

**STATEWIDE AGENCIES RADIO SYSTEM (STARS)
PROGRAM**

**A Report to the Governor, House Appropriations Committee,
And Senate Finance Committee**



October 2011

**Colonel W. Steven Flaherty
Superintendent**



COMMONWEALTH OF VIRGINIA

Colonel W. S. (Steve) Flaherty

Superintendent

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DEPARTMENT OF STATE POLICE

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Lt. Colonel Robert B. Northern
Deputy Superintendent

October 1, 2011

TO: The Honorable Robert F. McDonnell, Governor of Virginia

The Honorable Charles J. Colgan
Chairman of the Senate Finance Committee

The Honorable Lacey E. Putney
Chairman of the House Appropriations Committee

Pursuant to Item 407 D.2. of the 2011 Appropriation Act, I am respectfully submitting herewith the final *Report on the Statewide Agencies Radio System (STARS) Program* relating to implementation of the system.

Respectfully,

A handwritten signature in black ink that reads "W. S. Flaherty".

Superintendent

WSF

Enclosure

Implementation Final Report

Scope of the Statewide Agencies Radio System (STARS) Contract

Colonel W. Steven Flaherty, State Police Superintendent, and Mr. Mark Moon, Vice President and General Manager of Motorola, signed a \$329 million contract between Motorola and the Commonwealth of Virginia for the design, construction, and implementation of the Statewide Agencies Radio System (STARS) on July 13, 2004. A ceremonial contract signing was held on July 16, 2004, in conjunction with a press conference.

The STARS Network, including the five Tidewater tunnels and two western tunnels, has been completed and all twenty-one state agencies are operational.

STARS provides multi-channel, trunked, digital voice and data wireless communications that are specifically designed for public safety requirements, based on APCO Project 25 technology. The prior State Police microwave radio network's technology and capacity have been upgraded and disaster recovery alternate paths were added. The STARS contract provided for essential public safety grade communications that operate seamlessly throughout the Commonwealth for the 21 state agencies and facilitate interoperability with local governments and federal agencies.

The STARS design is a culmination of partnering with the Commonwealth, the project's engineering consultant AECOM Design, formerly Hayes, Seay, Mattern & Mattern, Inc. (HSMM) / CTA Communications, and Motorola. Meeting needs, utilizing existing resources, and minimizing risk were heavily weighted design parameters in developing the STARS contract. Capitalizing on existing infrastructure and resources, whenever possible, benefited the Commonwealth in the ability to implement STARS in a cost effective manner. Finally, design risk was minimized through the use of Motorola, a proven system integrator and communications manufacturer, along with the use of a redundant, fault-tolerant, hierarchal design that allows for re-routing in case of a single point of failure. The wireless communications system for the Commonwealth of Virginia contains today's latest technology. STARS allows the Commonwealth to retain a high level of service and security, plus flexibility to add more users when additional radio frequencies are available. In all applicable design components, STARS has addressed safeguards to system security, including controlled system access, and Advanced Encryption Standard (AES) encryption for law enforcement users. The system infrastructure will serve the Commonwealth for many years to come.

Total Cost of System Implementation

Special Funds

Pursuant to the Code of Virginia, §2.2-2264, the General Assembly authorized the Virginia Public Building Authority to issue revenue bonds not to exceed \$159,300,000 for constructing, improving, furnishing, maintaining, acquiring and renovating buildings, facilities, improvements and land for the STARS project. Chapter 245, approved by the General Assembly on March 30, 2006, authorized additional funding via bonds issued by the Virginia Public Building Authority in the amount not to exceed \$201,900,000 to complete STARS.

The STARS Program contract was signed on July 13, 2004. At that time, the cost to complete the project was \$349,256,699.

The revised contract appropriation cost for STARS is \$361,200,000. The Department of Forestry was allocated \$50,000, leaving \$361,150,000 for STARS.

