

### **1.11 Local Service Support**

In accordance with the System Contract, Motorola may utilize approved third-party contractors to assist in the preparation of the estimates and evaluation of fixed infrastructure and other related system equipment.

### **1.12 Notification and Conditions for Work**

Except as otherwise provided generally under the System Contract, (i) Motorola will notify Licensee's assigned point of contact a minimum of five (5) business days' prior to starting any work on the system, (ii) Motorola will commence work at the designated location only after Licensee has notified Motorola with instructions to proceed, and (iii) whenever possible, will provide notification of required system disruptions in accordance with Licensee's outage request guidelines.

### **1.13 Motorola and Licensee Responsibilities**

#### **Motorola Responsibilities**

Except as otherwise provided generally under the System Contract, Motorola will be responsible for the following:

- Providing a designated Project Manager to coordinate all the resources and work to be performed by Motorola and to be the primary point of contact for Licensee.
- Integrating the detailed project tasks, start and stop dates, task responsibility and status indicators into the existing MS Project schedule.
- Provide Licensee with a copy of the revised MS Project plan and regular updates.
- Scheduling project meetings with Licensee at the project's start, execution of the project contract deliverables and to coordinate ensuing project activities with all Motorola and Licensee resources.
- Providing engineering services in designing the agreed upon deliverables as developed in this proposal.
- Providing Licensee with regular schedule and progress updates.
- Preparing FCC license applications in accordance with the PSEC System Contract.

#### **County of Riverside Responsibilities**

Except as otherwise provided in the System Contract, Licensee will be responsible for the following:

- Provide a signatory who has authority to sign all appropriate project documents required
- If Motorola is required by Licensee to participate in such meetings, participate with Motorola in any potential required meetings with public agencies, and government agencies for the purpose of assessing the equipment and sites.
- Licensee shall not unreasonably delay the execution of work by Motorola and will extend the timeline of the project when delays caused by Licensee are

experienced.

- Licensee shall identify any outstanding Motorola deliverables and formally request their completion through the mutual development of a project punch list.
- Licensee shall grant final acceptance upon completion of all contractual deliverables.
- Licensee is responsible for coordinating with the 700 MHz regional committee to revise the region's 700 MHz plan and to identify Licensee's approved 700 MHz frequency allocation.
- Licensee will provide the list of their allocated 700 MHz frequencies to Motorola for use in the redesign plans for the 700 MHz PSEC radio system. Licensee is responsible for preparing and submitting all 700 MHz license applications and for obtaining the FCC license grants for the 700 MHz frequencies utilized in Motorola's design.

#### 1.14 Risks

Motorola is committed to identifying and mitigating risk where possible, and will collaborate with Licensee to consider the options and establish a mutually agreeable solution.

The following risk issues have been identified in regards to planning for the conversion of the PSEC radio system from 800 MHz to 700 MHz operation.

1. As noted, the predicted (and actual) coverage for the 700 MHz PSEC radio system may not be directly comparable with that of the PSEC radio system as an 800 MHz system. Due to differences between operating characteristics of the 800 MHz and 700 MHz hardware, the site changes that have occurred since February 2008, as well as propagation differences between the two bands, both predicted and actual coverage for the two systems will differ. The effort to review and address concerns Licensee may have with the 700 MHz coverage design, including with respect to System Contract performance specifications, is unknown but may result in cost and schedule impact.
2. Depending on the final antenna designs, there may be an impact on optimal tower design if any of the size, type, configuration or specifications (including the wind loading characteristics for the specified 700 MHz antennas) are sufficiently different from the proposed 800 MHz antennas. This could result in the need to redesign the tower which could have an impact on the foundation design which could further impact the site layout. The use of an antenna that has similar wind loading characteristics as the proposed 800 MHz, may solve the tower loading issue, but could adversely affect the system coverage prediction. The investigation and resolution of these issues may result in a cost and schedule impact
3. The results of the coverage and interference analysis for 700 MHz may result in having to reassign frequencies and the revision of the frequency reuse analysis. A review of the frequency re-use plan after the coverage and

interference analysis is a normal step in the design process and some time has been included in the estimates to accommodate this. However, depending on the severity of any issues surfaced during the coverage and interference analysis, a more significant investigation may be required. The additional time associated with this will be addressed via the change order process.

4. Some numbers of Low Power Television (LPTV) stations in Riverside County, continue to operate in the 700 MHz spectrum now allocated to Licensee for operation of the 700 MHz PSEC radio system. It is not practical or useful to perform the planned spectrum interference measurements and noise floor monitoring in the areas of the county affected by the operation of the LPTV stations. Because the LPTV stations are not required to cease transmissions until a public safety agency is licensed and prepared to commence operations on the impacted frequencies, it is not reasonable to expect that this work can be completed in the timeframe necessary to maintain the current schedule for implementation of the PSEC radio system. Consistent with the primary goal of avoiding delay of PSEC radio system implementation as a result of re-engineering the system to 700 MHz operation, Motorola will perform the level of inter-modulation and interference studies feasible under the present conditions, complete the system design, and prepare to place the equipment order in the time frame necessary to maintain the System Contract project implementation schedule. As soon as practical after the LPTV stations cease operation, Motorola will perform the spectrum interference measurements and noise floor monitoring to identify any hidden interference that may be present. Depending on the results of the interference analysis, the resolution for any resulting interference issues could include, but not be limited to, one or more of the following:

- No action required
- Re-tune combiners
- Modify or enhance filtering
- Change antennas
- Revise the frequency re-use plan and coverage design
- Re-conduct coverage testing

Because the range of impact is so broad and the potential solutions so undefined, if interference becomes an issue, it will be identified and resolved through the change order process.

Because these risks are the result of the conversion to 700 MHz, Motorola expects that except to the extent that Motorola shall have failed to perform its contractual obligations, the costs for resolving these issues will be the responsibility of others and can be addressed through the change order process.

#### **1.14 County of Riverside Design Review**

Upon submission of Motorola's reengineering plan to Licensee, a certificate of acceptance document will be provided for customer signature (see reference document attached). This certificate acknowledges that all the effort required under this SOW in identifying the detailed requirements and plans to redesign the previously planned 800 MHz PSEC radio system to a 700 MHz system as described in this SOW has been completed.

## 2.0 Rough Order of Magnitude (ROM) Estimate Planning

### 2.1 Introduction

The planning required to develop the Rough Order of Magnitude (“ROM”) estimates described below include the effort necessary to identify the products (including equipment and software) and services that will be affected by the PSEC radio system change to 700 MHz and to develop the ROM estimate of the incremental cost differential to provide the appropriate products and services to implement that 700 MHz system.

### 2.2 Scope

The following items have been identified as requiring review related to the impact of converting the PSEC radio system to 700 MHz operation and are included in the ROM estimate planning activities:

1. Estimated time needed to collaborate with Licensee in the ROM planning
2. Estimated effort required to identify possible types and quantities of equipment affected by the change to 700 MHz
3. Estimated effort required to identify potential change in services required to implement the changes in equipment
4. Estimated effort required to estimate the incremental pricing differentials for affected equipment and services
5. Estimated time needed to communicate with Nextel and answer questions or provide information related to the ROM planning
6. Estimated effort required to identify contingency issues
7. Estimated effort required to identify risk issues

The estimates for these items appear in the following table:

### Vendor Table

Planning Cost Category/Tasks	Hours	Labor Rate	Cost (Hrs x Rate)	Expenses	Vendor Name
Rough Order of Magnitude Estimate Planning					
Communication with Riverside County	64	\$190.00	\$12,160.00		
Identify impacted hardware and incremental cost differentials	36	\$190.00	\$6,840.00		Motorola
Prepare ROM SOW	80	\$190.00	\$15,200.00		Motorola
Total Vendor Cost			\$34,200.00	N/A	

### 2.3 Contingency Items

Because the necessary engineering and implementation planning has not yet been completed, it is not possible accurately to define all the information necessary to develop a precise scope of work and firm fixed quotation for providing the products and services to convert the PSEC radio system to 700 MHz operation. The items below have some level of uncertainty and have been identified as contingency issues. As information becomes available to clarify the scope of these issues, any resulting changes will be addressed through the change order process.

1. Type and quantity of specific antenna models to be provided at both voice and data RF sites.
2. Impact to tower design and documentation resulting from potential antenna changes
3. The Distributed Amplifier Systems (DAS) required to provide in-building coverage for Licensee's High Priority Buildings need to support both Licensee's 800 MHz inter-operability and mutual aid channels as well as the 700 MHz PSEC radio system. In order to accomplish this, the DAS systems will require some level of additional 700 MHz hardware which is identified in the ROM Equipment Table in Section 3.0. The design work for the DAS systems will not be performed until the 700 MHz PSEC radio system has been installed and the required sites are operational. The DAS system design and configuration is undefined at this time, and the specific system changes resulting from the 700 MHz re-design will be identified when the design is complete. The related costs therefore cannot be reasonably estimated at this time, and so no costs associated with the DAS re-design for 700 MHz have been included in the ROM summary cost table. Motorola is identifying these potential changes to the DAS as contingent cost impacts to be addressed via the change order process when the scope of the design change can be determined.
4. If the PSEC radio system RF coverage design resulting from the 700 MHz re-design is not accepted by Licensee, the nature and extent of efforts required to resolve Licensee's concerns will depend in part upon Licensee's system testing and therefore cannot be reasonably estimated at this time. The appropriate solutions could range from changes in antennas to the need to relocate or add a site or sites which could include but would not be limited to the following:
  - Management and engineering costs associated with the new site selection which would be incurred by both Licensee and Motorola
  - Costs incurred by Licensee for site acquisition.
  - Site engineering and construction costs including shelter and tower incurred by Motorola
  - RF engineering costs incurred by Motorola
  - Equipment and Equipment installation costs incurred by Motorola
  - Optimization, testing and documentation costs incurred by Motorola

Motorola is identifying these potential changes as contingent cost impact items to be

addressed via the change order process if they occur and when the scope of the resolution can be determined.

5. The potential effort required to reprogram PSEC radios as a result of rebanding changes to the inter-operability and mutual aid channels that occur after the PSEC radios have been placed in initial operation.

## **2.4 Interoperability and Mutual Aid**

Licensee is taking responsibility for the implementation for the re-banding requirements related to inter-operability and mutual aid equipment. No provisions have been made in this SOW for any equipment or service associated with interoperability or mutual aid operations.

### 3.0 Rough Order of Magnitude (ROM) Equipment Impact Estimate

The following table identifies equipment that will be affected by the conversion of the PSEC radio system to 700 MHz operation. Prices shown do not include applicable sales taxes, which will be part of total Licensee costs for which Nextel funding is sought.

ROM EQUIPMENT TABLE								
No.	Item	700 MHz Equipment Manufacturer and Model Number	800 MHz Unit Contract Price	700 MHz Unit Contract Price	Price Difference	Qty.	Extended Contract Price Difference	Comments
1	RF Site Combiners	MOTOROLA T7054: GTR 8000 EXPANDABLE SITE SUB- SYSTEM - CA00879AA: PRIMARY 6 PORT CAVITY COMBINER	\$ 5,200.00	\$ 6,720.00	\$ 1,520.00	98	\$ 148,960.00	Change affects Simulcast sites
2	Control Station Combiners	BIRD TECHNOLOGIES 43- 83G-01-08: CONTROL STATION COMBINER 746-869 MHz	\$ 21,504.80	\$ 12,475.20	\$ (9,029.60)	3	\$ (27,088.80)	Control station combiners for Alessandro Dispatch center and the Ben Clark training center.
3	Control Station Combiner Duplexers	BIRD TECHNOLOGIES 26- 83B-10A: DUPLEXER FOR 762- 776/792-806 MHz	\$ -	\$ 1,813.60	\$ 1,813.60	3	\$ 5,440.80	An external duplexer is required for the 700 MHz control station combiner
4	Data Modem Duplexers for Fire Stations	TELEWAVE INC TMND7616: COMPACT MOBILE DUPLEXER	\$ 336.00	\$ 332.80	\$ (3.20)	103	\$ (329.60)	
5	Data Modem Duplexers for Vehicles	TELEWAVE INC TMND- 7616: COMPACT MOBILE DUPLEXER	\$ 336.00	\$ 332.80	\$ (3.20)	995	\$ (3,184.00)	
6	Control Station Antennas	AMPHENOL ANTEL INC. 7825700: MULTI BAND OMNI ANTENNA, 2.5 DBI GAIN	\$ 395.20	\$ 307.20	\$ (88.00)	80	\$ (7,040.00)	
7	Data Antennas for Fire Stations	AMPHENOL ANTEL INC. 7825700: MULTI BAND OMNI ANTENNA, 2.5 DBI GAIN	\$ 395.20	\$ 307.20	\$ (88.00)	101	\$ (8,888.00)	
8	170 Voice RF Site Antennas	See 700 MHz Antenna Table	\$ 241,782.40	\$ 569,839.69	\$ 328,057.29	1	\$ 328,057.29	See Note 2
9	54 Data RF Site Antennas	See 700 MHz Antenna Table	\$ 77,619.20	\$ 104,313.38	\$ 26,694.18	1	\$ 26,694.18	See Note 2
Total							\$ 462,621.87	



