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VIRGINIA SIGNS WITH MOTOROLA

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The Virginia Statewide Agencies Radio System (STARS) project promises to provide voice and data communication for 20 participating state agencies by upgrading the existing Virginia State Police (VSP) microwave and mobile radio networks of 2,500 users. The STARS project will create an integrated, seamless, statewide, wireless voice and data communications system designed to meet the needs of these agencies, up to 7,500 users in all.

The ceremonial signing of the contract with Motorola took place July 16 at VSP headquarters. STARS will employ the industry standard TIA/EIA 102 technology (better known as APCO Project 25). STARS will employ an integrated voice and data (IV&D) land mobile radio architecture that uses the same mobile radio for both voice and mobile computer communications.

The system will be shared by agencies engaged in public safety, protection and service; and will facilitate interoperability with and between county and city governments.

The state's 20 STARS participants are: Alcohol Beverage Control; Aviation; Capitol Police; Conservation & Recreation; Corrections; Emergency Management; Environmental Quality; Fire Programs; Forestry; Game & Inland Fisheries; Health; Juvenile Justice; Military Affairs; Mines, Minerals & Energy; Motor Vehicles; Professional & Occupational Regulation; State Police; Transportation; Virginia Information Technology Agency; and Virginia Marine Resources Commission.

Pursuant to Chapter 3, Title 42, of the Code of Virginia, VSP has been tasked with facilitating the creation and implementation of the STARS project. A VSP STARS unit was established in 2000 in order to advance the statewide system's concept and foundation.

The STARS project management team, established by Executive Order 28, will oversee installation, testing and migration. The team will be assisted by VSP's Bureau of Administrative and Support Services divisions and two consultants. The VSP communications division will provide systems engineering and technical support.

A board composed of the secretaries of Public Safety, Technology, Transportation, Natural Resources and Finance will provide policy direction and overall governance for STARS to include review and approval of all procurement solicitations and contracts.

Future procurement phases are expected to expand portable VHF radio coverage, install VSP wireless access points, create a statewide intranet with wireless access, and implement private 700 MHz radio wideband mobile data in selected areas with intranet access.

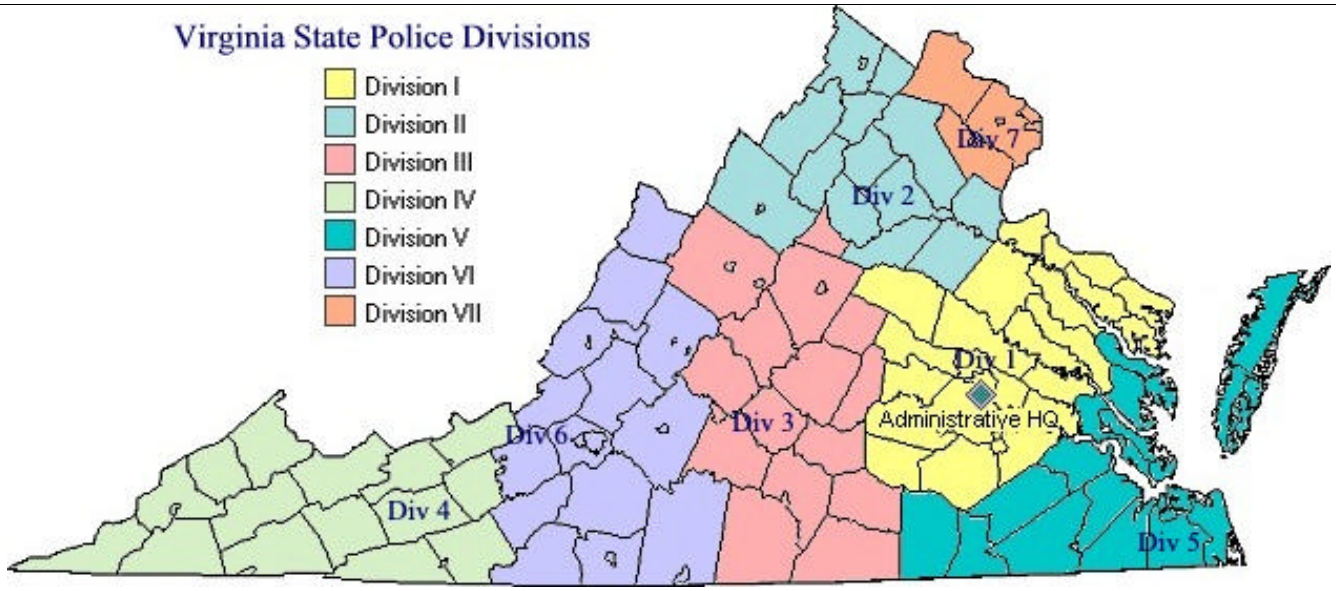
Monitoring STARS will, at the minimum, require a digital trunk-tracker scanner capable of decoding the newer 9600-baud control channels. VSP and other radios will include encryption. Encryption decisions for individual talk groups have not yet been made. "With P25 radios," writes Thomas Struzzieri, STARS Project Manager, "I am not aware of any performance degradation when using encryption as there is with non-digital radios. There is more incentive to use encryption when available," he notes.

