Transportable Sites System Description

3.0 TRANSPORTABLE SITES SYSTEM DESCRIPTION

The specifications for these sites are located in Appendix 5.

3.1 INTRODUCTION

To provide additional capacity, interoperability, or disaster-recovery operations for the STARS, Motorola will provide the Commonwealth of Virginia three types of transportable sites. These sites are designed to be moved and placed into service where needed by the Commonwealth during special events or to handle specific emergency situations. The three types of transportable sites are as follows:

- 700/800 MHz Transportable Site
- Disaster Recovery Transportable Communication Site (DRTCS)
- Transportable Microwave Sites

3.2 700/800 MHZ TRANSPORTABLE SITE

Motorola will provide a 700/800 MHz Transportable Site to be used by the Commonwealth for additional radio system capacity and interoperability during special events or disaster-response situations. Following completion of the channel plan, the Commonwealth will advise Motorola whether to construct a 700 or 800 MHz transportable site. Motorola's SMS 4000 trailer (See Appendix 5) provides a complete communications solution for "immediate on-line" deployment of this transportable site in an affected area. The SMS 4000 is designed as a self-sufficient radio communications site. The entire site can typically be deployed within 1 hour of the arrival of the trailer at the site.

This Transportable Site will be used to provide on-site ASTRO 25 digital trunked communication in the 700/800 MHz frequency band as well interconnection with other systems via the Commonwealth provided Raytheon ACU-1000 Network Interface.

Motorola will provide the following communications equipment in a rack-mounted configuration:

- One (1) 5-channel 700/800 MHz ASTRO 25 trunked system
- One (1) transmitter combiner
- One (1) receiver multicoupler
- One (1) 700 or 800 MHz 6-dB gain transmit antenna
- One (1) 700 or 800 MHz 6-dB gain receive antenna
- Four (4) Motorola NMO antenna mounts on the roof with ¼" Superflex cable terminated in the radio rack
- One (1) Telecommunications Network Server (TeNSr) channel bank
- Two (2) VHF High Band conventional base stations
- Two (2) VHF High Band antennas
- Fifty (50) XTS 5000 Model III 700/800 MHz portable radios with chargers
- Rack Space for One (1) Raytheon ACU-1000 Network Interface
- One (1) 60-foot tower or pneumatic mast capable of supporting four LMR antennas
- One (1) 700/800 MHz control station
- Mitsubishi (ST211) Satellite telephone

The 700/800 MHz Transportable Site design will meet the following specifications:

Power and Heating, Ventilation, Air Conditioning (HVAC):

- Two 1.5 ton HVAC roof mounted units
- 100-ampere single-phase 120/240 volt internal power pac
- Shore Power connections
- Internal 120 gallon diesel tank.

3.3 DISASTER RECOVERY TRANSPORTABLE COMMUNICATION SITE (DRTCS)

Motorola will provide a Disaster Recovery Transportable Communication Site (DRTCS) to be used by the Commonwealth to replace an existing VHF Integrated Voice and Data tower site in the event of a natural or manmade disaster. The DRTCS will be able to provide ASTRO 25 LMR communications until the original tower site is operational again. Data communications are dependent on the ability of the DRTCS to link into the microwave system.

As with the 700/800 MHz Transportable site, Motorola is utilizing the SMS 4000 trailer for the DRTCS.

The DRTCS design will meet the following specifications:

Power and Heating, Ventilation, Air Conditioning (HVAC):

- Two 1.5 ton HVAC roof mounted units
- 100-ampere single-phase 120/240 volt internal power pac
- Shore Power connections
- Internal 120 gallon Diesel fuel tank.

Attached Tower:

- One (1) 60-foot tower or pneumatic mast capable of supporting four LMR antennas

The communication equipment housed in the DRTCS will be racked mounted and will consist of:

- 5-channel ASTRO 25 VHF Integrated Voice and Data trunking system with site controller, transmitter combiner, receiver multicoupler, coaxial lines, receive antenna, and transmit antenna.
- TeNSr channel bank
- Utility PC
- VHF Astro 25 Control station
- Satellite telephone

3.4 TRANSPORTABLE MICROWAVE SITES

Connectivity to the STARS LMR tower site is mostly 6 GHz microwave. To complement the 700/800 MHz Transportable Site and DRTCS, Motorola is providing a pair of separate BMS 1000 (See Appendix 5) Transportable Microwave Sites. Each Transportable Microwave Site is housed in an 8-foot by 8-foot environmentally-controlled shelter on a four-wheel trailer and will be capable of interfacing directly with either of the transportable sites provided in this Contract.

The BMS 1000 Transportable Microwave Site design will meet the following specifications:

Power and Heating, Ventilation, Air Conditioning (HVAC):

- Two 1.5 ton HVAC units
- 60-ampere single-phase 120/240 volt electrical service
- Shore Power connections
- Externally-mounted 20-kilowatt LP generator with transfer switch and a 120-gallon fuel tank. Quick disconnects need to be supplied to allow connection to portable LP tanks.

Attached Tower:

- One (1) 100-foot crank up aluminum tower capable of supporting two 4-foot 6 GHz grid dishes and one 4-foot 5 GHz grid dish.

Each BMS 1000 would contain the following equipment:

- Two (2) 6-GHz licensed microwave radios (provisioned from available pool of spare microwave radios) supporting four DS1/T1 circuits
- One (1) 5-GHz unlicensed spread-spectrum radio (such as Canopy) capable of supporting two DS1/T1 circuits
- One DC power system to provide power to the microwave radios
- TeNSr channel bank