**Voice and Data Antenna Table**

Total Qty	Antenna Vendor	Antenna	700 Mhz			Mounting Kit Sprint Discount Price	Mounting Kit Sprint Extended Discount Price	Total Sprint Extended Discount Price
			Unit Contract Price	Sprint Discount Unit Price	Sprint Discount Price			
30	Antel	BCD-7509-3-25	\$1,616.80	\$ 1,515.75	\$ 45,472.50	\$ 99.00	\$ 2,970.00	\$ 48,442.50
6	Antel	BCD-7509-5-25	\$1,644.80	\$ 1,542.00	\$ 9,252.00	\$ 99.00	\$ 594.00	\$ 9,846.00
3	Antel	BCR-7009-90-0-750MHZ	\$1,848.80	\$ 1,733.25	\$ 5,199.75	\$ 246.75	\$ 740.25	\$ 5,940.00
3	Antel	BCR-75012-0	\$1,762.40	\$ 1,652.25	\$ 4,956.75	\$ 246.75	\$ 740.25	\$ 5,697.00
2	Antel	BCR-75012-5	\$1,833.60	\$ 1,719.00	\$ 3,438.00	\$ 246.75	\$ 493.50	\$ 3,931.50
7	RFS	BPS10-A	\$4,701.60	\$ 4,407.75	\$ 30,854.25	\$ -	\$ -	\$ 30,854.25
6	RFS	BPS10-H	\$4,586.40	\$ 4,299.75	\$ 25,798.50	\$ -	\$ -	\$ 25,798.50
3	RFS	BPS10-O	\$4,701.60	\$ 4,407.75	\$ 13,223.25	\$ -	\$ -	\$ 13,223.25
2	Andrew	DB844H90E-A 770H_ODG	\$989.60	\$ 927.75	\$ 1,855.50	\$ -	\$ -	\$ 1,855.50
20	Andrew	DB878H120E-A 770	\$1,980.00	\$ 1,856.25	\$ 37,125.00	\$ -	\$ -	\$ 37,125.00
5	Antel	LPA-75040-4CF-3	\$1,527.20	\$ 1,431.75	\$ 7,158.75	\$ 134.25	\$ 671.25	\$ 7,830.00
2	Antel	LPA-75063-4CF	\$1,036.80	\$ 972.00	\$ 1,944.00	\$ 134.25	\$ 268.50	\$ 2,212.50
11	Sinclair	SC412-HF2LDF(D02-E5608) 0746	\$5,834.40	\$ 5,469.75	\$ 60,167.25	\$ 957.00	\$ 10,527.00	\$ 70,694.25
14	Sinclair	SC412-HF2LDF(D04-E5608) 0746	\$5,834.40	\$ 5,469.75	\$ 76,576.50	\$ 957.00	\$ 13,398.00	\$ 89,974.50
29	Sinclair	SC412-HF2LDF_0746	\$5,090.40	\$ 4,772.25	\$ 138,395.25	\$ 957.00	\$ 27,753.00	\$ 166,148.25
3	Sinclair	SE419-SF3PALDF_A=060 0746	\$2,948.00	\$ 2,763.75	\$ 8,291.25	\$ -	\$ -	\$ 8,291.25
4	Sinclair	SE419-SF3PALDF_A=130 0746	\$2,948.00	\$ 2,763.75	\$ 11,055.00	\$ -	\$ -	\$ 11,055.00
2	Antel	WPA-750102-4CF-9	\$1,276.80	\$ 1,197.00	\$ 2,394.00	\$ 45.00	\$ 90.00	\$ 2,484.00
1	Antel	WPA-750120-8CF-0	\$1,767.20	\$ 1,656.75	\$ 1,656.75	\$ 42.19	\$ 42.19	\$ 1,698.94
3	Antel	WPA-75063-6CF-0	\$1,470.40	\$ 1,378.50	\$ 4,135.50	\$ 67.50	\$ 202.50	\$ 4,338.00
4	Antel	WPA-75080-4CF-0	\$1,172.00	\$ 1,098.75	\$ 4,395.00	\$ 45.00	\$ 180.00	\$ 4,575.00
6	Antel	WPA-75090-8CF-0	\$1,767.20	\$ 1,656.75	\$ 9,940.50	\$ 45.00	\$ 270.00	\$ 10,210.50
4	Antel	WPA-75063-8CF-3-25	\$1,982.40	\$ 1,858.50	\$ 7,434.00	\$ 45.00	\$ 180.00	\$ 7,614.00
<b>Total</b>	<b>170</b>				<b>\$ 510,719.25</b>		<b>\$ 59,120.44</b>	<b>\$ 569,839.69</b>
<b>700 MHz HPD</b>								
14	Antel	DQBCD7509EDIN	\$1,363.20	\$ 1,278.00	\$ 17,892.00	\$ 99.00	\$ 1,386.00	\$ 19,278.00
10	Antel	BCD-7509-3-25	\$1,616.80	\$ 1,515.75	\$ 15,157.50	\$ 99.00	\$ 990.00	\$ 16,147.50
8	Antel	BCD-7509-5-25	\$1,644.80	\$ 1,542.00	\$ 12,336.00	\$ 99.00	\$ 792.00	\$ 13,128.00
2	Antel	BCR-75012-5	\$1,833.60	\$ 1,719.00	\$ 3,438.00	\$ 246.75	\$ 493.50	\$ 3,931.50
2	RFS	BPS10-A	\$4,701.60	\$ 4,407.75	\$ 8,815.50	\$ -	\$ -	\$ 8,815.50
4	RFS	BPS10-D	\$4,590.40	\$ 4,303.50	\$ 17,214.00	\$ -	\$ -	\$ 17,214.00
2	Antel	LPA-70063-4CF-6-752MHZ	\$1,442.40	\$ 1,352.25	\$ 2,704.50	\$ 134.25	\$ 268.50	\$ 2,973.00
4	Antel	LPA-75040-4CF-9	\$1,669.60	\$ 1,565.25	\$ 6,261.00	\$ 134.25	\$ 537.00	\$ 6,798.00
2	Sinclair	SE419-SF3PALDF_A=130 0746	\$2,948.00	\$ 2,763.75	\$ 5,527.50	\$ -	\$ -	\$ 5,527.50
2	Sinclair	SE419-SF3PALDF_A=60 0746	\$2,948.00	\$ 2,763.75	\$ 5,527.50	\$ -	\$ -	\$ 5,527.50
2	Antel	WPA-750102-4CF-3-25	\$1,387.20	\$ 1,300.50	\$ 2,601.00	\$ 45.00	\$ 90.00	\$ 2,691.00
2	Antel	WPA-750120-4CF-0	\$1,172.00	\$ 1,098.75	\$ 2,197.50	\$ 42.19	\$ 84.38	\$ 2,281.88
<b>Total</b>	<b>54</b>				<b>\$ 99,672.00</b>		<b>\$ 4,641.38</b>	<b>\$ 104,313.38</b>

**Notes:**

1. Pricing for the Distributed Amplifier System (DAS) components are estimates that are provided for reference, and may vary based upon the final system design. The final DAS designs will not be performed until the PSEC system is operational and the actual signal strength data is available and can be incorporated into the design. The number and configuration of the DAS systems required will not be known until after the final design work is accomplished and therefore, the actual DAS cost impact cannot yet be identified. DAS cost changes related to the conversion to 700 MHz will be addressed through the change order process.

Functionality	Manufacturer		Incremental Cost	Comments
Provide dual frequency operation to single zone coaxial based Distributed Amplifier System (DAS)	ANDREW INC.		\$ 24,000.00	Contract requires 800 MHz mutual aid channel operation in High Priority Buildings
Provide dual frequency operation to a 2 zone fiber based Distributed Amplifier System (DAS)	ANDREW INC.		\$ 28,000.00	Contract requires 800 MHz mutual aid channel operation in High Priority Buildings
Add dual frequency operation per zone for each zone exceeding 2	ANDREW INC.		\$ 8,000.00	

2. Pricing for the 700 MHz Voice and Data System antennas, items 8 and 9 in the ROM Equipment Table, is a special one time discounted price negotiated with Nextel as a condition for obtaining their approval of the Agreement. For the purpose of establishing future pricing for this equipment as described in Section 4.2 of the System Contract, the System Contract unit price in the Voice and Data Antenna Table will be used.

**EXHIBIT D**

**RECONFIGURATION ACCEPTANCE CRITERIA**

## RECONFIGURATION ACCEPTANCE CRITERIA

### PLANNING PHASE

Deliverables and the applicable acceptance criteria for the Planning Phase of the System Reconfiguration are identified in the following table:

DELIVERABLE	ACCEPTANCE CRITERIA	SCHEDULED COMPLETION
Final 700 MHz frequency re-use plan	Submit 700 MHz frequency re-use plan to Licensee; obtain approval	Complete
A 700 MHz voice coverage analysis including inbound and outbound multi-layered coverage maps detailing portable on street, portable in building (+ 10 & 20 dB). A 700 MHz mobile coverage analysis for inbound and outbound. Portable and mobile maps are based on DAQ 3.4 at 95% Reliability over area shown as covered in the applicable "Coverage Prediction Maps" under the System Contract using a portable radio worn at hip level used outdoors on-street, measured using applicable test procedures under the System Contract A 700 MHz High Performance Data coverage analysis including inbound and outbound coverage maps.	Submit 700 MHz voice and data coverage analysis and Coverage Prediction Maps to Licensee and obtain approval	Complete
700 MHz combiner requirements	Submit RF Coverage Parameter Spreadsheet for PSEC System 700 MHz voice, and 700 MHz data systems to Licensee	Complete
700 MHz antenna requirements	Submit RF Coverage Parameter Spreadsheet for PSEC System 700 MHz voice, and 700 MHz data systems to Licensee	Complete
Identification of changes in antenna locations on towers	Submit RF Coverage Parameter Spreadsheet for PSEC System 700 MHz voice, and 700 MHz data systems to Licensee	Complete
Develop 700 MHz inter-modulation and interference plan and input data	Submit Plan to Licensee	Complete
Vehicle antenna system design	Submit vehicle antenna design to Licensee and obtain approval	Complete
Revised Rack face drawings for the Voice and Data Sites	Submit revised site rack face drawings to Licensee	Complete
FCC License Application Engineering Studies for Data Sites	Submit and Review 700 MHz Interference Contour maps (Longley-Rice and Okumura) with Licensee for 27 Data Sites	Complete

**IMPLEMENTATION PHASE**

Deliverables and the applicable acceptance criteria for the Implementation Phase of Licensee 700 MHz Reconfiguration are identified in the following table:

<b>DELIVERABLE</b>	<b>ACCEPTANCE CRITERIA</b>	<b>SCHEDULED COMPLETION</b>
The purchase and delivery of 700 MHz products as Identified in the Statement of Work to reconfigure the voice and data systems for 700 MHz operation	Deliver products to Licensee in accordance with System Contract requirements for "Equipment" delivery and provide an inventory	July 2011
Provide In accordance with the Statement of Work, a preliminary distributed amplifier system design to include 700 MHz operation for the PSEC System. Prepare and submit a change order for the purchase of the 700 MHz components identified in the design.	Approval of the change order by Licensee	February 2012

**FOURTH AMENDMENT TO THE  
PUBLIC SAFETY ENTERPRISE COMMUNICATION  
SYSTEM AGREEMENT**

This Fourth Amendment (this "Amendment") to the Public Safety Enterprise Communication System Agreement (the "Agreement") by and between the County of Riverside, California (the "County") and Motorola, Inc., a Delaware corporation with a principal place of business at 6450 Sequence Drive, San Diego, California ("VENDOR") is effective as of date this Amendment becomes fully executed by the parties to the Agreement (the "Amendment Effective Date"), which date shall be confirmed in writing by Notice of the County as the second party to execute this Amendment. Capitalized terms not otherwise defined in this Amendment will have the meanings assigned to them in the Agreement.

In consideration of the mutual promises and covenants contained herein, the parties agree as follows:

**Section 1. Definitions**

- a. Article I of the Agreement is hereby amended to add a new Section 1.7 as follows:

**Section 1.7 700 MHz Change Supplemental Definitions.**

- a. **"700 MHz Change"** means the re-engineering and related implementation of such modifications of the System to convert the System from its contemplated operation as an 800 MHz radio system to operation on 700 MHz replacement frequencies as described in the RPIA SOW and performance in accordance with the terms and specifications of this Agreement.
- b. **"700 MHz Change Effective Date"** means the date the Fourth Amendment becomes fully executed by the parties to the Agreement but no earlier than immediately following the effectiveness of the RPIA, which date shall be confirmed in writing by Notice of the County as the second party to execute the Fourth Amendment.
- c. **"700 MHz Change Equipment"** means the Equipment (including all purchases of non-Software products that are made through the RPIA) that is part of the 700 MHz Change.
- d. **"700 MHz Change Equipment, Software and Services"** means the Equipment, Software and Services (including all purchases made through the RPIA) that are part of the 700 MHz Change, without distinguishing between Equipment, Software and Services provided by VENDOR hereunder and so-called "products" and "services" provided to the County under the RPIA (all of which products are deemed to be Equipment or Software under the Agreement), regardless of the extent to which a portion of the 700 MHz

**Change Combined Contract Price for any such product may fall outside the Total Contract Price and be payable under the RPIA.**

- e. **"700 MHz Change Contract Price"** means, at any date, the aggregate expenditures of the County (excluding sales and similar taxes) other than for items already included in the Total Contract Price on the Amendment Effective Date to be paid to VENDOR under this Agreement (not including any portion of the RPIA Contract Price) for the 700 MHz Change projected through the scheduled Term of this Agreement, which as of the 700 MHz Change Effective Date is an amount equal to zero.
  - f. **"700 MHz Change Combined Contract Price"** means the sum of the 700 MHz Change Contract Price and the then current RPIA Contract Price.
  - g. **"Fourth Amendment"** means the Amendment to this Agreement approved at the Feb. 2011 meeting of the County Board of Supervisors and providing for, among other things, terms and conditions of this Agreement related to the 700 MHz Change.
  - h. **"FRA"** means the Frequency Reconfiguration Agreement between the County and Nextel with respect to the 700 MHz Change.
  - i. **"Nextel"** means Nextel Communications, Inc. and any other affiliate of and including Sprint Nextel Corporation, as well as permitted successors and assigns of Nextel's obligations under the FRA.
  - j. **"Parties"** means VENDOR and the County as the parties to this Agreement.
  - k. **"RPIA"** means the Reconfiguration Planning and Implementation Agreement dated as of \_\_\_\_\_ between the County and VENDOR.
  - l. **"RPIA Contract Price"** means at any date the then current "Contract Price" as defined in the RPIA.
  - m. **"RPIA Installment Payment"** means a payment associated with a milestone described in Exhibit A to the RPIA.
  - n. **"RPIA SOW"** means at any date Exhibit A to the Fourth Amendment, as modified by the Parties as of such date.
- b. In connection with effecting the 700 MHz Change, certain provisions of the Agreement that anticipated operation of the System on 800 MHz radio frequencies (or a possible partial or eventual operation of the System on 700 MHz radio frequencies but not in the manner implemented by this Amendment or future similar amendments) have become obsolete, unnecessary or inconsistent with the express intentions of this Amendment. Therefore, as a general matter, references in this Agreement that suggest that it will operate on 800 MHz frequencies are deemed modified to conform to the design and operational changes expressly described or clearly implied by this Amendment (as it may be superseded by subsequent relevant amendments to the Agreement). Additionally, any provisions predicting or contemplating 700 MHz operation of the System but inconsistent with the actual elements of the 700 MHz Change that the County and VENDOR have expressly adopted are also deemed overridden. Any technical references to "800 MHz" that should as a consequence

refer to "700 MHz" to reflect the reality of the 700 MHz Change are also deemed so modified. These modifications are effective on the 700 MHz Change Effective Date, absent manifest error that would result from such modifications. This Section 1(b) applies only to the terms and conditions of the Agreement as in effect immediately prior to the 700 MHz Change Effective Date. Notwithstanding the foregoing, the County and VENDOR may from time to time jointly identify exceptions or clarifications of the above general rules. Such express exceptions or clarifications are not intended to imply that they represent an exclusive list or are the most material provisions that might be expressly addressed in a similar manner, and initially include: (1) the references on page 12 of Attachment CHT to "806 MHz" and "821 MHz" are not affected by this Section 1(b), (2) the reference on page 3 of Attachment RQI to "800 MHz" is not affected by this Section 1(b), (3) Annex II to Attachment SPC (formerly the content of Annex I to Attachment SPC) is not affected by this Section 1(b).