TRANSCEIVER SITES

VSP presently owns and operates a state-wide VHF high-band radio network and a 2 GHz and 6 GHz microwave network. The existing VSP microwave backbone is undergoing a complete renovation for STARS. The 87 existing tower sites will increase to 121 sites, and the network design now includes alternate paths, or rings, to provide continuous high reliability in the event of a path outage. Also, 45 of the microwave locations will include the only planned VHF STARS sites.

Site locations have been designated as "exempt from public disclosure" although a consultant's report posted on the STARS Website lists many possible site locations.

Each of the 20 participating agencies uses different operational service areas. The VSP divisional boundaries are used for the project because STARS is an upgrade to the existing VSP radio networks. Some agencies may delay their conversion to STARS until their operational service area is completely covered by the corresponding VSP divisional boundaries.



Total proposed sites by VSP division

Div. 1	19 Sites	5 VHF/MW	14 MW Only
Div. 2	12 Sites	5 VHF/MW	7 MW Only
Div. 3	17 Sites	7 VHF/WM	10 MW Only
Div. 4	26 Sites	10 VHF/MW	16 MW Only
Div. 5	18 Sites	6 VHF/MW	12 MW Only
Div. 6	23 Sites	8 VHF/MW	15 MW Only
Div. 7	6 Sites	4 VHF/NW	2 MW Only

Each VHF site will contain a site router that interfaces via a T1 to the microwave system for transporting Astro voice and data traffic and system information to the respective master site. Two 24-port LAN switches will provide a fault-distributed interface to the other equipment at the VHF repeater site consisting of two redundant private site controllers (PSC-9600) and multiple 125-Watt VHF Quantar trunking repeaters.

The system is designed to serve mobile radios since handheld radios would require more VHF sites. Vehicular repeaters, however, are planned to support portable radios. A digital vehicular repeater system (DVRS) will relay the VHF signal, used between the area STARS site and vehicle, to a 700 or 800 MHz channel for vehicle-to-portable radio communications.

Motorola guarantees that the system will provide the service area reliability within each communications zone as described below. These numbers are for mobile radios. STARS will use 13 "communication zones." Each VSP division, with the exception of Division 7, is divided into two zones for STARS. Each zone will likely have a unique set of frequencies.

Compared with other contracts, the promised coverage is noticeably lower (percentages in the 80's and lower 90's are unusually low for public-safety radio systems). The state declined to make coverage maps available for public inspection, so it is unclear what coverage sacrifices have been made.

Communication Zones

Zone 1	Richmond	Div. 1	95%
Zone 2	Richmond	Div. 1	94%
Zone 3	Culpeper	Div. 2	95%
Zone 4	Culpeper	Div. 2	88%
Zone 5	Appomattox	Div. 3	95%
Zone 6	Appomattox	Div. 3	94%
Zone 7	Wytheville	Div. 4	93%
Zone 8	Wytheville	Div. 4	92%
Zone 9	Tidewater	Div. 5	91%
Zone 10	Tidewater	Div. 5	95%
Zone 11	Salem	Div. 6	94%
Zone 12	Salem	Div. 6	93%
Zone 13	N. Virginia	Div. 7	91%
Major Waterway Comm Zone			88%

SYSTEM ZONES

The Commonwealth will be divided into two system zones. Each zone will be affiliated with a local area network (LAN). The LANs will be inter-connected via a high-speed microwave network which will form a wide area network (WAN).

The WAN allows user configuration information, call processing information and audio to be conveyed throughout the system.

Equipment for Zone 1 will be housed in a warehouse at the state police headquarters (SPHQ) in Richmond. Zone 1 will encompass all 55 sites located in VSP Divisions 1, 2, 5 and 7. Zone 2 will be housed at VSP Division 6 headquarters in Salem and will serve as a master site for the western portion of the state and the 66 sites in VSP Divisions 3, 4 and 6.

The network operations center (NOC) will also share the Richmond SPHQ warehouse. All communications systems and sites will be remotely monitored by the NOC over Internet protocol. The NOC will identify and remotely correct alarm conditions or dispatch technicians.

Most talk groups will not be set up as state-wide or even wide-area and will only support communications within an agency's service area or district.

TUNNEL COMMUNICATION

Motorola promises to provide VHF and 700/800 MHz wireless communication coverage for six tunnels in Virginia. They are Big Walker Mountain (I-77), Hampton Roads (I-64), Elizabeth River Downtown/Midtown (I-264/Rt.58), Monitor-Merrimack (I-664), and East River Mountain (I-77).

