



# The Spirit of '76 and '88



## Newsletter of the Lake Erie Amateur Radio Association

Editor: Alex Manuk, WD8JMM

Publisher: Jeannie St. Marie, KC8MNW

This Month's Meeting — Saturday, June 26, 2004, at 5:00 PM

### Field Day 2004

(map and directions appear on page 7)

Once again, it's time for the ultimate amateur radio party! Please make plans to join us for the 2004 edition of ARRL Field Day. As in the past, LEARA will be participating in Field Day at Cleveland Lakefront State Park, located off Interstate 90, just north of the Martin Luther King Blvd. Interchange, at 8701 Lakeshore Blvd. Detailed directions and a map are provided elsewhere in this issue.

Field Day presents us with a variety of opportunities, from contesting to emergency preparedness training, to introducing new people to amateur radio. LEARA's Field Day is a relaxed, casual atmosphere where visitors are encouraged to take part in the operation, and dinner and snacks are as important as bonus points and multipliers.

Speaking of dinner, the June dinner meeting will be held at the Field Day site, at 5:00 PM on Saturday, June 26.

The menu consists of chili dogs, chili, chips, potato and macaroni salad, and soft drinks. Because the meeting site is located in a state park, alcoholic beverages are prohibited.

Reservations for the June meeting are not required, and dinner is provided courtesy of the association. That's right—FREE FOOD!

Set up for Field Day begins at 9 AM on Saturday, the 26th. The contest begins at 2PM local time, and runs until 2PM on Sunday.

So, pack up the kids, the dogs, the tent and the sunscreen and come on out and join us for the biggest picnic party of the amateur radio year. There'll be plenty of opportunity to play radio or just sit around and trade stories. We hope to see you there!

### June, 2004

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### WIST 2004 Report

*de N8AUC*

What a weekend! Saturday and Sunday, May 29 and 30 was the 21st annual Westlake Invitational Soccer Tournament. As usual, LEARA was asked to provide communications for the tournament. To the best of my knowledge, this was our 14th year of supporting this outstanding event.

This year, the weather cooperated - no one got rained on, or snowed on, or anything like that. Saturday was a little

chilly, but Sunday was just drop dead gorgeous with bright clear blue skies and abundant sunshine with a temperature in the mid-70s. There were no games played on Monday this year.

Next to Skywarn support, this is the biggest single public service event that LEARA does. Complete coverage requires a total of more than 300 man-hours of support. It's a huge job - and to

*(Continued on page 4)*



OFFICERS	
<b>Bob Winston</b> President	<b>W2THU</b> 216-771-3314
<b>Eric Jessen</b> Vice President	<b>N8AUC</b> 440-734-3146
<b>Alex Manuk</b> Vice President	<b>WD8JMM</b> 216-459-8523
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<b>Jeff Garvas</b>	<b>N8YNR</b> 216-552-4368
<b>Marv Grossman</b>	<b>W8AZO</b> 440-248-0031
<b>Tom Long</b>	<b>N8QXA</b> 440-356-0741
<b>Sara Cechner</b>	<b>KC8KSU</b> 440-942-8787
<b>Jim Ozello</b>	<b>N8XDO</b> 216-475-7218
<b>John Radney</b>	<b>KC8FOC</b> 216-751-7067
<b>Grant Hedrick</b>	<b>KV0T</b> 440-944-2184
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POINTS OF CONTACT	
<b>Don Raith</b> "Sunshine"	<b>N8DJG</b> 216-921-7546
<b>Raye Bayun</b> Radio Officer	<b>N8NAP</b> 146.76/R
<b>Bryan Torok</b> Radio Officer	<b>N8OOF</b> 146.88/R
The <i>Spirit of '76 &amp; '88</i> is published monthly except in December. Contributions must be received by the 1 <sup>st</sup> of the month.	
<b>Editor:</b> Alex Manuk, WD8JMM	
E-mail: editor@leara.org	

## de W2THU . . .

Well, another Dayton Hamvention(r) has come and gone. For me, it is always over too soon. . The shuttle busses were plentiful, on time and not crowded. Saturday was the rain day when most everybody stayed inside to view and review every exhibitor's wares. There was the usual abundance of seminars in the lecture rooms and you could tell by the ease of maneuvering that attendance wasn't outstanding. But that made it a very pleasant experience for all of us. This year was the first time in quite a while that this event was organized and run by all volunteers. Kudos to the Hamvention(r) Committee for a job well done.