### **Section 2. Conditions Precedent to Amendment Effectiveness**

This Amendment shall neither be binding nor effective unless and until it shall have been approved by the County Board of Supervisors (the "Board") and executed by the Board's Chairman.

### **Section 3. Purchase and Sale**

- a. VENDOR's products and services provided to the County under the RPIA shall be deemed also to be provided under the Agreement except as otherwise expressly set forth in the Agreement (including as amended by this Amendment). VENDOR's delivery of products and services under the RPIA will also constitute delivery of the same Equipment, Software and Services under and subject to the Agreement (other than to create any obligation of the County to pay any portion of the RPIA Contract Price as consideration for such Equipment, Software and Services) without duplication.
- b. The 700 MHz Change Combined Contract Price as of the 700 MHz Change Effective Date includes the Equipment, Software and Services set forth in the RPIA SOW for and related to the 700 MHz Change, as well as subsumes the cost to the County of all documentation described in the RPIA SOW. The RPIA SOW shall be modified by Change Order effective as and when any modification or waiver of the RPIA's "Statement of Work" becomes effective (including any modification or waiver of an RPIA definition or other term that affects the interpretation of the RPIA's Statement of Work).
- c. Based upon the assumptions stated in the RPIA SOW, VENDOR confirms that it has used commercially reasonable efforts to identify in the RPIA SOW the reasonably foreseeable circumstances that could result in increasing the price of the 700 MHz Change. With the understanding that the County shall not use the following statement in support of any claim against VENDOR, VENDOR confirms that it has applied the expertise and experience it has in related matters (including as a vendor in contracts with 800 MHz licensees subject to FCC-mandated rebanding and contemplating reimbursement to the County for timely noticed and properly submitted expenses by Nextel for the incremental costs to the County arising from the 700 MHz Change) to advise the County and develop and include in the RPIA SOW assumptions and contingencies that address the reasonably foreseeable



circumstances that might arise in the course of the County's pursuing the 700 MHz Change in the County's current circumstances as it builds out the System.

#### **Section 4. 700 MHz Change Pricing**

- a. As of the 700 MHz Change Effective Date, VENDOR is not entitled to bill the County under the Agreement for any portion of the 700 MHz Change Combined Contract Price. To the extent that there is included in the Total Contract Price for any reason an amount for which reimbursement from Nextel may be sought, VENDOR shall provide the same extent of cooperation to the County in pursuing such expense as would have been required under the RPIA had such expense arisen thereunder as part of the RPIA Contract Price.
- b. If the County cancels a product or service that is the subject of a pending order under the RPIA, it may purchase such products or services under the Agreement without liability for such canceled order. The cost of such products will be consistent with this Section 4. The County may purchase additional 700 MHz Change Equipment under the Agreement. The pricing of such equipment shall initially be the pricing set forth in the RPIA SOW under the column "700 MHz Unit Contract Price", which reflects a discount percentage on such items equal to the discount applied to the same corresponding elements of the initial System in Attachment PRC on the Effective Date. VENDOR will hold firm the dollar (including dollar per unit) pricing of the 700 MHz Change Equipment for two years after Acceptance for Payment of the initial System. During such period and thereafter, VENDOR pricing offered to the County shall in any event be no higher for any item than pricing based upon no less a percentage discount than the percentage discount off the Motorola published pricing in its Electronic Catalog U.S. Domestic version on the date of any subsequent purchase order. The firm fixed percentage discount will be determined by the product categories listed in the PRC and shall be equal to the percentage discount for each product category in Attachment PRC, which shall be clearly indicated in Attachment PRC.
- c. Any authorization or acceptance issued by the County to allow VENDOR to receive a RPIA Installment Payment shall not in any manner or respect act as evidence of the County's acceptance or authorization of any payment for or the satisfaction of any term or condition regarding any Equipment, Software, or Services under the Agreement.

#### **Section 5. General Release**

Payment of all or a part of the 700 MHz Change Combined Contract Price as payment of RPIA Contract Price under the RPIA shall not affect any rights the County may have under Section 5.4 of the Agreement.

#### **Section 6. Coverage Prediction Maps**

In connection with the 700 MHz Change, the Coverage Prediction Maps for the System have been updated to reflect Site locations and 700 MHz frequency operation contemplated as of the 700 MHz Change Effective Date. Those Coverage Prediction Maps replace the previous version of those maps (the "800 MHz Design Maps") contemplating 800 MHz operation of the System and based

upon now out-of-date Site information. The 800 MHz Design Maps will be retained under a new Annex II to Attachment SPC, but will have no operative effect in the Agreement other than as a record of historical coverage predictions. The only purpose for retaining the 800 MHz Design Maps is that at the County's discretion, it may use them (prior to or in the absence of the generation of any such maps that reflect Site location information more recent than that used in preparing the 800 MHz Design Maps) in discussions with Nextel concerning the predicted System coverage that would have been provided using 800 MHz frequencies.

**Section 7. Delay**

Delay affecting the 700 MHz Change shall generally be addressed as provided in Section 7.1 of the Agreement, including as it may relate to any 700 MHz Change Equipment, Software or Services, whether they arise under the RPIA (except, with respect to matters arising solely under the RPIA, as otherwise expressly provided in Section 4.1 of the RPIA).

At the County's election, any additional compensation pursuant to Section 7.1 with respect to the 700 MHz Change shall, at the sole discretion of the County and except as otherwise provided in Section 4.1 of the RPIA, be payable to Motorola by means of a change order under the RPIA rather than a Change Order under the Agreement so that the County may also initiate a change notice to Nextel under the FRA providing for such compensation to be paid by Nextel. If Nextel rejects such change order or does not approve it within six months, then the additional compensation pursuant to Section 7.1 will be payable under the Agreement and not under the RPIA.

**Section 8. Records**

VENDOR'S obligation to keep and maintain records in accordance with Section 5.3 of the Agreement shall include all records with respect to the County's purchase of 700 MHz Change Equipment, Software and Services, whether payment therefore is made under the Agreement or pursuant to the RPIA. In connection with the 700 MHz Change, VENDOR shall submit documentation and justification in support of expenditures or fees comprising the 700 MHz Change Combined Contract Price as may be required by the County as and to the same extent and subject to the same conditions as are set forth in Section 5.2 of the Agreement with respect to such matters under this Agreement.

**Section 9. Title and Risk of Loss**

For purposes of Article 18 of the Agreement, the 700 MHz Change Equipment, Software and Services shall be deemed to have been provided under the Agreement.

**Section 10. Taxes**

Taxes with respect to 700 MHz Change Equipment, Software and Services shall be subject to Article 21 of the Agreement, with the applicable tax payments allocated to the RPIA with respect to the taxable portion of the RPIA Contract Price.

**Section 11. Product Warranties**

Article 13 of the Agreement is hereby amended to add a new Section 13.12 as follows:

**Section 13.12. 700 MHz Change Warranties.** For purposes of the warranties under this Article 13, the 700 MHz Change Equipment, Software and Services (other than "Reconfiguration Implementation Planning Services" under the RPIA, a warranty with respect to which is provided thereunder) shall be deemed to be subject to such warranty provisions, whether or not the Total Contract Price includes the full cost of such Equipment, Software and Services.

**Section 12. Representations and Warranties**

VENDOR represents and warrants to the County with respect to the 700 MHz Change that:

- (a) the execution, delivery and performance of this Amendment by VENDOR and performance under the Agreement and the RPIA with respect to the 700 MHz Change will not violate any property rights, agreement, document, instrument, order, judgment or Law binding upon VENDOR or any of its property; and
- (b) VENDOR has committed the necessary resources to provide the 700 MHz Change Equipment, Software and Services in a timely manner pursuant to this Agreement.

**Section 17 Amended Attachments.**

- a. The RPIA SOW is hereby adopted as an addendum to Attachment SOW.
- b. Attachment MHZ to the Agreement is hereby amended and restated in its entirety in the form of Attachment MHZ included under Exhibit B hereto.
- c. Annex I to Attachment SPC to the Agreement is hereby amended and restated in its entirety in the form of the Annex I included under Exhibit C to this Amendment, and the content of Annex I to Attachment SPC that is being replaced in such restatement is hereby designated as Annex II to Attachment SPC.

**Section 18. 700 MHz Re-Engineering Documentation**

- (a) In connection with the FCC-mandated 800 MHz "rebanding" of public safety radio systems that requires reconfiguration of such systems to operate on alternative frequencies (the "Rebanding Program"), the County and VENDOR are executing the RPIA. The RPIA is not an amendment of the Agreement, but rather a free-standing contract intended to comply with such requirements of the Rebanding Program as set forth in the FRA and other related documents.
- (b) None of the Agreement, this Amendment or any other amendment of the Agreement shall be deemed to modify the RPIA unless the intent to do so is expressly stated therein. Neither the RPIA nor any amendment thereof shall have the effect of modifying, amending or waiving any provision of this Agreement.

**Section 19. Survival**

Any provision of this Amendment which contemplates performance or observance subsequent to the termination of the Agreement or the expiration of the Term, including any renewals or extensions thereof, shall survive and continue in full force and effect.

**Section 20. Governing Law**

This Amendment shall be governed by and interpreted in accordance with the laws of the State of California.

**Section 21. No Waiver**

Nothing in this Amendment shall constitute a waiver of any of the rights or obligations under the Agreement of the Parties except as expressly set forth herein. No modification, amendment, supplement to or waiver of this Amendment or any of its provisions shall be binding upon the Parties unless made in writing and duly signed by the Party against whom enforcement is sought. A failure or delay of either Party to enforce at any time any of the provisions of this Amendment or the Agreement as amended at any date or to exercise any option which is herein provided or to require at any time performance of any of the provisions hereof, shall in no way be construed to be a waiver of such provision of the Amendment or of the Agreement.

**Section 22. Incorporation by Reference**

The following documents, attached hereto or included under Exhibits hereto, are hereby incorporated by reference into and made a part of this Amendment with the same force and effect as though set forth in their entirety in this Amendment:

- Exhibit A*      *RPIA SOW*
- Exhibit B*      *Attachment MHZ*
- Exhibit C*      *Annexes I and II to Attachment SPC*

IN WITNESS WHEREOF, the parties have entered into this Amendment as of the Amendment Effective Date.

COUNTY OF RIVERSIDE, CALIFORNIA

By Bob Buster  
Date FEB 15 2011

Name: Bob Buster  
Title: Chairman, Board of Supervisors

ATTEST:  
KECIA HARPER-IHEM, Clerk  
By [Signature]  
DEPUTY

FORWARDED APPROVED COUNTY COUNSEL  
BY: [Signature]  
NEAL R. KIPNIS DATE

MOTOROLA, INC.

By Gregory I. Praff  
Date Nov. 30, 2010

Name: GREGORY I. PRAFF  
Title: Nat'l Rebanding, Mgr.



**(REPRINTED AS EXHIBIT A TO AMENDMENT #4)**

**EXHIBIT C**

**STATEMENT OF WORK**



**Planning Summary Cost Table**

Summary of Planning Costs					
Summary Cost Category	Name of Internal and Vendor Service Provider(s)	Total Internal Costs (Not to Exceed)	Total Vendor Costs (Not to Exceed/Firm Fixed price)	Total Actual Expenses to Date	Grand Total
Spectrum analysis planning and data input worksheets for inter-modulation study must be redone	Motorola		\$30,400.00	\$750.00	\$31,150.00
Engineering and Implementation Planning, Site Re-design for 700 MHz, Vehicle Antenna Design for 700 MHz	Motorola		\$535,610.00	\$0.00	\$535,610.00
Legal	Motorola		\$0.00	\$0.00	\$0.00
Project Management - Logistics Management necessary to coordinate the resources necessary to complete the 700 MHz design	Motorola		\$43,320.00	\$0.00	\$43,320.00
Preparation of ROM Estimates for service and equipment and preparation of SOW	Motorola		\$34,200.00	\$0.00	\$34,200.00
<b>Total Estimated Planning Costs</b>			<b>\$643,530.00</b>	<b>\$750.00</b>	<b>\$644,280.00</b>

**Planning Risks:**

1. The predicted (and actual) coverage for the 700 MHz system may not be directly comparable with that of the PSEC radio system as an 800 MHz system. Motorola's re-engineering solution is intended to avoid 700 MHz system area coverage that is inferior to that which would have been anticipated under the System Contract for the PSEC radio system operating as an 800MHz system. However, due to differences between operating characteristics of the 800 MHz and 700 MHz hardware, the site changes that have occurred since February 2008, as well as propagation differences between the two bands, both the predicted and the actual coverage for the two systems will differ. The effort that will need to be undertaken to review and address any concerns Licensee may have with the 700 MHz coverage design and actual coverage, including with respect to System Contract performance specifications, is not reasonably foreseeable at this time but may result in cost and schedule impact.
2. Depending on the final antenna designs, there may be an impact on optimal tower design if the antenna wind loading for the specified 700 MHz antennas is sufficiently different from the proposed 800 MHz antennas. This could result in the need to re-design the tower which could have an impact on the foundation design which could further impact the site layout. The use of an antenna that has similar wind loading characteristics as the proposed 800 MHz antenna, may solve the tower loading issue, but could adversely affect the system coverage prediction. The investigation and resolution of these issues may result in a cost and schedule impact.
3. The results of the coverage and interference analysis for a 700 MHz configuration may result in having to reassign frequencies and the revision of the frequency reuse analysis. A review of the frequency re-use plan after the coverage and interference analysis is a normal step in the design process and some time has been included in the estimates to accommodate this. However, depending on the severity of any issues surfaced during the



coverage and interference analysis, a more significant investigation may be required. The additional time and direct and indirect costs associated with such issues will be addressed with Licensee via the change order process.

4. Some numbers of Low Power Television (LPTV) stations in Riverside County continue to operate in the 700 MHz spectrum now allocated to Licensee for operation of the 700 MHz PSEC radio system. It is not practical or useful to perform the planned spectrum interference measurements and noise floor monitoring in the areas of the County affected by the operation of the LPTV stations. Since the LPTV stations are not required to cease transmissions until a public safety agency is licensed and prepared to commence operations on the impacted frequencies, it is not reasonable to expect that this work can be completed in the time frame necessary to maintain the current schedule for the implementation of the PSEC radio system. Consistent with the primary goal of avoiding delay of PSEC radio system implementation as a result of re-engineering the system to 700 MHz operation, Motorola will perform the level of inter-modulation and interference studies feasible under the present conditions, complete the PSEC radio system design, and prepare to place the equipment order in the time frame necessary to maintain the System Contract project implementation schedule. As soon as practical after the LPTV stations cease operation, Motorola will perform the spectrum interference measurements and noise floor monitoring to identify any hidden interference that may be present. Depending on the results of the interference analysis, the resolution for any resulting interference issues could include, but not be limited to, one or more of the following:

- No action required
- Re-tune combiners
- Modify or enhance filtering
- Change antennas
- Revise the frequency re-use plan and coverage design
- Re-conduct coverage testing

Because the range of impact is so broad and the potential solutions so undefined, if interference becomes an issue, it will be identified and resolved through the change order process.