Eight VHF high-band channels and one 700/800 MHz channel will operate in the tunnels. Donor signals will be received off-air outside each tunnel and relayed inside. A VHF directional antenna will be used and mounted at each tunnel's administration building and pointed at the appropriate tower. The VHF signals will pass through the LinkNet service modules and into the tunnels.

A VHF/700/800 MHz crossband digital vehicular repeater system (DVRS) will be permanently installed to cover each tunnel. This unit will disable DVRS units mounted in vehicles to avoid contention problems. The 700/800 MHz signals from hand-held radios transmitting in tunnels will be fed to the tunnel's DVRS for conversion to VHF. This will allow 700/800MHz portables to communicate using the VHF network while in the tunnels.

TRANSPORTABLE SITES

To provide additional capacity, interoperability or disaster-recovery operations for STARS, Motorola will provide the Commonwealth with three types of transportable sites. These sites will be moved and placed in service where needed by the state for special events or to handle specific emergency situations. The three types of transportable sites are: 1) 700/800 MHz transportable site, 2) disaster recovery transportable communication site (DRTCS), and 3) transportable microwave sites.

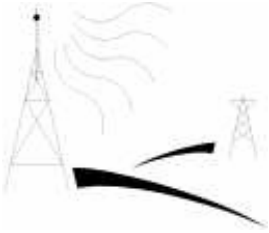
The 700/800 MHz transportable site will provide the Commonwealth with additional radio system capacity and interoperability during special events or for disaster-response situations. This site is designed to be moved and placed in service where needed by the state during special events, to handle specific emergency situations or for additional radio system capacity and interoperability. Following completion of the channel plan, the Commonwealth will decide whether to use five 700 or 800 MHz channels for this system.

Motorola's SMS-4000 trailer is designed as a self-sufficient radio communications suite. The entire site can typically be deployed within an hour of the arrival of the trailer. This transportable site will be used to house this portable trunked system. The trailer will allow for interconnection of the portable 700/800 MHz trunked system with other radio systems via a Raytheon ACU-1000 network interface. A cache of 50 XTS-5000 700/800 MHz portable radios with chargers will be carried onboard the trailer.

The state will also have available a Disaster Recovery Transportable Communication Site (DRTCS) to replace an existing VHF STARS site in the event of a natural or manmade disaster. The DRTCS will be a portable five-channel trunked communications site intended for use when a primary STARS site fails. As with the 700/800 MHz transportable site, Motorola proposes to use its SMS-4000 trailer for the DRTCS.

To complement the 700/800 MHz transportable site and the DRTCS, Motorola will provide a pair of BMS-1000 transportable microwave sites. Each transportable microwave site is housed in an eight-foot square environmentally-controlled shelter on a four-wheel trailer and will be capable of interfacing with either of the transportable sites to connect it with VSP's microwave network.

MICROWAVE NETWORK



The microwave network will provide the Commonwealth with the digital transport required for interconnecting the VHF radio sites, mobile data, telephone and alarm and control networks. In addition, it will replace leased data lines currently connecting VSP sites. The state hopes it will be highly reliable and capable of supporting relocation, if required. For example, the current VSP microwave network (that STARS is upgrading) was quickly reconfigured by the VSP communications division at the Columbia Pike Area Office to serve as a command center in response to the terrorist attack on the Pentagon. In addition, the state suffered no outages in the VSP microwave network because of Hurricane Isabel.

Each VSP division headquarters, most VSP area offices, and microwave transmitter sites will be equipped with a 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 branch exchange

(PBX) and to the public-switched telephone network (PSTN).

A "partitioned" section of the microwave network routed through VSP's 1st, 3rd and 6th Divisions will connect Zone 1 (Richmond) with Zone 2 (Salem). The microwave network will consist of 10 OC-3 synchronous optical network (SONET) loops arranged in nine distinct and separate rings.

IFLOWS

As part of the STARS contract, Motorola promises to provide the Commonwealth with eight analog conventional repeaters. The repeaters will support data communication for the Integrated Flood Observation & Warning System's (IFLOWS) nine data repeater sites (collocated with STARS) in the Commonwealth's IFLOWS network. Each IFLOWS data repeater will consist of a Quantar conventional analog radio repeater. IFLOWS sites are: Beamer Knob, Bear Den Mtn., Big A Mtn., High Knob, Hogback Mtn., North Mtn., Poor Mtn. and White Top Mtn. IFLOWS is a joint project with the National Weather Service which monitors potential flooding conditions in some of the state's most remote areas.

FREQUENCY PLANNING

Motorola is required to develop a frequency plan for all of the STARS wireless networks. This includes the VHF network, microwave network, and 700 MHz wireless/mobile data networks.

The frequency-planning effort for STARS includes the identification of additional channels for each transceiver site, as well as specialized subscriber components such as the 700/800 MHz vehicular repeaters; VHF, 700/800 MHz and microwave transportable sites; subscriber communications outside the infrastructure (tac channels) and tunnel systems.

