

**REPORT OF THE
SECRETARY OF PUBLIC SAFETY**

Statewide Agencies Radio System (STARS) Program

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



HOUSE DOCUMENT NO. 70

**COMMONWEALTH OF VIRGINIA
RICHMOND
2005**



COMMONWEALTH OF VIRGINIA

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Lt. Col. Robert B. Northern
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September 22, 2005

TO: The Honorable Mark R. Warner, Governor of Virginia

The Honorable John H. Chichester
Chairman of the Senate Finance Committee

The Honorable Vincent F. Callahan, Jr.
Chairman of the House Appropriations Committee

Pursuant to Item 454 (D) of Chapter 2 of the 2004 Virginia Acts of Assembly, I am respectfully submitting herewith a *Report on the Statewide Agencies Radio System (STARS) Program*.

Respectfully,

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

Superintendent

WSF/CAV

Enclosure

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 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 implementation phase of STARS is now underway.

STARS will provide multi-channel trunked digital voice and data wireless communications that is specifically designed for public safety requirements, based on APCO Project 25 technology. The existing State Police microwave radio network's technology and capacity will be upgraded and disaster recovery alternate paths will be added. The STARS contract will provide essential public safety grade communications that can operate seamlessly throughout the Commonwealth for the 21 state agencies and facilitate interoperability with local governments and federal agencies. The interoperability solutions within STARS will allow each locality, at the county and city level, to communicate with other STARS users through a patch activated by a STARS dispatcher. The patch will be able to interface with any radio system, regardless of the operating frequency. This interoperability solution will be implemented at no cost to the localities. Direct interoperability can also be employed with the STARS portable radios which will operate on 800 MHz frequencies that will allow STARS users to operate on other agencies' 800 MHz networks.

The STARS design is a culmination of partnering with the Commonwealth, the project's engineering consultant 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 is 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 and will continue to provide updated technology at no additional cost throughout the STARS implementation. 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.

Projected Total Cost of System

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 the constructing, improving, furnishing, maintaining, acquiring and renovating buildings, facilities, improvements and land for the STARS project. This special funding was appropriated for fiscal years 2005-06.

The breakdown of projected 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 Motorola Contract Cost	\$ 329,673,699

Tasks Removed from the Contract that the Commonwealth will Complete at a reduction in costs, to be paid by Bond Funds

Procure and install control station poles	\$ 240,000
Computer Aided Dispatch Interface software changes	\$ 300,000
Procurement of software for mobile data, asset management and help desk	\$ 4,310,000
Tower site acquisitions, grounding, Environmental & emissions compliance and removal of unused towers	\$ 3,383,000
Renovations to warehouse to house The Network Operations Center and Construction of the Zone 2 Control	\$ 2,700,000
Renovation of the STARS office as a Training Center, travel and equipment for training	\$ 2,650,000
Independent verification and validation testing	\$ 300,000
Legal and licensing fees	\$ 450,000
Payment to Motorola for guaranteed clear and usable frequencies	<u>\$ 5,250,000</u>
Total Commonwealth Tasks Cost	\$ 19,583,000
Total STARS Construction Cost	\$ 349,256,699

Projected STARS Project Staff Operational Costs

The following changes will impact the required funding to complete STARS; therefore, authorization will be sought to increase the bond funding.

Two STARS participating agencies request additional funding to increase participation in STARS:

Department of Forestry

The Department of Forestry (DOF) is a STARS participating agency. They originally had requested 50 mobile radios, giving them a very limited participation in STARS. They had planned to maintain their own legacy radio network and had sought funding through the Master Equipment Leasing Program (MELP) in the amount of \$1,801,735 to upgrade the DOF network. The DOF network is a VHF high band frequency network, the same as STARS. If DOF had proceeded with their plan, the STARS network and the DOF network would experience significant interference most likely disabling both networks that are operating in the same geographic area.

Through negotiations with DOF personnel, it was decided the best alternative was to bring DOF onto the STARS network as a full participant. This will benefit both DOF and STARS. The DOF network will be turned off as their personnel migrate to the STARS network, thereby allowing the VHF frequencies DOF has in use to be transferred to the STARS network. A total of \$5,585,865 is required to fund DOF as a STARS full participant.