5. The changes in the local Public Safety Region's FCC licensing process may result in an increase in the effort required to prepare and submit the 700 MHz license applications. If this occurs, it will be addressed through the change order process.

**Rough Order of Magnitude Estimate Summary Cost Table**

The summary of cost related to the effort necessary to develop the Rough Order of Magnitude (ROM) estimate and the ROM is detailed in the following table:

Summary of Rough Order of Magnitude Estimated Equipment Costs						
Rough Order of Magnitude (ROM) Estimate Category	Name of Internal and Vendor Service Provider(s)	Total Internal Costs (Not to Exceed)	Total Vendor Costs (Not to Exceed/Firm Fixed price)	Total Estimated Expenses	Sales Tax (8.75%)	Grand Total
Rough Order of Magnitude (ROM) Estimate of equipment impacted by PSEC radio system conversion to 700 MHz	Motorola		\$462,621.87	\$0.00	\$40,479.41	\$503,101.28
Total Estimated ROM preparation Costs			\$462,621.87	\$0.00	\$40,479.41	\$503,101.28

**ROM Assumptions and Contingencies:**

1. The type and quantity of specific antenna models to be provided at both voice and data RF sites.
2. The impact to tower design and documentation resulting from potential antenna changes
3. The Distributed Amplifier Systems (DAS) required to provide in building coverage for Licensee's High Priority Buildings (as designated under the System Contract) need to support both Licensee's 800 MHz inter-operability and mutual aid channels as well as the 700 MHz PSEC radio system. In order to accomplish this, the DAS equipment will require some level of additional 700 MHz hardware which is identified in the ROM Equipment Table in Section 3.0. The design of r the DAS systems will not be finalized until the applicable cells or sites of 700 MHz PSEC radio system have been installed and are operating. The scope of the DAS system design is not yet defined and the equipment configuration cannot be completed until the system design is finalized. No costs associated with the DAS re-design for 700 MHz have been included in the ROM summary cost table. Motorola is identifying these potential changes to the DAS as contingent cost impacts to be addressed via the change order process when the equipment configuration is finalized.
4. If the PSEC radio system RF coverage design resulting from the 700 MHz re-design is not accepted by Licensee, the nature and extent of efforts required to resolve Licensee's concerns will depend on Licensee's perception of deficiencies and therefore cannot be estimated at this time. The appropriate solutions could range from changes in antennas to the need to relocate or add a site or sites and could include but would not be limited to the following:
  - Management and engineering costs associated with the new site selection which would be incurred by both Licensee and Motorola.
  - Costs incurred by Licensee for site acquisition.
  - Site engineering and construction costs including shelter and tower incurred by Motorola.
  - RF engineering costs incurred by Motorola.
  - Equipment and Equipment installation costs incurred by Motorola.

- Optimization, testing and documentation costs incurred by Motorola.

Motorola is identifying these potential changes as contingent cost impact items to be addressed with Licensee via the change order process if they occur and when the scope of the resolution can be determined.

5. The potential effort required to reprogram PSEC radio system radios as a result of re-banding changes to the interoperability and mutual aid channels that occur after the radios have been placed in initial operation.

## **Overview**

Motorola has assembled this document, called a Statement of Work (SOW), which provides an overview of activities required to plan and implement the conversion of Licensee's PSEC radio system to operate on 700 MHz frequencies.

This Statement of Work consists of four sections. Section 1 is the Engineering and Implementation Planning Section which describes the activities necessary to identify and define the changes in equipment and services required to convert the PSEC radio system from 800 MHz to 700 MHz operation. Section 2 is the section which describes the activities required to develop the Rough Order of Magnitude (ROM) estimate of the costs associated with the changes in equipment and services necessary to implement the conversion of the PSEC radio system to 700 MHz operation. Section 3 is the section that identifies the specific equipment and services changes and the incremental cost differentials for implementing the PSEC radio system to operate at 700 MHz. These sections, along with the system description table at the end of this SOW, may be included with your reimbursement request submittal to Nextel and the Transition Administrator (TA). This SOW is not a detailed conversion specification and is not intended for use in a solicitation for services by Licensee.

The scope of planning will detail the requirements necessary to execute in accordance with the System Contract a deployment of the PSEC radio system as a 700 MHz system rather than the 800 MHz system design that had been contemplated under the System Contract. The planning process described in this SOW is based on the following key assumptions:

- Notice from Licensee to Motorola pursuant to a related change order to deploy a 700 MHz PSEC radio system rather than the 800 MHz system, with no further design effort dependent on 800 MHz frequencies after October 21, 2008.
- Analysis is limited to the modified and incremental services and equipment required to deploy a 700 MHz PSEC radio system rather than the 800 MHz system that was to be delivered under the System Contract.

- The group of 700 MHz frequencies that will be required for Licensee will be identified as a single deliverable from the FCC. If all such frequencies are not received when contemplated by the schedule, late identification of any frequencies will likely result in substantial redesign and significantly delay the project. Should this occur it will be addressed via change order.
- Regional and statewide interoperability planning is a requirement for effective rebanding, of ITAC, ICALL and other mutual aid channels. Licensee has assumed responsibility for that interoperability planning effort. The regional and statewide interoperability planning is not part of this planning estimate.
- This proposal assumes no impact on the subscriber equipment that was already planned for the PSEC radio system and that Licensee will be responsible for all subscriber trade-in activities

Following are the activities included in this planning and ROM development. These activities were previously completed for the PSEC radio system prior to Licensee's request to cease the 800 MHz design activities for the PSEC system, and must be redone for the 700 MHz deployment.

- IM and interference analysis planning and input to IM data worksheets
- Frequency Reuse Plan
- Coverage design
- Design RF site equipment and antenna systems
- Design vehicle antenna placement
- Project support

## **1.0 Engineering and Implementation Planning**

### **1.1 Assumptions**

Below are the assumptions considered in the engineering and implementation planning for the conversion of the PSEC radio system from 800 MHz operation to 700 MHz operation.

- Motorola will generate a design which will consist of the incremental modifications of the PSEC radio system required for a successful 700MHz system deployment in accordance with System Contract requirements.
- Both the Digital ASTRO Voice System and the High Performance Data System will require Equipment; Coverage; and Frequency Reuse design
- The site locations used in the design will be in accordance with the Sites selected as of March 17, 2009. Such Sites may change in the future prior to the PSEC radio system's becoming operational. Also, some of the site locations used differ from those used to perform initial 800 MHz coverage predictions. For this reason, 800 MHz coverage predictions would have to be re-generated in order to have a comparable baseline against which to assess differences in 700 MHz

coverage for a similar site configuration. Licensee has advised Motorola that it may determine that such baseline 800 MHz design coverage predictions be delivered to Licensee for purposes of confirming the acceptability of the extent of 700 MHz coverage, and they would be generated at a time judged by Licensee to minimize delay in completing the Agreement, FRA and other initial rebanding documentation or adversely impacting the PSEC radio system project schedule. However, Licensee and Motorola currently estimate that the probability is low that 700 MHz coverage will be inferior to 800 MHz coverage in any area that Licensee deems material to public safety objectives. For that reason, Nextel will be advised of the estimated cost for generating updated 800 MHz coverage predictions, but those costs are not included in this Statement of Work. Depending on the timing for the performance of this work in the unlikely event that it is undertaken, there may be a cost and schedule impact to the PSEC radio system implementation as well as to the work performed under the Agreement. The degree of impact cannot be estimated at this time, and will be addressed with Licensee via the change order process at the same time the design coverage prediction work is authorized.

- The process to deliver the guaranteed coverage in accordance with System Contract obligations will be an iterative process of equipment analysis and selection; coverage evaluation; and frequency assignment and reuse design. Although not expected, if adverse discrepancies in coverage of the 700 MHz design relative to 800 MHz projections are considered material, the required solutions may include changes up to and including moving or adding one or more sites to the PSEC radio system. Any cost or schedule impact resulting from such changes will be addressed via the change order process
- To the extent that this Statement of Work is intended to modify any System Contract terms and conditions, such intent will be confirmed by a separate formal amending of the System Contract, which may incorporate by reference, in whole or in part, this Statement of Work.

## **1.2 Intermodulation Analysis**

Motorola had completed the spectrum analysis planning and data input worksheets for the inter-modulation study for the 800 MHz system and this portion of the effort will have to be redone for 700 MHz and has been identified within this SOW. The remainder of the intermodulation and interference analysis has not been completed. This effort was intended to be performed as part of the 700 MHz system design and treated as part of the original project scope. However, some number of Low Power Television (LPTV) stations in Riverside County continue to operate in the 700 MHz spectrum now allocated to Licensee for operation of the 700 MHz PSEC radio system. It is not practical or useful to perform the planned spectrum interference measurements and noise floor monitoring in the areas of the County affected by the operation of the LPTV stations. Since the LPTV stations are not required to cease transmissions until a public safety agency is licensed and prepared

to commence operations on the impacted frequencies, it is not reasonable to expect that this work can be completed in the timeframe necessary to maintain the current schedule for the implementation of the PSEC radio system. Consistent with the primary goal of avoiding delay of PSEC radio system implementation as a result of re-engineering the system to 700 MHz operation, Motorola will perform the level of inter-modulation and interference studies feasible under the present conditions, complete the PSEC radio system design, and prepare to place the equipment order in the time frame necessary to maintain the System Contract project implementation schedule. As soon as practical after the LPTV stations cease operation, Motorola will perform the spectrum interference measurements and noise floor monitoring to identify any hidden interference that may be present. Depending on results of the interference analysis, resolution for any resulting interference issues could include, but not be limited to, one or more of the following:

- No action required
- Re-tune combiners
- Modify or enhance filtering
- Change antennas
- Revise the frequency re-use plan and coverage design
- Re-conduct coverage testing
- Moving or adding sites

Because the range of impact is so broad and the potential solutions so undefined, if interference becomes an issue, the resolution and the associated cost and schedule impact will be identified through the change order process.

**Vendor Labor Table**

Planning Cost Category/Tasks	Hours	Labor Rate	Cost (Hrs x Rate)	Expenses	Vendor Name
Frequency Analysis					
InterMod & Interference Plan & Input documents Must be Redone (89 sites)	160	\$190.00	30,400.00		Motorola
<b>Total Vendor Cost</b>			<b>\$31,150.00</b>	<b>\$750.00</b>	

This analysis is specific to the PSEC radio system. This Statement of Work does not include the frequency coordination and analysis that may be required on a regional interoperability level.

### **1.3 Frequency Re-use Plan**

The following are the high level requirements for the frequency re-use plan for the PSEC radio system:

- Redesign 700 MHz frequency plan
- Redesign 700 MHz frequency plan for 6 Simulcast Cells, 11 ASTRO 25 Repeater Sites and 27 HPD Sites.
- Perform a frequency re-use analysis

The following steps are necessary to execute the 700 MHz frequency re-use plan.

1. Use the existing 800 MHz frequency re-use matrix as a baseline for the new 700 MHz frequency re-use matrix.
2. Identify blocks of 700 MHz channels for the High Performance Data system.
3. Identify blocks of 700 MHz channels for the Voice system.
4. Determine frequency assignments per site/cell. This will be the 700 MHz frequency plan.
5. For each site/cell revisit antenna heights based on 700 MHz antenna separation requirements which affect isolation values.
6. Simulate coverage for the sites/cells based on revised parameters, including the 700 MHz frequency assignments at each site/cell.
7. Evaluate coverage and determine if coverage is maximized based on current 700 MHz frequency assignments. If there is a reduction of coverage due to frequency re-use, change frequency assignments. Other fixes can include changing the antenna types and power levels.
8. Remodel the coverage based on the parameter or frequency assignments. Multiple iterations will be required to optimize the coverage.
9. Create 700 MHz inbound and outbound maps for the sites/cells.
10. Develop outbound contour maps for 11 ASTRO 25 Trunked Repeater sites, 56 simulcast remote sites, and 27 HPD sites.
11. Determine if contours meet FCC and region 5 rules. If not, adjust RF parameters such as antenna patterns, power, or frequency assignment.
12. Once RF parameters are adjusted, repeat steps 6-11 for sites or simulcast cells that are affected.

## **1.4 Coverage Redesign**

**Coverage Design Overview** - For a simulcast system, merely providing coverage maps of individual sites (separately or on the same map) does not accurately represent the total system performance, which depends upon differential delays and aggregate signal levels. Therefore, Motorola has developed HydraSM's simulcast model which uses the delay spread methodology to simulate aggregate signal strength and audio phase angle (delay) throughout the entire predicted coverage area. All locations within the predicted coverage area are analyzed for the combined effect of signal strengths and differential delays from the simulcast transmitters in the system. HydraSM's simulcast coverage maps will show any areas predicted to have coverage problems caused by out-of-phase signals and/or inadequate signal strengths. HydraSM allows modeling with varied transmitter launch delays to predict optimized simulcast coverage within the area being evaluated. The final outputs from Hydra are maps that depict the coverage for the system based on the parameters that are inputted by the engineer. Therefore it is critical that the data that is entered into the simulation tool be as accurate as possible at the time the maps are developed. It is also critical that best engineering practices be used to develop these maps so that Motorola can guarantee the coverage by testing the area once the system is implemented. The following are the details that go into the development of the coverage simulations.

The following are the high level requirements for the coverage re-design plan for the PSEC radio system:

- Redesign coverage for four Simulcast Cells, 11 ASTRO 25 Repeater Sites and 23 High Performance Data Sites
- Redesign portable on street, portable in building, and mobile maps.
- Generate revised contour maps for frequency analysis
- Generate revised coverage design for all six Simulcast Cells, 11 ASTRO 25 Repeater Sites and 27 HPD sites based on the new frequency assignments

### **1.4.1 Steps to model ASTRO 25 Trunked Repeater site voice coverage**

1. Design RF parameters, including antenna system parameters, losses, transmitter power, etc. (While not distinctively separate, this is an input into the Equipment evaluation and selection.)
2. Design subscriber parameters. (Provide as input into RF Subscriber evaluation and selections.)
3. Evaluate site parameters, including existing station frequency band, station type, etc.
4. Design antenna heights based on antenna separation requirements which affect isolation values.



5. Model coverage for 11 ASTRO 25 Trunked Repeater sites based on new parameters.
6. Evaluate 700 MHz coverage.
7. Evaluate Equipment selection and revisit parameters in order to optimize coverage.
8. Create 700 MHz inbound and outbound maps for the A25 sites, totaling 22 maps.

