



March 9, 2007

*(Revised Reconfiguration Quote per Customer request)*

Ms. Wendra Williams  
County of Walton, Georgia  
2640 Whitney Road  
Monroe, GA 30655

Dear Ms. Williams,

Motorola is pleased to present this proposal for reconfiguration services required to modify your radio system to comply with the Federal Communication Commission's Rebanding Report & Order. The FCC mandates that Walton County move their 800MHz System frequencies as part of an overall effort by the FCC to reduce interference in the 800MHz band.

Motorola will work closely with Walton County to ensure that we have a complete understanding of your current operational needs and that these are kept at the forefront during planning and while reconfiguring your operational communication system. We will provide a complete evaluation of your system to insure a successful reconfiguration. These considerations are incorporated into two separate rebanding quotations.

The attached agreement was developed for your 800 MHz communication system based on our understanding of your existing equipment inventory and system configuration. Any variance to this inventory information which results in a change to the scope of work or schedule will be addressed via a change order. Please note that this proposal covers *Phase I* of the reconfiguration project to address the Non-NPSPAC frequencies.

Motorola will commence *Phase I* of this reconfiguration effort for the Walton County system once this proposal is agreed to by Nextel and the rebanding Transition Administrator. As outlined in the guidelines of the Transition Administrator, the attached Statement of Work and accompanying price page should be included with your request for [reconfiguration funding forms](#) and faxed to Transition Administrator at 888-701-4380 or via e-mail at [Comments@800TA.org](mailto:Comments@800TA.org). If you have any questions regarding this proposal, please contact your Motorola Rebanding Strategist, David Chastain at 770-617-9281 or your Motorola Account Manager, Tom Vancamp at 770-617-8578.

Regards,

*Lee Maynard*

Lee Maynard  
Motorola Rebanding Lead – Systems Integration

### Reconfiguration Implementation Phase Agreement for Phase I

Motorola, Inc. (“Motorola”) and **Walton County, Georgia** (“Customer” or “Licensee”), whose main address is **2640 Whitney Road, Monroe, GA 30655**, enter into this Reconfiguration Implementation Phase Agreement (“Agreement”), pursuant to which Licensee will purchase and Motorola will sell the Reconfiguration Implementation Phase products and/or services described below, and the parties will perform their duties as described in this Agreement. Motorola and Licensee may be referred to individually as a “Party” and collectively as the “Parties.” This Agreement is made with reference to the following recitals.

A. On August 6, 2004, the Federal Communications Commission (“FCC”) issued a Report and Order FCC 04-168 that modified its rules governing the 800 MHz band to minimize harmful interference to public safety communications systems. On December 22, 2004, the FCC issued a Supplemental Order and Order on Reconsideration FCC 04-294. The August 6 and December 22, 2004 orders, and any supplemental orders issued by the FCC, are collectively referred to as the “Order.”

B. Pursuant to the Order, certain licensees of 800 MHz channels used in public safety or other systems must relinquish their existing channels and relocate their systems to other licensed channels (“Replacement Channels”); and Nextel Communications, Inc. must relinquish some of its existing channels and must provide and pay relocation funds (“Relocation Funds”) to enable affected licensees (like Licensee) to relocate their systems onto Replacement Channels and reconfigure their systems so that they are “Comparable Facilities.”

C. The FCC has appointed a Transition Administrator (the “TA”) to ensure that the rebanding initiative proceeds on schedule and in a planned and coordinated manner so that disruption to a licensee’s system is minimized. In the TA’s “Reconfiguration Handbook,” the two phases to accomplish reconfiguration are described as the “Reconfiguration Planning Phase” and the “Reconfiguration Implementation Phase.” This Agreement addresses only the Reconfiguration Implementation Phase. Licensee has selected Motorola to provide the Reconfiguration Implementation Phase Products and Services (as defined below).

D. The Parties acknowledge that additional products or services may be needed for Licensee to achieve Comparable Facilities, and these additional products may be provided by other vendors and these additional services may be performed by Licensee’s own personnel or by its other contractors. This Agreement describes only the Reconfiguration Implementation Phase Products and Services that Motorola is providing to Licensee.