Spectrum utilized for locality and agency interfaces, legacy radio systems, and other co-located transmitters such as commercial wireless services will also be considered.

Motorola will provide a viable draft frequency plan, based upon the system design as detailed in the contract, to be review by the state. Upon completion of the initial assignment of frequency pairings by channel by tower site, they will be monitored at each available tower site for feasibility.

Consultant's tentative VHF channel plan

##	Base Tx	Mob Tx	Comm-Zone(s)
01	158.7225	154.6575	CZ-01, CZ-07
02	158.8575	154.8075	CZ-01, CZ-07
03	159.1875	154.9575	CZ-01, CZ-07
04	159.3375	155.1075	CZ-01, CZ-07
05	158.7975	154.7325	CZ-01, CZ-07
06	159.1125	154.8825	CZ-01, CZ-07
07	159.2625	155.0325	CZ-01, CZ-07
08	159.4125	155.2575	CZ-01, CZ-07
09	----------	----------	CZ-01, CZ-07
10	159.2250	155.4975	CZ-01, CZ-08
11	159.3750	151.2050	CZ-01, CZ-08
12	159.4650	151.1900	CZ-01, CZ-08
13	159.1650	155.4450	CZ-01, CZ-08
14	159.0000	154.9350	CZ-01, CZ-08
15	158.7375	154.6725	CZ-02, CZ-08, CZ-12
16	158.9250	154.8225	CZ-02, CZ-08, CZ-12
17	159.2025	154.9725	CZ-02, CZ-08, CZ-12
18	159.3525	155.1225	CZ-02, CZ-08, CZ-12
19	159.2550	155.5050	CZ-02, CZ-08, CZ-12
20	159.4200	151.2800	CZ-02, CZ-12
21	158.8125	154.7425	CZ-02, CZ-11
22	159.1275	154.8975	CZ-02, CZ-11
23	159.2775	155.0475	CZ-02, CZ-11
24	159.4275	155.3175	CZ-02, CZ-11
25	158.4450	155.4525	CZ-02
26	158.7525	154.6875	CZ-03, CZ-11
27	158.9925	154.8375	CZ-03, CZ-11
28	159.2175	154.9875	CZ-03, CZ-11
29	159.3675	155.1375	CZ-03, CZ-11
30	158.8200	154.7625	CZ-03, CZ-11
31	159.1425	154.9125	CZ-03, CZ-11
32	159.2925	155.0625	CZ-03, CZ-11
33	159.4425	155.3775	CZ-03
34	159.3600	155.5725	CZ-03
35	----------	----------	CZ-03
36	158.7675	154.7025	CZ-04, CZ-10
37	159.0075	154.8525	CZ-04, CZ-10
38	159.2325	155.0025	CZ-04, CZ-10
39	159.3825	155.1525	CZ-04, CZ-10
40	159.4350	151.4300	CZ-04, CZ-10
41	159.3000	155.5425	CZ-04, CZ-10
42	159.1350	155.4600	CZ-04, CZ-10
43	158.8275	154.7775	CZ-05, CZ-09, CZ-13
44	159.1575	154.9275	CZ-05, CZ-09, CZ-13
45	159.3075	155.0775	CZ-05, CZ-09, CZ-13
46	159.4575	155.4225	CZ-05, CZ-09, CZ-13
47	158.7825	154.7125	CZ-05, CZ-09, CZ-13
48	159.0975	154.8675	CZ-05, CZ-09, CZ-13
49	159.2475	155.0175	CZ-05, CZ-09, CZ-13
50	159.3975	155.1975	CZ-05, CZ-09, CZ-13
51	159.3300	155.5575	CZ-05, CZ-09, CZ-13
52	159.4500	155.6025	CZ-05, CZ-13
53	158.8425	154.7925	CZ-06
54	159.1725	154.9425	CZ-06
55	159.3225	155.0925	CZ-06
56	159.4725	155.4375	CZ-06
57	159.2850	155.5125	CZ-06
58	159.4050	155.5875	CZ-06
59	159.9925	156.0600	CZ-06
60	----------	----------	CZ-06
61	----------	----------	CZ-06
62	158.9850	154.9050	CZ-10, CZ-13
63	159.1750	155.4675	CZ-10
64	159.4800	156.2250	CZ-10
65	----------	----------	CZ-10
66	----------	----------	CZ-10

The state has not decided if it will use 700 or 800 MHz channels in the link between hand-held radios and the DVRS.

Localities that should be invited to join STARS will be identified and prioritized by Motorola and reviewed by the state. This effort will be used to enhance the existing viable frequency plan and to mitigate potential interference.