#### **1.4.2 Steps to model High Performance Data coverage**

1. Design RF parameters, including antenna system parameters, losses, transmitter power, etc. (While not distinctively separate, this is an input into the Equipment evaluation and selection.)
2. Design subscriber parameters. (Provide as input into RF Subscriber evaluation and selections)
3. Evaluate site parameters, including existing station frequency band, station type, etc.
4. Design antenna heights based on antenna separation requirements which affect isolation values.
5. Model coverage for 27 HPD sites based on revised parameters.
6. Evaluate 700 MHz coverage.
7. Evaluate Equipment selection and revisit parameters in order to optimize coverage. If necessary, revise Equipment selection and re-evaluate.
8. Create 700 MHz inbound and outbound maps for HPD sites, totaling 54 maps.

#### **1.4.3 Steps to model Simulcast Cell voice coverage**

The steps identified below will need to be performed for each simulcast cell in the system. It is important to note that as each cell is added to the overall coverage design, the evaluation in step 9 needs to include a review of the interaction of all the cells currently included in the design.

1. For each simulcast site, design RF parameters, including antenna system parameters, losses, transmitter power, etc. (While not distinctively separate, this is an input into the Equipment evaluation and selection.)
2. Design subscriber parameters. (Provide as input into RF Subscriber evaluation and selections.)
3. For each simulcast site, evaluate site parameters, including existing station frequency band, station type, etc.

4. For each simulcast site, design antenna heights based on antenna separation requirements which affect isolation values.
5. Model coverage for the desire simulcast cell based on design parameters.
  - a. Evaluate single site 700 MHz coverage for all the simulcast remote sites included in the cell. Evaluate the composite single site coverage and compare to the simulcast cell coverage. If the simulcast cell coverage shows coverage gaps, analyze delay spread and signal strength to determine if phasing issues exist. If there are phasing issues, determine and implement fix, such as adjusting the phasing delays. Evaluate other fixes; can include changing the antenna types and power levels.
6. Remodel the coverage based on the parameter adjustments. Multiple iterations will be required to optimize the simulcast coverage, which is dependent on the number of sites in the simulcast cell.
7. Once the simulcast site coverage has been maximized, evaluate to contract commitment. If necessary, revise equipment selection, modify RF parameters and remodel coverage until the simulcast cell coverage is maximized.
8. Create appropriate 700 MHz inbound and outbound maps for simulcast cell.
9. Evaluate overall voice coverage inclusive of all trunked repeater and simulcast sites included site in the voice coverage.

### **1.5 Redesign of RF site equipment and antenna systems**

Motorola will generate a design that will consist of the incremental modifications of the PSEC radio system required for a successful 700 MHz deployment in accordance with the System Contract.

The following is the breakdown of the tasks per major category.

- Redesign antenna and combiner selection for all 62 voice Sites
- Redesign antenna system for all 27 data sites
- Revise site equipment lists (frequency specific-options exist for some equipment).
- Revise rack face drawings for the voice and data Sites
- Revise tower design drawings related to any antenna changes

## **1.6 FCC License Applications**

Prior to the decision to halt the 800 MHz design work for the PSEC radio system in anticipation of a 700 MHz re-design, Motorola had completed the engineering required to support the preparation and submittal of the FCC license applications for the 27 sites incorporated in the data system design. A total of six application packages, including the necessary waiver language were prepared. This entire effort was unproductive in light of the new need to prepare substitute 700 MHz license applications for the 27 data sites. Cost associated with Motorola licensing work is included in the Engineering/Implementation Planning table. Due to lack of experience with the new coordination and licensing process being implemented by the Public Safety Regional Committee, these costs are estimates and any increase in the actual costs will be addressed with Licensee via the change order process.

## **1.7 Vehicle Antenna System Design:**

The following tasks are included in the vehicle antenna system design:

- Redesign the antenna configuration required for vehicles
- Coordinate the planning that is required since several antennas will be installed on vehicles in a complex deployment

## **1.8 Schedule and Deliverables**

At the direction of Licensee, the 800 MHz design work was discontinued as of October 21, 2008 in anticipation of Nextel's funding of a 700 MHz deployment alternative. To be in a position to place an equipment order in a time frame that would not jeopardize the project schedule, the Notice to Proceed with preparing the 700 MHz frequency re-use planning effort was provided by Licensee November 17, 2008. The Notice to Proceed with the 700 MHz coverage redesign was issued by Licensee March 12, 2009. Motorola will place an order for the 700 MHz configured equipment after Licensee approves the 700 MHz coverage maps and the planning services and rough order of magnitude estimates for both services and equipment as described in this SOW and the applicable changes to the System Contract have been executed. Engineering and implementation planning deliverables and required completion dates are identified in the following table (see next page):

Motorola Deliverables	Planned Completion Date
Initial 700 MHz frequency re-use plan	March 15, 2009
Final 700 MHz frequency re-use plan	July 15, 2009
A 700 MHz voice coverage analysis including inbound and outbound multi-layered coverage maps detailing portable on street, portable in building (+ 10 & 20 dB), and mobile coverage, based on DAQ 3.4 at 95% Reliability over the area shown as covered in the applicable "Coverage Prediction Maps" under the System Contract using a portable radio worn at hip level used outdoors on-street, measured using applicable test procedures under the System Contract. A 700 MHz High Performance Data coverage analysis including inbound and outbound Coverage Prediction Maps.	July 15, 2009
If requested by Licensee, a corresponding 800 MHz voice coverage analysis and data coverage analysis for the same Sites to serve as an updated applicable baseline for comparing 700 MHz coverage to expected 800 MHz PSEC radio system coverage.	TBD by County to minimize re-engineering and project delay
700 MHz combiner requirements	August 21, 2009
700 MHz antenna requirements	August 14, 2009
Identification of changes in antenna locations on towers	July 15, 2009
Vehicle antenna system design	April 23, 2009

**Vendor Labor Table**

Planning Cost Category/Tasks	Hours	Labor Rate	Cost (Hrs x Rate)	Expenses	Vendor Name
Engineering/ Implementation Planning					
Frequency Reuse Plan 2008	228	\$175.00	39,900.00		Motorola
Frequency Reuse Plan 2009	184	\$190.00	34,960.00		Motorola
Coverage Analysis	1508	\$190.00	286,520.00		Motorola
Redesign of RF Site Equipment & Antenna Systems	392	\$190.00	74,480.00		Motorola
Vehicle Antenna System Design	40	\$190.00	7,600.00		Motorola
FCC License Application Engineering for Data Sites	440	\$190.00	83,600.00		Motorola
FCC License Application Preparation, Monitoring, and Construction Notification	45	\$190.00	8,550.00		Motorola
<b>Total Vendor Cost</b>			<b>\$535,610.00</b>	<b>N/A</b>	

**1.9 Project Management**

**1.9.1 Planning Support**

The Motorola Project Manager will oversee the project plan for the 700 MHz deployment design effort to ensure a smooth execution of all deliverables and that the requirements of Licensee, as identified in this SOW, and other contractual obligations of Motorola are fully met. The project manager will participate in all major activities associated with the planning activities described in this SOW.

The Project Manager will coordinate with Licensee, and any subcontractor or other third-party organization participating in this work; to keep this effort within the agreed upon schedule. Activities such as project meetings, obtaining and evaluating vendor quotes, monitoring product and project team performance will be performed by the Motorola Project Manager.

**1.9.2 Negotiations Support**

When requested and in accordance with the request, Motorola will assist Licensee in responding to clarifications which may be required from Sprint/Nextel or the TA. The extent of this participation is difficult to determine at this time and in the context of this atypical rebanding transaction; however, an estimate has been included in the following table. Motorola expects that if the actual requirements exceed the estimate, adjustment will be made through the change order process.

**Vendor Labor Table**

Planning Cost Category/Tasks	Hours	Labor Rate	Cost (Hrs x Rate)	Expenses	Vendor Name
Project Management					
Fixed Project Support	48	\$190.00	9,120.00		Motorola
Variable Project Support	80	\$190.00	15,200.00		Motorola
Negotiations Support	100	\$190.00	19,000.00		Motorola
Total Vendor Cost			\$43,320.00	N/A	

**1.10 Motorola Engineering & Technical Services**

In accordance with the System Contract, Motorola will support the effort required to correctly assess the system requirements to redesign the 800 MHz PSEC radio system for operation on 700 MHz frequencies, by employing the experience of its field and systems engineering resources. In addition, many of Motorola's product organizations and upgrade operations team will support the project with specific knowledge on products and procedures to ensure the success of the project.

### **1.11 Local Service Support**

In accordance with the System Contract, Motorola may utilize approved third-party contractors to assist in the preparation of the estimates and evaluation of fixed infrastructure and other related system equipment.

### **1.12 Notification and Conditions for Work**

Except as otherwise provided generally under the System Contract, (i) Motorola will notify Licensee's assigned point of contact a minimum of five (5) business days' prior to starting any work on the system, (ii) Motorola will commence work at the designated location only after Licensee has notified Motorola with instructions to proceed, and (iii) whenever possible, will provide notification of required system disruptions in accordance with Licensee's outage request guidelines.

### **1.13 Motorola and Licensee Responsibilities**

#### **Motorola Responsibilities**

Except as otherwise provided generally under the System Contract, Motorola will be responsible for the following:

- Providing a designated Project Manager to coordinate all the resources and work to be performed by Motorola and to be the primary point of contact for Licensee.
- Integrating the detailed project tasks, start and stop dates, task responsibility and status indicators into the existing MS Project schedule.
- Provide Licensee with a copy of the revised MS Project plan and regular updates.
- Scheduling project meetings with Licensee at the project's start, execution of the project contract deliverables and to coordinate ensuing project activities with all Motorola and Licensee resources.
- Providing engineering services in designing the agreed upon deliverables as developed in this proposal.
- Providing Licensee with regular schedule and progress updates.
- Preparing FCC license applications in accordance with the PSEC System Contract.

#### **County of Riverside Responsibilities**

Except as otherwise provided in the System Contract, Licensee will be responsible for the following:

- Provide a signatory who has authority to sign all appropriate project documents required
- If Motorola is required by Licensee to participate in such meetings, participate with Motorola in any potential required meetings with public agencies, and government agencies for the purpose of assessing the equipment and sites.
- Licensee shall not unreasonably delay the execution of work by Motorola and will extend the timeline of the project when delays caused by Licensee are

experienced.

- Licensee shall identify any outstanding Motorola deliverables and formally request their completion through the mutual development of a project punch list.
- Licensee shall grant final acceptance upon completion of all contractual deliverables.
- Licensee is responsible for coordinating with the 700 MHz regional committee to revise the region's 700 MHz plan and to identify Licensee's approved 700 MHz frequency allocation.
- Licensee will provide the list of their allocated 700 MHz frequencies to Motorola for use in the redesign plans for the 700 MHz PSEC radio system. Licensee is responsible for preparing and submitting all 700 MHz license applications and for obtaining the FCC license grants for the 700 MHz frequencies utilized in Motorola's design.

#### 1.14 **Risks**

Motorola is committed to identifying and mitigating risk where possible, and will collaborate with Licensee to consider the options and establish a mutually agreeable solution.

The following risk issues have been identified in regards to planning for the conversion of the PSEC radio system from 800 MHz to 700 MHz operation.

1. As noted, the predicted (and actual) coverage for the 700 MHz PSEC radio system may not be directly comparable with that of the PSEC radio system as an 800 MHz system. Due to differences between operating characteristics of the 800 MHz and 700 MHz hardware, the site changes that have occurred since February 2008, as well as propagation differences between the two bands, both predicted and actual coverage for the two systems will differ. The effort to review and address concerns Licensee may have with the 700 MHz coverage design, including with respect to System Contract performance specifications, is unknown but may result in cost and schedule impact.
2. Depending on the final antenna designs, there may be an impact on optimal tower design if any of the size, type, configuration or specifications (including the wind loading characteristics for the specified 700 MHz antennas) are sufficiently different from the proposed 800 MHz antennas. This could result in the need to redesign the tower which could have an impact on the foundation design which could further impact the site layout. The use of an antenna that has similar wind loading characteristics as the proposed 800 MHz, may solve the tower loading issue, but could adversely affect the system coverage prediction. The investigation and resolution of these issues may result in a cost and schedule impact
3. The results of the coverage and interference analysis for 700 MHz may result in having to reassign frequencies and the revision of the frequency reuse analysis. A review of the frequency re-use plan after the coverage and

interference analysis is a normal step in the design process and some time has been included in the estimates to accommodate this. However, depending on the severity of any issues surfaced during the coverage and interference analysis, a more significant investigation may be required. The additional time associated with this will be addressed via the change order process.

4. Some numbers of Low Power Television (LPTV) stations in Riverside County, continue to operate in the 700 MHz spectrum now allocated to Licensee for operation of the 700 MHz PSEC radio system. It is not practical or useful to perform the planned spectrum interference measurements and noise floor monitoring in the areas of the county affected by the operation of the LPTV stations. Because the LPTV stations are not required to cease transmissions until a public safety agency is licensed and prepared to commence operations on the impacted frequencies, it is not reasonable to expect that this work can be completed in the timeframe necessary to maintain the current schedule for implementation of the PSEC radio system. Consistent with the primary goal of avoiding delay of PSEC radio system implementation as a result of re-engineering the system to 700 MHz operation, Motorola will perform the level of inter-modulation and interference studies feasible under the present conditions, complete the system design, and prepare to place the equipment order in the time frame necessary to maintain the System Contract project implementation schedule. As soon as practical after the LPTV stations cease operation, Motorola will perform the spectrum interference measurements and noise floor monitoring to identify any hidden interference that may be present. Depending on the results of the interference analysis, the resolution for any resulting interference issues could include, but not be limited to, one or more of the following:

- No action required
- Re-tune combiners
- Modify or enhance filtering
- Change antennas
- Revise the frequency re-use plan and coverage design
- Re-conduct coverage testing

Because the range of impact is so broad and the potential solutions so undefined, if interference becomes an issue, it will be identified and resolved through the change order process.



Because these risks are the result of the conversion to 700 MHz, Motorola expects that except to the extent that Motorola shall have failed to perform its contractual obligations, the costs for resolving these issues will be the responsibility of others and can be addressed through the change order process.

#### **1.14 County of Riverside Design Review**

Upon submission of Motorola's reengineering plan to Licensee, a certificate of acceptance document will be provided for customer signature (see reference document attached). This certificate acknowledges that all the effort required under this SOW in identifying the detailed requirements and plans to redesign the previously planned 800 MHz PSEC radio system to a 700 MHz system as described in this SOW has been completed.

**2.0 Rough Order of Magnitude (ROM) Estimate Planning**

**2.1 Introduction**

The planning required to develop the Rough Order of Magnitude (“ROM”) estimates described below include the effort necessary to identify the products (including equipment and software) and services that will be affected by the PSEC radio system change to 700 MHz and to develop the ROM estimate of the incremental cost differential to provide the appropriate products and services to implement that 700 MHz system.

