



The Minuteman Repeater Association

# The Minuteman

Volume 36, Number 5

May 2007



## **Annual Meeting ~ 16 May, 7:30PM Astronomy Night (and General Elections) The Clay Center Observatory**

### **Ron Dantowitz, Director ~ Clay Center Observatory**

**Ron will discuss the latest educational and research collaborations and how they help inspire students of all ages to keep up an interest in science and technology. The talk will be followed by a tour of the observatory and some of the research equipment used for planet finding.**

**An aeronautical engineer, an astronomer, an educator, and recent winner of the Alan Shepard Technology in Education Award, Ron Dantowitz specializes in making science accessible and exciting to students of all ages.**

From 1988-2000 Mr. Dantowitz was Lecturer of Astronomy at the Hayden Planetarium at the Boston Museum of Science. He has spent more than a decade developing techniques for ultra-high resolution astronomical imaging. His astronomical images have been featured in hundreds of newspapers and dozens of magazines.

In 2000 Dantowitz joined the faculty of Dexter and Southfield Schools in Brookline, Massachusetts, where he is the Director of the Clay Center Observatory.

In October 2004 Mr. Dantowitz collaborated with Burt Rutan and Scaled Composites to photograph the X-Prize launches of SpaceShipOne, the first commercial manned spacecraft. Ron's telescopically tracked videos of the X-Prize flights were seen

on television news by more than one billion people worldwide.

In 2005 he collaborated with NASA, the US Naval Observatory, and several European space agencies to bounce a high power laser off a cube mirror placed on the International Space Station to yield some of the most detailed photos of a space satellite in orbit by a ground-based telescope.

One of Ron's current projects underway is the construction of a specialized van to house a mobile observatory and communications center that will allow students and astronomers to take their research to off-site locations. Another collaboration with the US Naval Observatory allows the Clay Center telescopes to be used for finding new planets around distant stars.

**The MMRA would like to thank Bob Phinney, K5TEC, for arranging this meeting.**

**Talk in freq: 146.82**

**More Information on Page 3**

## **Nominating Committee Report**

President	Bob DeMattia	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Director, 2007-2009	Steve Schwarm	W3EVE
Director, 2007-2009	Roger Coulson	WA1NVC

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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 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 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](mailto: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". Please 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](mailto:contact@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 at: <http://www.yahoogroups.com/>

***No part of this newsletter can 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, PTL (+ FTL to 448.625)
Marlborough	53.810	71.9	W1BRI	PTL
Norwell	145.250	77.0	AC1M	Affiliated, PTL
Mendon	146.610	146.2	N1BHI	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.790	146.2	N1BE	PTL
Brookline	146.820	146.2	K5TEC	FTL
Brookline	146.985	88.5	W1FCC	Affiliated, PTL
Marlborough	147.270	146.2	W1MRA	PTL
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	103.5	N1NOM	FTL
Marlborough	224.880	103.5	W1MRA	FTL
Weston	442.700	88.5	N1NOM	Network Hub 2 (PTL to Hub1 or 448.625)
Norwell	443.600	88.5	NS1N	Affiliated, PTL
Stoneham	446.725	88.5	W1DYJ	FTL
Princeton	448.625	88.5	W1OJ	Affiliated, PTL (+ FTL to 29.620)
Milford	446.825	100.0	WA1QGU	Affiliated, PTL
Brookline	447.875	136.5	K1IW	Affiliated, FTL
Southborough	449.575	88.5	W1BRI	FTL
Marlborough	449.925	88.5	W1MRA	Network Hub 1 (PTL to 448.625)
Marlborough	144.390	none	W1MRA	APRS Digipeater
???	145.630	146.2	W1MRA	Fox Box

Internet

Echolink node 94940

IRLP node 4133

#### Notes:

FTL = Full Time Linked (usually to Hub 1)  
PTL = Part Time Linked (on schedule or demand)  
Most repeaters link to the MMRA Hub 1, several can link to an alternate destination

#### PL:

PL is required to prevent interference. The code **750** will temporarily disable the MMRA PL on the 2M repeaters.

