Email: _____

Dues paid (please check one):

☐ Individual Membership (Dues: $25 per year)

☐ Family Membership (Dues: $35 per year)

Do you want to receive the newsletter via email? If so, you'll receive more content earlier and save the MMRA over $7.50 per year.

☐ Check box for Electronic Newsletter: You must supply an email address.

Any info changed since your last application was filed?

☐ If yes, please check and fill in new info here:

Please submit completed application forms with your dues at the MMRA meeting or mail to:

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

Form Revised: 2005-01-05

Minuteman Repeater Association, Inc.
P.O. Box 669
Stow MA 01775-0669

A Non-Profit Communications Organization Serving the Public in Time of Emergency.

— Membership Form —

☐ **New or** ☐ **Renewal**

☐ **Individual Membership (Dues: $25 per year) or** ☐ **Family Membership (Dues: $35 per year) or** ☐ **Novice Membership (1st year Dues: $10)**

I hereby apply for membership in the MINUTEMAN REPEATER ASSOCIATION, INC. I agree to abide by the rules and regulations of the Association as stated in the bylaws., and understand that acceptance of this application entitles me to all rights and privileges of membership as provided under the bylaws.

☐ **Check box for Electronic Newsletter: Receive more content earlier. Must supply email address.**

Name: _____ **Callsign:** _____ **Class of License:** _____

Address: _____ **Home Phone:** _____

Town, State, Zip: _____ **Work Phone:** _____

Email Address: _____

Occupation: _____ **Employer:** _____

Member of the ARRL? _____ **Other Clubs?** _____

Bands and Modes you operate. Please check all that apply:

	Fixed	Mobile	Portable	FM	DTMF	CW	RTTY	PSK31	APRS	Packet	SSB
HF											
VHF											
UHF											
Satellite											

I can and am willing to assist/serve the Association and/or help maintain the Repeaters in the following ways:

- ☐ **Antennas**
- ☐ **Association Officer**
- ☐ **Board of Directors**
- ☐ **Education**
- ☐ **Emergency Communications**
- ☐ **Equipment Construction**
- ☐ **Equipment Transportation**
- ☐ **Grant Writing**
- ☐ **Legal Aid**
- ☐ **Medical Aid**
- ☐ **Meeting Setup**
- ☐ **Net Control**
- ☐ **Newsletter**
- ☐ **Public Service**
- ☐ **Publicity**
- ☐ **Radio Shelters**
- ☐ **Refreshments**
- ☐ **Repeater Control Operator**
- ☐ **Repeater Technical Committee**
- ☐ **Social Events**
- ☐ **Speaking at a meeting**
- ☐ **Special Projects**
- ☐ **Technical Library**
- ☐ **Web Site**

Other—Please specify:

_____

_____

_____

_____

_____

Other family members:

Name: _____ **Callsign:** _____ **Class of License:** _____

Name: _____ **Callsign:** _____ **Class of License:** _____

Name: _____ **Callsign:** _____ **Class of License:** _____

Name: _____ **Callsign:** _____ **Class of License:** _____

Form Revised: 2002-02-24

Repeater Report - (cont.)

(Continued from page 4)

Tune-up of Clay Center 146.61

Shrewsbury 449.575: This repeater is off the air for service. So far I have replaced the duplexer cabling with the correct cable lengths. The losses in the system are much less now. The Uniden UHF link radio for connecting to the HUB was found to be off frequency by 1.5 KHz. The PL was re-centered on 88.5 Hz; this should take care of a problem with the link dropping out. The plan is to fully check out this repeater before putting it back on the air. The Diamond X500 antenna will also be fully tested for proper SWR. I suspect that something might be wrong with the antenna or jumper cable between the antenna and the hardline.

147.27 to 10 meter link radio: I discovered the TX frequency for the 10 meter link was off frequency by 3KHz. The link radio is a 2 channel GE Phoenix mobile. Once I had the radio on the bench at home I found it to be dead on frequency. I had mounted this radio to the repeater rack using a very strong disk drive VCM magnet. When I placed the magnet near the radio it caused the the transmit frequency to move by 3 KHz. The solution was to not use this magnet to hold the radio in place. The radio was re-installed the next day and all is well again with the 10 meter link.

