Proviso 93.7:
First Responder Interoperability
2021-2022 Report on Agency Compliance

admin

THE SOUTH CAROLINA
DEPARTMENT *of* ADMINISTRATION

REPORT OVERVIEW

Proviso 93.7 of the Fiscal Year (FY) 2022-2023 Appropriation Act authorizes the South Carolina Department of Administration (Admin) to administer and coordinate First Responder Interoperability operations through the statewide Palmetto 800 radio system to better coordinate public safety disaster responses and communications. The following report serves as an overview of recent accomplishments and plans designed to support this proviso. The report also details those entities not yet integrated into the system as of the end of FY 2021-2022, as required by the proviso.

Proviso 93.7

The text of the relevant proviso for the current fiscal year states: "The Department of Administration is directed to administer and coordinate First Responder Interoperability operations for the statewide Palmetto 800 radio system to better coordinate public safety disaster responses and communications. First Responder Interoperability administration and coordination shall be funded as provided in this act. The cost-proportional funds shall be utilized for radio user fees of state agencies and public safety first responders (Fire, EMS and Law Enforcement) that participate in the statewide Palmetto 800 radio system (Palmetto 800 participants). The Department of Administration, in consultation with the State Law Enforcement Division, the Department of Public Safety, and the State Emergency Management Division, and a representative of the South Carolina Sheriffs Association, shall set a baseline number of radios used by each Palmetto 800 participant based on the technical aspects of the Palmetto 800 radio system and the jurisdictional requirements of the participant. If a Palmetto 800 participant reduces the baseline number of radios in use, the amount of funds allocated for the participants radio user fees shall be reduced in a proportional amount. The funds shall also be utilized to provide private county and city radio systems with grant funds to be used for purchases of equipment that support interoperability with the statewide Palmetto 800 radio system and its users. Grant funds shall be allocated to private county and city radio systems based on the criteria used for Palmetto 800 Participants and in amounts proportional to the amounts allocated to support the per-site radio user fees of Palmetto 800 participants. A matching share is required by a Palmetto 800 participant or by a private county or city radio system in order to qualify for receipt of funds pursuant to this proviso. Each fiscal year the Department of Administration shall establish the level of match required based upon funding provided by this act. These entities shall be required to furnish such documentation as may be required by the department to verify that the matching funds requirement is met. Upon funding state agency and public safety first responder user fees and private county and city equipment purchases, any remaining funds may be used to enhance and expand the statewide Palmetto 800 radio system. All funds shall be held in a separate account established by the department for the purposes set forth herein. Any unexpended portion of these funds may be carried forward and used for the same purpose. In the calculation of any across-the-board budget reduction mandated by the Executive Budget Office or General Assembly, the amount appropriated to the Department of Administration for First Responder Interoperability must be excluded from the departments base budget.

The Department of Administration shall provide a report on the status of the integration of the statewide Palmetto 800 radio system which shall include, but not be limited to, a list of entities who are not integrated into the system as of the end of the immediately preceding fiscal year and the reason why they are not integrated. The report shall be submitted by October first, of the current fiscal year to the Chairman of the Senate Finance Committee and the Chairman of the House Ways and Means Committee."[1]

SIGNIFICANT SYSTEM ACTIVITIES:

Funding to Assist First Responders

The First Responder Interoperability Proviso of the FY 2021-2022 Appropriation Act funds provided a 5% match to assist state and local first responders participating in the Palmetto 800 Statewide Radio Network. This funding also provided 6% in matching funds for eligible equipment purchases to first responder agencies on private county and municipal 800MHz systems to support interoperability between those systems and the Palmetto 800 radio network.

Palmetto 800 User Update

The Palmetto 800 radio network public/private partnership continues to be a model across the nation for its breadth of coverage, statewide adoption rate, and technical capabilities. The system currently has over 65,260 primary radio users, 15,000 shared interoperability users, and 10,500 users that share the Palmetto 800 Core. The shared users are concentrated in Charleston, Beaufort, and Florence counties.

Network Expansion

Federal grant reductions and increased expenses continue to limit expansion of the Palmetto 800 system into rural counties of the state. The increased cost in insurance, operations, and maintenance of the state's cache of emergency communications equipment and portable towers also limits funds for expansion of the system. Many of the existing handheld radios have reached the end of their expected lifecycle and need to be replaced with models that support all of the current technologies deployed across the Palmetto 800 radio sites. There were no expansion sites added to the network during FY 2021-2022; however, seven new wireline dispatch consoles were added bringing the total to 44.

