



# North Carolina State Highway Patrol

Josh Stein  
Governor

Freddy L. Johnson, Jr.  
Commander

## MEMORANDUM

**To:** Chairs of Joint Legislative Oversight Committee on Justice and Public Safety

**From:** Freddy L. Johnson, Jr., Commander, State Highway Patrol

**Subject:** VIPER Quarterly Report

**Date:** November 12, 2025

**Network Status** - 241 total sites planned for statewide coverage of which 241 sites are constructed and on-the-air representing **100% completion of the original identified tower site builds**. This monumental milestone fulfills the tower construction requirements that were identified in the 2004 Legislative Report to improve Public Safety communications for all emergency responders in North Carolina. VIPER along with North Carolina should be proud of this accomplishment.

The system currently supports **210490** emergency users across **4,680** active talkgroups. This quarter's gain represented an addition of 2,630 user radios and 15 TDMA only talkgroups. During Q2 2025 VIPER had 30,301,026 PTT (Push to Talk) requests that were successfully processed, 48,509 hours of call airtime, and had only 2,288 busies system wide. Despite continued growth, the removal of non-TDMA capable radios from the system continues to be offset by new radio additions, resulting in a net positive impact. This increase represents further adoption of the VIPER system over 1 calendar year removed from Hurricane Helene and further demonstrates the growing use of the VIPER network and should serve to solidify the need for the system to be supported both financially and through the additional support positions requested, both of which have been included in the last several DPS/SHP budget requests. **Other than a very limited number of outages very early during Hurricane Helene, the VIPER system was the most utilized voice communications resource available to our emergency responders.**

### Other Significant Projects/Funding Needs:

- **VIPER Site Coverage Analysis:** With the completion of all the 241 planned sites submitted as part of the 2004 VIPER study delivered to the Legislature, VIPER staff have begun to

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identify areas of the state where the minimum 95% portable radio in the street coverage has not been met. The 2004 plan provided a “best estimate” of the needed number of sites and now with the 241 sites fully constructed, it is now possible, aided by more modern and comprehensive coverage mapping programs, for VIPER to be able to identify these areas lacking sufficient coverage and to prepare a remediation strategy to bring back to the Legislature for consideration. VIPER has determined that an **additional thirty-one (31) sites** are needed in Western North Carolina. The cost of new tower related construction costs continues to skyrocket, and VIPER believes that the sooner that the state was able to lock in a funding source and a commitment from the Legislature to support the additional infrastructure, that this will lessen the financial blow resulting from any delays to the potential project. In SFY 2018-19 \$4,162,236.00 was removed from VIPER for construction of new tower sites. Despite \$2.1M recurring allocated in Session Law 2025-97 VIPER continues to operate on a budget that is less than SFY2018-19 by \$2,062,236 while needing to add 31 additional tower sites.

- **Personnel:** VIPER has requested additional support personnel in the past two budget cycles. As we have reached the number of legislatively funded sites, we are in desperate need of the additional support positions that were identified in the Legislative plan. VIPER needs an additional thirty-one (31) positions across multiple job classifications, to support the growing number of users. VIPER also requires salary adjustment funds to remain competitive in both retention and recruitment. VIPER continues to lose employees to local government agencies/other state agencies and to the private sector where the compensation for similar positions was almost double what the state pays its employees. We are still posting open positions over and over and still not finding qualified personnel willing to work for the state for the money that we have budgeted. Session Law 2025-89 Section 3.4 allows for salary adjustments however VIPER does not have any additional salary reserves to implement adjustments. VIPER has also submitted a salary adjustment fund request specific to its FTE’s and remains hopeful that this will be funded by the Legislature during any upcoming budget negotiations.
- **Microwave Upgrade Project:** VIPER continues to move forward with the most significant portion of the previously legislatively funded Microwave Upgrade project, which involves the replacement of the legacy microwave radios that have reached their end of manufacturer support life and do not support the transition to Ethernet network topology. VIPER awarded a contract to Aviat Networks for the replacement microwave equipment and received all the new equipment to support the upgrade. VIPER field staff are working diligently to install the new equipment and of this update the project is over 3/4 complete. VIPER continues to project completion of the upgrade in Q2 2026.
- **Operations and Maintenance:** Session Law 2025-97 allocated an additional **\$2.1M** recurring to VIPER for O&M however significant current/future funding gaps exist. VIPER will continue to request additional operations and maintenance recurring funds as part of its annual budget request. These funds support multiple areas (non-personnel) to include equipment repair, lease costs, electricity, insurance, fuel costs, vehicle maintenance and replacement cycles, structural related costs, cyclic replacement costs, and many more. The Legislative plan

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delivered in 2004 defined an increasing recurring cost that was tied to the continual increase in costs as additional sites became operational along with shifting recurring capital (construction) costs into O&M once sites were built. With the goal of 241 sites achieved, VIPER needs a significant increase in these O&M line items. Without an increase, VIPER will be unable to maintain system readiness or make timely repairs when outages occur which leaves all levels of public safety agencies (State, Local and Federal) that rely on VIPER without adequate communications and places their personnel at an increased risk as they serve the public. Costs for many materials continue to rise and due to the insufficient funding to support the overall VIPER project, VIPER has had to defer many replacement items to future year budgets which results in the realization of higher costs when the actual work is performed, or replacement items are purchased.

