



The Minuteman

Volume 31, Issue 3

January 2002

President's Corner by Kevin Paetzold, K1KWP

It is between Christmas and New Years day as I write this, but it will be after the "holidays" when this newsletter comes out. I hope that everyone had a good holiday season and has a happy new year. There are several items and announcements that I want to mention.

November Meeting — On behalf of the MMRA I want to thank Bill Thorpe, WA1NLR, and the rest of the American Medical Response staff for hosting the November meeting at their facility in Natick. The meeting included a great tour and live demonstration of the AMR dispatching center and radio facilities. There also was a very interesting presentation on AMR's setup and organization from one of the senior operations managers. I think this was one of the best MMRA meetings that I have attended. Once again thanks go to Bill for setting this up for us.

449.925 Power Backup — In December there was a power failure at the 449.925 site due to a telephone pole in the immediate area which snapped. The good news was it showed us that the battery backup for the 449.925 repeater, the hub of the network which is required for the repeaters to be linked, was no longer in good enough shape to keep the repeater on the air. It was a blessing in disguise to determine this at a time which was not an actual emergency. Due to this incident Andy Morrison, N1BHI, has donated a new battery for the repeater. We should now be in much better shape when we again lose power. Thanks go to Andy for this important donation.

449.575 repeater — A reminder that the 449.575 repeater is now located in Shrewsbury. It is full time linked to the 449.925, and thereby linked to the 146.610 and 220 repeaters.

Fox-a-Thon: February 2 — On the morning of Saturday February 2nd we plan to hold a fox hunting "ride along". Various people, from MMRA and other clubs, have expressed interest in this. Individuals interested in VHF radio direction finding would be able to ride along with the foxhunters and see the various techniques and equipment that are used. This will probably include Dopplers, directional antennas with attenuators and just using signal strength and body fading. This is a great way for people to get some hands on experience in foxhunting and how to hunt down interference problems.

We intend to open this event to members of other radio clubs. The plan is an initial meeting, around 9AM, followed by the actual hunt which begins at 10AM using the input fre-

quency of one of the MMRA 2-Meter repeaters. Following the hunt it is customary for the hunters to eat brunch and this would be a good opportunity to discuss how the hunt went. Then, if there is interest, we could hunt the MMRA Foxbox which will give a different experience using a physically smaller and harder to find fox with relatively less RF signal.

The full planning for this event depends on how many people are interested in participating and the geographic location of the majority of the participants. Mike Ford, WZ0C, has volunteered to coordinate the event. Anyone interested in participating should communicate their interest via one of following:

- Email to mmra@mmra.org,
- On the Tuesday night 8PM MMRA Technical, Information, and other stuff net on all of the MMRA linked repeaters,
- At the January general membership meeting,
- On the air to WZ0C or me, K1KWP.

If you have an interest in direction finding or would just like see what the fun is all about please consider coming along. I am sure it will be fun as well as informative. Please get in touch as outlined above, so we can plan accordingly. The sooner you communicate the easier to adjust the plans to accommodate your preferences.

CPR Training — The MMRA has an opportunity to provide Cardio Pulmonary Resuscitation training at low cost to members. Any member who is interested in attending this CPR training is encouraged to let us know via the same means mentioned above in the "foxathon" section of this article so that we can plan accordingly. This training could occur before the next newsletter or around the time of the March meeting. I shouldn't need to point out how invaluable CPR could be for you, your family and providing public service. If you are interesting in being certified for CPR please consider taking advantage of this opportunity.

Inside this issue:

<i>MMRA Information</i>	2
<i>Board Meeting Minutes</i>	3
<i>Repeater Report</i>	4 & 5
<i>Fox Hunting</i>	6 & 7
<i>Disaster Training</i>	6
<i>MMRA Updates</i>	6
<i>Next Meeting</i>	8

(Continued on page 3)

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 MMRA meets on the 3rd Wednesday of September, November, January, March, and May. Meetings start at 7:30 PM in the Campion Center in Weston MA. Meetings are open to all interested parties. Talk-in is available on the Weston 2-meter repeater (146.82).

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 n1be@arrl.net. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links all 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. The membership year starts on Sept 1st. Dues for new members are prorated for the remainder of the year. See our web-site for details.

