A Plan for a Statewide EmComm Network

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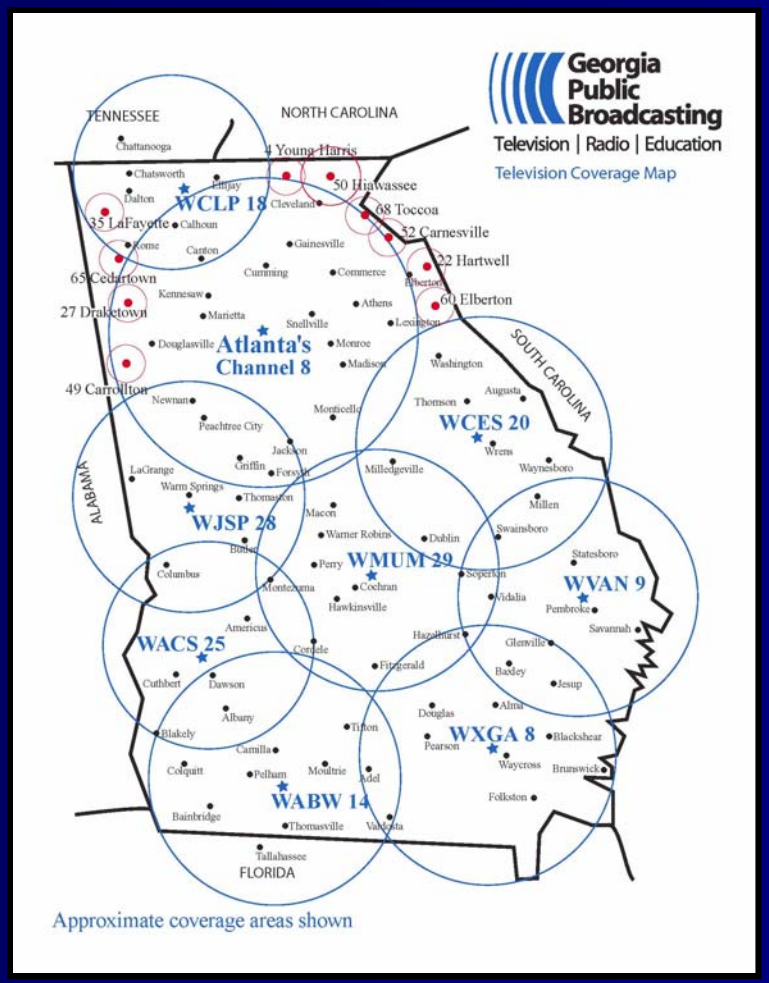
History

- Georgia ARES and OHS/GEMA signed an MOU in 2006 to promote close cooperation between the State of Georgia and the Georgia Section of ARES
- Georgia Public Broadcasting is supporting the MOU by providing amateur radio access to Georgia Public Broadcasting towers and sites across the state.
- GPB is undergoing a major project to convert statewide television network to DTV
- GPB is installing two pooled antennas (Amateur Radio compatible) and transmissions lines on each tower for shared use and emergency communications

GPB and ARES

- GPB designates ARES to coordinate use of pooled antennas
- National Weather Service requests use of sites for Mesonet real-time weather reporting project
- ARES develops master plan for best use of statewide sites