- **One-time non-recurring funds:** VIPER has a serious need for one-time funds to support the replacement of towers in the state that have already had their annual inspections performed and the determination made that they are structurally unsound. VIPER has a site in eastern Hyde County where the tower dates to 1966 and requires replacement due to age. The tower is currently over 400% overloaded when measured against modern certification levels. VIPER was informed in August 2025 that this tower is no longer able to be climbed and if any breakages occur on the tower to equipment the site will be off the air until the tower can be replaced. VIPER has attempted to replace the tower over the past four budget years; however, it has been forced to use funds slated for tower construction to supplement its limited operations and maintenance funds which has forced VIPER to continue to push the replacement of the tower out year after year. In September 2025 VIPER was notified that the Duncan tower in Harnett County is 3664% loaded versus modern standards, Cedar Creek in Cumberland County is 745% loaded versus modern standards, and the Butner tower in Granville County is 154% loaded versus modern standards. These towers are in imminent danger and need replaced which leaves VIPER in a position where it needs a **one-time infusion of \$9.5M** just to catch up on sites already identified for tower replacements.
- **Redundant Zone Controllers:** In the event that VIPER were to suffer damage to any one of the four (4) Zone Controllers that serve as the “brains” of the VIPER radio system, VIPER believes that given the number of users of the system (over 210K), there is a need to develop a long-term strategy for how to add redundancy to the system at the Zone Controller level. VIPER submitted a request to funding for consideration in the amount of **\$6.8M** to purchase four (4) redundant Zone Controllers that would be in geographically diverse locations from their primary counterparts. This would allow for a separate controller for each of the current locations (Raleigh, Newton, Farmville, and Salisbury) and would significantly reduce any impact of the loss of a primary controller. To highlight this on March 16, 2025, VIPER experienced a utility power failure at the Zone 3 Master Site in Farmville (caused by generator failure of others) that caused all **75 tower sites** in Zone 3 to be in **site trunking for 30-45 minutes**. In addition, on July 10, 2025, VIPER experienced a UPS failure at Zone 2 in Newton that caused all **69 tower sites** in Zone 2 to be in **site trunking for 20-30 minutes**. Had the redundant Zone Controllers been in place and online the impacts would have been minimal/isolated to zone integrated console users only.





- **Simulcast Prime Site Replacement:** VIPER has been informed by Motorola of an end of manufacturer support date for the existing G Series Prime Sites. This will require replacement of the Motorola Prime Site equipment for the Chatham, Davidson, and Gaston Simulcasts. **This date is the end of CY 2029.** A budgetary number of **\$2.5M** from Motorola was received. **Legislative funding will need to be identified by the end of CY 2027** to ensure the equipment is replaced by the EOL (End of Life) date noted above.
- **Motorola GTR Base Station EOL:** VIPER has been informed by Motorola of an end of manufacturer support date for the existing Motorola GTR base stations. **This date is the end of CY 2032.** The GTR base station will have had a 26-year lifespan when this date will be achieved. VIPER has engaged in conversations with Motorola for cost estimates for the replacement of all stations. **A budgetary number of \$247.6M was received.** VIPER went through a similar lifecycle changeout from Quantar stations to GTR but unfortunately this was late in the product lifecycle. By early adoption of the new Motorola equipment a better ROI will be realized by taxpayers. Legislative funding will need to be identified to ensure the GTR equipment is replaced by the date noted above to ensure no lack in support and potential outages due to parts unavailability.
- **TDMA Upgrade:** With VIPER's continued growth in users and to be able to support future growth, VIPER has been preparing the end users for a future upgrade to the system to convert to Project 25 (P25) Phase 2 operation. In June 2014 with funding support from the Legislature, VIPER converted the system to P25 Phase 1 operation and now it is time to move to Phase 2. P25 Phase 2 involves migrating the system from FDMA operation to TDMA. This upgrade essentially adds 85% capacity to the system. VIPER in 2020 required all radios utilizing the system to be **TDMA capable/enabled by 1 July 2025** for this additional capacity. This deadline has passed, and the infrastructure **MUST** be capable to support P25 Phase 2 operation for the **required subscriber upgrades** to be fully realized.

VIPER has worked out a 90-day demo of TDMA/DDM across all tower sites with our vendor Motorola to get past the 1 July 2025 deadline date. While this was done in good faith the technology needs to be fully funded for all users to realize its true impacts on a lasting basis. VIPER has previously requested **\$20M** for consideration from the NCPRO funds. One highlight of this upgrade is that it can be completed in as little as 30 days from the date of award to the vendor.