53.81 Voter: The voter box was taken home for improvements to the audio path of the voter output circuit board to the MASTR II UHF link transmitter. An audio frequency shaping filter was installed to roll off some of the higher frequencies and the level adjusted up so that the low frequencies would be boosted. This gives a much more natural sounding audio.

New 442.700 Weston Repeater: The old 449.925 repeater is being fixed up and converted to 442.700 for operation in the near future at the Weston site. I finished the receiver which is a MASTR II mobile. It still uses the Quintron transmitter. The temperature compensated crystal oscillator module has been converted. Remaining work is to re-tune the transmitter and add some wires so that this repeater will run in parallel with the Weston 220 repeater.

Repeater cabinet installed at the attractive Clay Center site.
UHF repeater on top,
2-meter repeater below,
Black 2M duplexer cans to the left

AMSAT-OSCAR 51 — by Rick Meuse, N1HID

I'm a big fan of waiting for the 2 meter or 440 bands to open up because of atmospheric ducting which occurs when there is a change in the temperature or weather. It's great to work or listen to stations from Nova Scotia, Maine, Connecticut, or even states and provinces 200 or 300 hundred miles away. These stations could be coming through your local repeater or while scanning the band you may pick up an unknown repeater during these conditions. What if you could have these condition all year round and during the day or night, plus you are able to know just when this is going to happen. This is the beauty of working AO-51. You have this repeater in the sky during 5 to 20 minute periods throughout the day. You can talk / listen to hams either in your local area or many miles away. Plus you can do this with your HT, mobile radio or that old scanner you have collecting dust.

AMSAT-OSCAR 51 (Echo or AO-51) was launched June 2004. The voice uplink frequency that you transmit on is 145.920 FM and you need to turn on a 67 Hz PL tone. The downlink frequency where you can listen to this satellite is 435.300 FM. This satellite has a strong downlink; on some passes you can hear it outdoors with just the rubber duck that came with your HT. You can work AO-51 with a dual band HT or mobile radio by having the 2 meter side of the radio set to transmit on 145.920 with the pl set to 67 and the 440 side of the radio set to 435.300 and no pl tone.

145.920 MHz/pl 67 Hz and 435.300 MHz is set into the memory of my radio. To work AO-51, I'll bring up these memory settings and load the memory set on 435.300 into the VFO. Then I can adjust the VFO it up a little to maybe 435.310 or to where I hear the satellite.

Doppler shift causes the received frequency to vary so you have to adjust the receiver. A simple way to explain it goes like this: Imagine a train blowing its whistle as it passes you on the platform. As it approaches the whistle gets stronger and is raised in pitch. The moment it goes past, the whistle drops in pitch and begins to get weaker. During a pass of a satellite, it approaches until it reaches the highest point above the horizon. Then it moves away as it drops back down below the horizon. So as a satellite approaches I'll tune a little higher in frequency until I hear the satellite and start tune lower as the satellite comes closer but the approach slows and tune even lower as it passes. I'll start to receive AO-51 at about 435.310 MHz and as it gets closer I'll drop down to 435.300 and as it passes me I'll tune down to 435.290, until I hear it no more. You don't have to touch the 145.920 MHz transmit frequency because there is much less Doppler shift at 2-meters.

If you don't have a dual band radio, but do have a 2 meter FM radio and a scanner that receives 435.300 MHz, you can set the scanner in vfo mode or program a few memories from 435.310 to 435.285. The scanner is your receiver and with a good antenna you are able to listen and transmit to AO-51 at the same time. I would suggest trying to receive AO-51 with the scanner and you will start to know just when a good signal is being received on the scanner. This also is what I would do with the dual band radio.

To know when the satellite will be overhead, you will need a satellite tracking program or you can search the internet to receive passes for your area using satellite tracking they have setup on the web. More information is at: www.amsat.org. This is a good website to get you started on AO-51 plus there is a lot of info on other satellites.

You may contact me via email at: n1hid@amsat.org if you need more info. **I hope I'll catch you on AO-51!**

Brookline Revisited (cont.)