Department of Environmental Quality

The Department of Environmental Quality (DEQ) is a STARS participating agency. They had originally requested participation with mobile data only. At present STARS cannot meet their needs; however, future enhancements to mobile data are planned that will meet those needs. The DEQ decided to remain a STARS participating agency, but had no funding allocated for equipment, since the mobile data needs could not be met.

Currently, DEQ desires to have eight control stations at district offices, 46 vehicular radios, three marine radios and 50 portable radios. The cost to fund the requested equipment is \$627,207.

Three additional agencies have been approved by the Management Group to participate in STARS:

Department of Charitable Gaming

The Department of Charitable Gaming (DCG) has approximately ten enforcement officers. They desire to equip up to ten cars with radios, vehicular repeaters and portable radios. The cost is \$180,000.

Virginia Port Authority

The Virginia Port Authority (VPA) has approximately 36 cars equipped with radios, vehicular repeaters, portables and computers. They also need approximately 28 additional portable radios and ten control stations. The cost is \$1,862,114.

Chesapeake Bay Bridge and Tunnel Police

The Chesapeake Bay Bridge and Tunnel Police has approximately 13 cars equipped with radios, vehicular repeaters, portables and computers. They will also equip approximately 40 support vehicles with a lower cost mobile radio and require two dispatcher consoles and five control stations. There is already radio communications in the tunnels; however, some modification will be necessary. The cost is \$2,106,553.

Two agencies have been removed from STARS participation

Department of Aviation

The Department of Aviation decided the aircraft they use fly at altitudes and speeds that could not benefit from the STARS land based radios; therefore the Management Group released them from STARS participation. The savings to the STARS Program is \$102,400.

Department of Professional and Occupational Regulation (DPOR)

This agency is moving away from any law enforcement functions to more regulatory. They will no longer require law enforcement radios; therefore the Management Group released them from STARS participation. The savings to the STARS Program is \$270,505.

The total cost for the above listed agencies' requests:

Department of Forestry	\$ 5,585,865
Department of Environmental Quality	\$ 627,207
Department of Charitable Gaming	\$ 180,000
Virginia Port Authority	\$ 1,862,114
Chesapeake Bay Bridge and Tunnel Police	<u>\$ 2,106,553</u>
Total	\$ 10,361,739
Savings from Department of Aviation and DPOR	(\$ 372,905)
Total	\$ 9,988,834

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

has \$159,300,000 from bond funds allocated. The amount required for the final funding of the STARS Program is \$199,945,533.

This brings the revised total cost to complete STARS to \$359,245,533.

The General Assembly will be asked to authorize the Virginia Public Building Authority to issue revenue bonds not to exceed \$199,945,533 to complete the statewide implementation of STARS. The STARS staff and the system integrator anticipate moving up the implementation schedule and to finish implementation by June 2008.

General Funds – Operational Expenses

The general fund appropriation for both FY 2005 & 2006 is \$2,510,000 to be used for implementing STARS. The projected annual operating expenditures during the implementation phase for the general funds consist, in part of the following:

Category	Amount
Personnel-STARS Staff	\$ 800,000
Contractual Services (includes CTA, HSMM and Attorneys)	\$ 1,185,000
Supplies & Materials	\$ 5,000
Insurances	\$ 20,000
Equipment	<u>\$ 500,000</u>
	\$ 2,510,000

Approved STARS Positions In Progress

Network Console Operators (six) will maintain 24/7 coverage in the Network Operations Center. The Network Operators will monitor performance diagnostics and network alarms. They will also operate a systems repair help desk and will be capable of dispatching, if required, for unusual events. These positions have been advertised and applications received. Applicant screening has been completed and interviews are being scheduled.

Total anticipated annual cost including salary and fringe benefits for the above positions: \$ 348,000

Additional Projected STARS Reoccurring Operating Costs in future Fiscal Years

The following positions will be requested in future fiscal years as they become necessary:

Configuration Manager will manage the hardware, firmware, and software configurations in the STARS equipment and implement updates and revisions.

The Configuration Manager will coordinate any change to as-built documentation. The Configuration Manager and the Asset Manager will work together to determine whether failures are a result of incompatibilities within the system.

Asset / Inventory Control Manager will maintain a database of all STARS assets and provide the required reports. This person will ensure that spares are properly staged at the seven field division headquarters and at administrative headquarters. In addition, spares will be made available to from these locations to the 23 partnering contractor service shops located throughout the state. The manager will tack the maintenance history of each subassembly throughout the entire system.

