

**MODIFICATION # 14  
TO  
CONTRACT NUMBER 2001-035  
BETWEEN THE  
COMMONWEALTH OF VIRGINIA  
AND  
MOTOROLA, INC.**

This MODIFICATION #14 is an agreement between the Commonwealth of Virginia through its Department of State Police, hereinafter referred to as "State" or "Commonwealth," and Motorola, Inc., hereinafter referred to as "Motorola," which modifies Contract Number 2001-035 (the "Contract") between the parties. This Modification #14 is hereby incorporated into and made an integral part of the Contract effective July 13, 2004. This Modification will be effective as of the last date signed below.

The purpose of this Modification #14 is to increase the Contract Price to extend two-way radio coverage for the Tidewater cities of Hampton, Newport News, Norfolk, Suffolk, and Portsmouth into the four (4) designated Virginia Department of Transportation ("VDOT") tunnels.

Both parties agree to the following:

**1. Description of this Modification.**

As part of the STARS Project, Motorola is providing and installing a Distributed Antenna System ("DAS") in four (4) Tidewater-area Virginia Department of Transportation ("VDOT") tunnels. The DAS will rebroadcast Virginia State Police 800 MHz and VHF signals throughout the tunnel system roadways. The cities that are local to the four Tidewater-area tunnels include Hampton, Newport News, Norfolk, Suffolk, and Portsmouth (the "Localities"). The Localities will identify radio traffic of two talkgroups from each of their individual 800 MHz analog trunking systems to be re-transmitted inside each tunnel roadway. Only one talkgroup at a time per locality is able to use the system. The labor and materials that Motorola will provide are detailed in Attachment A, which is attached hereto and fully incorporated herein. Provided that the Design and Implementation Assumptions set forth in Section 4.0 of Attachment A (Tidewater Area Localities 800 MHz In-Tunnel Coverage Scope of Work) are accurate, the DAS will function as described herein and will not adversely affect the STARS tunnel system, as contracted.

**2. Modification of Contract Price.**

For the labor and materials provided by Motorola, \$588,931.34 is added to the Contract Price, as detailed in Attachment B, which is attached hereto and fully incorporated herein and summarized below:

<b>Tunnel</b>	<b>Localities</b>	<b>Labor</b>	<b>Materials</b>	<b>Labor and Materials</b>
<b>Monitor/Merrimac</b>	Newport News and Suffolk	\$63,210.05	\$84,958.72	\$148,168.76
<b>Elizabeth River – Midtown Tunnel</b>	Portsmouth and Norfolk	\$60,175.00	\$84,958.72	\$145,133.72
<b>Hampton Roads Tunnel</b>	Hampton and Norfolk	\$67,092.82	\$79,836.32	\$146,929.14
<b>Elizabeth River– Downtown Tunnel</b>	Portsmouth and Norfolk	\$63,741.00	\$84,958.72	\$148,699.72

**3. Contract Price Adjustments.**

Original Contract Value:	\$329,673,699.00
Amount of Previous Modifications numbered 1 through 8 <sup>1</sup> :	<b>(\$1,540,046.39)</b>
Amount of Modifications numbered 9, 10, 11, 12, and 13:	Pending
<b>This Modification #14:</b>	<b>\$588,931.34</b>
<b>New Contract Price:</b>	<b>\$328,722,583.95</b>

**4. Completion Date Adjustments.**

None.

**5. Milestone Payments.**

In accordance with this Modification #14, the Contract Milestone Payment for the labor and materials described herein is as follows:

<sup>1</sup> Modification #8 was cancelled by the Commonwealth.

<b>MONTH AND YEAR</b>	<b>MILESTONE NAME</b>	<b>CONTRACT MILESTONE</b>	<b>TERMS</b>
June 2006	Modification #14-A – Shipment of Materials	N/A	Due in full upon shipment of materials for Modification #14
August 2006	Modification #14-B – Completion of Installation	N/A	Due in full upon completion of installation for Modification #14

The foregoing is the complete and final expression of the parties' agreement to modify Contract 2001-035 and cannot be modified, except by a writing signed by duly authorized representatives of both parties. If there are any inconsistencies between the provisions of this Modification #14 and the provisions of the Contract, the provisions of this Modification #14 will prevail.

**ALL OTHER TERMS AND CONDITIONS OF THE CONTRACT REMAIN UNCHANGED AND SHALL REMAIN IN FULL FORCE.**

PERSONS SIGNING THIS CONTRACT MODIFICATION ARE AUTHORIZED REPRESENTATIVES OF EACH PARTY TO THIS CONTRACT AND ACKNOWLEDGE THAT EACH PARTY AGREES TO BE BOUND BY THE TERMS AND CONDITIONS OF THIS CONTRACT MODIFICATION.