(Continued from page 3)

As you can see, we have an excellent site. The '985 repeater performed well in a 20 miles radius of Brookline. We can expect better from '61. Incidentally, the UHF affiliated repeater in Brookline will continue to be full-time linked at its current site.

It may seem confusing that MMRA now has two repeaters operating on the same frequency. This was done because (a) we didn't want to disenfranchise members who regularly use the Marlborough '61 repeater and (b) there are no 2m repeater pairs available in the Boston area. The solution is to have both repeaters available with different PL tones.

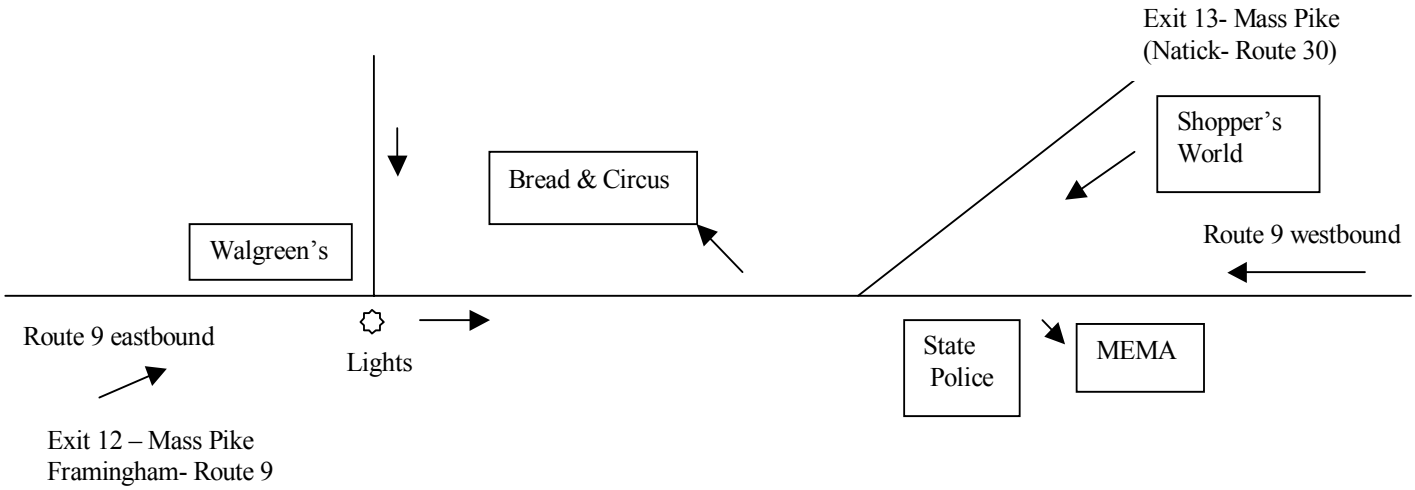
The Brookline machine is the primary repeater on the frequency and sports the MMRA standard 2m PL tone of 146.2 Hz. It is full-time linked to the MMRA network. The Marlborough repeater has a PL tone of 100.0 Hz, although it still has the capability to be linked, it generally will not be.

We cannot link both repeaters at the same time, as this would cause interference problems, especially at points where the two coverage areas overlap. Other than this, the arrangement should not create too many problems. As you would do on HF or 2M simplex, simply check to make sure the frequency is clear before operating on either repeater.

Many thanks go to club member Bob Phinney, K5TEC. He is employed at the Clay Center in Brookline which is the owner of the site. He agreed to allow MMRA to co-locate the '61 repeater with the Clay Center Amateur Radio club's UHF repeater. The repeaters share a Diamond X500 dual band antenna and an Arcom RC-210 controller.

Our January meeting will be held at the Clay Center Observatory, where the topic will be astronomy. Members attending will be able to see the observatory's laser as well as the amateur radio repeaters.