Total anticipated annual cost including salary and fringe benefits for the above two positions: \$116,000

Completed Network and Equipment Maintenance

When completed and no longer under warranty, STARS network infrastructure maintenance will be handled by current State Police Communications Division personnel. The warranty period is one year for equipment and the infrastructure and three years for the mobile data in-car computers. The State Police Communications Division will provide equipment maintenance for agencies they presently serve. Agencies not currently serviced by the Communications Division will need to handle equipment maintenance through a service agreement with Motorola or pay as needed when equipment is repaired.

The current annual operating costs for the State Police Communications Division will need to be continued for this purpose.

FY 2005 and FY 2006 appropriation: \$13,772,182

Communications Technologies and System Capabilities

Systems Integration

The Motorola STARS project team implementation is based on a designed and detailed integration plan. The Motorola Program Director has brought together the people and resources for the STARS project, and manages them toward meeting every project milestone. This intensive planning, based on dozens of successful large-scale integrations, reduces risk to the Commonwealth. Important details, such as the execution of the Customer Design Review, development of the talkgroup plan, the development of a migration plan for each agency and end user, including the appropriate timing of end user training, are all crucial in the preparation of a successful integration strategy for STARS. A thorough Project Schedule is critical for planning, resources, costing, and risk mitigation. The next step takes the detailed plans and pre-builds the system at the Motorola staging facility, the Customer Center for System Integration, including third-party equipment. The system is then tested, measured, and

optimized to ensure it meets the design considerations. Commonwealth employees will be an essential part of the testing and implementation processes.

Much of the work entails coordinating local vendors to secure antenna sites, and erect towers and buildings. The site development phase is underway. The equipment for Division I is being delivered and installed. The implementation process is broken down into individual tasks in a full project plan, which covers:

- Engineering and design
- Procurement
- Facility construction and upgrades
- Systems installation
- Optimization and testing by system and subsystem
- Agency migration and cutover
- Closeout and Acceptance
- Frequency Planning
- Talk Group (Fleet Map) Development

An essential component in the transition process is the Project Cutover in each Division. After acceptance testing and cutover planning is complete, Motorola will coordinate dispatch and distribute the subscriber equipment, and prepare the end-users for a smooth transition. STARS will be put through a rigorous quality assurance process to make sure all components are configured properly and operating up to specifications. Once the system is working, as designed, the Department of State Police (VSP) will provide the expertise to manage, monitor, and service the system.

Motorola will perform the work and tasks required to design, manufacture, install, optimize, test, and integrate STARS. Motorola will provide the documentation and training to support the operation of STARS to the Commonwealth. Motorola and the Commonwealth have provided a dedicated project leader to act as the single point of contact for all administrative, technical, and scheduling issues related to the project. The Motorola Program Manager, Mr. Mike Archbold, has the overall responsibility for providing the Motorola deliverables required for the implementation of STARS and management of the STARS project schedule. The Commonwealth's Program Director, Captain Michael E. Bolton, has the overall responsibility for ensuring that all Commonwealth responsibilities and tasks are completed per the Contract Schedule.

Communications within the Tunnels

Motorola is providing VHF and 800 MHz wireless communication coverage for six tunnels in the Commonwealth of Virginia (Big Walker Mountain, Hampton Roads, Elizabeth River Downtown, Elizabeth River Midtown, Monitor/Merrimac, and East River Mountain.) The design allows for effective mobile radio, portable radio, and computer data communications within the tunnels. In addition to being designed for STARS, the tunnel design accommodates the existing VSP communication

channels that will increase the effectiveness of the overall Commonwealth migration plan to STARS.

The Big Walker Mountain and East River Mountain tunnels are complete. The Elizabeth River Midtown and the Monitor/Merrimac tunnels are in the testing phase and will be complete by October 1, 2005. The Hampton Roads tunnel and the Elizabeth River Downtown tunnel will be complete by October 31, 2005.

Transportable Communication Site

The transportable site is contained within a trailer that is easily moved to provide additional radio capacity, interoperability, and support for disaster-recovery operations for STARS. This site is designed to be moved and placed into service where needed by the Commonwealth during events such as floods, hurricanes, or during a major event like what occurred at the Pentagon on September 11, 2001, where additional radio system capacity and interoperability are required. This Transportable Site provides on-site ASTRO 25 digital trunked communication in 800 MHz frequency band, as well interconnection with other agencies, regardless of the frequencies they operate on, via an ACU-1000 network interface. The entire site can typically be deployed within one hour of the arrival of the trailer at the site. The transportable site will be delivered by September 30, 2005.