If you didn't attend our May meeting at Dimitris' then you missed one of the more colorful speakers when Darryl Anderson discussed Ohio's Multi-Agency Radio Communications System, MARCS. This digital UHF network allows disparate public safety agencies throughout Ohio to talk to each other much in the same way as some cell phone companies offer walkie-talkie type communications to defined talk groups. Anderson keyed up his MARCS HT while inside the restaurant and we soon heard a responsive voice in Columbus proving the system works. As impressive as the system appears on paper, it is vulnerable to interruption and that is where amateur radio comes into play during a disaster. Anderson acknowledged this fact while praising the good work of ham radio operators.

We are well into severe weather season as is evidenced by several activations of the Cuyahoga County and other area Skywarn nets in the past few weeks. Listen to the Skywarn net control operator's directions as to what type of severe weather you are to report. Fair weather reports are not welcomed and could actually interfere with important information being transmitted by another spotter. As always, listen to the net for a while to understand what has been happening before you turned on your radio.

As stated elsewhere in this Newsletter, our June meeting will be diverted from the last Tuesday of this month to Field Day weekend. This is one of the most exciting ham radio activities combining emergency power, camping and contesting. Many LEARA members do visit our wonderful site overlooking Lake Erie. There are many ways to participate, including antenna erection, operating, and assisting with meal preparation. For the full treatment, bring your tent and sleeping bag and stay overnight.

Finally, did you know that June 19th is Kid's Day on amateur radio? In keeping with our goal of bringing young people into the hobby, the ARRL sponsors this event from 1800-2400 UTC (2 p.m. to 8 p.m. for you civilians). The goal is simply to invite any young person you know, be it your kid, niece or nephew or a neighbor's child into your shack where he or she can talk on your rig. The suggested exchange is name, age, location and favorite

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**LEARA** is a not-for-profit organization dedicated to Amateur Radio and to Public Service. Club information packets and applications for membership are available from **Marv Grossman, W8AZO, 440-248-0031** or may be downloaded from our web site at **www.leara.org**. Annual membership is \$18.00. **LEARA's address** is: LEARA, PO Box 22823, Beachwood, OH 44122-0823.

**Membership Meetings** are held the last Tuesday of each month except December at Dimitri's Restaurant, 1830 Snow Rd., Parma, OH (in the Mid-Town Shopping Center, just west of Broadview Road). Dinner is served at 6:30 PM. The regular meeting begins at 7:30 PM. Meetings are open to all interested persons. You may attend without eating, but **reservations are required** if you do wish to eat. Call **Marv Grossman, W8AZO at 440-248-0031** or make your reservation online at [www.leara.org](http://www.leara.org).

**Trustees' Meetings** are held on the second Saturday of odd numbered months at 9:00 AM at the Parma-Snow Branch of the Cuyahoga County Public Library, 2121 Snow Rd., Parma, OH (opposite the Mid-Town Shopping Center). Meetings are open to all current members of LEARA.

## Association News

### The May Meeting Recap

de The Editor

May's dinner meeting was definitely a treat for those interested in public service communications.

Darryl Anderson of MARCS, our guest for the evening, described and demonstrated the Multi-Agency Radio Communication System. The system had its beginning in 1987, when the Highway Patrol commissioned a study of the existing communications infrastructure. The MARCS Steering Committee was formed in 1994, and construction of the system finally began in 2000.

At this time, the statewide system is over 60% operational, with voice and data coverage in the deployed counties reaching 99% usability. This is a huge undertaking, and the MARCS team still has quite a bit of work to do to achieve full usability across the state. The schedule states that the entire state will be covered by December, 2004, and things are well under way to accomplish that goal.

MARCS provides mobile, base, and HT coverage for state agencies, by means of 'talk groups' to which users subscribe, very similar to the 'talk group' concept some may be familiar with in the cell phone realm. The system also provides vehicle data terminals, linked to a central database.

With a subscriber fee of \$240.00 per year, per radio, it may seem as if this is an expensive proposition; However, there are numerous law enforcement agencies moving their communication to the MARCS system exclusively.