- ▶ Goose Creek Dispatch Center
- ▶ South Carolina State Warning Point – SCEMD
- ▶ South Carolina Department of Transportation
- ▶ Aiken, Fairfield, and Lancaster Counties
- ▶ VA Dorn

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[1] 2022-2023 Appropriation Act, Part 1B Section 93.7 D-500 Department of Administration.

New Users

Over 600 new users were added to the system across 15 new entities, which include:

- ▶ Bamberg County
- ▶ Barnwell City Fire Department
- ▶ Benedict College Police Department
- ▶ Berkeley County North, East, and Metro Fire Departments
- ▶ Chester County Government
- ▶ City of Cayce Fire Department
- ▶ City of Greer Parks and Recreation
- ▶ City of Greer Public Services
- ▶ Denmark Technical Department of Public Safety
- ▶ Inman Community Fire Department
- ▶ Orangeburg County Animal Control
- ▶ Orangeburg Department of Public Utility
- ▶ Pickens County Emergency Management
- ▶ Union County EMS
- ▶ Union County Fire and Rescue

OTIS Public Safety Communications Team Mission Fulfillment

Admin's Office of Technology and Information Services (OTIS) Public Safety Communications team is tasked with the mission of ensuring communications interoperability and coordination between law enforcement, fire and emergency medical service responders working events throughout South Carolina. This mission also requires coordination with other state agency partners and with private sector service providers.

This mission required the team to provide communications interoperability support to a variety of events in 2021-2022. Such events included:

- ▶ 2021 Columbia Place COVID-19 Vaccination Site
- ▶ 2021 Darlington Motor Speedway NASCAR events (spring and fall races)
- ▶ 2021 Multiagency Dillon County Special Operations
- ▶ 2021 State Guard training and exercises
- ▶ Support for multiple missing persons searches
- ▶ Support for multiple search and rescue/recovery operations
- ▶ Support for multiple State Law Enforcement Division (SLED) missions
- ▶ 2022 Firefighters Association Conference
- ▶ 2022 Carolina Cup Horse Race
- ▶ 2022 Okra Strut Festival
- ▶ 2022 Kinetic Derby
- ▶ 2022 Spartanburg Spring Fling

- ▶ University of South Carolina home athletic contests and special campus events
- ▶ Clemson University home athletic contests and special campus events

Communications Strike Team

The aftermath of Hurricane Katrina and the Graniteville train wreck, both in 2005, caused South Carolina to realize the need for a highly trained communications response team to support public safety communications during disasters, large emergencies, and significant events. The South Carolina Communications Strike Team which resulted is made up of state and local government communications experts from across South Carolina. OTIS coordinates the Strike Team when it is called into action. In addition to coordination, OTIS maintains a strategic reserve of communications equipment for use by public safety during such events. This communications cache is used to backfill communications needs as agencies deploying their own resources exhaust their equipment inventories. The OTIS cache reserves include satellite resources, mobile towers and handheld digital radios. These are provided to agencies upon request and must be returned to the OTIS Public Safety Emergency Communications team when the event is concluded.

Palmetto Tactical Communications Network (PATCON)

To enhance South Carolina's public safety communications, interoperability capabilities, and to add statewide communications redundancy, OTIS continues to operate and maintain the Palmetto Tactical Communications Network (PATCON), a statewide conventional interoperable repeater network supporting traditional 700/800MHz radio communications. This system is free to use for all public safety agencies in South Carolina. PATCON interoperable repeaters are deployed in every county in the state. This network is comprised of 130 standalone transmitter sites providing additional interoperability, back up and capacity resources to the Palmetto 800 statewide network.