**2.2 Scope**

The following items have been identified as requiring review related to the impact of converting the PSEC radio system to 700 MHz operation and are included in the ROM estimate planning activities:

1. Estimated time needed to collaborate with Licensee in the ROM planning
2. Estimated effort required to identify possible types and quantities of equipment affected by the change to 700 MHz
3. Estimated effort required to identify potential change in services required to implement the changes in equipment
4. Estimated effort required to estimate the incremental pricing differentials for affected equipment and services
5. Estimated time needed to communicate with Nextel and answer questions or provide information related to the ROM planning
6. Estimated effort required to identify contingency issues
7. Estimated effort required to identify risk issues

The estimates for these items appear in the following table:

**Vendor Table**

Planning Cost Category/Tasks	Hours	Labor Rate	Cost (Hrs x Rate)	Expenses	Vendor Name
Rough Order of Magnitude Estimate Planning					
Communication with Riverside County	64	\$190.00	\$12,160.00		
Identify impacted hardware and incremental cost differentials	36	\$190.00	\$6,840.00		Motorola
Prepare ROM SOW	80	\$190.00	\$15,200.00		Motorola
Total Vendor Cost			\$34,200.00	N/A	

### 2.3 Contingency Items

Because the necessary engineering and implementation planning has not yet been completed, it is not possible accurately to define all the information necessary to develop a precise scope of work and firm fixed quotation for providing the products and services to convert the PSEC radio system to 700 MHz operation. The items below have some level of uncertainty and have been identified as contingency issues. As information becomes available to clarify the scope of these issues, any resulting changes will be addressed through the change order process.

1. Type and quantity of specific antenna models to be provided at both voice and data RF sites.
2. Impact to tower design and documentation resulting from potential antenna changes
3. The Distributed Amplifier Systems (DAS) required to provide in-building coverage for Licensee's High Priority Buildings need to support both Licensee's 800 MHz inter-operability and mutual aid channels as well as the 700 MHz PSEC radio system. In order to accomplish this, the DAS systems will require some level of additional 700 MHz hardware which is identified in the ROM Equipment Table in Section 3.0. The design work for the DAS systems will not be performed until the 700 MHz PSEC radio system has been installed and the required sites are operational. The DAS system design and configuration is undefined at this time, and the specific system changes resulting from the 700 MHz re-design will be identified when the design is complete. The related costs therefore cannot be reasonably estimated at this time, and so no costs associated with the DAS re-design for 700 MHz have been included in the ROM summary cost table. Motorola is identifying these potential changes to the DAS as contingent cost impacts to be addressed via the change order process when the scope of the design change can be determined.
4. If the PSEC radio system RF coverage design resulting from the 700 MHz re-design is not accepted by Licensee, the nature and extent of efforts required to resolve Licensee's concerns will depend in part upon Licensee's system testing and therefore cannot be reasonably estimated at this time. The appropriate solutions could range from changes in antennas to the need to relocate or add a site or sites which could include but would not be limited to the following:
  - Management and engineering costs associated with the new site selection which would be incurred by both Licensee and Motorola
  - Costs incurred by Licensee for site acquisition.
  - Site engineering and construction costs including shelter and tower incurred by Motorola
  - RF engineering costs incurred by Motorola
  - Equipment and Equipment installation costs incurred by Motorola
  - Optimization, testing and documentation costs incurred by Motorola

Motorola is identifying these potential changes as contingent cost impact items to be

addressed via the change order process if they occur and when the scope of the resolution can be determined.

5. The potential effort required to reprogram PSEC radios as a result of rebanding changes to the inter-operability and mutual aid channels that occur after the PSEC radios have been placed in initial operation.

## **2.4 Interoperability and Mutual Aid**

Licensee is taking responsibility for the implementation for the re-banding requirements related to inter-operability and mutual aid equipment. No provisions have been made in this SOW for any equipment or service associated with interoperability or mutual aid operations.

### 3.0 Rough Order of Magnitude (ROM) Equipment Impact Estimate

The following table identifies equipment that will be affected by the conversion of the PSEC radio system to 700 MHz operation. Prices shown do not include applicable sales taxes, which will be part of total Licensee costs for which Nextel funding is sought.

ROM EQUIPMENT TABLE								
No.	Item	700 MHz Equipment Manufacturer and Model Number	800 MHz Unit Contract Price	700 MHz Unit Contract Price	Price Difference	Qty.	Extended Contract Price Difference	Comments
1	RF Site Combiners	MOTOROLA T7054: GTR 8000 EXPANDABLE SITE SUB- SYSTEM - CA00879AA: PRIMARY 6 PORT CAVITY COMBINER	\$ 5,200.00	\$ 6,720.00	\$ 1,520.00	98	\$ 148,960.00	Change affects Simulcast sites
2	Control Station Combiners	BIRD TECHNOLOGIES 43- 83G-01-08: CONTROL STATION COMBINER 746-869 MHz	\$ 21,504.80	\$ 12,475.20	\$ (9,029.60)	3	\$ (27,088.80)	Control station combiners for Alessandro Dispatch center and the Ben Clark training center.
3	Control Station Combiner Duplexers	BIRD TECHNOLOGIES 26- 83B-10A: DUPLEXER FOR 762- 776/792-806 MHz	\$ -	\$ 1,813.60	\$ 1,813.60	3	\$ 5,440.80	An external duplexer is required for the 700 MHz control station combiner
4	Data Modem Duplexers for Fire Stations	TELEWAVE INC TMND7616: COMPACT MOBILE DUPLEXER	\$ 336.00	\$ 332.80	\$ (3.20)	103	\$ (329.60)	
5	Data Modem Duplexers for Vehicles	TELEWAVE INC TMND- 7616: COMPACT MOBILE DUPLEXER	\$ 336.00	\$ 332.80	\$ (3.20)	995	\$ (3,184.00)	
6	Control Station Antennas	AMPHENOL ANTEL INC. 7825700: MULTI BAND OMNI ANTENNA, 2.5 DBI GAIN	\$ 395.20	\$ 307.20	\$ (88.00)	80	\$ (7,040.00)	
7	Data Antennas for Fire Stations	AMPHENOL ANTEL INC. 7825700: MULTI BAND OMNI ANTENNA, 2.5 DBI GAIN	\$ 395.20	\$ 307.20	\$ (88.00)	101	\$ (8,888.00)	
8	170 Voice RF Site Antennas	See 700 MHz Antenna Table	\$ 241,782.40	\$ 569,839.69	\$ 328,057.29	1	\$ 328,057.29	See Note 2
9	54 Data RF Site Antennas	See 700 MHz Antenna Table	\$ 77,619.20	\$ 104,313.38	\$ 26,694.18	1	\$ 26,694.18	See Note 2
Total							\$ 462,621.87	

**Voice and Data Antenna Table**

	Total Qty	Antenna Vendor	Antenna	700 Mhz		Sprint Discount Price	Sprint Extended Price	Mounting Kit Sprint Price	Mounting Kit Extended Price	Sprint Discount Price	Total Sprint Extended Price
				Unit Contract Price	Sprint Unit Price						
700 MHz Voice	30	Antel	BCD-7509-3-25	\$1,616.80	\$ 1,515.75	\$ 45,472.50	\$ 99.00	\$ 2,970.00	\$ 48,442.50		
	6	Antel	BCD-7509-5-25	\$1,644.80	\$ 1,542.00	\$ 9,252.00	\$ 99.00	\$ 594.00	\$ 9,846.00		
	3	Antel	BCR-7009-90-0-750MHZ	\$1,848.80	\$ 1,733.25	\$ 5,199.75	\$ 246.75	\$ 740.25	\$ 5,940.00		
	3	Antel	BCR-75012-0	\$1,762.40	\$ 1,652.25	\$ 4,956.75	\$ 246.75	\$ 740.25	\$ 5,697.00		
	2	Antel	BCR-75012-5	\$1,833.60	\$ 1,719.00	\$ 3,438.00	\$ 246.75	\$ 493.50	\$ 3,931.50		
	7	RFS	BPS10-A	\$4,701.60	\$ 4,407.75	\$ 30,854.25	\$ -	\$ -	\$ 30,854.25		
	6	RFS	BPS10-H	\$4,586.40	\$ 4,299.75	\$ 25,798.50	\$ -	\$ -	\$ 25,798.50		
	3	RFS	BPS10-O	\$4,701.60	\$ 4,407.75	\$ 13,223.25	\$ -	\$ -	\$ 13,223.25		
	2	Andrew	DB844H90E-A 770H 0DG	\$989.60	\$ 927.75	\$ 1,855.50	\$ -	\$ -	\$ 1,855.50		
	20	Andrew	DB878H120E-A 770	\$1,980.00	\$ 1,856.25	\$ 37,125.00	\$ -	\$ -	\$ 37,125.00		
	5	Antel	LPA-75040-4CF-3	\$1,527.20	\$ 1,431.75	\$ 7,158.75	\$ 134.25	\$ 671.25	\$ 7,830.00		
	2	Antel	LPA-75063-4CF	\$1,036.80	\$ 972.00	\$ 1,944.00	\$ 134.25	\$ 268.50	\$ 2,212.50		
	11	Sinclair	SC412-HF2LDF(D02-E5608) 0746	\$5,834.40	\$ 5,469.75	\$ 60,167.25	\$ 957.00	\$ 10,527.00	\$ 70,694.25		
	14	Sinclair	SC412-HF2LDF(D04-E5608) 0746	\$5,834.40	\$ 5,469.75	\$ 76,576.50	\$ 957.00	\$ 13,398.00	\$ 89,974.50		
	29	Sinclair	SC412-HF2LDF 0746	\$5,090.40	\$ 4,772.25	\$ 138,395.25	\$ 957.00	\$ 27,753.00	\$ 166,148.25		
	3	Sinclair	SE419-SF3PALDF A=060 0746	\$2,948.00	\$ 2,763.75	\$ 8,291.25	\$ -	\$ -	\$ 8,291.25		
	4	Sinclair	SE419-SF3PALDF A=130 0746	\$2,948.00	\$ 2,763.75	\$ 11,055.00	\$ -	\$ -	\$ 11,055.00		
	2	Antel	WPA-750102-4CF-9	\$1,276.80	\$ 1,197.00	\$ 2,394.00	\$ 45.00	\$ 90.00	\$ 2,484.00		
	1	Antel	WPA-750120-8CF-0	\$1,767.20	\$ 1,656.75	\$ 1,656.75	\$ 42.19	\$ 42.19	\$ 1,698.94		
	3	Antel	WPA-75063-6CF-0	\$1,470.40	\$ 1,378.50	\$ 4,135.50	\$ 67.50	\$ 202.50	\$ 4,338.00		
4	Antel	WPA-75080-4CF-0	\$1,172.00	\$ 1,098.75	\$ 4,395.00	\$ 45.00	\$ 180.00	\$ 4,575.00			
6	Antel	WPA-75090-8CF-0	\$1,767.20	\$ 1,656.75	\$ 9,940.50	\$ 45.00	\$ 270.00	\$ 10,210.50			
4	Antel	WPA-75063-8CF-3-25	\$1,982.40	\$ 1,858.50	\$ 7,434.00	\$ 45.00	\$ 180.00	\$ 7,614.00			
<b>Total</b>	<b>170</b>					<b>\$ 510,719.25</b>		<b>\$ 59,120.44</b>	<b>\$ 569,839.69</b>		
700 MHz HPD	14	Antel	DQBCD7509EDIN	\$1,363.20	\$ 1,278.00	\$ 17,892.00	\$ 99.00	\$ 1,386.00	\$ 19,278.00		
	10	Antel	BCD-7509-3-25	\$1,616.80	\$ 1,515.75	\$ 15,157.50	\$ 99.00	\$ 990.00	\$ 16,147.50		
	8	Antel	BCD-7509-5-25	\$1,644.80	\$ 1,542.00	\$ 12,336.00	\$ 99.00	\$ 792.00	\$ 13,128.00		
	2	Antel	BCR-75012-5	\$1,833.60	\$ 1,719.00	\$ 3,438.00	\$ 246.75	\$ 493.50	\$ 3,931.50		
	2	RFS	BPS10-A	\$4,701.60	\$ 4,407.75	\$ 8,815.50	\$ -	\$ -	\$ 8,815.50		
	4	RFS	BPS10-D	\$4,590.40	\$ 4,303.50	\$ 17,214.00	\$ -	\$ -	\$ 17,214.00		
	2	Antel	LPA-70063-4CF-6-752MHZ	\$1,442.40	\$ 1,352.25	\$ 2,704.50	\$ 134.25	\$ 268.50	\$ 2,973.00		
	4	Antel	LPA-75040-4CF-9	\$1,669.60	\$ 1,565.25	\$ 6,261.00	\$ 134.25	\$ 537.00	\$ 6,798.00		
	2	Sinclair	SE419-SF3PALDF A=130 0746	\$2,948.00	\$ 2,763.75	\$ 5,527.50	\$ -	\$ -	\$ 5,527.50		
	2	Sinclair	SE419-SF3PALDF A=60 0746	\$2,948.00	\$ 2,763.75	\$ 5,527.50	\$ -	\$ -	\$ 5,527.50		
	2	Antel	WPA-750102-4CF-3-25	\$1,387.20	\$ 1,300.50	\$ 2,601.00	\$ 45.00	\$ 90.00	\$ 2,691.00		
	2	Antel	WPA-750120-4CF-0	\$1,172.00	\$ 1,098.75	\$ 2,197.50	\$ 42.19	\$ 84.38	\$ 2,281.88		
<b>Total</b>	<b>54</b>					<b>\$ 99,672.00</b>		<b>\$ 4,641.38</b>	<b>\$ 104,313.38</b>		

**Notes:**

1. Pricing for the Distributed Amplifier System (DAS) components are estimates that are provided for reference, and may vary based upon the final system design. The final DAS designs will not be performed until the PSEC system is operational and the actual signal strength data is available and can be incorporated into the design. The number and configuration of the DAS systems required will not be known until after the final design work is accomplished and therefore, the actual DAS cost impact cannot yet be identified. DAS cost changes related to the conversion to 700 MHz will be addressed through the change order process.

Functionality	Manufacturer		Incremental Cost	Comments
Provide dual frequency operation to single zone coaxial based Distributed Amplifier System (DAS)	ANDREW INC.		\$ 24,000.00	Contract requires 800 MHz mutual aid channel operation in High Priority Buildings
Provide dual frequency operation to a 2 zone fiber based Distributed Amplifier System (DAS)	ANDREW INC.		\$ 28,000.00	Contract requires 800 MHz mutual aid channel operation in High Priority Buildings
Add dual frequency operation per zone for each zone exceeding 2	ANDREW INC.		\$ 8,000.00	

2. Pricing for the 700 MHz Voice and Data System antennas, items 8 and 9 in the ROM Equipment Table, is a special one time discounted price negotiated with Nextel as a condition for obtaining their approval of the Agreement. For the purpose of establishing future pricing for this equipment as described in Section 4.2 of the System Contract, the System Contract unit price in the Voice and Data Antenna Table will be used.