Mr. Anderson pointed out that in the event of a catastrophe, inter-agency communication becomes paramount in importance. MARCS facilitates this by allowing talk groups to be reconfigured as needed. After a lively discussion, Mr. Anderson agreed that amateur radio is still the 'last line of defense' in the event of a major incident.

All in all, the MARCS system is proving to be a valuable resource for state agencies across Ohio. After the system is complete at the end of 2004, it will be possible to talk, HT to HT, station to station, anywhere in the state.

LEARA thanks Mr. Anderson for a great presentation!



Multi-Agency Radio Communication System

### May Door Prize Winners

Free Dinner: **Jon Anhold, N8USK**



Screwdriver set:

**William Gorris, N8PLV**

Map Light:

**Darren Turk, K8DMT**

Screwdriver Set:

**Bernie Vido, KC8YJB**

Repeater Directory:

**Mike DiTurno, KC8OWL**

Lighted Screwdriver:

**Jack Andrisin, W8JAK**

Lighted Screwdriver:

**Jim Ozello, N8XDO**



Computer Toolkit:

**Alex Manuk, WD8JMM**

Flashlight:

**Bill Davis, N8XDM**

50/50 raffle (\$22.50):

**Carol Ozello, N8XDO/XYL**



### Looking Forward

**June 26** — Special Meeting/Picnic, LEARA Field Day, Saturday, 5:00 PM, at Gordon Park. See pages 1 and 7 for details

**June 29** — NO MEETING AT DIMITRI'S

**July 10** — Trustees' meeting, see info on page 2.

**July 27** — LEARA picnic.

**August 31** — Test & Tune—Homebrew Nite.

**September 11** — Trustees' meeting, see info on page 2.

**September 28** — To be determined.

## For Sale

New Motorola Oncore GT+ GPS engine board set, amplified mag mount antenna (w/ 6 meter cord), power cord and windows software on CDROM. Works with standard mapping software or APRS applications. Uses 8-12VDC power and direct RS-232 connection to PC serial port. Fully built and 100% tested with lots of documentation. \$95. Email John, N8OBJ at gibbonsj@att.net (or gibbons\_john@keithley.com) or call (330) 468-2217 (7-9pm weeknights, 1-9pm weekends).

## Make Your Own Balun!

### With Some Spare Coaxial Cable. Cheap!

A penny-pinching tip from Cleveland Chapter One of the QCWA

You can spend your bucks for a commercial balun, or you can do the economical thing and wind your own. It's simple. Some details were found on the Force 12 antenna reflector on the Internet. Credit for this goes to Ed, WA2SRQ.

His experiments showed the right number of turns and the diameter of the coil needed to "roll your own." Ed used an HP 4193A vector impedance meter for his calculations. He used RG-213 coax wound on a four-inch PVC sewer pipe. Each test choke was close-wound on a form as a single-layer solenoid and taped to hold the turns in place.

Tests showed that 1:1 coaxial balun with excellent choking reactance for 10 through 20 meters can be made by winding six turns of RG-213 on a 4-inch PVC pipe.

For 30 or 40 meters, use 12 turns of RG-213, also wound around a 4-inch PVC pipe.

Don't bunch the turns together. Wind them as a single layer on the form. Bunching the turns kills the choking effect at higher frequencies. Don't use too many turns.

Been a balun booster for 25 years? You may qualify for membership in the Quarter Century Wireless Association. Info from Dee Logan, W1HEO, 9901 Cypress Circle, Mentor, OH 44060. E-mail to: delogan@ameritech.net.

## de W2THU . . .

(Continued from page 2)

color, while the suggested frequencies are 28.350-28.400, 21.380-21.400, 14.270-14.300 MHz and your favorite repeater. To participate you can call "CQ Kid's Day." Visit [www.arrl.org/FandES/ead/kids-day-survey.html](http://www.arrl.org/FandES/ead/kids-day-survey.html) for more information.

Meanwhile, I'll see you at Field Day!

73 de Bob Winston, W2THU

## WIST 2004

(Continued from page 1)

those of you who came out and helped with the tournament, I can't say thank you enough.