The breakdown of total costs for the system is as follows:

Contract Cost for Core System, paid by Bond Funds

Land mobile radio equipment and upgrades	\$ 148,977,412
Microwave network equipment and upgrades	\$ 33,082,094
Mobile data (in car computers)	\$ 33,908,049
Transmitter sites & towers	\$ 83,163,356
Network Operations Center Zone 2 control center equipment	\$ 16,056,940
Communications centers renovation and equipment	\$ 10,440,190
Test equipment and spare parts	\$ 3,823,658
Performance bond	<u>\$ 222,000</u>
Total Original Motorola Contract Cost	\$ 329,673,699

Revised Motorola Contract Cost to include 52 Contract Modifications as of July 13, 2011 **\$331,031,665**

Tasks Removed from the Contract that the Commonwealth will Complete at a Reduced Cost, to be Paid by Bond Funds

Procure and install control station poles	\$ 240,000
Perform Computer-Aided Dispatch interface software changes	\$ 300,000
Procure software for mobile data, asset management and help desk	\$ 4,310,000
Acquire tower sites, grounding, environmental & emissions compliance and remove unused towers	\$ 3,383,000
Renovate the warehouse to house the Network Operations Center and construct the Zone 2 Control Center	\$ 2,700,000

Renovate the STARS office as a Training Center; pay travel and equipment expenses for training	\$ 2,650,000
Conduct independent verification and validation testing	\$ 300,000
Pay legal and licensing fees	\$ 450,000
Pay Motorola for guaranteed clear and usable frequencies	<u>\$ 5,250,000</u>
 Total Commonwealth Tasks Costs	 \$ 19,583,000
 Final Total Commonwealth Expenditures as of June 30, 2011	 \$18,378,309.21
 Revised Total STARS Construction Cost	 \$349,409,974.39

Additional Projected STARS Reoccurring Operating Costs in Future Fiscal Years

The implementation of STARS replaced the antiquated Virginia State Police radio system. Effective July 1, 2011, STARS is the Virginia State Police communications system. The Department has assumed responsibility for equipping new vehicles, aircraft and boats that belong to the 21 STARS agencies. In addition to installation of new vehicles, decommissioned or crashed vehicles are brought to the Department garage for removal of the STARS radio equipment, which is re-installed into another vehicle. The original Communications Division funding plus additional funding for the maintenance of STARS provides for total funding of \$26,177,087 for FY2012.

The STARS network is a public safety grade wireless communications system that must be maintained in an operational status 24 hours per day, seven days per week. To accomplish this, a well-trained staff of engineers and technicians must be available and have access to parts, tower sites, and vehicles on the network on a 24/7 basis. Commercial service is cost prohibitive, will not maintain the required level of knowledge of this network, and is not available on a 24/7 basis. The Department has always maintained its own communications network with Department-employed engineers and technicians. There is no other practical way to maintain the STARS network and the vehicles on the network.

Completed Network and Equipment Maintenance

Upon expiration of warranty, the STARS network infrastructure maintenance will be handled by current State Police Communications Division personnel. The final year of the Zone 1 (State Police Headquarters – Richmond) and Zone 2 (Salem) Master Site equipment warranty began on July 1, 2011. The State Police Communications Division will provide equipment maintenance for all agencies.

The STARS membership is composed of the following 21 state agencies. Representatives from each agency make up the User Agencies Requirements Committee (UARC):

- Alcoholic Beverage Control
- Capitol Police
- Charitable Gaming
- Chesapeake Bay Bridge and Tunnel Police
- Conservation and Recreation
- Corrections
- Emergency Management
- Environmental Quality
- Fire Programs
- Forestry
- Game and Inland Fisheries
- Health
- Juvenile Justice
- Military Affairs
- Mines, Minerals, and Energy
- Motor Vehicles
- State Police
- Transportation
- Virginia Information Technologies Agency
- Virginia Marine Resources Commission
- Virginia Port Authority

STARS Program Oversight and Workgroups

The STARS Management Group is a Board established by Executive Order 28 (2002) and composed of the Secretaries of Agriculture and Forestry, Commerce and Trade, Finance, Health and Human Resources, Natural Resources, Public Safety, Technology, and Transportation. The Secretary of Public Safety serves as the Chairman. The STARS Management Group provides direction and overall governance for the development, implementation, and ongoing operation of STARS. In addition, they review all procurements and contracts, coordinate radio frequency licenses granted by the federal government to agencies of the Commonwealth, and promote interagency cooperation and coordination in the use of communications resources.