**MOTOROLA**

*(Reprinted as Exhibit B to Amendment #4)*

## ***Attachment MHz Spectrum Services***



## **Attachment MHZ: Spectrum Services**

### **Spectrum Services**

VENDOR will provide services to address a broad range of spectrum issues. VENDOR will provide design and engineering services and prepare frequency coordination and license application documents in order that the County may obtain the necessary FCC licenses for the System, and the details of such services and the COUNTY's and VENDOR's related rights and obligations may be established in whole or in part under contractual documentation outside the Agreement. The County is responsible for the submission of all applicable FCC forms and license applications that are prepared by VENDOR. VENDOR is providing VHF channels for sites that will utilize VHF frequencies. These VHF channels will be licensed to the County. This Attachment MHZ describes those services and the related procedures, as well as addressing the potential scenarios where issues may arise depending on the timing of the 800 MHz rebanding process as it relates to the Radio Project. The County will obtain 700 MHz channels for use by the System as part of the 700 MHz Change.

### **VHF Channels.**

To support the VHF trunking layer, VENDOR proposes VHF trunked frequencies for operation on the VHF Sites and configuration defined within this Attachment MHZ. A total of 14 VHF frequency pairs (duplex channels), which are exclusive-use within the coverage footprint and licensable for trunking, are proposed. The spectrum is almost contiguous, providing more flexibility and protection to the County. The transmit and receive spacing is uniform. Three pairs are proposed for each Site, with the exception of the proposed VHF southwest simulcast cell, which includes the Redondo Mesa site, Rancho Carrillo, El Cariso, and the Elsinore Peak Site. In that case, the same three pairs are proposed for all Sites.

These VHF frequencies are Part 80 channels, to which VENDOR has the rights and interests. These channels are designated as common carrier, however the FCC routinely grants use on non-common carrier services, such as public safety. The channels are designated as PC (Public Coast station) and were purchased by the current licensee in an FCC auction. VENDOR is currently requesting authority to use the VHF frequencies under Part 90 licenses, with that waiver remaining in effect for end licensees where VENDOR sells this spectrum.

In order to select channels and make this offer, VENDOR analyzed the signal strength of each Site. In the case of the southwest simulcast cell, the channels impact a larger geographic area and the coastal area.

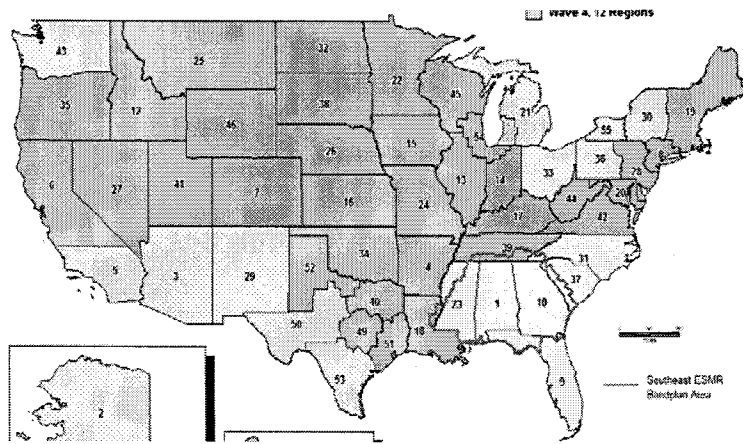
These channels are uniformly spaced and have a standard separation between the transmit and receive frequencies. They will work with the combining equipment proposed for the County. However, through the due diligence required to produce its Final Design, VENDOR may discover frequencies that exist at the Sites that would cause interference or intermodulation, VENDOR's Final Design shall account for such frequencies. This may impact the antenna system. VENDOR has included in the Total Contract Price the services necessary to analyze the Sites and redesign the antenna systems, should that be required. Should the County provide some of the VHF channels and request that VENDOR provide a subset of the proposed channels, pricing will be provided on a Site-by-Site basis for the required Sites.

VENDOR warrants that at the time of execution of this agreement the frequencies that have been proposed for purchase by the County are available for licensing by the County. VENDOR shall make available these frequencies for the County's use for the life of the System if the County elects to choose them, subject to FCC approval of an assignment or sale of the frequencies to the County (which assignment or sale VENDOR shall support). The County would be given a license for operation of the frequencies at the proposed Sites, based upon a +5 dBu field strength limitation for the coastal areas with the exception of the southwest simulcast cell. Changes to these Sites require agreement not only from VENDOR, but also from the FCC.

## FCC Rebanding

The FCC has mandated the scheduling of a multi-year rebanding procedure that will affect every 800 MHz licensee, including the County. The ASTRO 25 network has been designed to adapt to any changes that this FCC mandate requires of the System. This means that if the County's implementation schedule is aligned with the Wave 4 rebanding schedule, that the System could be shipped from VENDOR's factory on new channels, greatly simplifying the rebanding process and significantly reducing risk to the existing system users. To the extent that the proposed rebanding requires interaction of the County with Sprint Nextel and the Transition Administrator, VENDOR shall permit the County to pursue the County's interests with such third parties and the FCC, and as a vendor with no interest in the County's particular rebanding other than through this Agreement or any supplemental agreement for rebanding-related goods or services, VENDOR shall not interact or communicate information with respect to the System or this Agreement to other interested parties in the County's rebanding process, except as requested by the County. As of the 700 MHz Change Effective Date, the County and VENDOR contemplate that FCC mandated rebanding affecting the System will be addressed as contemplated by the Fourth Amendment. However, the scenarios below describe the flexibility that has been anticipated within the System build-out.

If the County's implementation precedes the rebanding Wave 4, all new equipment proposed by VENDOR is capable of being rebanded.



### Scenario 1: Wave 4 NPSPAC: Riverside County and Sprint/Nextel Negotiations Conclude Concurrent with Design Review

During the early stages of Final Design, the licensing activities that will occur will be directly related to securing spectrum for which the County does not currently hold licenses or to modify NPSPAC licenses prior to the rebanding NPSPAC licensing freeze if deemed necessary by the County. The finalization of all Site locations (which requires design efforts to finalize those Sites such as coverage studies, frequency planning, microwave path studies, etc) will therefore be important as a scheduled Milestone.

This key Milestone is a decision point that will determine whether the System should be built on the existing County channels and re-tuned at a later date for rebanding. Consideration should be given to the timing of the antenna system orders, as changing the channels in the rest of the infrastructure is less sensitive to the specific frequencies and more easily accomplished in the field. Changes in frequencies

will impact Site-specific design studies such as intermodulation and Transmitter Noise and Receiver Desensitization studies, and therefore should be taken into account in planning Equipment orders in order to secure the System's optimal performance.

**Scenario 2: Wave 4 NPSPAC: County and Sprint/Nextel Negotiations Concurrent with Staging**

Should the County conclude negotiations with Sprint/Nextel while the System is at the Factory for System staging, the County and VENDOR may execute a Change Order (or whatever mechanism is consistent with the County's reconfiguration agreement with Sprint/Nextel) to move that Equipment to the new frequencies prior to shipment. Additional engineering effort to re-evaluate all radio sites based on the new channels, to the extent it represents a change in scope, should be deemed a legitimate expense of rebanding, and VENDOR will cooperate with the County to secure that and any other reimbursement for eligible goods and services permitted under the rebanding program. The actions related to antenna system equipment will depend on whether Equipment changes are necessary beyond the specific channels required, whether Equipment has been ordered, and whether Equipment has shipped. This will be determined based on the mutually agreed upon plan at the site finalization decision checkpoint.

**Scenario 3: Wave 4 NPSPAC: County and Sprint/Nextel Negotiations during System Implementation**

Should the County conclude negotiations with Sprint/Nextel during the System implementation process, after shipping from VENDOR's factory, the County and VENDOR may execute a Change Order (or whatever mechanism is consistent with the agreement with Sprint/Nextel) to re-tune that Equipment to the new frequencies in the field. Additional engineering effort to re-evaluate all radio Sites based on the new channels, to the extent it represents a change in scope, should be deemed a legitimate expense of rebanding, and VENDOR will cooperate with the County to secure that and any other reimbursement for eligible goods and services permitted under the rebanding program. The actions related to antenna system equipment will depend on whether Equipment changes are necessary beyond the specific channels required, whether Equipment has been ordered, and whether Equipment has shipped. This will be determined based on the mutually agreed upon plan at the site finalization decision checkpoint.

**Frequency Plan**

VENDOR has conducted a detailed frequency analysis for the 821 MHz NPSPAC channels that are currently licensed to the County. The analysis included:

- ◆ Review of the existing Region 5 821 plan
- ◆ Development of contour maps based on the new design
- ◆ Preliminary interference analysis of the adjacent and co-channel users
- ◆ The potential effects of the existing adjacent and co-channel users to the proposed System
- ◆ The VENDOR will provide similar services for the proposed 700 MHz frequencies.

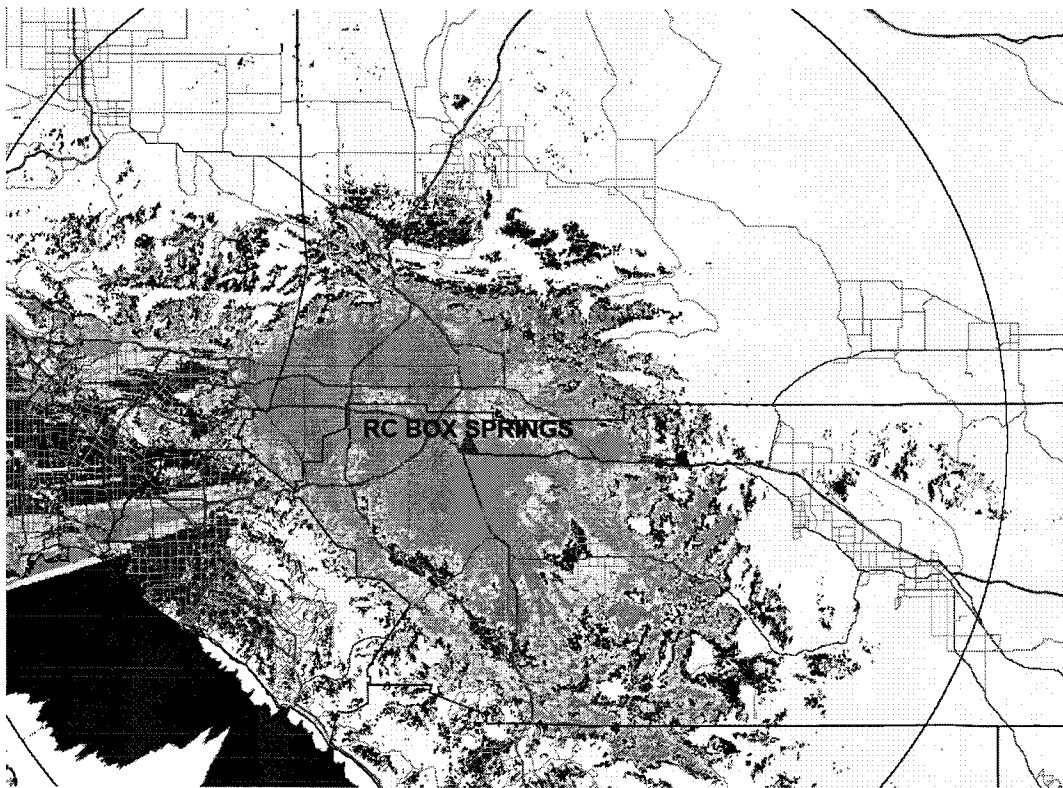
Based on the aforementioned analysis, the frequencies were strategically assigned to the appropriate simulcast cells and Trunked Repeater Sites throughout the County. The details of the analysis are described in the following sections.

The sections below describe the process followed for the frequency plan developed as part of DRD. Note that after DRD was accepted under the First Amendment, the frequency plan was updated as part of the 700 MHz Change to reflect the use of 700 MHz for all voice and HPD sites.

### **Contour Maps**

Following the engineering coverage design, contour maps for all of the sites were created using VENDOR's coverage prediction tool to determine if the signal from each of these Sites radiated over to neighboring counties. Sites where the signal was contained within the County were removed from consideration as potential interferers. Figure 1 below is an example of a dBu map for Box Springs.

- ◆ Orange 40dBu or greater
- ◆ Pink 35-39 dBu
- ◆ Yellow 20-34 dBu
- ◆ Blue 0-19 dBu



**Figure 1: Box Springs dBu Contour Map**

The map clearly shows signals greater than 40 dBu (Orange) in the San Bernardino, Los Angeles, Orange, and San Diego counties. As per the Southern CA 800MHz regional plan this Site may potentially interfere with neighboring counties. The next step was to perform frequency searches.

### **Frequency Searches**

For those maps with signals greater than 20 dBu radiating into the neighboring counties a frequency search was performed using the VENDOR coverage prediction tool.

The result of a frequency search shows a map plotting the call signs of adjacent and co-channel Sites within a 70 mile radius. Figure 2 below is an example of a map generated by one of the frequency searches.

This process was repeated for various Sites in the coverage design and the thirty eight (38) 821 NPSPAC channels licensed to the County. After the aforementioned process was completed, a list of usable frequencies for each simulcast cell and Project 25 Trunked Repeater Site was created.

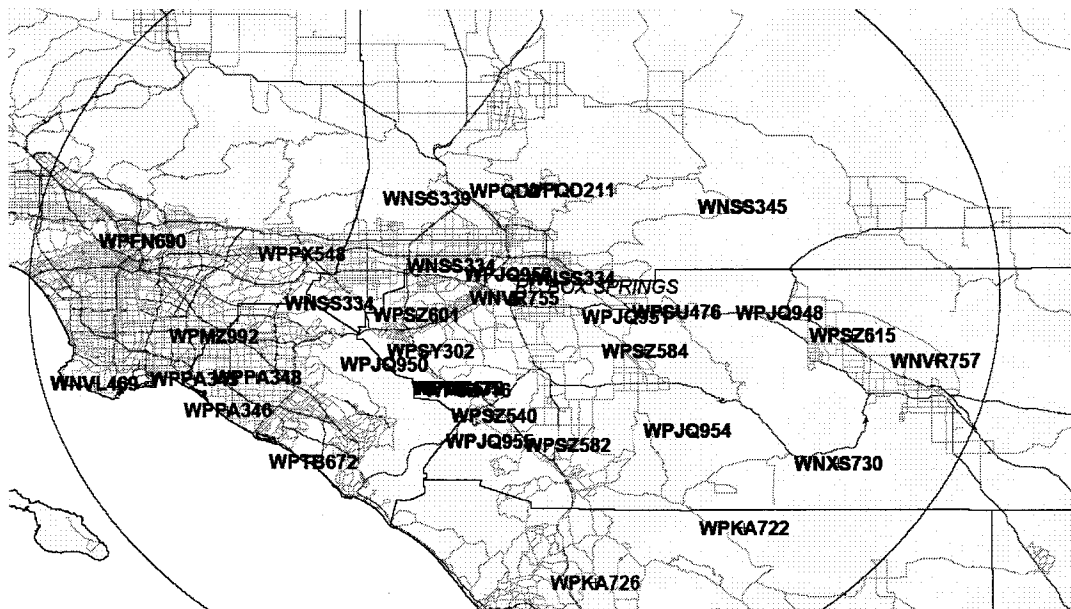


Figure 2: Sample of Frequency Search

The next step was to overlay the dBu map with the frequency search map and determine if there would be adjacent or co-channel interference between the two Sites in question. If a signal equal or greater to 20 dBu was present near a co-channel Site, that particular frequency was removed from consideration as a usable frequency at the site in question. If a signal equal or greater to 35 dBu was near an adjacent Site, that particular frequency was removed from consideration as a usable frequency at the site in question.