**MOTOROLA, INC.**

**COMMONWEALTH OF VIRGINIA**

Department of State Police

BY: (Signature on File)  
Robert C. Wartmann  
MCEI Vice President

BY: (Signature on File)  
Colonel W. Steven Flaherty  
Superintendent

DATE: 6/26/06  
Reviewed by: (Signature on File)  
Michael Archbold  
Motorola Project Manager

DATE: 6/26/06  
BY: (Signature on File)  
Patricia T. Trent, CPPB, VCO  
Procurement and Contract Officer

DATE: 6/26/06

DATE: 6/26/06

Reviewed:

BY: (Signature on File)  
Judith M. Alexander, Esq.  
Commercial Attorney – Law Dept.

DATE: June 26, 2006

## **Attachment A to Modification #14**

### **Tidewater Area Localities 800 MHz In-Tunnel Coverage Scope of Work**

#### **1.0 Background**

As part of the STARS Project, Motorola is providing and installing a Distributed Antenna System (DAS) into the four Tidewater area VDOT tunnel systems for use by the new Virginia State Police radio system. The DAS will broadcast VSP 800 MHz and VHF signals throughout the tunnel system roadways. The “head-end” electronics, pick-up radios, and RF combining will be located in equipment rooms at one end of each of the tunnels.

The cities that are local to the four (4) Tidewater area tunnels – Hampton, Newport News, Norfolk, Suffolk, and Portsmouth (the “Localities”) will provide the radio traffic of two talkgroups from its individual 800 MHz analog trunking systems be re-transmitted inside each tunnel roadway. Towards that end, Motorola is providing this scope of work as an addition to the STARS Project.

#### **2.0 Statement of Work**

##### **2.1 Overview:**

This scope of work includes the plan to extend two-way radio coverage for the Tidewater Localities into the VDOT tunnels. The plan calls for adding additional head-end equipment and pick-up antennas to the tunnels and utilizing the STARS/VSP Distributed Antenna System.

The four tunnels and their associated Localities are listed below:

- Monitor/Merrimac Tunnel Localities: Newport News and Suffolk
- Hampton Roads Tunnel Localities: Hampton and Norfolk
- Elizabeth River Midtown Tunnel Localities: Portsmouth and Norfolk
- Elizabeth River Downtown Tunnel Localities: Portsmouth and Norfolk

##### **2.1 Description:**

Provide in-tunnel coverage for the two Localities in each of the four (4) Tidewater area tunnels. This will be accomplished with the installation of one enclosed VR cabinet per tunnel. Each cabinet will be stocked with the following equipment:

- 800 MHz multicoupling for two sets of Transmit and Receive signals to interface with the DAS and with the future STARS DVRS.
- 800 MHz “fixed” Vehicular Repeater System (“VRS”). Each VRS will contain a Motorola model radio, except for Hampton. This locality will supply its own radio.
- AC Power Supply with battery-charging capability.
- Battery for 30 minutes standby power.

### **3.0 Equipment and Services**

#### **3.1 Equipment.**

The equipment in support of this Modification includes the following:

- Pick-up antenna. (1 per Locality per tunnel system, two locations per tunnel)
- ½-inch coax for pick-up antennas. (1 per Locality per tunnel system , two locations per tunnel)
- Vehicular Repeater. (1 per Locality per tunnel system, two locations per tunnel)
- Trunked radio. (1 per Locality per tunnel system, two locations per tunnel, except for Hampton.)
- Assorted jumpers and connectors. (per tunnel system)
- Cabinet and combining system. (1 per tunnel system)

#### **3.2 Services.**

The services being offered in support of this Modification includes the following:

- Project Management, engineering and documentation.
- Implementation.
- Interfacing to STARS in-tunnel DAS system, and subsequent optimization.
- In-tunnel Coverage test, per Locality. (Lane closures and nighttime work required by VDOT). Coverage will be at least 95%, one test per 50 feet in length.

### **4.0 Design and Implementation Assumptions**

- The received signal strength of each Locality trunked system at the appropriate tunnel will be sufficient to drive the VRS to reproduce an acceptable level of voice quality in the tunnel roadways. Motorola cannot assure acceptable coverage in the tunnels if the received signal strength of the Localities donor systems is degraded from its current baseline.
- To minimize costs, Motorola will coordinate with VDOT to determine the order in which the Localities in-tunnel systems are installed, optimized, and proven.
- Motorola assumes that the installation of the head-end equipment does not require conduit and can be installed in existing cable trays, attached to existing threaded rods, or strapped to walls above the ceiling tiles.