The PATCON network continues to evolve to meet demands placed upon the system. PATCON repeaters located on top of the Rutledge Building in downtown Columbia were utilized to provide backup communications during a power outage at the Capital Complex which impacted the Bi-Directional Amplifier (BDA) system that enhances the radio coverage in and around the complex. Additionally, these repeaters also supported the City of Columbia and Secret Service's ability to effectively communicate during Vice President Harris's visit to South Carolina.
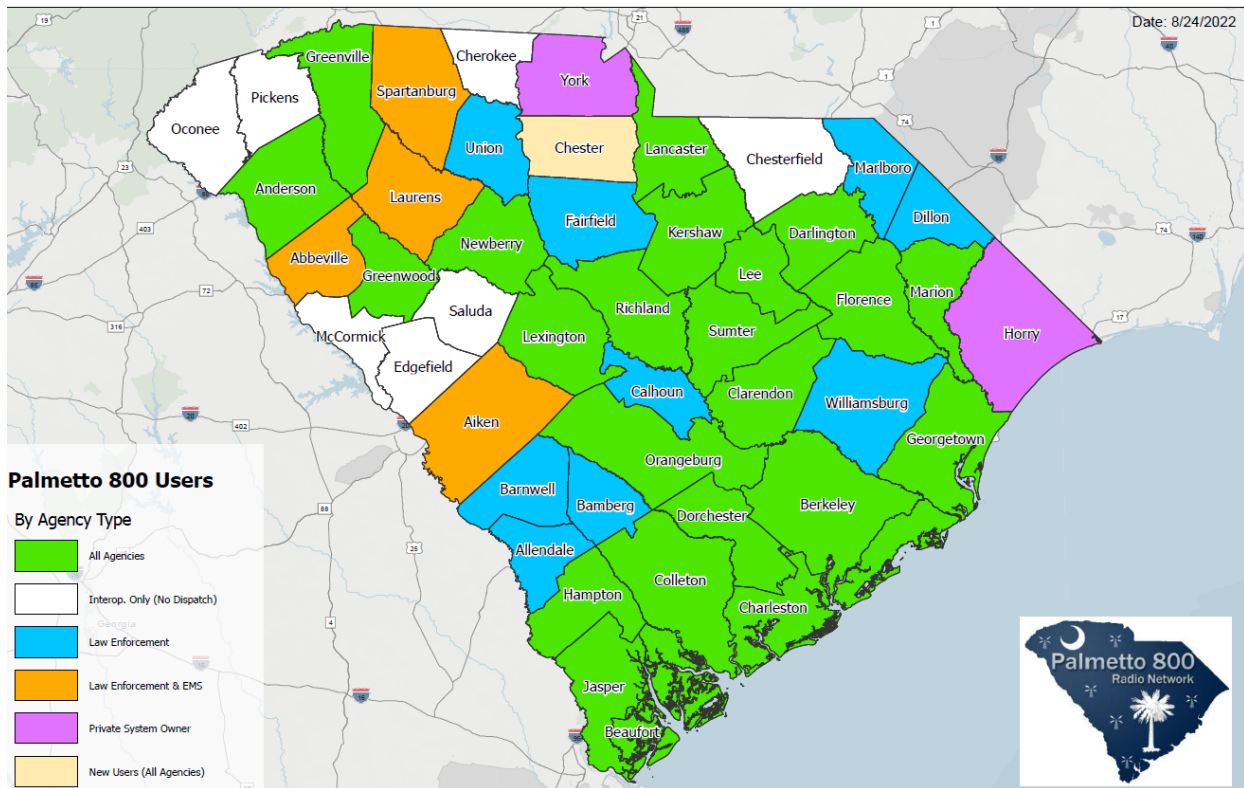
ENHANCED INTEROPERABILITY OPPORTUNITIES:

North Carolina Viper and Charlotte (N.C.) System Interoperability

The state of North Carolina's P25 radio system, known as the VIPER System, is compatible with the South Carolina Palmetto 800 network as is the City of Charlotte, North Carolina's P25 system. There are 15,000 mutual aid IDs on the system designated to support North Carolina agencies. Because of the compatibility between systems, agencies and local government, fire, emergency medical services, and law enforcement agencies in both states can respond across state lines in support of one another on an

almost a daily basis. This interoperability provides invaluable, mutual aid during events and in emergency situations. During 2021-2022, South Carolina, North Carolina, Kentucky, and Tennessee participated in a multistate communications exercise sponsored by FEMA Region IV where all states were able to successfully communicate across borders utilizing patches that were facilitated by each state's system.

FIRST RESPONDER INTEROPERABILITY REPORT

The Palmetto 800 Users Map, which lists the system's users by agency type, is featured below.

Listed below are the state, county, and municipal government Palmetto 800 network radio users. The Palmetto 800 Network, private county, and private city 800 MHz systems have exchanged radio system IDs to enhance statewide interoperability. The Palmetto 800 system has also exchanged system ID's with participating jurisdictions in South Carolina's neighboring states to enhance public safety mutual aid through communications interoperability across state lines. These include the North Carolina Highway Patrol, the City of Charlotte, City of Pineville, Union, Polk and Brunswick counties in North Carolina, and the Cities of Augusta and Savannah, Georgia.