This process was repeated for various Sites in the coverage design and the thirty eight (38) 821 NPSPAC channels licensed to the County. After the aforementioned process was completed, a list of usable frequencies for each simulcast cell and Project 25 Trunked Repeater Site was created.

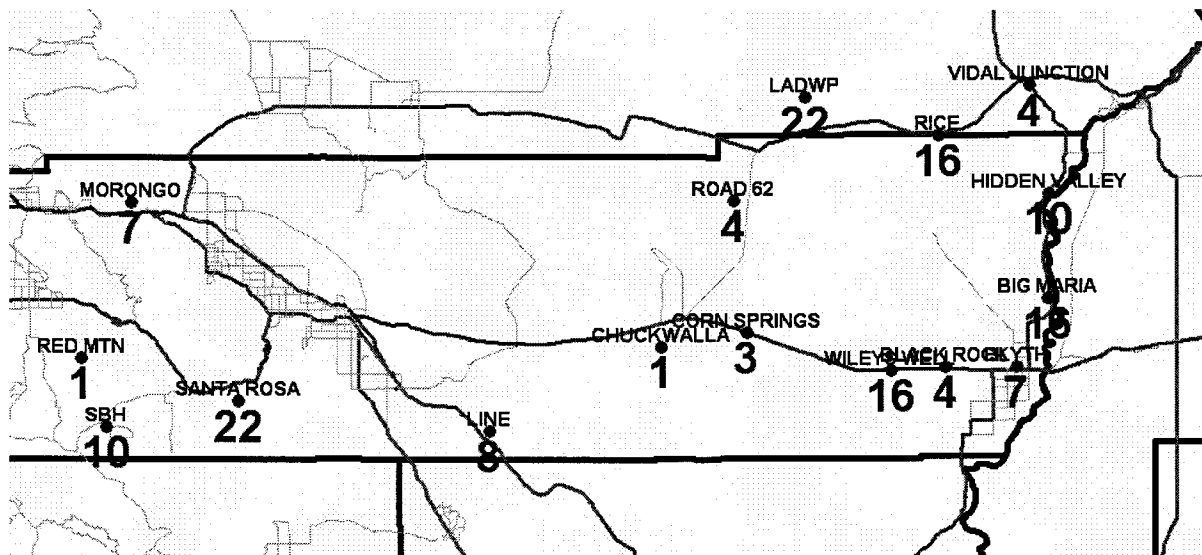
The 700 MHz frequency plan took into consideration the frequencies allocated to neighboring Region 5 agencies.

### Frequency Re-Use within Riverside County Sites

A pool of 38 frequency pairs currently licensed to the County was considered for the 821 MHz plan. Due to the number of sites required for the PSEC project, re-use of the frequencies was required. A re-use analysis was performed and the result was a determination of what sites within the system could re-use frequencies without significant interference problems. Appendix A

of Section 17 – Spectrum of DRD includes a spreadsheet outlining the 821 MHz plan and it visually shows the frequency re-use between sites.

The VENDOR coverage prediction tool can generate a frequency re-use plan based on the System design parameters. This determines which channels can be re-used throughout the County without interference. The following figure is an example of the output.



**Figure 3: Sample Frequency Re-use Map**

The numbers represent an arbitrary frequency assigned to a Site. For example, Channel 1 at Chuckwalla can be re-used at Red Mountain. Channel 7 at Morongo can be re-used at Blythe and so forth.

As part of the 700 MHz coverage re-design, frequency re-use has been employed maximizing the use of the 700 MHz channels allocated to the County of Riverside by the Region 5 700 MHz Plan.

**Frequency Plan Results**

The final step in the process was to choose usable frequencies that worked within the combining scheme and that could be re-used in other parts of the County based on the frequency re-use analysis performed in the previous step. The following table illustrates the channel assignments for each simulcast cell and ASTRO 25 Trunked Repeater Site.

The frequency plan included for 821 MHz in this Attachment MHZ at the effectiveness of the Agreement is superseded by the 821 MHz plan included in Appendix A of Section 17 -- Spectrum of DRD.

The DRD 821 MHz frequency plan is superseded by the attached 700 MHz frequency plan.

**Frequency Plan for Contour D – VHF Channels**

The VHF frequency plan includes two groups of channels. The first group of frequencies is for the simulcast cell, and the second group of frequencies is for the trunk Sites. The plan is illustrated in the tables below.

**Simulcast Cell Channel Summary**

El Cariso	Elsinore Peak	Rancho Carrillo	Redondo Mesa
7	7	7	7

5	5	5	5
3	3	3	3

**Table 2: Simulcast Cell VHF Frequency Plan**

Trunk Sites Channel Summary

Belle	Cottonwood	Joshua Tree	Black Eagle	Black Jack	Chuckwalla	Lost Horse	Spring Hill
11	12	10	13	10	14	13	11
6	7	5	8	5	9	7	7
4	3	3	2	2	1	2	3

**Table 3: Trunk Sites VHF Frequency Plan**

The channel plans are based on VENDOR's proposed solution. During the Final Design phase there is a potential for changes (i.e. due to site acquisition) and VENDOR understands that portions of this analysis will have to be re-done. A detailed frequency analysis will be delivered to the County based on the final Site selection as part of the Final Design.

## HPD RF Channel Design

### Frequency Plan

VENDOR's DRD HPD solution is based on 25 kHz operation in the 700/800 MHz frequency ranges. The proposed frequency plan for the HPD Data Radio System is based on 25 kHz, 806 MHz and 700 MHz channels. Two main factors were considered in order to determine the least number of channels required for the HPD Data Radio System. The first factor was to determine which Sites could use the same channel based on the coverage footprint of each Site. Once it was established what Sites could re-use frequencies, research of licensable 806 MHz frequencies was conducted. This second factor was thorough and involved analyzing co and adjacent channel users. The frequencies included in Section 17 – Spectrum of DRD describe the 18 frequency pairs that have been identified for the County as part of the PSEC project for HPD use. Appendix C of Section 17 – Spectrum of DRD includes a spreadsheet outlining the 806 MHz and 700 MHz plan and it visually shows the frequency re-use between sites.

The frequency plan included for 806 MHz in this Attachment MHZ at the effectiveness of the Agreement is superseded by the 806 MHz and 700 Mhz plans included in Appendix A of Section 17 -- Spectrum of DRD.

The DRD frequency plan described in the preceding paragraphs for HPD sites will be replaced with the frequencies identified in the attached 700 MHz frequency plan.

### Contour D – HPD Overview

The core High Performance Data system proposed by VENDOR includes the use of 24 Sites. VENDOR simulated coverage from the proposed 24 Sites and provided coverage maps depicting a 95% area message success rate (MSR) with protocol retries. The coverage provided by 24 Sites design compared to the Contour-D requirement showed areas of non-coverage primarily in certain eastern portions of the County with some small areas in the west. To provide coverage into some of these uncovered areas of Contour-D, VENDOR is to provide a HPD base station at three of the additional Sites. VENDOR has provided a 95% area MSR coverage map depicting the enhanced coverage provided by the additional Sites.

This section addresses the changes to the HPD infrastructure previously described, which include the master Site, base Sites, and channel usage.

### Base Sites

Three HPD base stations with redundant site controllers will be provided at the Joshua Tree, Black Eagle, and Black Jack base Sites. Each of these Sites will include a HPD capable GTR 8000 Base Radio and redundant GTR 8000 Site Controller. The HPD base stations will utilize an antenna system that is separate from the voice antenna system. The antenna system for each HPD station will include two antennas. The first antenna will be used with a duplexer for transmit and receive functions, and the second antenna will be a receive-only antenna that will provide diversity receive capability. The antenna systems include all necessary cabling, connectors, grounding, and other installation hardware.

**Table 5: Contour D HPD Sites**

SITE NAME	AREA OF COVERAGE
BLACK JACK	Area North of I-10 along Pallen Granite Mountain range.
JOSHUA TREE	Joshua Tree national Monument and Park
BLACK EAGLE	Area between Hwy 177 and the Joshua Tree National Park

### Channel Usage

Each of the three additional HPD base Sites will require the use of one 700 MHz 25 KHz channels as a consequence of the 700 MHz Change.

### Microwave Frequencies

VENDOR will be responsible for all frequency coordination and license preparation, the County will file all paper work. VENDOR will verify prior to placing equipment order that required frequencies are available.



**EXHIBIT C TO AMENDMENT #4**

**SPC ANNEX COVERAGE MAPS**

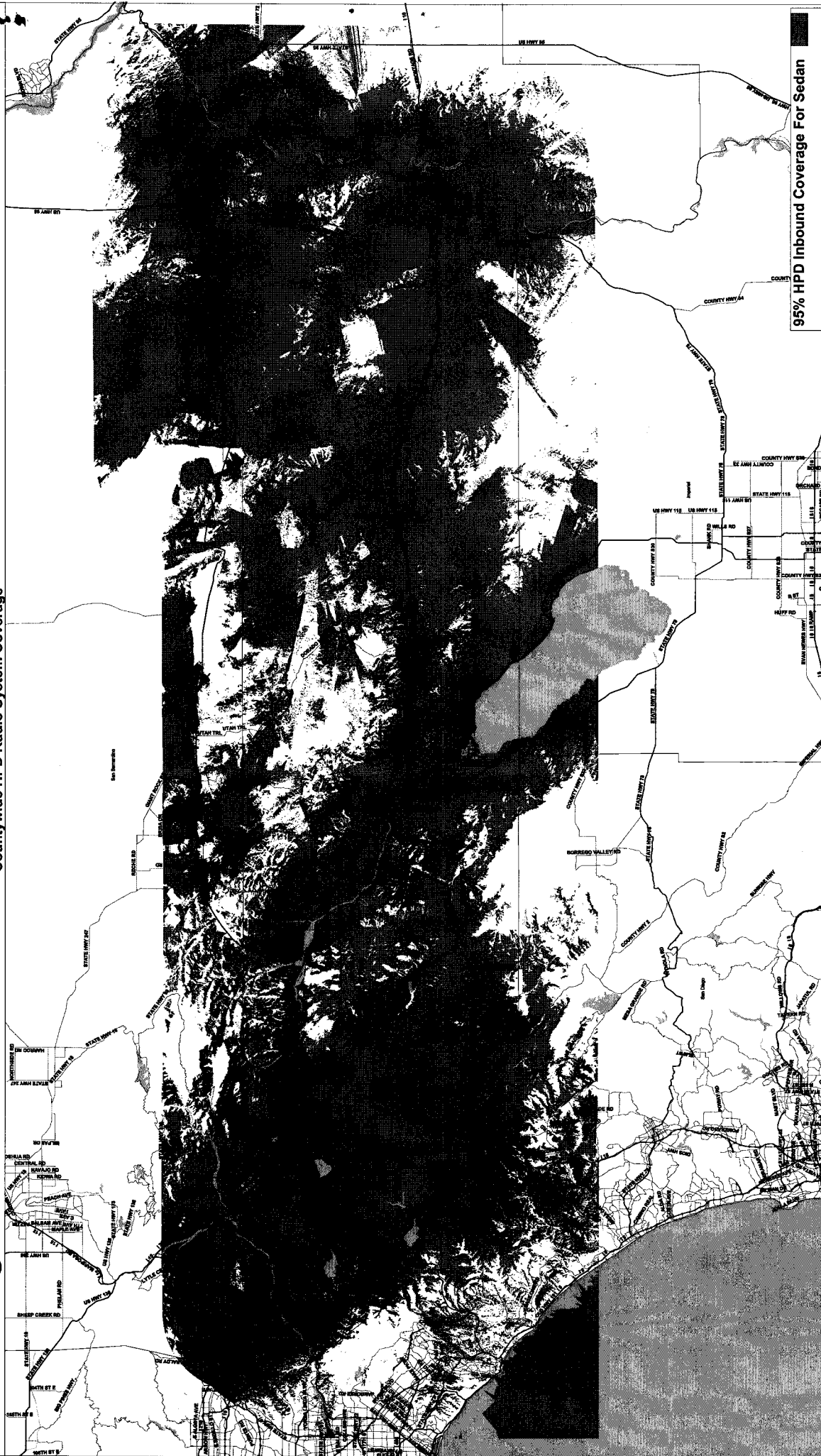
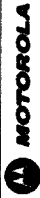
**C-1 COUNTYWIDE COMPOSITE VOICE RADIO SYSTEM COVERAGE – INBOUND**

**C-2 COUNTYWIDE COMPOSITE VOICE RADIO SYSTEM COVERAGE – OUTBOUND**

**C-3 COUNTYWIDE HPD RADIO SYSTEM COVERAGE – INBOUND**

**C-4 COUNTYWIDE HPD RADIO SYSTEM COVERAGE - OUTBOUND**

Public Safety Enterprise Communication Project  
Countywide HPD Radio System Coverage



700MHz Coverage Redesign  
Coverage Shown For A Sedan With A Roof Mounted Antenna

0 6.50 13.00 mi  
1 inch = 6.50 miles @ 1/411840

95% HPD Inbound Coverage For Sedan

MINUTES OF THE BOARD OF SUPERVISORS  
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA



**3.24**

On motion of Supervisor Ashley, seconded by Supervisor Buster and duly carried by unanimous vote, IT WAS ORDERED that the recommendation from Public Safety Enterprise Communication Project Executive Steering Committee regarding Approval of the Frequency Reconfiguration Agreement (FRA) with Nextel; Relinquish 800 MHz MACom subscriber equipment and frequencies in the FRA to Nextel upon completion of the PSEC Project; and Approval of the Fourth Amendment to the Public Safety Enterprise Communications System Agreement with Motorola, Inc.; and Approval of a Budget Adjustment is continued to Tuesday, February 15, 2011 at 9:00 a.m.

I hereby certify that the foregoing is a full true, and correct copy of an order made and entered on February 8, 2011 of Supervisors Minutes.

WITNESS my hand and the seal of the Board of Supervisors  
Dated: February 8, 2011  
Kecia Harper-Ihem, Clerk of the Board of Supervisors, in  
and for the County of Riverside, State of California.

(seal)

By: [Signature] Deputy

AGENDA NO.  
**3.24**

xc: Committee, E.O., CQB