#### Autopatch:

Only the hub had a telephone line. Link to the hub if necessary, then bring up the autopatch using the 449.925 autopatch codes

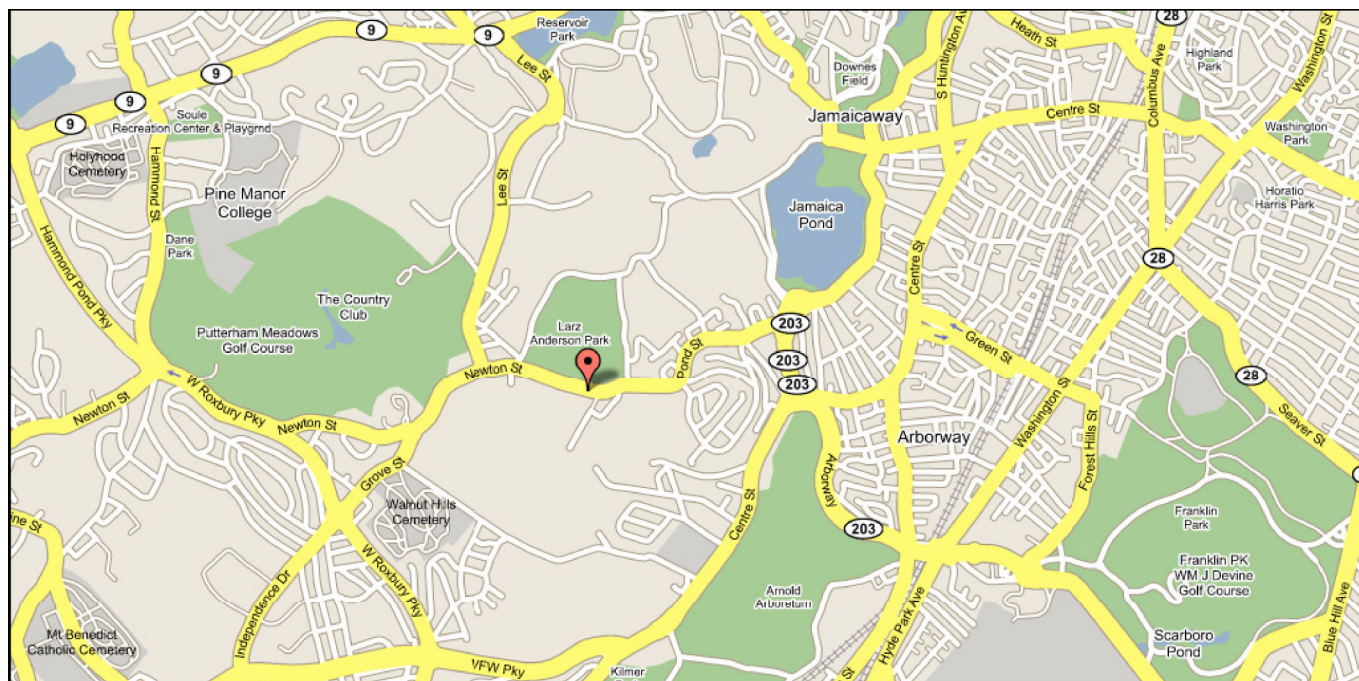
**Control codes are sent to members upon receipt of dues.**

**Annual Meeting ~ 16 May, 7:30PM**  
**Astronomy Night (and General Elections)**  
**The Clay Center Observatory**  
**Ron Dantowitz, Director ~ Clay Center Observatory**

**Talk in freq: 146.82**

**More information on Page 1**

### Directions to the MMRA Meeting



For those interested in dinner before the meeting, coordinate on 146.79

We will be meeting at **The Clay Center Observatory**, 20 Newton Street, Brookline, MA 02445. The Clay Center information phone number is 617-454-2718 **Please monitor the talk-in on 146.82 in case we must make a last-minute change of plans.**

#### **From the West:**

Follow Route 9 into Brookline. At the intersection with Chestnut Hill Ave near the Brookline Reservoir turn south onto Lee Street, keeping right at merge with Clyde Street. Continue to the end at the traffic lights and get in left lane. Turn left onto Newton Street, stay in right lane, and look for red tile and stucco buildings on your right. Turn right onto St. Paul's Avenue (some maps call it Mt. Walley Ave.) (Private Way) For the Clay Center: Take 2nd right through main gate, travel up the hill, bear LEFT, over top of hill, and park on Athletic Center roof deck.