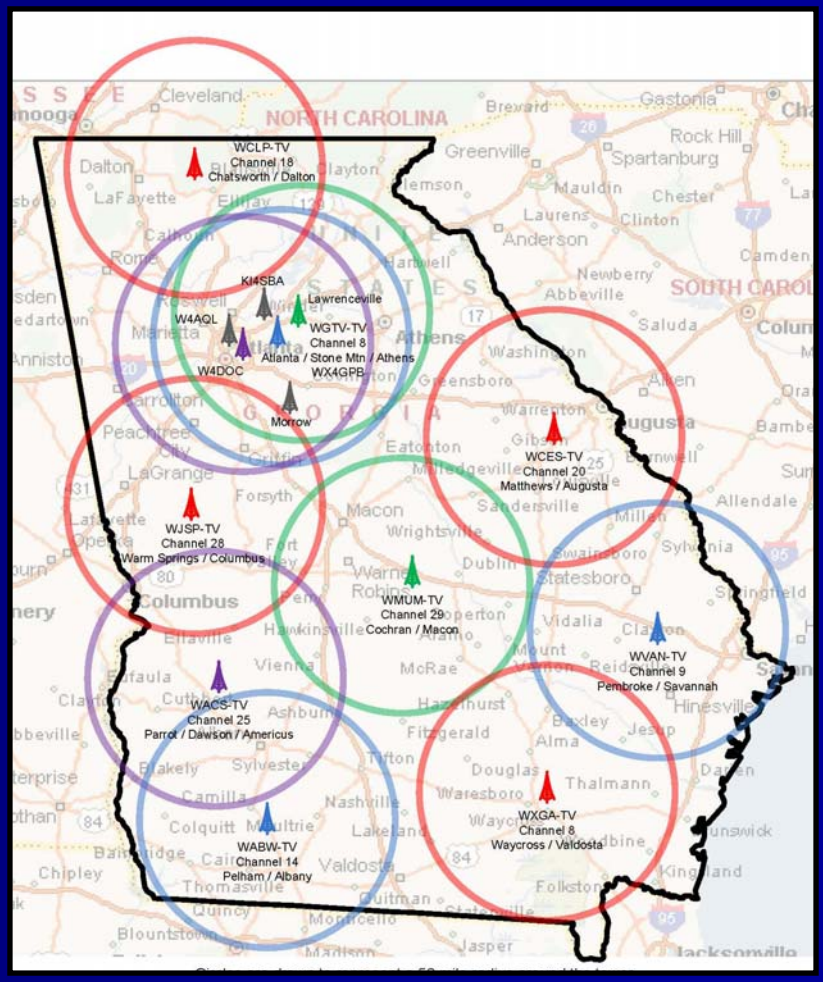
The GPB Network



- Consists of nine tall towers providing coverage over most of state
- Antennas are being installed at around 500’ AGL on each tower
- GPB will maintain antennas and 1 5/8” transmission lines at sites
- GPB will provide indoor facilities for installation of equipment
- Power and Internet connectivity will be provided

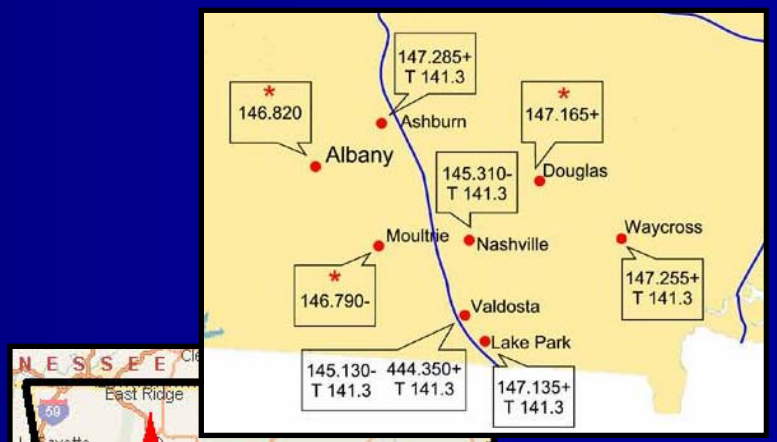
GPB Network Coverage

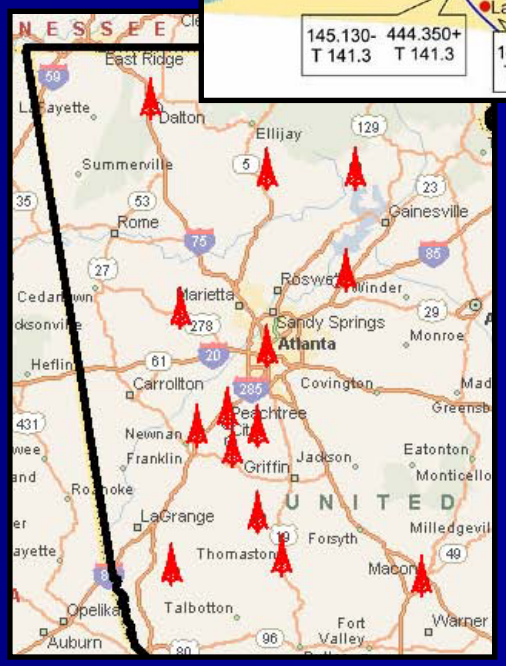
- Nine GPB sites shown with 50 mile radius circles
- Conservative coverage estimate for VHF and UHF with antennas at ~500’ AGL
- Planning allows for maximum frequency reuse across state