INTEROPERABILITY

Localities may have the option of joining STARS for primary communication, particularly if they can contribute VHF channels to the STARS trunking pool. But at a minimum, the Commonwealth promises to provide at least one STARS interface to each of the state's 135 counties and cities at no cost to them. Motorola will install an estimated 162 control or base stations for city or county agencies and 144 more for other agencies, including federal users.

A radio can be installed at any of the 121 STARS microwave sites that will connect a specific outside-agency talk group or channel directly into the STARS network. When interoperability is required, the appropriate local agency and VSP dispatchers will communicate by telephone to establish a patch. Interoperability solely between non-state agencies is also possible using this system with the assistance of a VSP dispatcher to establish a patch.

It will be the local agency's responsibility to patch its appropriate channel into the provided STARS patch. The patch equipment will be provided to each county and independent city to bring interoperability at no cost to the jurisdiction.

Direct interoperability may be established by programming a local agency's conventional VHF or 800 MHz frequency in STARS mobile or hand-held radios. STARS radios will have the capability to operate in analog and digital modes to support direct interoperability.

The STARS project management team is considering a VoIP-based interoperability solution in lieu of, or in addition to, the RF interface architecture. Implementing a VoIP approach is dependent on the quantity and quality of radio frequencies available at each of the STARS transmitter sites, which may be a limiting factor.

The Statewide Interdepartmental Radio System (SIRS), 39.54, is used for direct inter-agency communications. SIRS will continue to be used for interoperability among Virginia law enforcement.

For more info on interoperability in Virginia see:

http://www.interoperability.publicsafety.virginia.gov/
http://tinyurl.com/6cwpv

MOBILE DATA, RECORDS MNGT, AND INTRANETS

STARS is designed to be more than simply a voice communication system. It is rich with mobile data, networking and information systems. Some components are included in the initial contract and others will be future options.

Premier mobile data computers (MDC) designed to run over the STARS VHF network will be intended mostly for VSP patrol vehicles. The Premier MDC and associated software will permit troopers to access the VSP computer-aided dispatch (CAD) system, perform criminal queries, access POP3 e-mail and send intra-agency and inter-agency text messages. Appendix 10a of the online contract includes about 100 pages of related details with sample CAD screens.

Global Positioning System (GPS) support for automated vehicle location (AVL) and Advanced Tactical Mapping (ATM) promises to allow dispatchers to track locations of VSP patrol vehicles. The vehicle's location will appear on a display at the nearest VSP division headquarters based upon certain events or from a dispatcher-initiated request. VSP's CAD and GPS are intended for use by state troopers and not other law enforcement agencies.

Secondary status will be imposed on mobile data transmissions when the network is serving voice users. The system is being designed so only two of the VHF transceivers at a given site will service mobile data communications.

The file size of attachments has been limited to 15 kilobytes. Within two years, Motorola anticipates upgrades that will increase the file size of attachments to approximately 150 kilobytes. This promises to accommodate mug shots and fingerprints.

Another proposed option upgrades the VSP mobile computers to replace the law enforcement in-car tape-based video systems. The STARS mobile computers include an input for a video camera and a DVD-RW drive for recording video to disks.

An additional STARS project creates a statewide multi-agency intranet with wireless access using the STARS microwave network. Wireless access will be made available to mobile computers. The same network can also provide statewide cost-effective VoIP telephone communication between agencies "subject to legal review."

Wireless VSP access points (or "hotspots") will be installed at VSP division headquarters, state police headquarters (SPHQ) and the VSP area offices served by the STARS microwave network. This will include approximately 60 locations evenly spread throughout the Commonwealth. A wireless LAN is also being proposed that includes other state agencies (see be-

low). The VSP wireless access points are considered a cost-effective measure until a 700 MHz wireless data solution can be implemented.

A future "Canopy system" would extend network connectivity to remote locations. The Motorola Canopy system will enable the Commonwealth to extend STARS intranet connectivity to offices that for economic or geographic reasons may be beyond the reach of other wired broadband technologies such as the STARS microwave network.

The Canopy system will use broadband equipment to provide point-to-point links between STARS WAN-equipped locations and selected wireless LAN (WLAN) locations. Canopy operates in the 5 GHz unlicensed National Information Infrastructure band, commonly called the U-NII band (5.25 – 5.35 GHz and 5.725 – 5.825 GHz).

A proposed WLAN system will provide state mobile data users, other than just VSP troopers, with a cost-effective method of accessing the STARS WAN from their vehicles. Users could access a WLAN hotspot-equipped location, such as VSP division headquarters or area office, as well as specific offices and residencies used by VDOT, Department of Environmental Quality, Department of Emergency Management, and the Department of Mines, Minerals and Energy. The estimated number of wireless access points is 440. The WLAN client card will be built into the Motorola ML900 mobile data computer which will also be used on the VHF network. The WLAN will operate in accordance with IEEE 802.11g guidelines.