#### **From the East:**

Follow the Jamaicaaway into Jamaica Plain. Follow the Jamaicaaway south, keeping Jamaica Pond on your right. (Ignore the Pond Street that goes east at the pond.) When the road is

split by a tree-lined park, get in the right lane and turn right at the traffic lights onto the Pond Street that heads west, up hill, and around many sharp curves. When the road straightens out look for Hopkins Road on your left. Take your next left onto St. Paul's Avenue (some maps call it Mt. Walley Ave.) (Private Way). For the Clay Center: Take 2nd right through main gate, travel up the hill, bear LEFT, over top of hill, and park on Athletic Center roof deck.

#### **From the South:**

Follow the VFW Parkway into West Roxbury. After Corey Street get in left lane. Look for signs for "Village at Chestnut Hill" and Bertucci's. Turn left onto Independence Drive, follow through lights, then straight through rotary onto Grove Street. Stay in right lane, and go straight ahead at lights by Exxon Station. You are now on Newton Street. Follow Newton Street through traffic lights at Clyde Street. Stay in right lane, and look for red tile and stucco buildings on your right. Turn right onto St. Paul's Avenue (some maps call it Mt. Walley Ave.) (Private Way). For the Clay Center: Take 2nd right through main gate, travel up the hill, bear LEFT, over top of hill, and park on Athletic Center roof deck.



## MMRA Field Day Activity

### *To be or Not to Be*

**Kevin Paetzold — K1KWP**

The MMRA has not had a field day activity since before I joined the club in 1998. The MMRA has not had a picnic or any other kind of get together (other than our widely attended meetings ☺) since the "Mobile-A-Thon" in 2001.

Because of the length of time since a picnic and/or because of the rules change which has resulted in many people having new HF privileges there has been some discussion and consideration to having a joint **club picnic** and field day activity. This year field day is June 23-24.

Recently a poll was issued on the [mmra@yahoogroups.com](mailto:mmra@yahoogroups.com) email list in order to determine if there are enough people interested to form critical mass to have such an activity this year. You can access that poll yourself at: <http://groups.yahoo.com/group/MMRA/surveys?id=2490207>. So far there does seem to be a group of people who have indicated interest and it may not take many more to make this happen.

If you would be interested in helping to make this event happen please respond to the poll or send email to [contact@mmra.org](mailto:contact@mmra.org).

There will not be another newsletter before field day weekend so be sure to monitor (although you should check in) the Tuesday night 8 PM net, or the email list, or your email for status and to determine if this is really happening.

73 ~ Kevin, K1KWP

## President's Report

**Bob DeMattia, K1IW**

As June approaches, the MMRA is coming up on the end of its membership year. Memberships run September 1st to August 31st, but in reality, the club "winds down" for the summer. However, we are ending this year with a bang!

On June 9th, we'll be holding the ever popular Slygo Hill work party - attention needs to be paid to the structures and landscaping around the shelter. We need a few people to help out, so let me know at [k1iw@mmra.org](mailto:k1iw@mmra.org).

If shelter repair isn't your thing, a few members are interested in operating an MMRA field day this year. We haven't done this in a long time, so I hope to see it come to fruition. For it to become a reality, we will need a "critical mass" of people. If you are interested, be sure to contact Kevin, [k1kwp@mmra.org](mailto:k1kwp@mmra.org), who is taking names.

Finally, I will conclude with a request that you consider renewing your membership now for next year. Renewing is easy online - just log into your account at <http://www.mmra.org/access.html> and check the box at the bottom of the screen.

Once you're finished, you'll be all set until the Boxborough convention is 2008! Have a great summer!

Bob, K1IW

**The Shelter  
in its  
Better Days**



## The New England Amateur Radio Festival (NEAR-Fest)

### Deerfield NH ~ May 4, 5

Well folks, there really will be a Deerfield this year, and if we're careful and behave ourselves, there will be many more to come. After years and years of managing Hosstraders, Joe, Norm, and Bob have "hung up their spurs." The "Hosstraders" name is being retired as well. Welcome to The New England Amateur Radio Festival or **NEAR-Fest** for short. The folks running it are Mr. Mike, W1RC; Ed, N1IWV; and me, Mike, K1TWF (also your ARRL Division Vice Director.)

It's been an interesting struggle pulling together a new event in only 8 weeks. As of this moment, less than 2 weeks before the gate opens, there is still a long list of things to do. Fortunately, Ed and I have had a good deal of experience helping run the Boxboro convention – I'm the Boxboro chairman and Ed is the treasurer – so we at least have some notion of what to expect. Still, NEAR-Fest is a different beast.