Email to the club leadership should be sent to mmra@mmra.org. The MMRA web site is: <http://www.mmra.org/>

An email distribution list for club members has been established on: <http://www.yahogroups.com/> — the name of the group is "MMRA".

Repeater and Frequency Information

Location	MHz	PL	Call	Note
Marlboro	53.810	71.9/173.8	W1BRI	PTL
Marlboro	146.610	146.2	N1BHI	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.820	146.2	WZ0C	PTL
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	none	N1HBR	FTL
Stoneham	446.725	88.5	N1NVK	NA
Shrewsbury	449.575	88.5	W1BRI	FTL
Marlboro	449.925	88.5	N1HBR	Network Hub

Marlboro	144.390	none	N1QPR-2	APRS Digipeater
Marlboro	145.030	none	W1MRA-3	Net/ROM Digipeater
?	145.630	146.2	W1BRI	Fox Box

Notes: FTL = Full Time Linked to the Hub.
PTL = Part Time Linked (on demand).
NA = linking is Not Available.

PL: There are two 6 meter receivers with different PL's. PL is required on 2 meters to prevent interference. The code **750** will temporarily disable the 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.

MMRA Leaders

President	Kevin Paetzold	K1KWP
Vice President	Bob Evans	N1BE
Secretary	Michael Ford	WZ0C
Treasurer	Bill Northup	N1QPR
Clerk	Eddie Mulhern	N1NOM
Technical Officer	Bryan Cerqua	W1BRI
Director	Al Kunian	KA1AL

Director	Wayne Foley	N1XXI
Director	Shelley Northup	N1VJE
Director	Bill Thorpe	WA1NLR
Director	Clark Conti	N1NVK
Emergency Coordinator	Kevin Paetzold	K1KWP
Newsletter Editor	Bob Evans	N1BE
VEC Liaison	Bill Wade	K1IJ
Webmaster	Michael Ford	WZ0C

President's Corner (cont.)

(Continued from page 1)

CEMARC — The Council of Eastern Massachusetts Amateur Radio Clubs has been reformed. This organization provides a forum to work on issues of joint concern and interest to local radio clubs. Examples include coordination of meeting times and cooperation on issues like The ARRL Big Project, classes, public relations, recruiting the next generation of HAMs, etc. If you would be interested in representing the MMRA in this forum please let us know via any of the mechanisms outlined above.

Elections — The MMRA charter calls for nominations of officers and directors in April followed by elections at the May meeting. There are only two general membership meetings before the elections. Some office holders may be available for re-nomination; certainly not all will be able or willing to do so. Have you considered stepping up to the plate and offering your time to help run this organization? Is there someone, perhaps yourself, that you would like to nominate for one of these positions?

If you would like to know more about what needs to be done and those offices that need to be filled please consider attending a board meeting. Board meetings generally take place in months when there is not a general membership meeting. Board meetings are announced on the Tuesday night nets and future likely dates include Wednesday Feb 20 and Wednesday April 17. Recently these meetings have been taking place at the offices of Stratus Technologies on route 62 in Maynard MA at 7:30 PM. Detailed directions are available.

MMRA Technical Staff — The MMRA has been very fortunate in recent years to be able to count on the efforts of Bryan Cerqua, W1BRI, our technical director, to keep our equipment and systems operational, maintained, and repaired. However considering that the system has eleven repeaters, ten

of which are linkable, and two digipeaters at seven different sites it requires a **lot** of work. Whenever it rains, it pours, as multiple technical problems seem to occur at the same time. For example the transitions from Spring to Summer and Fall to Winter stress a lot of the equipment.

Under the guidance of W1BRI we seek to orient and train additional technical staff to assist with this work and perhaps to take responsibility for some of the sites. This is a great opportunity for people who are interested in acquiring detailed engineering knowledge about VHF/UHF radio equipment (commercial and amateur) and linked repeater systems.

Although W1BRI is an expert and he is available to help people acquire the knowledge, it is like any other area of technology. Success in this endeavor will require commitment and some hard work from the participants. Although it would be nice to train everybody who is interested, a primary goal of this endeavor is to find individuals willing to make the commitment required to actually provide help to the organization and relief to W1BRI. If this sounds like something that you would like to take on or if you already have expertise in these areas and would like to help the MMRA, and if you are able to make a commitment please contact W1BRI at w1bri@ziplink.net.