Voice and Data Coverage

STARS will integrate voice and data over the same frequencies. As STARS is a public safety grade system designed to support life and death situations, the system is configured such that voice traffic is given the priority over data messages. The performance guarantees and test procedures will ensure the Commonwealth will experience clear communications as defined by the vigorous testing standards established in the contract.

Microwave Network

The microwave network will provide the Commonwealth with the digital transport required for interconnecting Land Mobile Radio, Mobile Data, Telephone, and Alarm and Control Networks. In addition, it will be used to replace leased data lines currently connecting State Police sites. It will also be highly reliable and capable of supporting government relocation, if required. For instance, the current State Police microwave network (that STARS is upgrading) was quickly reconfigured by the State Police Communications Division at the Columbia Pike Area Office to serve as a command center in response to the 9/11 terrorist attack on the Pentagon. In addition, statewide there were no outages in the State Police microwave network because of Hurricane Isabel.

The network will consist of Digital Microwave equipment of various frequencies and capacities. This microwave network, consisting of Synchronous Optical

Networks loops, allows rerouting of microwave traffic if required during a failure or emergency. The microwave spurs are protected by hot standby equipment.

Each State Police Division Headquarters and most Area Offices will be equipped with a microwave phone network that will allow on-site personnel to place and receive telephone calls over the microwave network. This circuit is connected to the Commonwealth's private phone system and the public service phone system.

Mobile Data Applications

The Premier Mobile Data Computers installed in patrol cars will provide the following to the Commonwealth:

- Law enforcement mobile data such as wanted checks and DMV records checks
- Intra-agency and inter-agency text messaging
- Interface with the VSP Computer Aided Dispatch
- Global Positioning System support for Automated Vehicle Location

STARS is including an Automated Vehicle Location subsystem to identify the location of law enforcement patrol cars that are equipped with computers. Location data will be sent to a display at the closest State Police Division Headquarters during vehicle stops or from a dispatcher initiated request. This feature is directly intended to support the commitment to maximizing a STARS subscriber users' safety.

Alarm and Control

A STARS Network Fault Management subsystem will be provided for managing transmitter site/equipment alarms and controlling various site functions. The Network Fault Management subsystem collects data automatically, processes that data, and then displays it at the Network Operations Center. This management tool provides a single interface for monitoring equipment and systems alarms over internet protocol. The data will be used to operate the network, analyze the flow of site alarm and system control data, offer system solutions and handle pre-defined alarm situations automatically. The system provides reports to the engineers and the operators that will help in administering the network. The Network Operations Center at State Police Headquarters will house personnel on a 24/7 basis to identify, remotely correct alarm conditions or dispatch technicians.

Transmitter Sites

The transmitter sites in STARS will consist of 45 Land Mobile Radio towers sites and 94 microwave tower sites. These sites will support the land mobile radio voice, microwave radio, and the mobile data subsystems. Each site's communications equipment is housed in a protective building, and is monitored

for technical functions and protected with emergency power systems and sophisticated grounding systems to protect from lightning damage.

Each site will be implemented using the most efficient and cost effective process, a methodical approach will be followed which takes into consideration many facets such as: microwave radio path surveys, necessary FAA submittals and approvals, architectural and engineering work, and site specific improvements. The major components necessary for the completion of a communication site include; site preparation, radio towers, radio buildings, heating ventilation and air-conditioning, backup power systems, as well as fencing.

Master Sites and Dispatch Center Renovations

Motorola will provide the Commonwealth with design-build construction services to upgrade three of the seven State Police Communications Centers. They will be constructed as additions to existing State Police Division Headquarters buildings.

During contract negotiations, it was determined the Commonwealth will be able to manage and procure construction services for the STARS Network Operations Center and the Zone 2 Master Site facilities resulting in considerable cost savings. Motorola will install the equipment in both facilities. To meet the aggressive schedule, an existing State Police warehouse is being refurbished for the Network Operations Center. A new building at Division VI (Salem) will be constructed to support State Police dispatching and the Zone 2 Master Site equipment. The Network Operations Center will be completed by October 28, 2005.