Directions to the MMRA Meeting



We will be meeting at the Massachusetts Emergency Management Agency, 400 Worcester Road (Route 9 eastbound), Framingham, MA. The MEMA telephone is (508) 820-2000. **Please monitor the talk-in on 146.82 in case we must make a last-minute change of plans.**

From the West:

1. Take Mass Pike East to Exit 12 (Framingham Route 9).
2. Travel approximately 2 miles to MA State Police Headquarters on the right, immediately followed by MEMA. (MEMA has several tall communications towers).
3. Enter through the gate.
4. 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 (Natick/Framingham Route 30).
2. Take Route 30 West towards Framingham and drive for approximately 2 miles going through all lights until the end.
3. Take a right onto Route 9 Westbound. (Note that the MEMA communication towers are visible across Route 9 on the eastbound side.)
4. Continue approximately ½ miles on Route 9 Westbound.
5. Turn right into the Bread & Circus parking lot to turn around.
6. Take a left out of Bread & Circus onto Prospect Street.
7. Take a left at the lights heading Eastbound on Route 9. MEMA is approximately 1.5 miles on the right.
8. Enter through gate.
9. MEMA is underground. Enter building and follow ramp to reception desk.

From the South:

1. Take Route 128 (95) North to Route 9 West (Exit 20B).
2. Follow Route 9 for approximately 8 miles. MEMA is on the Eastbound side of Route 9 and is marked by several tall communications towers.
3. Take your next right into the Bread & Circus parking lot to turn around.
4. Take a left out of Bread & Circus onto Prospect Street.
5. Take a left at the lights heading Eastbound on Route 9. MEMA is approximately 1.5 miles on the right.
6. Enter through gate.
7. MEMA is underground. Enter building and follow ramp to reception desk.

From the North:

1. Take Route 93 South to Route 128 (95).
2. Follow above directions, from the South step 2

Head of the Charles Regatta — by Jeff Arnold, N1FWV

Thank you to those who have already signed up for this years Head of the Charles Regatta. I still need quite a bit of help for Saturday and Sunday, both water and land positions are available. If you can spare time on 1, 2 or all 3 days, we would love to have you!

The event will occur at these times:

- Friday, October 21, noon-6:30PM
- Saturday, October 22, 8AM-6:30PM
- Sunday, October 23, 7AM-5:30PM

If you can help, please send me your name, call sign, home address, phone, cell phone, day(s) available, land or water station preferance and jacket size. Contact me via email at: RWJeffA@comcast.net or N1FWV@amsat.org.

[This is a low-stress event which you can operate with a 2-meter HT at low power. Water positions get a closer view of the rowing action than the general public. — Ed.]

Next Meeting — Wednesday September 21, 2005
KD1CY: ARES and SKYWARN

Rob Macedo, KD1CY wears two hats as ARES SKYWARN Coordinator and Eastern Massachusetts ARES Section Emergency Coordinator.

Although there is some overlap, the two roles are involved with ham radio support of the National Weather Service and of non-governmental agencies like the Red Cross. Rob will clarify the ARES and SKYWARN organizations and explain how you can get involved with Ham Radio Public Service.

We will meet at the MEMA EOC. Directions and map are on the previous page and on www.mmra.org.

The meeting will start at 7:30PM. **Please monitor talk-in on 146.820, a last minute change in plans may be necessary if MEMA needs to respond to an emergency or if there is a change in the Homeland Security Threat Advisory Level.**

Calendar of Ham Radio Events

Sep 18:	Flea @ MIT, Cambridge MA
Sep 21:	**MMRA meeting**
Oct 7-8:	Hosstraders Flea, Hopkinton NH
Oct 8:	NE Antique RC Flea, Nashua NH
Oct 9:	Nutmeg Flea, Wallingford CT
Oct 16:	Flea @ MIT, Cambridge MA
Oct 19:	**MMRA board meeting**
Oct 28:	**MMRA Newsletter Deadline**
Nov 5:	IRS Flea, Londonderry NH
Nov 12:	FARA Flea, E. Falmouth MA
Nov 16:	**MMRA meeting**
Aug 25-27:	ARRL Convention, Boxboro MA

(Flea market info from W1GSL list. http://mit.edu/w1gsl/Public/ne-fleas)

MMRA VE Sessions

3rd Saturday of each Month
9 AM at the Marlboro Public Library
Contact: Bill Wade, K1IJ
781-891-9079 Evenings 6 to 10 PM,
Weekends 8 AM to 10 PM.
Accredited by the ARRL VEC

THE MINUTEMAN REPEATER ASSOCIATION

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