This was a record year for WIST. Due to a change in how the teams are-grouped by divisions, the tournament literally exploded this year - up from 95 teams last year to 192 teams this year. Hams from LEARA provided coverage for 349 games during the tournament. There were over 2,000 players, each with their parents and relatives present. It was estimated that there were 9,000 people in and around Westlake this year for the tournament. Due to the excellent field conditions, there were no serious injuries, and we did not need to send the paramedics out once - another tournament record! This was a good thing because.....

LEARA also hit a record this year. And it was not a positive thing. Due to the lack of YOUR involvement, we barely had enough hams to provide logistical support to the various field locations on Sunday afternoon. The scarcity of hams made watching individual fields completely impossible. Had the threatened severe weather arrived a few hours earlier than it did on Sunday, we would have had a very dangerous situation on our hands, and insufficient help to get the word out to clear the fields.

The hams who were there, did a fantastic job, and rose to the challenge to the very best of their abilities. Those individuals, deserve far more thanks than either LEARA or the Westlake Soccer Association can ever provide. For those of you who came out and helped, your selfless service to the community made ham radio look very good in the eyes of the public. Your help and support is appreciated far more than you can ever possibly know.

The rest of you - PLEASE make it a point to come out and help us next year. Even if you can only help out for a few hours - WE NEED YOU! You still make a difference! You could be the one who reunites a lost child with his/her parents - it happened this year!

Here is LEARA's list of heroes for the Westlake Soccer Tournament:

K8JTK - Jeff, W8AZO - Marv, N8VUL - Bill, WD8JMM - Alex, KC8YJB - Bernie, N8XDM - Bill, KC8RAN - Joe, N8TUA - Steve, KB9FEM - Jon, W8TAB - Tom, K8DMM - Tom, KC8KTE - Tim, N8ETP - Tom, KC8MNW - Jeannie, W2THU - Bob, KA8BZB - Tom, KC8AWO - Robin, N8AUC - Eric.

Special recognition and thanks go to:

The Westlake Board of Education - for providing free tower space for our antenna;

K8JTK - Jeff Kopcak and W8AZO - Marv Grossman for helping out for the ENTIRE event. They went WAY above and beyond the call of duty; WD8JMM - Alex Manuk for covering ALL of Burneson by himself (and getting a nasty sunburn in the process) during our manpower shortage on Sunday afternoon;

KA8BZB - Tom Kimball for working THREE DIFFERENT public service events over Memorial Day weekend;

The spouses of all the hams who helped out - for letting us borrow your loved ones on a Holiday weekend;

and N8OOF - Bryan Torok for helping with setup and teardown of our special portable repeater.

73 de N8AUC - Eric

## Public Service Opportunities

### 2004 Airport Drill

de Mike DiTurno, KC8OWL

The Scenario:

A Gulfstream III is on approach to runway 24R at Burke Lakefront Airport.

The airport is experiencing a severe thunderstorm with heavy rain and wind gusts to 40 knots. Just before touchdown the Gulfstream experiences a wind shear and nose dives into the runway. The gear collapses and flames are showing from both sides of the aircraft as it skids down the runway. There is no radio traffic from the aircraft

On **Saturday, August 21**, a mass casualty drill will be conducted at Burke Lakefront Airport according to the scenario described above. The Cuyahoga County Amateur Radio Emergency Service (ARES) is actively recruiting members to register with ARES, participate in this event, demonstrate amateur radios value at times of crisis, and help rebuild Cuyahoga County's Amateur Radio Emergency Service into a service that adds value to our county's emergency management organization. For more information or to volunteer, please contact me by e-mail at [kc8owl@yahoo.com](mailto:kc8owl@yahoo.com)

### 2004 River Run

de The Editor

Once again, LEARA has been asked to provide communications for the 2004 River Run. The event consists of a 'half-marathon' race through the Rocky River reservation of the Cleveland Metroparks. Amateurs are needed to provide safety communications for the route. The event typically runs two to three hours, commencing at about 8 AM. This year's River Run is scheduled for **September 12**, so mark your calendars now!