Letters to the editor — If you have questions, issues, or concerns that you would like to communicate to the MMRA (or its leadership) via the newsletter please consider sending a letter to the editor at the MMRA PO box address or to n1be@arrrl.net.

January Meeting — I hope to see you all at the January meeting which is 7:30PM Wednesday January 16th at the Campion Center. It should be very interesting with Bill Dunn, N1KUG talking about his experiences in NYC following the September 11th attacks.

Board Meeting Minutes by Eddie Mulhern, N1NOM

The MMRA Board of Directors met on December 19 at 7:40PM. Present were N1XXI, WA1NVC, N1BE, N1NOM, N1NVK, WZOC, N1QPR, WA1NLR, N1VJE, K1KWP, W1BRI, and K1ZG.

WZOC presented membership statistics. The MMRA membership has declined each of the last 4 years. A discussion was had on ways to increase membership. KZ1G offered to call some local new hams and invite them to join the MMRA.

N1QPR discussed the budget. Because of declining membership Bill recommends no spending except for an emergency to keep repeaters running.

W1BRI gave a technical update. 449.575 is up and running well in Shrewsbury. Bryan is looking for a different link radio. He has the foxbox almost ready. George, N1EAV, donated an IC02AT to replace the foxbox transmitter. Most other improvements are on hold because of lack of funds.

K1KWP discussed several items. The board favors further attendance at CEMARC meetings. We also will send a rep. to the ARRL New England Division Cabinet meeting on Jan 5th. Fox-a-Thon was approved, Feb. 2, 2002 date was selected and plans for it discussed.

The 145.030 packet station was discussed. N1QPR to talk with KA1TUZ on need for it. Bill will put 145.03 back

on the air and change it to use the W1MRA club callsign.

Sponsoring a CPR class was approved. N1QPR to check with Acton who will provide training and coordinate this activity.

The board approved a technical class led by W1BRI to train a few others to maintain our repeater systems.

The board still approves sale of excess equipment on E-bay. N1BE to proceed with this once pictures of the items are available.

N1BE volunteered to ensure our information is up-to-date with NESMC, the frequency coordinator for this area.

The meeting ended 9:40PM.

Repeater Report by Bryan Cerqua, W1BRI

Installing 449.575 in Shrewsbury: It's been about one month since the repeater was rebuilt and installed at the Maxtor site in Shrewsbury. The initial installation took place on a Saturday. Wayne, N1XXI and I loaded up my Jeep with just about everything under the sun and headed up route 140 from Milford to Shrewsbury. Wayne got a chance to tour my work

QTH before unloading everything for the trip up the elevator to the 4th floor repeater room. Kevin, K1KWP drove up while we were unloading the car to get a first look at the repeater.

The weather was a little cool but no rain. We needed to go up on the roof to install the antennas. We started with the assembly of the Diamond X510 antenna.

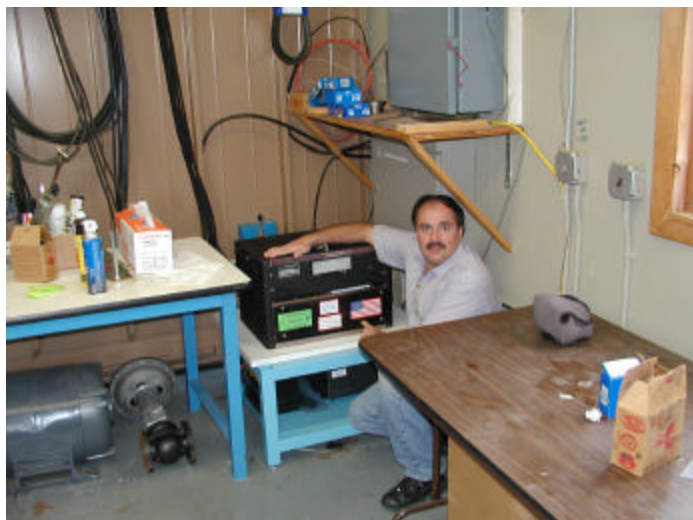


The initial phase, installing the Diamond X510 antenna (with N1XXI).