A hodgepodge of Motorola computer information systems will be optionally available in STARS. Some of these include Motorola's law records management system (Infotrak LRMS), Virginia's integrated public safety system, Offendertrak Jail Management System and Omnitrak AFIS for tracking fingerprints. Integration Framework, another Motorola info system, promises to integrate disparate public safety and justice databases so users can exchange data in near real-time.

Motorola may eventually provide a scalable intranet to support VSP, Department of Mines, Minerals & Energy (DMME), Department of Emergency Management, and Department of Environmental Quality (DEQ). The intranet's growth potential is limited by the bandwidth accommodations of the STARS microwave network. This network could eventually be expanded to a wide-area intranet for use by all state agencies. Any site not co-located with a STARS microwave node will employ a dedicated leased line or wireless technology equivalent (such as the Canopy system) to connect that site to an appropriate microwave node.

RADIO MODELS

The quantity of Motorola radios ordered by each agency has been withheld from the public-view of the contract for "confidential and proprietary" reasons. The contract does, however, list and explain specific models.

STARS VHF mobile radios will serve as part of the intelligent repeater systems for 700/800 MHz hand-held radios. The Mobexcom digital vehicular repeater system (DVRS) will create a VHF/700/800 MHz crossband system. The VHF trunked system side (mobile radio side) of the DVRS will communicate with the STARS VHF system, while the 700/800 MHz conventional digital side of the DVRS will communicate with 700/800 MHz XTS-5000 portable radios.

The DVRS will accommodate multiple units in the same area on the same talk group by automatically determining the presence of other DVRS in the same area on the same talk groups and provide a means of automatically arbitrating among users to prevent interference.

In addition, a VHF/700/800 crossband DVRS will be installed in each tunnel and will operate on the same 700/800 MHz conventional channel used between the hand-held radios and the VHF mobile radios.

The high-tier hand-held radio will be the XTS-5000 (shown left). That radio will be available in 700/800 MHz to access the vehicular repeater system. The contract indicates that a limited quantity of the VHF version will also be available which will directly access the STARS VHF sites where such portable coverage is available.

The mid-tier hand-held is the XTS-2500 which will be available in 700/800 MHz. The low-tier is the XTS-1500, intended for VHF use by non-public safety users.

The XTL-5000 will be the primary high-tier VHF mobile radio and will include Advanced Encryption Standard (AES) capability. Over-the-air re-keying (OTAR) will allow centralized management of encryption keys in remote radio equipment.

Motorola promises to upgrade VSP's existing VHF Astro Spectra radios for use in STARS, although they will not support AES.

The XTL-2500 is the mid-tier VHF mobile radio. The CDM-750 will be used as a mobile radio for conventional and analog channels such as SIRS.

Dispatcher consoles will consist of the Centracom Gold Elites. Mobile radios with AC power and roof-top antenna will be available as well for inexpensive office desk-top "control" stations or as back-ups to Elite consoles.

COST

The total STARS contract price is $329,673,699. That does not include some of the proposed info systems and wireless data options mentioned above. In 2004 the General Assem-

bly, through House Bill 106, approved $159.3 million in bonds to fund the STARS project for two years. The bill authorizes the Virginia Public Building Authority (VBPA) to issue bonds in the amount of $159.3 million to finance the undertaking, development, acquisition and construction of the first phase of STARS.

PROJECT SCHEDULE

The build-out of the initial STARS procurement is anticipated to occur over a six-year period. The system will be installed in seven phases corresponding to the seven VSP divisions. The first phase of the project will be operational in the Central Virginia region by December 2005 for the 21 counties and four cities comprising VSP Division 1 (Richmond).

Some of the 20 participating STARS agencies will have their equipment installed along with the VSP field division in which they operate. Others will wait until coverage is available throughout their entire service area, which may include more than one VSP division. Existing conventional channels may be programmed into the STARS radios to allow agencies to continue to use legacy VHF radio systems.

The system acceptance schedule could be adjusted should Division 7 move into a new proposed facility. The date which STARS will be accepted for use by each VSP field division is estimated as follows:

System Acceptance Schedule

Div. 1	Richmond	June 2006
Div. 5	Tidewater	May 2008
Div. 2	Culpeper	July 2008
Div. 7	N. Virginia	October 2008
Div. 6	Salem	April 2009
Div. 3	Appomattox	May 2009
Div. 4	Wytheville	September 2009
Final System Acceptance		September 2009

Completion for currently planned procurement phases is scheduled for 2011.

For more information, see the STARS Webpage:
http://www.vsp.state.va.us/stars.htm

# # #

FREE STATE TRUNKING

By Mike Agner (KA3JJZ)

Hi all. It's been several months since we've had a new newsletter, and there's been many changes in the trunking scene here in Maryland. Much of this information comes from the Maryland forum at RadioReference or other sources as noted.