Speaking of differences, there are some changes in store. Some of them may not be obvious as you attend the event, but as NEAR-Fest evolves, they will become apparent. First, though the flea market will always be a major part of the event, I think we all realize that flea markets are not the only way to buy and sell used gear anymore. EBay and other online mechanisms have stolen a lot of the market. So, we need to increase the emphasis on the social aspects. NEAR-Fest is, first and foremost, a Festival, a celebration of the Amateur Radio

Service in all its aspects. So, we'll be emphasizing the VE exams. We'll be offering free admission to kids under 18 (Saturday after 9AM). And we'll be looking for other ways to promote the hobby. Any ideas? Send them along to us!

Another change is that after all these years the Shriners are retiring, too. Hosstraders collected a great deal of money for the Shriners Burns Units, and they deserve a huge round of applause for funding this good work. We hope to continue doing good work, too, but in another direction. NEAR-Fest is established as a not-for-profit organization. This time around, we will be trying to gather up enough money that we can fund the October NEAR-Fest without reaching into our own pockets. In the future, though, proceeds from the event will go to worthy Amateur Radio related charities and things that promote the hobby. Just what these will be we don't know yet. Again, any suggestions?

We also plan to make NEAR-Fest operation more "transparent." We'll be posting our financial information on our website so everyone can see just where the money really goes.

Full details are available on the official NEAR-Fest Web Site: [www.near-fest.com](http://www.near-fest.com)

73, Mike Raisbeck, K1TWF



## Repeater Update

**Bob DeMattia, K1IW**

The gremlins have been busy at the MMRA repeater sites this spring. Several technical snafus have kept repeaters down or links not working. The technical crew is a bit overloaded, but they're making progress.

**146.610** - no TX PL - Continues to run without TX PL. It is receiving the same kind of interference as the Quincy site (see next paragraph). '61 also needs it's link radio reconfigured so that it can operate on HUB2.

**146.670** - no TX PL - Intermittent interference on the repeater input is overloading the repeater controller. A quick fix was to disable the PL on the transmitter output, but the interference source will need to be located.

**Update:** Antenna work on 29 April moved the DB224 antenna to the top of the tower. Early indications are that it can be heard with maybe 20 dB more signal. We hope it will also help the interference problem.



**146.715 / 446.725** - Fully Operational! - The Astron power supply that powers the 446.725 repeater and the link radio used for both Stoneham repeaters gave way sometime after the Boston Marathon, as it became a 0V supply. A quick repair of a broken wire brought voltage back up to 13.8V, but as soon as a load was applied to the supply, the voltage dropped to 8V and smoke started coming out of it. **Steve, N1BDA**, provided a loaner power supply and Stoneham is back on the air.

**146.790** - Can't Link to Hub 2 - an additional antenna needs to be installed at the Weston

site before linking capability can be restored.

**146.820** - Relocating Soon! - After many months of running smoothly at our Marlborough East site, the time is coming when this machine will return to Brookline. The move is tentatively planned to occur just before the May 16 meeting at the Clay Center. The repeater will probably be taken down a few days earlier in preparation for the move.

**223.940** - Fully Operational! - However, the controller is awaiting a firmware update and eventually will have its link radio reconfigured to work with HUB2.

**442.700** - Bad Antenna - The unused four bay omni directional antenna located at this site proved to be a disappointment - coverage is very poor for this repeater. MMRA has the antenna and hardware to replace it, but with the many projects going on right now, this one is not going to be ready for a while. Until this situation is rectified, QCY and STO are unable to link to this repeater adequately. MRW seems to do OK though.

**449.575** - Fully operational! - Experienced some sort of glitch in the 5K controller, causing it to generate long strings of CW. After reprogramming, order has been restored. '575 also needs it's link radio reconfigured so that it can operate on HUB2.

**449.925** - flaky PA - Our main hub experience infrequent periods when the power amplifier shuts down. Efforts to determine the root cause are hampered due to the intermittent nature of the problem. The silver lining is this situation does not occur very often.

The remaining repeaters: **147.270**, **224.400**, **224.700**, and **224.880** are operating normally.