The 100-foot run of hardline was just enough to reach the repeater room. The next job was to mount the link antenna for connecting the repeater to either the Marlboro hub or to the Milford repeater. The link antenna is a small five element beam pointed towards Milford since the path between Shrewsbury and Milford is poor, with many hills in the way.

It turned out that finding the right spot for this link antenna proved to be extremely challenging since the frequencies used by the link radio and the main repeater are close to each other.

Our repeater is on a small table in a corner of the room next to the Maxtor repeaters for facilities and security. The power supply and backup battery sit on the shelf under the repeater.



W1BRI and the new repeater.

After testing the repeater for the first time we did a quick check to see if the repeater was overloading any of the Maxtor UHF repeaters. I expected some problems with interference since there are many transmitters located at this site. I was told that any unresolved interference to the existing radio equipment from our ham repeater would be the cause to remove our repeater. Our ham repeater was killing reception of the facili-

ties repeater, more on this later.

I had to use a single cavity preselector on our repeater receiver to filter out a paging transmitter on 454.175 MHz. Looking at the output of the duplexer showed all kinds of RF getting into the repeater receiver. The duplexers on this repeater, like most duplexers, don't provide any out of band re-

(Continued on page 5)

Repeater Report (cont.)

(Continued from page 4)

jection thus the need for the preselector. The mount for the bandpass preselector was already in place since I figured it would be needed.

A custom-built notch filter, to prevent the paging transmitter on 931.4375 MHz from getting in, is installed on the link radio. I installed the notch filter on the link radio at home prior to the repeater installation since from testing the link radio I knew this would be a problem.

Once I got home that night I immediately constructed a notch filter on 449.575 MHz that could be placed on the receiver input of the Maxtor facilities repeater. I was lucky to have an old mobile type duplexer and tuned it for a notch on 449.575 MHz. The notch depth was about 100dB and the insertion loss on the Maxtor input frequency was only 0.4 dB; I knew this would solve the problem. The next day after going to the Framingham flea market Wayne and I drove to the Maxtor site to install the filter. I re-checked the Maxtor repeater for any interference from our repeater and there was none.

While Wayne and I were there on Sunday we tried several new locations for the link antenna since there still were some problems when the link radio is transmitting knocking weak signals out of the repeater receiver. We tried the beam down below the roof level. After spending a few hours going crazy trying to find a good spot we ended up with the link antenna hiding behind an unused microwave dish in attempt to block the signal from the main repeater antenna.

Still not satisfied how the link is working Roger, WA1NVC, and I went back up to the site the following Sunday. We unmounted the link antenna and tried several locations while the service monitor was used to create a weak signal on the repeater input. We must have tried six locations before ending up on the lower roof about 200 feet way. After mounting the link antenna on a short pole on the guardrail that surrounds an air conditioning unit we were able to achieve a location that was acceptable when linked into 449.925. Linking to Milford works but the signal from the Milford repeater is very weak. The repeater transmitter on 449.575 de-senses the link radio; you can hear the front end of the link radio being driven into compression. I plan to look for a better two channel Motorola Radius type radio at the upcoming flea markets to replace the Uniden link radio.

The repeater covers a good area. I was able to work it along route 128 in Waltham. Others have used it out past Auburn on the Mass Pike and as far north as Chelmsford. However it does have some dead spots like down in Milford where I live.



Link antenna hiding behind a microwave dish.



Filter installed in the Maxtor facilities repeater, a gray thing sitting on top of the power supply.

The hills of the Upton state forest are a really big problem for me.

The repeater is now full time linked to our hub repeater on 449.925. It works great from inside the Maxtor building even on the lower floors where the Cafe is located. I occasionally have my FT 50R HT on me with a stubby duck antenna in my pocket and monitor the network while working. Yes, I do shut it off while in the Men's room, wouldn't want that funny SCOM synthesized voice to embarrass the heck out of me.