The User Agencies Requirements Committee (UARC) consists of two representatives (primary and alternate) from each member agency or institution. The Chairman of the UARC is selected by the STARS Management Group. The current Chairman is Captain Joseph Pajic with the Virginia Department of Game and Inland Fisheries. The UARC meets as necessary, but at least quarterly. The specific duties of UARC are to advise on the needs of member agencies for the planning, design, establishment, and operation of STARS, provide advice on proposals for other federal, state, or local agencies to join STARS and on any proposals for third party use of any STARS infrastructure or component, and

assist the STARS Management Team with the development of a comprehensive management plan and procedures for the operation of STARS.

Other Information

COMLINC

Commonwealth Link to Interoperable Communications (COMLINC) allows dispatchers in the counties and cities to establish up to eight patches. One of the eight paths will come back to the STARS network. The local dispatcher may use the other seven patches to connect agencies within their jurisdiction or to other localities. For example, a Sheriff's Department can patch to the Fire Department regardless of the frequencies used by each agency. Patches can also be made to phone networks and used to establish dispatcher conferences. By using COMLINC, the requirement to call by phone to establish a patch is no longer required; each dispatcher initiates the patch themselves at their console. COMLINC also provides instant recall of recorded audio. It enables the use of advanced calling features such as Emergency ID, and allows monitoring of the interoperability network activity and associated operations. For agencies requiring end-to-end encryption, COMLINC provides AES encryption over the network.

COMLINC was initially implemented in 16 localities in Division I, and at State Police Division I and V Headquarters, along with the STARS Network Operations Center (NOC). The current COMLINC participants are the counties of Amelia, Caroline, Charles City, Chesterfield, Essex, Goochland, Hanover, Henrico, King George, Lancaster, New Kent, Northumberland, Nottoway, Powhatan, Richmond, Westmoreland, and the Virginia Department of Transportation (VDOT).

The COMLINC Project implemented by the Cities of Lynchburg and Roanoke provides interoperability for 34 localities in Divisions III and VI and at State Police Division III and VI Headquarters. The COMLINC participants are the counties of Albemarle, Amherst, Appomattox, Augusta, Bedford, Botetourt, Buckingham, Campbell, Charlotte, Craig, Cumberland, Fluvanna, Franklin, Greene, Halifax, Henry, Mecklenburg, Montgomery, Nelson, Patrick, Prince Edward, and Roanoke, as well as the cities of Bedford, Charlottesville, Lynchburg, Roanoke, Salem, Staunton and Waynesboro. Also included are the towns of Farmville, South Boston, Staunton, Vinton and Liberty University.

The State Police completed the Interstate 95 corridor implementation of COMLINC with a grant in the amount of \$1,628,850 from the Public Safety Interoperable Communications (PSIC) (RIOS Equipment) in May 2010. The current participants are the counties of Dinwiddie, Greensville, King and Queen, King William, Louisa, Prince George, Prince William, Spotsylvania, Stafford, Sussex, and Chesterfield, as well as the cities of Colonial Heights, Fredericksburg and Petersburg. In addition, the following State Police locations were provided interoperability: State Police Divisions I, II, V, and VII, and the Transportable Site.

With a grant Stafford County received, the build out of COMLINC has been completed within State Police Division II, which includes the counties of Clarke, Culpeper, Fauquier, Frederick, Madison, Orange, Page, Rappahannock, Rockingham, Shenandoah, Spotsylvania, Stafford, and Warren, as well as the cities of Fredericksburg, Harrisonburg and Winchester. This region has received an additional grant which will facilitate the operating and governance policies and documentation. Input from all stakeholders in the Commonwealth utilizing any type of radio gateway will be solicited for this endeavor.

COMLINC will be expanded statewide if additional funding can be obtained.