Voice and Data Subscribers

Motorola will provide the Commonwealth with vehicular radios, portable radios, mobile digital vehicular repeaters, and mobile computer terminals for users to operate on STARS. Different models will be supplied that will enable the Commonwealth agencies to employ the radio types appropriate for their particular operational needs.

Status of Site Acquisitions

There are 20 transmitter sites required for implementation of Division I. Currently, 16 sites are finished and in the optimization stage. Of the four remaining sites; the Rumford VDOT site was moved from the original planned location to accommodate a request from King William County and new building permits are pending, the West Point site was delayed due to hitting the septic system during construction of the tower, the Fork Mountain site is pending awaiting a shelter building permit and the Thornburg site has the tower under construction. All the Division I sites will be operational by mid October.

Transmitter site surveys have been completed and the site design process is underway for the sites in Divisions II, V and VII. Transmitter site surveys will begin in October for Divisions III and VI. No transmitter site work has begun in Division IV, the last division to be implemented.

Project Management Plan

Executive Order 28 (2002)

On June 26, 2002, Executive Order 28 (2002) was signed officially continuing the Statewide Agencies Radio System (STARS) Project. It also provided direction as to how the project would proceed, including participating agencies, and formulated the basis of this Project Management Plan.

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 & 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 Administration, Agriculture and Forestry, Commerce and Trade, Finance, Health and Human Resources, Natural Resources, Public Safety, Technology, and Transportation. The Secretary of Public Safety will serve as the Chairman. The STARS Management Group will

provide direction and overall governance for the development, implementation, and ongoing operation of STARS. In addition, they will 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 and institution. The Chairman of the UARC is selected by the STARS Management Group. The current Chairman is Colonel Steven G. Bowman with the Virginia Marine Resources Commission. 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.

The UARC will form various interoperability working groups to advise the STARS Program Management Team how to configure/program the networks. They will plan talkgroups to communicate during various intra-agency events and potential emergency situations. Interagency planning is part of the Systems Integrator contract.

The Virginia Information Technologies Agency (VITA) will be consulted by the Secretary of Public Safety, or his designee, prior to implementing any significant data transport related network upgrade or modification. STARS will also continue to provide monthly updates on the VITA Dashboard. The STARS Project Manager, Mr. Thomas Struzzieri has completed the IT project manager training established by the Chief Information Officer of the Commonwealth.

The Intra/Inter-agency Workgroup meets every other Monday and is chaired by the STARS Program Director. The group is comprised of State Police Administrative and Support Divisions, the STARS Program Management Team, and representatives as needed from other agencies based upon their involvement as forecasted by project schedule. Accomplishments and tasks that need to be started and completed are discussed.

The STARS/Motorola/CTA Project Workgroup is comprised of the STARS Program Management Team, the Systems Integrator, and the engineering consultant. The managers meet on a monthly basis in accordance with the contract and topic oriented work groups as needed (typically multiple groups weekly.) The meetings have an agenda and minutes are recorded. The purpose of the meetings is to review the schedule, identify problems, provide solutions to problems, establish action items, and schedule any needed teleconferences. Advisors from the various agencies will be included when their input is required.

STARS Program Management Team Responsibilities

The Program Director (Captain Michael E. Bolton) is responsible for the overall direction of the STARS Program and management of daily operations. The STARS Program Director holds meetings with representatives from the Intra/Inter-agency Work Group. Monthly meetings are held with the STARS/Motorola/CTA Project Group to outline progress and tasks. The Program Director will ensure the Integrator provides proper documentation and that all work is inspected and approved within the terms of the Contract.

The Program Director maintains a liaison with the Secretary of Public Safety, the User Agencies Requirements Committee (UARC) and the STARS Management Group to ensure they are kept abreast of progress and developments. Monthly status reports required by policy and law are being provided. The Program Director will provide reports and testimony to the General Assembly as required.

The Program Director is responsible for ensuring the Virginia Information Technologies Agency (VITA) is consulted and the Secretary of Public Safety is informed prior to implementing any significant data transport related network upgrade or modification.

The Project Manager (Mr. Thomas A. Struzzieri) is the technical lead and supervises the STARS engineering staff. In addition, the Project Manager works closely with the Systems Integrator and consultants to provide solutions to technical problems. He evaluates any new or improved technology that may be recommended by the Systems Integrator, consultants, and advisors. The Project Manager will organize and utilize the User Agencies Requirements Committee to ensure individual agency requirements have been met.