## CUYAHOGA COUNTY ARES WANTS YOU!

For more information or to volunteer for the Cuyahoga County Amateur Radio Emergency Service please contact

**Mike DiTurno, KC8OWL**  
Cuyahoga County ARES  
Emergency Coordinator  
[Kc8owl@yahoo.com](mailto:Kc8owl@yahoo.com)

### 2004 Pedal to the Point

de Jeff Garvas, N8YNR

Amateur Radio Volunteers are needed to help provide communications support for the 18th annual Multiple Sclerosis Pedal To The Point on **August 21 and 22**. For more information or to volunteer please contact Jeff Garvas, N8YNR by phone at 216-552-4368 or by e-mail at [n8ynr@leara.org](mailto:n8ynr@leara.org)



### SkyBank Triathlon

de Tom Kimball, KA8BZB

This year's Skybank Triathlon will be held on Sunday morning **July 25, 2004**.

As in the past, ham volunteers are needed to provide observation and communications support for the event. The first wave of swimmers will be hitting the water at 6:45 a.m. off of the East Ninth Street Pier. Cycling and running will all be done on the Shoreway between East Ninth Street and West Boulevard.

All competitors should be off the course by noon or so (roads need to be opened for traffic in time for the Indians Game). Details (including maps) can be found on the event web site at: <http://www.pacificsportsllc.com/SkyBankTriathlon/athlete6.htm>.

Current plans are to use the .88 repeater for the entire event. Hams will be meeting on the South Marginal Road near East 55th Street between 6:00 and 6:30 a.m. We can accommodate late arrivals or early departures so please indicate any special constraints. Doughnut Holes will be provided (BYO Coffee) along with T-shirts and vehicle credentials to identify you as part of the event.

To volunteer, you may sign up at the June LEARA meeting at the field day site, send me an e-mail at [ka8bzb@att.net](mailto:ka8bzb@att.net), or give me a phone call at 216-371-2832 some evening.

Those interested in serving as net control, "maritime mobile", or as medical liaison (ambulance dispatch) should let me know (no guarantees but we'll try to accommodate as best we can).

**Additional volunteer opportunities**  
are available at  
<http://www.neopsv.org>

## Hamfest Listing

### June

- 19 Milford ARC, Cincinnati, OH**  
[www.hamvention.org](http://www.hamvention.org);  
 Contact: Chris Reinfelder, KB8SNH  
 3782 Grovedale Pl.  
 Cincinnati, OH 45208  
 Phone: 513-351-2776

### July

- 11 Wood County ARC, Bowling Green, OH**  
 Contact: Bill Wilkins, WD8JWJ  
 PO Box 534  
 Bowling Green, OH 43402  
 Phone: 419-353-9165  
 Email: wd8jwj@wcnet.org
- 17 Northern Ohio ARS, Wellington, OH**  
<http://www.apk.net/noars/hamfest.htm>  
 Contact: Al Moriarty, N8CX  
 2140 McKinley Avenue  
 Lakewood, OH 44107  
 Phone: 216-221-3682  
 Email: n8cx@mindspring.com
- 18 Van Wert ARC, Van Wert, OH**  
<http://www.w8fy.org>  
 Contact: Stephen Kouts, WA8WKF  
 PO Box 347  
 Van Wert, OH 45891  
 Phone: 419-238-5560  
 Email: skouts@bright.net
- 24 OH-KY-IN ARS, Cincinnati, OH**  
<http://www.ohkyin.org>  
 Contact: Bruce Vanselow, N8BV  
 4309 Skylark Drive  
 Cincinnati, OH 45238-5535  
 Phone: 513-251-1555  
 Email: n8bv@juno.com
- 25 Portage ARC, Randolph, OH**  
<http://www.parc.portage.oh.us>  
 Contact: Joanne Solak, KJ3O  
 9971 Diagonal Road  
 Mantua, OH 44255  
 Phone: 330-274-8240  
 Email: ljs@config.com
- 7 HAM "OH" RAMA, Columbus, OH**  
 Voice of Aladdin ARC  
<http://www.qsl.net/w8fez>  
 Contact: James Morton, KB8KPJ  
 6070 Northgap Drive  
 Columbus, OH 43229-1945  
 Phone: 614-846-7790  
 Email: kb8kpj@arrl.net

## Volunteer Exam Dates and Locations

<u>Date</u>	<u>Location</u>	<u>Date</u>	<u>Location</u>
7/10	Akron, Red Cross	10/2	Wickliffe
7/11	Independence	10/17	Elyria
7/18	Elyria	11/14	Independence
8/3	Akron, Pioneer	11/21	Elyria
8/7	Wickliffe		
8/15	Elyria	12/6	Wickliffe
		12/21	Elyria
9/12	Independence		
9/19	Elyria		

**Akron, Pioneer AR Fellowship** - 2324 Manchester Rd., Akron, OH, 44314. Pre-registration preferred, check-in 6:30 PM, test at 7:00 PM, walk-ins allowed. **Contact:** Ronald D. Lieving, 330-724-5981.

