

# The WA7ARC Repeater System

Contributed by Bob Nelson, WA7ARC  
Tuesday, 08 January 2008  
Last Updated Wednesday, 09 January 2008

You're interested in using the WA7ARC Repeater System and you'd like to know more information. Here's the information regarding the system we've deemed "fit for public consumption..."

First, the system is divided into three sections (currently) and includes the AJ7JA/KA7PBI Repeater in Seattle, located on the KCTS tower on Capitol Hill. In the hinterlands, there's the Olympia system and the Grays Harbor system. These three systems are (generally) linked together via VOIP. In addition, all systems support EchoLink\* and provide various capabilities at different sites.

## COSMOPOLIS HILL

The Grays Harbor system is located atop Cosmopolis Hill at 188.3 Meters (617 feet). The current repeater is a Motorola GR-1225 with 28 W output plugged into a Diamond X50A with 7dB of gain. In an unusual move, we're running LMR-800 cable to the antenna which, although a PITA to terminate, has worked very well for the mission.

Accessing the system is relatively easy - all sites currently operate on 444.375 with a positive offset. CTCSS of 100.0 Hz is required to trigger the system.

The site permits EchoLink operation to club members. In addition, the Grays Harbor system provides EAS - Emergency Alert System - notifications to the region. This allows us to monitor severe weather and other disaster-related warnings from the system. The system provides 2.5 minutes of talk-time before you time out the repeater. Long-winded operators are warned that the system will time out and requires an un-key event before allowing the transmission to continue.

Only control operators and valid club members have the ability/permission to link or de-link the overall system which joins the network together and, while most of the systems are live all the time, there are times those links may be down for a variety of reasons. If you need to bring a link up, you can feel free to ask a control operator to activate a downed link.

## SEATTLE

The AJ7JA/KA7PBI (Seattle) system is located atop Capitol Hill at 714 feet. The current repeater is a Vertex VXR-5000 with 30 W output. This system is located on the KCTS (Channel 9) transmitter tower.

Accessing the system is simple - the site operates on 444.375 with a positive offset. A CTCSS tone of 203.5 is required to trigger the system. The system provides an outgoing 203.5 tone, allowing you to tone-guard your receiver from other signals on-frequency.

The site permits EchoLink operation to club members. Typically, Seattle and Cosmopolis are linked - what you say in Grays Harbor pops out in Seattle, and what's said in Seattle is heard in Grays Harbor. The system provides 3 minutes of talk-time before you time out the repeater. Long-winded operators are warned that the system will time out and requires an un-key event before allowing the transmission to continue.

If you encounter a problem with the use of this system, you should contact KB7ILD at kb7ild@arrrl.net

## NEILTON POINT

We've been granted permission prior to coordination to begin testing of a 2m system on Neilton Point, located just above Lake Quinault. Coverage is expected to reach from Lake Quinault to the Washington-Oregon border (that's what we'll be adjusting for, at least). Operating on 146.9600, with a CTCSS of 203.5 Hz, the system is running at 46 Watts out of the duplexer and the antenna, a StationMaster, is providing the anticipated coverage.

In addition, installation of a back-boned APRS digi and gateway at the site is underway, but snow is currently hampering our efforts. In addition to providing 1200 baud APRS services, gatewayed to 9600 on UHF, the system serves an important part of our strategy: All sites are utilizing a custom-built APRS telemetry interface to monitor battery, line-power, generator status, generator fuel level, and SWR. That information is fed back to our custom-built repeater controller, providing live alerts to control operators if any parameters fall outside pre-defined guidelines.

We hope you enjoy the system. If you have any questions, feel free to contact a systems manager on the contact page.

-----

\*EchoLink is only available to club members.