I hope others will enjoy the repeater especially where the coverage was lacking out towards the west. I would like to thank Wayne, N1XXI and Roger, WA1NVC for their help with getting this repeater setup in Shrewsbury, also thanks to many others that provided weak signals while trying to hunt for a good spot for the link antenna.



Line of sight view of our hub from Maxtor.

Fox Hunting

The MMRA holds foxhunts every Saturday morning beginning at 10 AM on the 146.61- repeater. The fox transmits for 30 seconds every 5 minutes on the input of the repeater, and then coordination usually takes place on the repeater between the fox transmissions. All are welcome to join, and the group usually visits a local restaurant for brunch after the last hunter has arrived at the fox's location.

Special Hunt on February 2, 2002 Reserve Feb 2nd to participate in the MMRA Fox-a-Thon. We need as many of the MMRA fox hunters to come as we can get. Most likely we will meet at 9AM either in Marlborough or at the Campion Center.

If you want to learn about fox hunting, this is a great opportunity to learn. Be sure to reserve yourself a spot by contacting us — details are in the President's Corner article on page 1.

No Hunt on Feb 16, 2002 Saturday, February 16th there will be no fox hunt so that 146.61 and the full time linked repeaters can be used for talk-in to the AARC flea market. Many regular

foxhunters go to help with the VE exams or to attend the first ham radio flea market of the year. Come out to this flea and help support a local radio club!

The following account covers the most recent hunt. Larry, W1DYJ, provided the maps on the next page.

Dec 29: Eddie, N1NOM, hid in a parking lot off Newton Street in Southborough center. His signal was strong to all bearing givers except W1DYJ. He was so strong that Bob had trouble determining the direction once within a half mile. (Time to make an offset attenuator!) Clark, N1NVK was in first, followed by the Northups, N1QPR & N1VJE, and by Bob, N1BE. The hunt was complete at 11:03 AM.

Bearings	Initial / Actual :
W1JDO	295° / 288°
WA1NLR	130° / 136°
W1DYJ	245° / 240°
N1BE	180° / 185°
K1KMN	255° / 253°

Fox Location:

N42° 18.626', W71° 31.563'

The MMRA also has an automatic "Fox Box" that is hidden on most weekends. The Fox Box is a green ammunition box (with the ammunition replaced by a transmitter, a battery, and some control circuitry) with a 1/4-wave antenna mounted on it. The box transmits for 30 seconds every two and a half minutes on 145.63 MHz with a PL tone of 146.2. Once you find the box, sign in on the pad of paper located in the end of the box.

Announcements of the Fox Box being hidden and clues about its whereabouts are sent to the MMRA mailing list on yahoo groups. If you would like to receive the announcements but don't wish to join the list on yahoo groups.com, send email to wz0c@arrl.net to be added to his fox-only list.

Fox box report:

At the board meeting, Bryan, W1BRI, reported that repairs to the fox-box transmitter are almost complete. We need to add some signage to the outside of the box so that it is not mistaken for a dangerous device. When he's done, the box should be deployed again for your hunting pleasure.

Red Cross Disaster Training

This Winter the Red Cross is offering these Disaster Training courses in Walpole MA:

- 1/10/2002 Intro to Disasters
- 1/17/2002 Mass Care
- 2/7/2002 Shelter Management
- 2/14/2002 Damage Assessment

Each class runs from 6:30 to 9:30pm on Thursdays at the Walpole Town Hall Senior Center. For registration, please call Lisa 508-586-4790 or Roger 508-660-7365.

Memberships Overdue

The MMRA membership year runs from September 1st through the following August. As a result your membership may be expired even if you paid dues in 2001. As a courtesy, newsletters have been sent out to expired memberships this fall.

If you have a yellow highlight on your mailing label, your membership has expired. **This is the last newsletter you will receive if your membership is not up-to-date.** If so, a mem-

bership form is enclosed to solicit your current information with your dues.