Anne Arundel

Most know this by now, but the county has transitioned to new freqs and new talkgroups to boot. There are still some dead spots -- around Marley Station seems to be one -- and the lay press has picked up on the testing still being done to try to eliminate them. Going to digital seems to be in the future, as budget problems (not to mention finding land for new towers) will likely slow the growth of this system.

Certain talkgroups in the 32000 range seem to appear occasionally with digital testing.

With thanks to a few folks, we now have a somewhat clearer picture of the United Airlines trunk at BWI. However, the users seem to make heavy use of I-calls, which the Bearcat 245 won't decode. Oddly, the Bearcat 245 decodes only two or three 'public' talkgroups while the Trunker software seems to recognize several more. This information is all stored on the RR database. More work is needed!

Baltimore County

A common question that keeps recurring is if Baltimore County is moving to a digital platform (keep in mind that Harford County's system will be and Baltimore City is). From 'Dispatcher308' on July 8, in a conversation with 'Mlevin', he wrote: Baltimore County is supposed to go digital, but again, money is an issue. The county was testing Motorola XTS-5000's, not only for its own use when and if the county goes digital, but also so the county can have interoperability with Baltimore, Anne Arundel, Harford and Howard counties, since all of those systems are digital. But again, the county has a problem with funding and a proposed 9-1-1 center is not ready and may have been placed on hold. However, 9-1-1 call-takers now have wireless Phase II capabilities, meaning they receive cell-phone origination coordinates from mobile phones.

As mentioned earlier, Anne Arundel County isn't digital — yet. However, with the current state budget crunch — and most counties aren't in much better shape — it's clear that digital won't happen for a while. However, we learned the Baltimore County commanders received XTS-5000's in late October. (mja)

Since Jan. 1, Rob Shearman reports that the Baltimore County police department has planned to separate dispatching for Precincts 8 and 9 (Parkville and White Marsh), which typically share the same dispatch. Talkgroup 108 (1840) will be used by Pct. 8 instead of using Talkgroup 109 (1872) with Pct. 9. Rob says staffing shortages can cause the Parkville talkgroup to be temporarily patched (on an hour-to-hour basis) with an adjoining precinct. Pcts. 6, 7 or 9 could conceivably be paired with Pct. 8 for parts of a shift, such as during dispatcher breaks. Pairing Pcts. 6 and 7 remain a perennial fa-

vorite, Rob notes, and in a crunch, he would expect Pcts. 6/7 and 8/9 to be the favorite duos. Parkville is rebuilding its precinct HQ right now, so if listeners notice that Parkville cars seem to conduct more business out of the White Marsh Precinct, that's why.

Charles County
Ever since about July 3, when 'Jeff' in Virginia first reported hearing control data, there's been a great deal of information passed about the upcoming Charles County trunked system. The system is scheduled to go "live" for all county agencies in January – a year after the new 9-1-1 center was placed in service. All nine towers are operational and training has been underway for a couple months. Mobile radio installation will begin shortly. Check the Maryland RR board for more info:

http://tinyurl.com/4sbv8

Cecil County
Not much new to report, except that it appears 155.7525, which was on the original list of proposed freqs, has been dropped per Eric Carlson. Here's the RadioReference thread to watch:

http://tinyurl.com/4sn7k

Dorchester County
The county selected Motorola for a digital trunked system earlier this year. This will replace the county's current E.F. Johnson Multinet trunked system. Brian Tolley says the new system's control channel is already active on 858.2625, one of the same control channels used by Fairfax County.

Dorchester public safety agencies may start using the system in December or January. It will use the same five 800 MHz channels the county uses for its Multinet system, 855.9875, 856.2625, 857.2625, 858.2625 and 859.2625. The new system, however, has three tower sites instead of one. They are Bucktown (south of Cambridge), Vienna and Trappe, with a fourth site proposed for Taylor's Island if funding permits.

Talkgroups for adjacent jurisdictions, such as the Consortium (Talbot, Queen Anne's and Caroline), Sussex and Wicomico, will be included in the new fire/EMS radios along with the national 800 MHz public safety channels. Cambridge VFC, which had continued to use the 46 MHz channels rather than the county's Multinet system, is expected to participate since the low-band channels will be abandoned. This would eliminate interoperability issues within the county as well as with adjacent jurisdictions.

The county fire/EMS departments have a new VHF high-band system. Dispatch/alerting will be on 151.07 with 150.995 possibly intended for helicopter patches. The county licensed both channels as repeaters with 156.075 and 156.24 as inputs. The VHF system will consist of three towers (Bucktown, Vienna and Trappe) with a backup at the Dorchester County Health Department in Cambridge.