Procurement and Contracting Officer (Ms. Patricia T. Trent) develops and issues solicitations, negotiates and administers the Contract, she prepares sole source justifications, monitors contractor performance, initiates contract resolutions and issues change orders. In addition, she maintains the overall Bond Program Budget.

Computer Systems Engineer (Mr. Clark W. LaFlare) assists in the planning and technical aspects of the design, implementation, and maintenance of STARS. He serves as the data processing technical point of contact with the Systems Integrator, and consultants. He coordinates performance functions related to software, servers and the Department's Computer-Aided Dispatch network.

Telecommunications Engineers (Two) (Mr. Michael D. Deane and Mr. Noel Armstrong) assist with the engineering, design, installation and documentation for upgrade of the existing land mobile radio system, the microwave system, radio towers, subscriber equipment, fleet mapping, and talkgroup development to meet the requirements of the STARS system. They work closely with the Systems Integrator, consultants and member agencies to ensure all upgrades are made in a timely manner and meet the requirements of STARS.

Program Administrator (Ms. Teresa M. Hudgins) is responsible for maintaining the master program schedule, individual project schedules, work breakdown structures, and performing overall program risk management. Additionally, the Program Administrator is responsible for updating program risk assessments on a monthly basis, maintaining the General Fund Program budget, and managing expenditure accounts during the implementation period.

Program Support Technician Senior (Ms. Cynthia L. Sandy) is the liaison for STARS with all the member agencies. She handles logistics for training, installation of equipment, and testing. In addition she maintains the STARS Program documentation and provides administrative support to the STARS staff.

Project Timelines for Implementation

Division I - Richmond

<u>Categories</u>	<u>Projected Completion</u>	<u>Actual Completion</u>
1. Contract Design Review (CDR) Meetings	10-01-04	09-28-04
2. Receive Revised Project Schedule	10-05-04	10-14-04
3. Advanced Schematic Design Submission for NOC	11-01-04	11-04-04
4. Integrated Voice and Data Freq. Plan Development	11-29-04	*Delayed
5. Finalize Division I LMR Channel Plan	01-21-05	06-13-05
6. Mobile Data Application Development	02-04-05	02-24-05
7. Microwave Path Surveys	02-01-05	01-28-05
8. Microwave Frequency Coordination and FCC Approvals	02-01-05	05-06-05
9. Approval of final fleet map	03-07-05	03-04-05
10. NOC Certificate of Occupancy	09-05	
11. Factory staging of Microwave for Division I	06-27-05	03-09-05
12. CCSI Staging for Division I	06-17-05	06-17-05
13. Construction of 14 sites	09-05	09-30-05
14. Completion of Communications Center Renovation	10-05	
15. Microwave Optimization and Testing	10-06-05	
16. In tunnel Installation and Optimization	10-06-05	
17. Construction of 13 sites	11-05	
18. Division I – System Acceptance and operational	12-05	

* Integrated Voice and Data Freq. Plan Development

The contract originally required a statewide frequency plan. Due to the accelerated schedule to implement Division I by December 2005, the focus of the frequency plan was changed to finish the Division I plan and then concentrate on the statewide plan. The Division I plan was completed on June 13, 2005. The first draft of the statewide plan has been submitted and reviewed. The second draft of the statewide plan is due on September 30, 2005 and is on schedule for delivery.

All member agencies will have their STARS equipment installed along with the State Police field divisions in which they have operations. The additional State Police field divisions will be operational on STARS by:

Tidewater (Division V)	05-08
Culpeper (Division II)	07-08
Northern Virginia (Division VII)	10-08
Salem (Division VI)	04-09
Appomattox (Division III)	05-09
Wytheville (Division IV)	09-09

Other Information

Motobridge

The Motorola Software Switched Radio Network (SSRN), named Motobridge, allows dispatchers at the counties and cities to establish up to eight patches. One of the eight paths will come back to the STARS network. The locality 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 Motobridge, the requirement to call by phone to establish a patch is no longer required; each dispatcher initiates the patch themselves at their console. Motobridge 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, Motobridge provides AES encryption over the network. A \$1.5 Million grant has been awarded to pilot Motobridge in Division I. Motobridge will be expanded statewide if the pilot goes as well as expected and additional grant funding can be obtained.