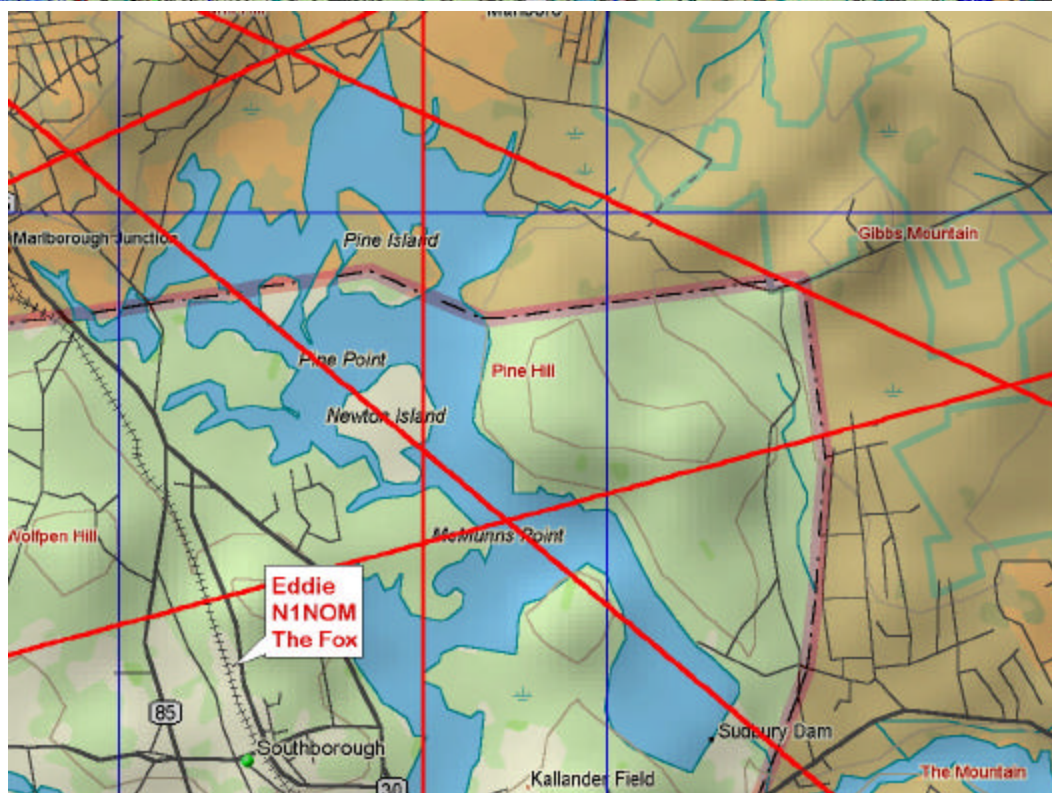
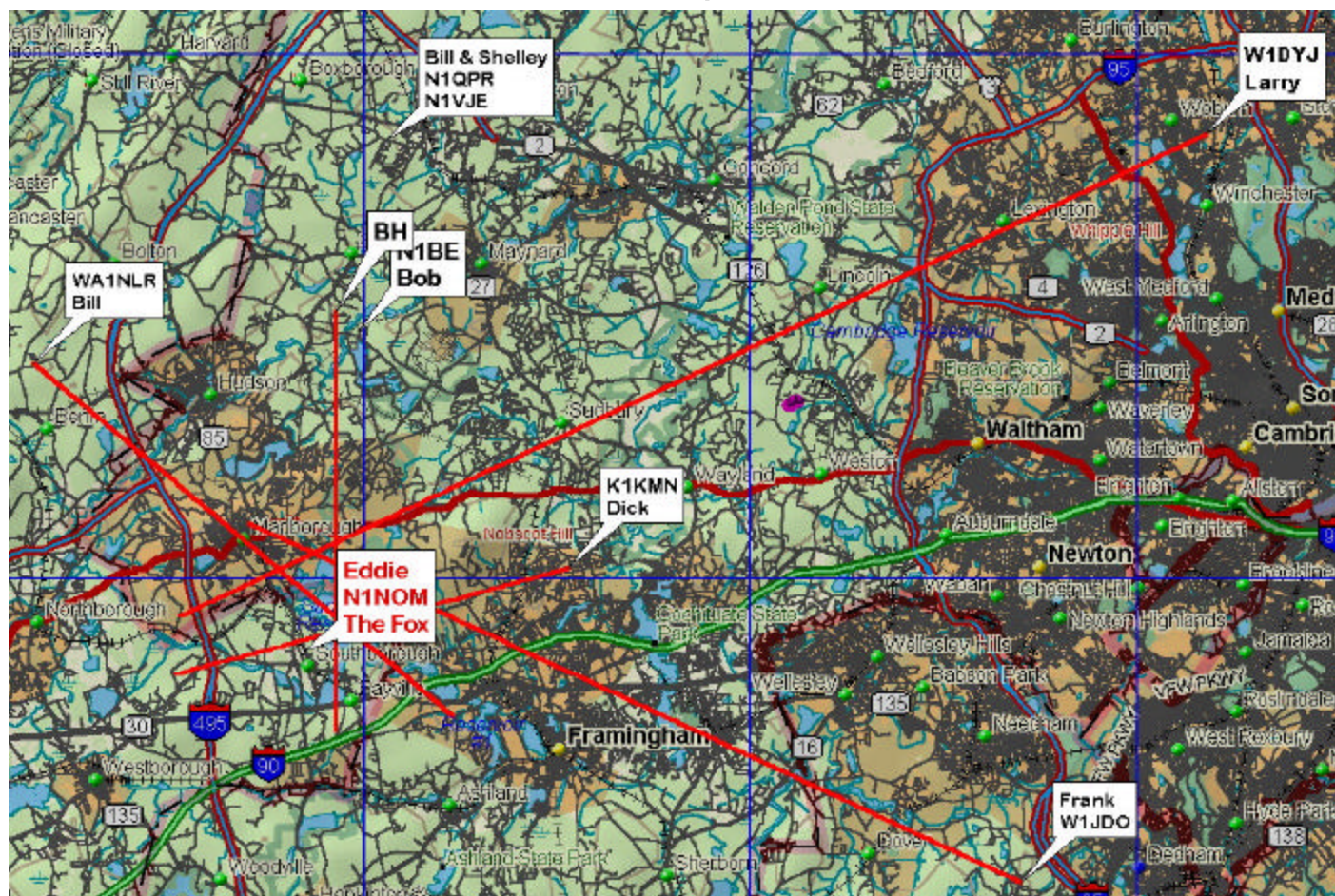
Our membership is declining. Please ask your ham friends to support and join the MMRA. Without new members and/or financial support the MMRA could soon cease to exist!