Harford County
Testing started on the 800 MHz trunked system on Sept. 7. A RR posting by 'doctoraquarium' suggests that the system is scheduled to be up by Jan. 2005. Lewis McCannon says the local paper reports that the trunked system will support mobile data later next year after voice is functioning. Here's a link with a detailed discussion:

http://tinyurl.com/6embt

Howard County
The county has transitioned from its 150 MHz police system to the digital trunked system. The 150 MHz fire channels appear to still be active. Specifically, Doug Walton reports that talkgroup A-1 is patched with old Fire 1, 154.25. Fire 2, 154.22, is still active when needed for patching into the trunked system. Fire 3, 154.175, may be dropped. Some info has been posted at: http://www.onewaychicken.com/

Maryland (State of)
The proposed statewide 700 MHz system (not 800 MHz, as has been reported) is still in the planning phase. These frequencies were supposed to be available in about six years when current UHF-TV stations transition to HDTV. The assumption was that a certain percentage of TV stations in each market were to have moved by then which remains doubtful. The cost of HDTV-compatible TVs is still relatively high, which provides less incentive for TV stations to make the transition. This, plus the current budget squeeze, would seem to be the death knell for a statewide system, at least in the near term.

Another popular myth that seems to be making the rounds is that the Maryland State Police are migrating to 800 MHz. In fact, what is actually happening is that MSP troopers are receiving portables to access their respective county's 800 MHz system. When troopers are in range of that system, they often use them for communication when needed, but MSP is not abandoning its 39 MHz system just yet. A former MSP officer now living in the Pocomoke area confirmed that for me. (mja)

Montgomery County
Like Howard County, Montgomery County police have completely migrated from the old 490 MHz channels to the 800 MHz digital system. Several of the old 490 MHz channels and Motorola Spectra radios were transferred to the county's public schools. The fire department has retained its old VHF channels, 153.95 and 154.16, but converted both to a 10-site repeater network. 153.95 typically simulcasts the ops talkgroup, 7-Bravo, and is often used for patches for the helicopters. 154.16 is the countywide dispatch/alerting channel. The county has also provided some online audio feeds. See our Maryland page (http://henney.com/chm/links/).

Prince George's County

Both M/A-Com and Motorola, according to one source, have submitted or will submit proposals to the county. The county is supposedly considering several options from both vendors. Homeland security funds may help pay for the system and could affect which option the county ultimately selects. Possibilities include a dual-band UHF/800 MHz digital trunked system, much like D.C. has, where law enforcement use the UHF system and the fire/EMS use 800 MHz. This option is allegedly being pushed by Motorola.

The UHF system would include approximately 20 UHF-T band channels, including those currently used by the fire department and any donated by Montgomery County. This would allow for direct interoperability with Metro transit and D.C. police. The 800 MHz system would operate using the 10 channels now in use by the county's two EDACS systems. The fire/EMS units would use XTS-5000's which could be programmed with talkgroups from other jurisdictions.

The option said to be recommended by M/A-Com would be a 700/800 MHz trunked system for both police and fire/EMS utilizing VoIP technology.

The final possibility is to revitalize the existing UHF-T band channels and any others donated from Montgomery County, keeping them analog. Most, if not all, of those channels would be for law enforcement use. The fire department would move to 800 MHz where firefighters would use the EDACS channels as an analog conventional system with XTS-5000's for interoperability with Motorola systems.

Somerset County

An M/A-Com EDACS system is under construction. This would create a cluster of three EDACS systems in Maryland's lower shore, adding to those in use by Ocean City and Worcester County. One report suggests that site equipment was to be in place by May and online by August. But now it's looking more like the first of the year (per WCRadioguy May 5 'Phil').

Upper Maryland Eastern Shore Consortium

Numerous reports of encrypted talkgroups have been heard, possibly related to an MSP task force. Several new talkgroups have been reported during recent months, perhaps related to some municipalities joining the system.

That's it for now. As always, updates on all these changes -- and any new items -- are always welcome. 73s Mike

# # #

Please address all correspondence to Alan. We encourage readers to submit material and write articles that relate to the hobby. All submissions are subject to editing for style and content. When submitting material please make certain we can contact you should we have any questions. We welcome frequency and visitor requests, but please include a reply envelope.

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INSIDE THIS EDITION:

- Va picks Motorola for Statewide Agencies Radio System (STARS).
- Maryland trunking updates.

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CHM's 2005 Inaugural Special

Please send or e-mail us your articles or story ideas!

PAPER PRINTS SECRET SERVICE CODENAMES

The *Atlanta Journal-Constitution* reports the candidate codenames. John Kerry's Secret Service handle is "Minuteman," presumably a reference to Boston's history. "The scanning world," says the paper, "believes that `Speedway' is John Edwards' code name (North Carolina's NASCAR world could be the inspiration), and `Mahogany' is what they've gleaned for Teresa Heinz Kerry. `Trailblazer' has been President Bush's code name, while Laura Bush's secure identity leaked into the press as `Tempo.' Bush daughters Jenna and Barbara were reported to be `Twinkle' and `Turquoise.' Mrs. Edwards is `Sidebar.'"

STARS
STATEWIDE AGENCIES RADIO SYSTEM