CONTRACT MODIFICATION # 18

CONTRACT MODIFICATION #5 OPTION B REPLACEMENT

SECTION 1 – EXECUTIVE SUMMARY

1.0 Original STARS Contract – Statewide Interoperability

The Statewide Agencies Radio System (STARS) Contract with Motorola contains a design to provide a single Radio Frequency (RF) patch controlled by a Virginia State Police (VSP) dispatch console to each of the counties and independent cities of Virginia to provide statewide interoperability. This single RF patch design will be implemented statewide at no cost to the localities if they are not going to participate in the network using MotoBridge technology. In addition to the localities, the STARS Contract allows for patches to be established to the STARS participating state agencies' legacy radio systems that are not being replaced by STARS.

The STARS Contract has been modified as the Commonwealth of Virginia added **MOTOBRIDGE IP** to the **Division 1** implementation with Modification #5. MOTOBRIDGE IP replaced the Division 1 single Radio Frequency (RF) patches to localities and STARS State Government agencies agreeing to participate.

1.1 MOTOBRIDGE IP Interoperability Solution – Division 1

Public safety agencies in Virginia have been working together to improve public safety interoperability, to detect and prevent terrorism-related acts and to, if necessary, respond and recover if incidents occur. Such actions often involve agencies from different jurisdictions with incompatible radio equipment. The STARS Contract interoperability solution will be replaced in Division 1 when agreed to by the agency to allow for significantly improved Commonwealth of Virginia multi-jurisdictional and multi-disciplinary connectivity. The implementation of MOTOBRIDGE IP allows for communications at the local, regional, state and federal levels and for future scalability. The **MOTOBRIDGE IP Interoperability Solution** is connected to STARS and provides advanced Division 1 interoperability by eliminating local, regional, state, and federal communications technological roadblocks. The Division 1 MOTOBRIDGE IP Solution works around these interoperability roadblocks allowing for an effective interoperability solution in a cost effective manner.

The MOTOBRIDGE IP Interoperability Solution is designed to allow dispatchers in 14 localities within Division 1 to establish up to four (4) connections ports each with their

internal communications equipment. One or more of the twenty-four (24) paths may connect to the COMLINC network as a pathway to other participating localities and STARS via VSP division dispatcher. A locality dispatcher may use the patches to connect agencies within a locality's jurisdiction and/or other radio resources. MOTOBRIDGE IP can be expanded in the future to accommodate an additional four (4) connection ports (total of eight [8] per radio gateway deployed). For example, a sheriff's department can patch to a fire department regardless of the frequencies used by each agency. Patches can also be used to establish dispatcher conferences (total of eight [8]). By implementing MOTOBRIDGE IP the requirement to call by telephone to establish a locality-to-locality patch is no longer required. Each locality's dispatcher creates the patch at their console to communicate with other localities. The localities access to STARS is programmed to be under the control of a VSP division dispatcher.

The future implementation plan is for MOTOBRIDGE IP to provide additional interoperability with more agencies that have their own private radio networks such as the Metro Transit Police, Railroad Police, Virginia Department of Transportation, various specialized police departments and airport police departments, to name a few. MOTOBRIDGE IP can also be expanded in the future to allow patching into Metro DC interoperability talk groups in Northern Virginia providing talk paths into Washington, D.C., and Maryland.

1.2 Commonwealth of Virginia's Support

The Virginia State Police, through the Commonwealth Interoperability Coordinator and Office of Commonwealth Preparedness and on behalf of all public safety agencies, is implementing the MOTOBRIDGE IP Interoperability Solution for use in Division 1. It will enable first responders in Division 1 on disparate radio systems and frequencies to communicate on STARS as well as directly to each other. Localities communicating directly with each other can do so without involving a STARS dispatcher. For example, if a Division 1 county has a UHF radio system, MOTOBRIDGE IP offers the capability to enable its UHF users to communicate with Division 1 locality 800 MHz first responders that are both within their coverage areas to assist in an emergency situation.

1.3 MOTOBRIDGE IP Description

MOTOBRIDGE IP operates on a distributed network architecture, thus allowing for a graceful expansion and providing redundancy with no network single point of failure (for existing patches). The distributed architecture allows for a high level of survivability in the event of a catastrophe. It adds basic dispatch capabilities to gateway functionality and can use existing consoles for access to MOTOBRIDGE IP. MOTOBRIDGE IP also provides instant recall of recorded audio. It enables use of advanced calling features on Motorola equipment, such as Emergency ID, and allows monitoring of the interoperability network activity and associated operations. For agencies requiring encryption, MOTOBRIDGE IP provides AES encryption over the IP network.

The Operations Management Center (OMC) enables control of the MOTOBRIDGE IP network and network interfaces. It also stores the MOTOBRIDGE IP configuration data. The OMC consists of an Administrative Control Panel Workstation, an OMC Server, the IP Routers, and the Session Initiation Protocol (SIP) Server. The SIP Server uses standard communications protocols of the telephone industry and provides an IP link to numerous telephony services, including but not limited to, teleconferencing, bridging of calls, and interconnect services. The OMC and SIP servers will reside at the STARS Network Operations Center (NOC) at the State Police Headquarters.

At the dispatch centers, MOTOBRIDGE IP Gateway Units (soft-switches) are deployed. For ease of maintenance, MOTOBRIDGE IP Gateway Units are based on a common hardware platform, which can be configured to serve as either a Radio Gateway Unit (R-GU) or a Workstation Gateway Unit (WS-GU). The hardware and software contained on each gateway device is identical and contains a robust set of features designed for public safety communications.

Workstation Gateway Units (WS-GU) are used to set up the communication links between dispatch centers. A dispatch application loaded on a PC is used as a Graphical User Interface that will interact with the WS-GU.

Radio Gateway Units (R-GU) are used to connect the various radio systems into the MOTOBRIDGE IP Solution.

1.4 Grade of Service (GOS)

Each radio network manager maintains all of the access /control tools available with their radio network. Each corresponding access radio used to provide an interoperable talk path remains under control of the associated radio system when connected through a dispatch console. For example, each access radio is programmed with an associated priority level as dictated by the radio manager. MOTOBRIDGE IP can only interface with the corresponding radio to provide a talk path; however, for Motorola mobile subscriber models that support the SB9600 data bus protocol, the MOTOBRIDGE IP dispatcher can also remotely change between the pre-program modes of the subscriber. MOTOBRIDGE IP cannot alter any subscriber programming. MOTOBRIDGE IP utilizes a generic IP network but it does not have any control/manage of the network. The combination radio plus IP network parameters and number of connections effectively define the overall system level GOS.