State Agency Interoperability

State Agency	800 MHz Interoperability	Comments
Adjutant General	National Guard has Palmetto 800 network radios for interoperability	This agency has 100 radios but would like to have additional 800 MHz radios to support state emergencies.
Department of Administration	Fully Palmetto 800 network	Maintains and deploys the state's strategic cache of communications radio and response equipment for public safety agencies statewide.
The Citadel	Fully Palmetto 800 network	Fully Palmetto 800
Clemson University	Fully Palmetto 800 network	With the addition of the new Clemson site, the university is now completing its transitions for all municipalities to the Palmetto 800 network.
Coastal Carolina University	Limited interoperability	Utilizes Horry County's private 800 system. They have interoperability with local and state law enforcement.
Department of Corrections	Limited interoperability	Utilizes a local VHF system in prisons. Agency has Palmetto 800 radios for other operations and interoperability.
S.C. Emergency Management Division	Fully Palmetto 800 network	Maintains its own low band redundant system.
Department of Labor, Licensing and Regulation and State Fire Marshal	Fully Palmetto 800 network	Fully Palmetto 800
S.C. Forestry Commission	All law enforcement officers have Palmetto 800 network	Non-law enforcement firefighting units still utilize the agency's VHF radio system.
Wil Lou Gray Opportunity School	Law enforcement is fully Palmetto 800 network	Fully Palmetto 800
Department of Health and Environmental Control	Fully Palmetto 800 network	Fully Palmetto 800

S.C. Department of Public Safety • S.C. Highway Patrol • State Transport Police • Bureau of Protective Services	Fully Palmetto 800 network	Fully Palmetto 800
S.C. House of Representatives Sergeant-at-Arms	Fully Palmetto 800 network	Fully Palmetto 800
Department of Juvenile Justice	Fully Palmetto 800 network	Fully Palmetto 800
S.C. Law Enforcement Division	Fully Palmetto 800 network	The agency maintains and utilizes VHF system for redundancy.
Medical University of South Carolina	Fully Palmetto 800 network	Fully Palmetto 800
Department of Mental Health	Law Enforcement is fully Palmetto 800 network	Fully Palmetto 800
Department of Natural Resources	Law Enforcement is fully Palmetto 800 network	Agency maintains and utilizes its own VHF radio system.
S.C. Ports Authority	Fully Palmetto 800 network	Agency is interoperable with State Palmetto 800 system, utilizing the Charleston County P25 system.
Department of Probation, Parole and Pardon Services	Fully Palmetto 800 network	Fully Palmetto 800
Department of Revenue	Fully Palmetto 800 network	Enforcement officers only.
Santee Cooper	Limited Interoperability Law Enforcement Only	Santee Cooper has an independent radio system not compatible with Palmetto 800 System. Santee Cooper Law Enforcement officers have 800 MHz radios for interoperability.
South Carolina State University	Police are fully Palmetto 800 Network	Fully Palmetto 800
S.C. State Senate Sergeant-at-Arms	Fully Palmetto 800 network	Fully Palmetto 800
Department of Transportation	Senior Staff, engineers and SHEP have Palmetto 800 network radios	Dispatch, SHEP and engineers involved in supporting hurricane evacuations and recovery have 800 MHz radios. Road work crews still are utilizing low band system.
State Transport Police (See also S.C. Highway Patrol)	Fully Palmetto 800 network	Fully Palmetto 800

| University of South Carolina | Fully Palmetto 800 network | Fully Palmetto 800 |
| University of South Carolina - Upstate | Fully Palmetto 800 network | Fully Palmetto 800 |

Local Government Interoperability by County

Note: All county 911 dispatch centers and county emergency operations centers (EOC) statewide have been provided with 800 MHz radios for interoperability between local government and state agency dispatch centers.