**Akron, Summit Co. American Red Cross** - 501 W. Market St., Akron, OH, 44303. Testing at 3:00 PM, walk-ins allowed. **Contact:** Bruce M. Ferry, 330-929-2766, ak8b@arrl.net

**Bentleyville** - Bentleyville Town Hall, 6253 Chagrin River Rd., (corner of Solon Rd & River Rd) Bentleyville, OH 44022. Testing begins at 9:00 AM, walk-ins allowed. **Contact:** Raymond C. Dabkowski, 440-729-0110, w8rd@arrl.net

**Cuyahoga Falls** - 2015 3<sup>rd</sup> St., Cuyahoga Falls, OH 44221. Test at 7:00 PM, walk-ins allowed. **Contact:** Steven Greathouse, 330-724-2247.

**Elyria** - American Red Cross, 2929 West River Rd., Elyria, OH, 44035. Testing at 1:00 PM, park in rear and enter through back door, walk-ins allowed. **Contact:** Charles S. Hall, 216-433-3036, ve@w8hf.com, www.w8hf.com

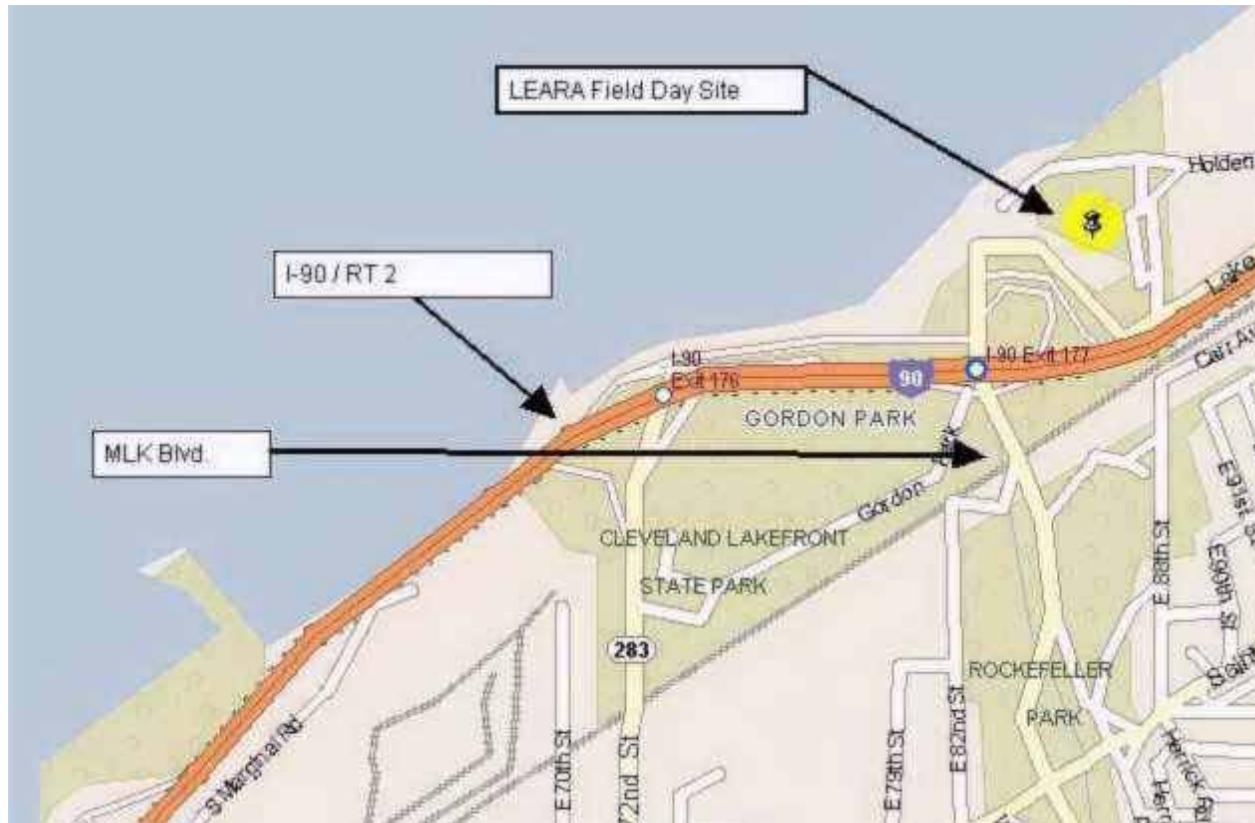
**Independence** - Independence Town Hall, 6652 Brecks-ville Rd., Independence OH, 44131. Doors open 9:00 AM. Pre-registration is appreciated, walk-ins are welcome. **Contact:** Gary S. Dewey, 216-642-9705, gdewey@en.com