## 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*

## Treasurer's Report ~ 25 April

### Kevin Paetzold, K1KWP ~ Treasurer

Income	2006-2007 dues	\$4233
	2007-2008 dues	635
	Donations	426
	Misc.	323
	<u>TOTAL</u>	<u>\$5607</u>
Expenses	Expenses to date	\$4074
	<u>Known upcoming</u>	<u>390</u>
	<u>TOTAL</u>	<u>\$4464</u>

#### Summary

We would have ~\$1143 in discretionary spending left before running an overall deficit year (this includes the \$635 in dues we already have collected for next year).

## MMRA March Meeting

### Larry Banks, W1DYJ

President Bob DeMattia moderated:

- Treasurer — OK financially; over 200 members total, a recent high
- Secretary — Letter sent to NESMC re. Stoneham 440; N1UEC wants to attend Board Meeting
- Repeaters — About 50% of the conversion to a dual-hub system is done; Quincy antenna projects scheduled for 28 April

Bob,  
Steve,  
and  
Mike  
opening  
the  
meeting



Speaker — Mike Raisbeck, K1TWF: ARRL New England Division Assistant Director — ARRL Update and Fact Finding

- NEAR-Fest in Deerfield, 1<sup>st</sup> weekend in May: <http://www.near-fest.com/>
- No-code going better than expected, larger numbers of upgrades and new hams
- ARRL membership up 200 in March
- Katrina Report — Emergency Communications — New position at League
- LoTW — Question for League: how to combine paper QSLs and LoTW QSLs to reach DXCC?
- BPL — Concord project on hold for business reasons



The  
Members

# MMRA April Board of Directors Meeting

Bob Evans, N1BE, Clerk

The MMRA board met on 4/25 at 7:30PM at the offices of Stratus Technologies in Maynard, MA.

Present were: N1BE, W1DYJ, K1KWP, K1IW, W3EVE, N1NVK, WA1NVC, N1BDA, and by phone: W1BRI

## Treasurer's Report (K1KWP)

We collected a few hundred dollars more in dues this year over last. Membership is up about 40 members. We now have 191 paid members. This leaves \$532 of unallocated funds from dues collected for this year.

## Work Party — Quincy

At 10AM on Saturday, April 28th, Quincy antenna work will commence. We need:

- A 10ft ladder to get over the WUMB station
- A ginpole
- Headlamps
- About 10ft of romex for wire ties
- Hard hats
- About 150' of rope

We will need to reschedule to the next day if it rains.

[Ed: this was rescheduled to that Sunday.]

## Stoneham 446.725 Coordination Issues

In March, MMRA sent a letter to the NESMC board requesting that they reverse the decision of the UHF coordinator to de-coordinate the Stoneham repeater. The MMRA also contacted Lou Harris and arranged for a meeting on April 25th. The MMRA rescheduled its board meeting to accommodate Mr. Harris. Because of this expected meeting, NESMC tabled the MMRA letter. On April 24th, N1UEC notified MMRA that he would be at a VE session and would not be able to meet with the board.

The Stoneham repeater is now back in the NESMC listing, but its status shows as being uncoordinated. At present it seems that changing frequency in the 440 band may be sufficient to avoid the current issues. We are awaiting final directions from the League and then will have to see if the proposed change mitigates the issue.

Given that the NESMC is not represented at our board meeting, we moved to request that the NESMC Board address our March 15th letter requesting that coordination of Stoneham UHF be re-instated. Passed with K1IW abstaining.

We also moved that this request be placed on the general NESMC meeting agenda for consideration. If the NESMC Board acts favorably on our request we will

withdraw this agenda item at the time of the NESMC meeting. Passed with K1IW abstaining.

The MMRA Board requests that the MMRA Secretary contact [contact@nesmc.org](mailto:contact@nesmc.org) by April 30th with the requests from the last two motions. (This is to meet the deadline for the NESMC meeting agenda.)

## Repeater Status — Stoneham

Looking for a 50A power supply for Stoneham UHF to replace the failed one. We unanimously passed a motion allocating a maximum of \$400 to purchase a suitable power supply for running the Stoneham UHF system. Steve, N1BDA, graciously volunteered an Astron 35A PS to temporarily put Stoneham UHF back on the air.

## Repeater Status — Weston

We need at least one more antenna. We can use a UHF antenna from the old Shrewsbury site. Side arms to mount this antenna are at one of our Marlboro sites..

## Repeater Status — Clay Center

We need to put 146.82 back to the site on the night of our May meeting. This enhances the prestige of that school as a technical resource.