Local Government Interoperability by County		
County	**800 MHz Interoperability**	**Comments**
Abbeville	Has Palmetto 800 network radios for interoperability	All agencies have Palmetto 800 radios for interoperability.
Aiken	County Sheriff and EMS are fully Palmetto 800 network. All police are fully 800 MHz departments.	County fire is on UHF, all others are fully Palmetto 800.
Allendale	County Sheriff and most police departments utilize Palmetto 800 network for interoperability	County fire is on VHF, sheriff and most law enforcement agencies have 800 MHz radios for interoperability or primary use.
Anderson	Fully Palmetto 800 network	County fire utilizes VHF but has Palmetto 800 radios for interoperability.
Bamberg	Law enforcement is fully Palmetto 800 network	County Fire and EMS have Palmetto 800 radios for interoperability only, both utilize VHF and UHF systems for primary dispatch.
Barnwell	Sheriff and EMS have Palmetto 800 network radios; Fire has some 800 MHz	Fire agencies utilize VHF for primary dispatch. EMS is provided by private contractor Med Shore who have Palmetto 800 network radios.

	radios for interoperability.	
Beaufort	Private 800 network that shares Palmetto 800 core. School district has joined the Palmetto 800 system as of 2021.	Beaufort uses a private 800 MHz System connected to the Palmetto 800 P25 core for interoperability.
Berkeley	Fully Palmetto 800 network	Fully Palmetto 800 network
Calhoun	Sheriff's Department is fully Palmetto 800	Sheriff's Department, St. Matthews PD and some Fire Departments have radios for interoperability with 800 MHz radios. EMS and fire have limited participation on the in Palmetto 800 due to equipment cost and user fees.
Charleston	Private 800 network that shares Palmetto 800 core	Charleston utilizes a private 800 MHz System connected to the Palmetto 800 P25 core for interoperability.
Cherokee	Limited Interoperability	Sheriff's Department, Gaffney PD and some Fire Departments have 800 MHz radios. Limited participation due to equipment cost and user fees.
Chester	All Agencies migrating to Palmetto 800	Chester is in the process of a new partnership with Motorola to build four expansion sites in Chester County. Once the build out is complete FY2023 all agencies will complete the migration to Palmetto 800.
Chesterfield	Sheriff and police departments have Palmetto 800 network radios for interoperability	Primary dispatch is VHF and UHF for law enforcement. Fire and EMS are not participating due to cost.
Clarendon	Fully Palmetto 800 network	Fully Palmetto 800 county wide
Colleton	Fully Palmetto 800 network	Fully Palmetto 800 county wide
Darlington	Fully Palmetto 800 network	Fully Palmetto 800 network. County owned VHF system in place for backup.
Dillon	Sheriff and police are	Fire and EMS not participating due to startup equipment cost and recurring participation cost.

	utilizing Palmetto 800 network	
Dorchester	Fully Palmetto 800 network	Fire uses VHF and Palmetto 800. All others are fully Palmetto 800.
Edgefield	Limited Interoperability	Edgefield Sheriff, police and EMS have some 800 MHz radios for interoperability. Cost is given as the reason they are not participating fully.
Fairfield	Sheriff and police are fully Palmetto 800 network	Fire and EMS have some 800 MHz radios for interoperability. Equipment cost, and coverage given as the reason they are not participating fully. Fairfield has opted to utilize a commercial business system for fire and EMS.
Florence	Private 800 network that shares Palmetto 800 core	Florence utilizes a private 800 MHz System connected to the Palmetto 800 P25 core for interoperability.
Greenville	Fully Palmetto 800 network	Some fire departments and municipal police departments in the county are still transitioning to the Palmetto 800 network. This is expected to be completed in FY 2020-2021.
Georgetown	Fully Palmetto 800 network	Fully Palmetto 800
Greenwood	Fully Palmetto 800 network	Fully Palmetto 800
Hampton	Fully Palmetto 800 network	Fully Palmetto 800
Horry	All Agencies are fully 800 MHz on the county's own private system.	Private County 800 System. Horry County decided to install an independent radio system in 2016.
Jasper	Fully Palmetto 800 network	Fully Palmetto 800
Kershaw	Fully Palmetto 800 network	Fully Palmetto 800
Lancaster	Fully Palmetto 800 network	Fully Palmetto 800