MMRA Updates

Club Callsign — The MMRA has been issued a club station callsign. Several months ago we received the vanity call **W1MRA**. Up to this point W1MRA has only been used by Tuesday evening net control stations. At this time, Bill, N1QPR, is putting the club call on the 145.03 digipeater. The digipeater should be back on the air with the new call before this newsletter reaches you.

New URL — Thanks to Dwight Ernest, KA2CNN, and the folks at RCN a simplified URL can be used to access the MMRA Web site. It has been shortened to **<http://www.mmra.org/>**. With many web browsers it is sufficient to just type **www.mmra.org** into the address line.

The December 29, 2001 Fox Hunt



Next Meeting — Wednesday Jan. 16, 2001

N1KUG: Communications at Ground Zero

Bill Dunn, N1KUG, a MMRA Repeater Trustee will speak at the January 16th MMRA meeting. Bill is the Chief Communications Officer for the National Disaster Medical Systems, Disas-

ter Medical Assistance Team MA-1 from Boston.

At the meeting Bill will talk about Communications efforts at Ground Zero. In the aftermath of the September 11th

tragedy, his team had multiple deployments to New York City. Bill's presentation will include a slide show of photographs collected during these efforts in New York City.

Calendar of Ham Radio Events

- Jan 16:** MMRA meeting
- Jan 26:** Nashua NH Antique Radio Flea
- Feb 2:** MMRA Fox-a-Thon
- Feb 16:** Marlborough AARC Flea
- Feb 17:** Westford Antique Radio Flea
- Feb 20:** MMRA Board meeting
- Feb 22:** MMRA Newsletter Deadline
- Mar 10:** Amherst Mt. Tom ARA Flea
- Mar 20:** MMRA meeting
- Apr 17:** MMRA Board meeting
- Apr 21:** Cambridge Flea at MIT
- May 3-4:** HossTraders Flea Hopkinton NH

(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

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

Email: mmra@mmra.org



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