

The National Traffic System — A History and ARRL's Path Forward

Everything hams need to know about the past, present, and future of the NTS.

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The National Traffic System (NTS) is an important resource for amateur radio public service and emergency communications. A major focus is to ensure that we can deliver traffic quickly and efficiently during emergency situations. It also serves as an enjoyable activity and training ground for amateur radio operators.

History

Amateur radio is many things, including a voluntary noncommercial communication service offered to the public. It was for this communication service that ARRL was created. Following the trunk lines of the early 1900s and a hiatus during World War II, the NTS was formed in 1949. Throughout its existence, the NTS has always been ready to assist in natural and manmade disasters.

Messages were relayed using radiograms patterned after the telegrams of the 1800s and early 1900s. Messages are now generally relayed through a network of traffic nets, both CW and voice. By the 1990s, a digital traffic network was formed using HF PACTOR and VHF packet and later, the sound card mode VARA HF. This network, with regional hubs across the country and operating 24/7, was designed with interoperability in mind, so messages can easily move between the various modes, and be delivered within hours rather than days.

The Current State of the NTS

Today, rapid and inexpensive means of communication are available throughout the world, leading some to question the future of the NTS. Modern communication methods have led to a dependence on the internet, which is subject to disablement due to cyberattacks and extreme weather events. For this reason, emergency communication via other means has become a major focus of many, including the amateur radio community and ARRL. A revitalization to better support emergency responders is a primary reason for modernizing the NTS. There is also a need to recruit



Ethan Hansen, KC1OIP, relays radiogram messages from his station via the NTS. [Photo courtesy of Ethan Hansen, KC1OIP]

new traffic handlers, standardize methods and training, and improve message delivery speed and reliability.

Plans for Improvement

In April 2022, the ARRL Emergency Communications and Field Services Committee chartered a project called NTS 2.0 to develop ways to improve ARRL's support for NTS and help it evolve and grow. The NTS 2.0 Steering Committee led the working group by surveying the current state of the NTS and developing goals for ARRL's support going forward. The Steering Committee's efforts include a comprehensive set of issues that must be addressed to realize the NTS 2.0 goals. Some important issues include:

- Improving ease and reliability of delivered messages
- Handling Incident Command System ICS-213 traffic in a consistent manner, including interworking standards to better enable transit via digital, voice, and CW modes
- Creating nationwide standards and tools for reporting traffic
- Developing measurement methods to assess and improve reliability, speed, and other performance issues
- Providing resources that enable the public and other emergency communications services to easily access the NTS to send and receive messages

Implementation Teams and Priorities

Recruitment, Training, and Online Presence	Updated Access and Delivery Methods	Performance Standards, Assessment, and Activity Reporting	EmComm/Agency Engagement, Documentation, and Procedures	Digital Networks 2.0
Implementation Use Cases <ul style="list-style-type: none"> ■ ICS message procedure and training ■ Delivery time/reliability standards and measures, including self-measuring traffic ■ Standards and tools for reporting activity and NTS performance ■ Additional access methods and methods for delivering traffic to recipients 				
<ul style="list-style-type: none"> ■ New ham outreach, recruiting, and training ■ Procedures and contacts for other EmComm groups ■ Plan to measure and secure nationwide Digital Traffic Network coverage ■ Recognition and incentive programs 				

Figure 1 — The five Implementation Teams are named according to their priorities, and they work on the various issues detailed in the bulleted list.

- Updating training and documentation materials
- Expanding recruitment, with a focus on creating a modern internet presence
- Addressing NTS coverage and staffing issues
- Improving recognition and incentive programs

The goals for NTS 2.0 include:

- Improving the reliability, speed, and coverage of the NTS
- Enhancing the NTS's role as an emergency communications service
- Creating a focus on new ham development through involvement in handling traffic
- Incorporating support for new types of multimedia and large file traffic

Implementing NTS 2.0

The scope of the NTS 2.0 program is quite ambitious. Our plans include developing procedures and methods that will allow us to deliver traffic within 30 minutes during emergencies such as floods, wildfires, and major weather events.

During the second half of 2022, the NTS 2.0 Steering Committee undertook a series of more than 15 nationwide briefings to gather input from traffic handlers, field staff leaders, and others to address and refine the plans of NTS 2.0 and other associated items. From these briefings, we recruited a nationwide team of 40 volunteers who are active traffic handlers to begin implementing the NTS 2.0 program. You can view a briefing on the NTS 2.0 website (see the sidebar, "NTS 2.0 Website").

The implementation effort was kicked off in early 2023. The NTS 2.0 volunteers are organized into five teams (represented in the blue bar in Figure 1) to tackle different issues associated with implementing the program. We created an initial set of use cases and items that the teams address on a priority basis.

NTS 2.0 Website

We have created a website at <https://nts2.arrl.org> to share information, documentation, and training materials as we develop them. The website will be updated regularly as the NTS 2.0 implementation progresses.

They focus on important issues simultaneously to ensure that they are addressed coherently and comprehensively. Each team has been assigned 8 – 15 issues to work on. The teams meet weekly to develop standards, training materials, procedures, and documentation to address their individual issues. Some of the early work includes handling ICS-213 traffic and additional traffic handling instructions, updating the ARRL Net Directory (<http://arrrl.org/arrrl-net-directory>), and more.

We expect our work to continue through 2023 into 2024, and we anticipate rolling out key elements of the NTS 2.0 program during 2023. We are working hard to expand the NTS and grow this essential service for years to come.

Fred Kemmerer, AB1OC, serves as ARRL New England Division Director and is a chairperson for the team working on the NTS 2.0 program. His work also includes creating an environment where clubs and individuals collaborate to help hams develop new skills and bring new people into amateur radio. As an ARISS mentor, Fred helps inspire young people in schools to pursue STEM learning through amateur radio contacts with the International Space Station.

Marcia Forde, KW1U, was first licensed in 1980. She obtained her Extra-class license in 1984. She has served as Section Traffic Manager, Net Manager for several nets, and Transcontinental Corps Director. From 2001 to 2014, Marcia was Chair of the NTS Eastern Area Staff. She is currently the Section Traffic Manager of both Eastern and Western Massachusetts, Manager of the Mass Rhode Island CW Net and the Eastern Area CW Net, and the Transcontinental Corps for SSB and CW.

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