Laurens	Sheriff, police, and EMS are fully Palmetto 800 network	Fire is not participating due to startup equipment cost and recurring cost. Laurens is in the process of submitting a proposed penny tax to acquire the funding for the fire departments.
Lee	Fully Palmetto 800 network	Fully Palmetto 800 network
Lexington	Fully Palmetto 800 network	Fully Palmetto 800. Batesburg-Leesville PD is utilizing UHF but has some 800 radios for interoperability.
Marion	Fully Palmetto 800 network	Marion County completed its transition for all municipalities to the Palmetto 800 network in October 2019.
Marlboro	Sheriff and police have Palmetto 800 network for interoperability	EMS and fire have some 800 MHz radios for interoperability. They would like some additional radios.
McCormick	Limited Interoperability	All law enforcement and EMS services have a few 800 MHz radios for interoperability. Fire service not participating due to cost.
Newberry	Fully Palmetto 800 network	Fully Palmetto 800 network
Oconee	Limited Interoperability	All law enforcement and EMS services have some 800 MHz radios for interoperability. Primary dispatch is UHF for all Oconee agencies.
Orangeburg	Fully Palmetto 800 network	Fully Palmetto 800
Pickens	Limited Interoperability	Sheriff, police, EMS and a few fire have 800 MHz radios for interoperability. Others are not participating due to cost and poor regional coverage.
Richland	Fully Palmetto 800 network	Fully Palmetto 800
Saluda	Limited interoperability	Sheriff, 911 Center, County EMD and Ridge Spring have active Palmetto 800 radios for interoperability. Equipment costs and recurring fees given as the primary reason for not participating.
Spartanburg	Sheriff, police, and EMS fully Palmetto 800 network	City and county fire do not participate in the Palmetto 800 MHz system. Some fire departments have Palmetto 800 radios for interoperability. Recurring cost given as the primary reason for not participating.
Sumter	Fully Palmetto 800 network	Fully Palmetto 800

Union	Limited Interoperability	Sheriff's Office, police, and EMS have some 800 MHz radios for interoperability. Cost, fees, and need for better coverage given as reasons for not fully participating. County would like to switch to the Palmetto 800 if funding becomes available.
Williamsburg	Sheriff and police are fully Palmetto 800 network	Fire and EMS have 800 MHz equipment for interoperability. County Fire and EMS need additional funding to fully participate.
York	All Agencies are fully 800 MHz on the county's own system.	Private County 800 System. York County decided to install an independent radio system in 2007.

ADDITIONAL INFORMATION

For questions or additional information regarding Admin's Proviso 93.7 compliance efforts, please contact Admin's Public Information Director, Matt McColl (matt.mccoll@admin.sc.gov or 803-737-2164).

For additional information on the Palmetto 800 system and the other communications interoperability missions of the OTIS Emergency Communications section, please visit Admin's Palmetto 800 webpage.

APPENDIX A

This section details a hardware lifecycle replacement plan for the Palmetto 800 system radios and core system components maintained by OTIS that have surpassed their expected lifecycle.

The Palmetto 800 Advisory Committee has decided to implement time-division multiple access (TDMA) communications technology across the Palmetto 800 P-25 network beginning in FY 2025-2026. All radios on the Palmetto 800 network must be TDMA compliant by July 1, 2027. To control technology creep, it was decided to limit the number of radios in the strategic cache to a total of 500 units. The Motorola XTS series radios which comprise a portion of the current strategic cache of radios are end-of-life as of December 2018. Currently, there are 174 of the XTS model units that require replacement. In addition to the end-of-life replacements, 211 of the newer APX model devices will require software upgrades to be TDMA capable. Lifecycle replacement is an increasingly urgent need since many radios are beyond their end-of-life dates, and they are not upgradeable to the P25 Phase II TDMA[2] standard.

Quantar signal repeaters, core PATCON network equipment necessary for long-distance transmission, are also in need of lifecycle replacement. The Quantar devices are out of manufacturer support and 70% of these devices are more than 15 years old with some having been active on the system since 1999. The

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[2] TDMA allows multiple users to access the same frequency channel at seemingly the same time by dividing their usage through time slots on the same channel. For the South Carolina P-25 radio network, TDMA will effectively double the number of units a single repeater will support at any one time, but if a single radio on that repeater is not TDMA capable, the entire repeater defaults back to single user-single channel mode. Any subscriber unit not configured for TDMA will cease to function on the Motorola Palmetto 800 system effective July 1, 2027.

software required to program these devices is incompatible with current computer operating systems, creating significant system administration overhead to support them. To address this issue, Admin's Emergency Communications group maintains two laptops using the Windows7 operating system, which is also unsupported, to program and configure these repeaters. Given their age, support overhead and criticality to the system, it is essential that these Quantar devices be replaced as soon as possible.