## Nominations

All current officers and directors up for election (W3EVE and WA1NVC) agreed to be nominated for their current office. Nominations will stay open until immediately before election at the May meeting.

## Field Day/Social Event June 23-24

W1JMC and K1KWP have been talking about a possible field day in Acton or at Fort Devens. They are looking for other club members who are interested. If there is critical mass, and enough assistance with things like setting up a big tent, they agree to help coordinate the event. This is proposed as a fun social event (like the mobile-a thon) and not a serious contest. If you are interested please contact them promptly.

## Slygo work party

We need about 6 to 8 people (but more is better) for a few hours of work. The proposed date is June 9th with a rain date of June 16th, starting at 9AM. Currently we can't open the fence - we need to cut back vines. We also need to replace the door since it now has a rusted gap that lets rodents into the shelter.

**Adjourned at 9:10PM.**



## 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 2006-08	Clark Conti	N1NVK
Director 2006-08	Bill Hanrahan	W1WH
Director 2005-07	Steve Schwarm	W3EVE
Director 2005-07	Roger Coulson	WA1NVC
Emergency Coordinator	James Cahill	KB1LOY
Net Manager	Larry Banks	W1DYJ
Newsletter Editor	Larry Banks	W1DYJ
Public Service Coordinator	James Cahill	KB1LOY
VEC Liaison	Bill Wade	K1IJ
Web Page Editor	Bob DeMattia	K1IW

### 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.

We need a control operator for the first Tuesday of each month – contact me at [W1DYJ@mmra.org](mailto:W1DYJ@mmra.org) if you would like to running the net some evening – we have a script you can use to start with. This is good practice for a number of ham related operations, from emergency preparedness to contesting.

#### Current Net Control Operators:

Week 1	?????	<b>We Need You!</b>
Week 2	W1EUJ	Dave Goncalves
Week 3	KB1KZI	Jimmy Devarie
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks
(also substitute & Net Manager)		

### Newsletter Delivery

If you received this via US Mail, you might want to think about having it sent by eMail. You will receive it earlier, it will be in color, it may have MORE great content, and it will save the MMRA \$\$\$! Send your request to [W1JMC@mmra.org](mailto:W1JMC@mmra.org).

Past Newsletters are available at <http://www.mmra.org/>

### 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**



**Annual Meeting ~ 16 May, 7:30PM**  
**Astronomy Night (and General Elections)**  
**The Clay Center Observatory**  
**Ron Dantowitz, Director ~ Clay Center Observatory**

## Calendar of Ham Radio Events

### Public Service Events

See this web site for contact information

<http://purl.org/hamradio/publicservice/nediv>

May 5	Grafton MA	Grafton Gazebo Road
May 6	Boston MA	Walk for
May 6	Milford NH	CROP Walk for
May 6	Portsmouth NH	Am Diabetes Tour de Cure
May 12	Westford MA	Apple Blossom
May 19	Portsmouth NH	NH Lung Clean Air Chal- lenge
May 20	Devens MA	Parker Road
May 20	Hadley MA	Hadley Mem. Day Road
June 16	Mt Washington NH	Mt Washington Road
July 7	Mt Washington NH	Newton's Revenge cycle
Aug 18	Mt Washington NH	Mt. Wash. Bicycle Hill Climb
Aug 19	Mt Washington NH	Mt. Washington Century

### New England Area Ham - Electronic Flea Markets

See this web site for contact information

<http://mit.edu/w1gsl/Public/ne-fleas>

4-5 May	Deerfield NH	NEAR-Fest
12 May	Rensselaer NY	EGARA
20 May	Cambridge MA	FLEA at MIT
26 May	Vernon CT	NARC
1 June	Feeding Hills MA	HCRA
2 June	Rochester NH	GBRA
2 June	Hermon ME	PSARC
2 June	Windsor CT	VR+C Mus
3 June	Newington CT	NARL
16 June	Goshen CT	SBARC
17 June	Cambridge MA	FLEA at MIT
14 July	Union ME	PBARC
17-18 Aug	Swanton VT	STARC

### THE MINUTEMAN REPEATER ASSOCIATION

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

Email: [contact@mmra.org](mailto:contact@mmra.org)




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WE'RE ON THE WEB  
[HTTP://WWW.MMRA.ORG/](http://www.mmra.org/)

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