**Wickliffe** - Amateur Electronic Supply (AES), 28940 Euclid Avenue, Wickliffe, OH 44092. Testing at 12:00 PM, Walk-ins are welcome. **Contact:** Scott Farnham, 440-256-0320. Do NOT call the store for information on VE testing.

**\*\* HAMFESTS - Many hamfests provide VE testing. \*\***

### INSTRUCTIONS FOR TEST CANDIDATES

For VE testing one must bring the original and copies of the current license and CSCE forms (if applicable), identification, and the exam fee. ARRL VEC's exam fees are \$12.00. Check with the contact person in advance for specific testing site requirements and any special test accommodations needed.



# LEARA Field Day - 2004

Saturday, June 26<sup>th</sup> and Sunday, June 27<sup>th</sup>

The Lake Erie Amateur Radio Association 2004 Field Day Site will be located inside the Ohio Cleveland Lakefront State Park which is just north of Interstate-90 at the Martin Luther King Boulevard interchange at 8701 Lake Shore Blvd. This is just west of the old Nike Missile Site and the Navy Finance Center and is also known as Upper Gordon Park.

This site is an Ohio State Park and our use during Field Day is not exclusive. Keep this in mind regarding language, noise and trash. Please be considerate.

## Directions from east or west

1. Take I-90 east or west to the Martin Luther King Blvd exit (exit 177).
2. Head north towards the lake.
3. Follow MLK over the freeway ramps (be careful; the ramps have the right-of-way here) and around to the right.
4. There will be a sign on the left identifying the area as the Cleveland Lakefront State Park. The driveway will be on your left.
5. The site is just west of the Ranger Station.

**Talk in on the 146.880 repeater will begin at 8:00 AM**

# LEARA

PO Box 22823  
Beachwood OH 44122-0823

## FIRST CLASS MAIL

FIRST CLASS MAIL  
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Permit No. 4340



## LEARA — The Lake Erie Amateur Radio Association

### VOICE REPEATERS:

53.230/R-  
146.76/R-  
146.88/R-  
224.90/R-  
444.40/R+  
444.70/R+

- Highland Hills (136.5 Hz tone)
  - Highland Hills (Use 110.9 Hz tone for remote inputs in Lakewood, Newbury & Willoughby)
  - Lakewood (Requires 110.9 Hz tone)
  - Lakewood (141.3 Hz tone)
  - Highland Hills (131.8 Hz tone)
  - Lakewood (131.8 Hz tone)
- (.76, .88, .90 and .70 offer emergency and member-only autopatch lines.)

**PACKET NODES:** CLE1 145.01 MHz: CLE5 145.05 MHz: CLEV220 223.70 MHz

These nodes are part of the Cleveland Net Cluster in K8EIW's backbone system.

**GENERAL:** NBRY  
NBRYX  
LEARA

- 145.07 MHz & 223.70 MHz (KA-NODE)
- 145.07 MHz ⇔ 223.70 MHz Gateway
- 145.07 MHz & 223.70 MHz PBBS

### INTERNET:

- [www.leara.org](http://www.leara.org)
- To subscribe via e-mail, send a message to: [spirit76-request@leara.org](mailto:spirit76-request@leara.org)  
Put subscribe in the subject area and your name and callsign in the body.  
Those who subscribe via e-mail will not receive a paper copy.

Affiliated



Club

Northern Ohio



Affiliate