- Equipment location and cable routing are based on floor plans and information provided at the time of quote. If, during the installation of the equipment or cable runs the head-end cannot be deployed as designed by Motorola, and this affects the coverage, then a change order or modification may be necessary based on a revised quotation.
- The installation price does not include placement of conduit.
- The installation price does not include coring between floors. Motorola will utilize existing risers, as available. Additional risers can be provided through a subsequent Contract Modification.
- The Commonwealth is responsible to provide facility access for Motorola installation supervision and optimization crews, as required.
- The available working hours for the tunnels involved are listed below:
  - Hampton Roads Bridge Tunnel (HRBT) - 10:00 p.m. Sunday to 5:00 a.m. Friday morning (4<sup>th</sup> of July – first business day after the holiday no work can be performed).
  - Monitor/Merrimac Bridge Tunnel (MMMBT) - 7:00 p.m. Sunday to 5:00 a.m. Friday. (4<sup>th</sup> of July – first business day after the holiday no work can be performed).
  - Elizabeth River Midtown Tunnel (ERMT) - 9:30 p.m. Sunday to 5:00 a.m. Friday. Festivals during the summer. VDOT stays in close contact with the cities.
  - Elizabeth River Downtown Tunnel (ERDT) - 9:00 p.m. Sunday to 5:00 a.m. Friday.
- Motorola or its subcontractor will contact Tunnel Representatives by Wednesday of when lane closures are needed for the next week. For in-tunnel coverage demonstrations, sequential lane closure events will be scheduled in advance with VDOT at a tunnel during the night of the demonstration.
- The addition of an Alarm Monitoring feature for the equipment represented in this proposition can be provided through a subsequent Contract Modification.

## **5.0 Coverage Demonstration**

Coverage Demonstration Plan will be developed by Motorola and confirmed by the Commonwealth.

**Attachment B to Modification #14**

**Tidewater Area Localities 800 MHz In-Tunnel Coverage Pricing**

	Monitor / Merrimac Tunnel		Elizabeth River – Midtown Tunnel		Hampton Roads Tunnel		Elizabeth River– Downtown Tunnel	
Two Localities Per Tunnel								
	Labor Cost	Material Cost	Labor Cost	Material Cost	Labor Cost	Material Cost	Labor Cost	Material Cost
Powerwave Documentation; Engineering; and PM	\$4,253.40		\$4,253.40		\$4,253.40		\$4,253.40	
Install two Off-air Pickup antenna systems.	\$4,101.76		\$4,101.76		\$4,101.76		\$4,101.76	
Interface VRS to in-tunnel DAS. Optimize. Lane Closure. Coverage Demonstration. Nighttime labor.	\$34,550.59		\$34,550.59		\$34,550.59		\$34,550.59	
VRS, Combiner, Cabinet, Engineering, in-cabinet optimization.		\$70,934.00		\$70,934.00		\$68,634.00		\$70,934.00
Install and test VR cabinet.	\$5,421.00		\$5,421.00		\$12,338.82		\$5,421.00	
Customer price for XTL 5000		\$5,644.80		\$5,644.80		\$2,822.40		\$5,644.80
PM and engineering.	\$6,500.00		\$6,500.00		\$6,500.00		\$6,500.00	
Additional Crash Trucks for when the Elizabeth							\$3,566.00	

	Monitor / Merrimac Tunnel		Elizabeth River – Midtown Tunnel		Hampton Roads Tunnel		Elizabeth River– Downtown Tunnel	
Downtown tunnel coverage tests occur.								
<b>SUBTOTAL – LABOR AND MATERIALS</b>	<b>\$54,826.75</b>	<b>\$76,578.80</b>	<b>\$54,826.75</b>	<b>\$76,578.80</b>	<b>\$61,744.57</b>	<b>\$71,456.40</b>	<b>\$58,392.75</b>	<b>\$76,578.80</b>
<b>Localities Alarm Monitoring</b>								
Add custom sensors to Localities in-tunnel equipment.		\$ 2,502.87		\$2,502.87		\$2,502.87		\$ 2,502.87
One additional Gateway Module per Tidewater tunnel to support the custom Localities Alarm/Monitoring feature.		\$ 5,877.05		\$5,877.05		\$5,877.05		\$ 5,877.05
Additional system design, documentation, and on-site engineering services in support of adding the custom Alarms / Monitoring services for the Localities equipment in the tunnels.		\$ 3,035.05						
Field Engineering support.	5,348.25		5,348.25		5,348.25		5,348.25	
<b>SUBTOTAL – LABOR AND</b>	<b>\$ 8,383.30</b>	<b>\$ 8,379.92</b>	<b>\$5,348.25</b>	<b>\$ 8,379.92</b>	<b>\$ 5,348.25</b>	<b>\$ 8,379.92</b>	<b>\$ 5,348.25</b>	<b>\$ 8,379.92</b>



	Monitor / Merrimac Tunnel		Elizabeth River – Midtown Tunnel		Hampton Roads Tunnel		Elizabeth River– Downtown Tunnel	
<b>MATERIALS</b>								
<b>GRAND TOTAL – LABOR AND MATERIALS</b>	<b>\$63,210.05</b>	<b>\$84,958.72</b>	<b>\$60,175.00</b>	<b>\$84,958.72</b>	<b>\$67,092.82</b>	<b>\$79,836.32</b>	<b>\$63,741.00</b>	<b>\$84,958.72</b>
<b>Total by Tunnel</b>	<b>\$148,168.77</b>		<b>\$145,133.72</b>		<b>\$146,929.14</b>		<b>\$148,699.72</b>	