How we communicate statewide today

- HF voice communications on 75 and 40 meters
- HF Communications using data for email connectivity on Pactor (Winlink), slow speed data on PSK31, MT63
- Tall Pine Intertie links FM repeaters in portions of south Georgia for voice traffic
- Georgia Linked Repeater System connects FM repeaters across parts of state for SKYWARN reporting
- Telpac VHF nodes in select areas provide Winlink connectivity using standard VHF packet





Goals for a Statewide Network

- Provide reliable statewide voice and data communications to support EmComm operations
- Potential for multi-state linking for weather reporting or large scale events
- Support existing communications technologies for immediate use
- Create platform using new technologies to expand capabilities and future-proof network

Options Evaluated

- Standard linked FM repeater network
- Individual FM repeaters (unlinked)
- AX.25 based Packet data network
- Linked digital voice and data repeater network

Other Considerations

- What existing technologies provide immediate use?
- Alabama constructed 12 site D-Star network to provide statewide voice and data communications
- D-Star sites in North Florida provide weather reporting from Gulf area
- GEMA looking for transport medium to carry high resolution photos from affected sites

Network Plan

- Install tri-band antenna (2m, 70cm, 23cm) on each tower
- Install one broadband VHF antenna to accommodate VHF repeater or Packet along with NWS Mesonet service
- Continue site agreements with existing FM repeaters
- Install VHF Telpac nodes to support existing and expanded Winlink connectivity and Packet operation (low speed packet data)
- Install networked D-Star repeaters to provide digital voice, low speed and high speed data, Internet connectivity

Network Capabilities

- Deployment of Telpac nodes will provide immediate and expanded use of VHF Packet and Winlink
- D-Star will provide linked voice and data network across state
- Ability to link with Alabama and North Florida for approaching weather from West, Gulf and Atlantic
- High speed data networking across state with Internet connectivity on 1.2 GHz

Why D-Star?

- Open worldwide standard digital technology
- Provides state-of-the-art digital voice and data platform
- Over 150 repeaters already in service, 54 outside US
- Allows simultaneous voice and data on 2m and 70cm
- High speed data (128 Kb) on 1.2 GHz with Internet connectivity for photo, file and video transfer
- Provides linking across state and nationally through Internet Gateways
- Current applications include messaging, automatic position reporting, high speed data to support file, video and photo transfer
- DV Dongle allows full D-Star repeater access worldwide via PC (similar to EchoLink, IRLP) for EOC, EMA

Where are we?

- Site work near completion at WGTV on Stone Mountain and underway at most GPB towers
- HRO donated full D-Star repeater stack for installation on Stone Mountain in early February as WX4GPB
- Developed frequency reuse plan and working with SERA for coordination of frequencies in 2m, 70cm and 23 cm bands
- Priority deployment to south Georgia providing connectivity to Atlanta, state and federal agencies
- Deployment through combination of public/private funding for repeaters and radio equipment
- Meeting with GEMA, Legislative contacts to seek State funding support
- Interest already expressed for local grants for funding individual repeaters

Summary

- Continue to use and develop existing voice and data applications for statewide communications
- Deploy Telpac nodes where needed at GPB sites to expand VHF Winlink accessibility and promote growth and use
- Deploy digital voice and data network with D-Star on GPB towers to bring new capabilities and expanded communications today and create platform for the future

DEMOS

- DV Dongle
- High speed data with Internet connectivity