E. This Agreement is not intended to, and does not, apply to the delivery of any products or services that are not related to the Reconfiguration Implementation Phase activities. If Licensee desires to purchase from Motorola products or services that are not related to these reconfiguration activities, including radio feature enhancements, the Parties will document that transaction in another separate contract.

For good and valuable consideration, the Parties agree as follows:

#### Section 1 EXHIBITS

The exhibits listed below are incorporated into and made a part of this Agreement. In interpreting this Agreement and resolving any ambiguities, the main body of this Agreement takes precedence over the exhibits.

Exhibit A	Payment Milestone Schedule
Exhibit B	Acceptance Certificate
Exhibit C	Motorola’s Phase I Proposal dated <b>03/09/07</b> , which includes all of the “Technical and Implementation Documents” such as (if applicable): the “Reconfiguration Products List,” the “Reconfiguration Services Statement of Work” or “SOW,” including Benchmark Tests, if any, the “Reconfiguration Acceptance Test Plan” or “ATP,” and the “Performance Schedule”



## Section 2 DEFINITIONS

In addition to the defined terms above, capitalized terms used in this Agreement have the following meanings:

- 2.1. “Acceptance Tests” means those tests described in the Reconfiguration ATP, the primary purpose of which is to verify that the Licensee’s System has been relocated onto Replacement Channels and reconfigured consistently with this Agreement.
- 2.2. “Benchmark Tests” means the initial tests performed by Motorola on behalf of Licensee to determine the current condition, capability, and functionality of Licensee’s System. Depending on the complexity and specific requirements of the reconfiguration efforts, the Benchmark Tests may include testing of some or all of the following: channel capacity, signaling capacity, baud rate and access time, geographic coverage, penetration, redundancy, and other functional and operational capabilities and limitations of Licensee’s existing facilities. The precise requirements of the Benchmark Tests is (or by change order will be) described in the Reconfiguration Services Statement of Work. Qualified representatives of Licensee may observe the performance of the Benchmark Tests.
- 2.3. “Comparable Facilities” means the Licensee’s System (including the subscriber radio equipment) having the same operational capabilities that existed before relocation, specifically (1) equivalent channel capacity; (2) equivalent signaling capacity, baud rate, and access time; (3) coextensive geographical coverage; and (4) equivalent operating costs.
- 2.4. “Confidential Information” means any information that is disclosed in written, graphic, verbal, or machine-recognizable form, and is marked, designated, labeled or identified at the time of disclosure as being confidential or its equivalent; or if the information is in verbal form, it is identified as confidential or proprietary at the time of disclosure and is confirmed in writing within thirty (30) days of the disclosure. Confidential Information does not include any information that: is or becomes publicly known through no wrongful or negligent act of the receiving party; is already known to the receiving party without restriction when it is disclosed; is, or subsequently becomes, rightfully and without breach of this Agreement, of any other agreement between the Parties or of any applicable protective or similar order, in the receiving party’s possession without any obligation restricting disclosure; is independently developed by the receiving party without breach of this Agreement; or is explicitly approved for release by written authorization of the disclosing party.
- 2.5. “Contract Price” means the price for the Reconfiguration Implementation Phase Products and Services, excluding any applicable sales or similar taxes, but including freight charges. The Contract Price also excludes the pricing for any Rebanding Radios, Non-Kit Accessories, and Flash Kits which will be invoiced directly to Nextel pursuant to Section 5.2.1.1.
- 2.6. “Cost Estimate” means the Licensee’s certified estimate of costs as provided to Nextel and the TA submitted in conjunction with a request for Relocation Funds to provide Comparable Facilities.
- 2.7. “Licensee’s Final Certification” means the Licensee’s final certification to Nextel and the TA certifying that (i) the Acceptance Tests described in the Reconfiguration ATP have been satisfactorily completed, (ii) all necessary reconfiguration work has been satisfactorily completed to provide Licensee with Comparable Facilities, and (iii) Nextel and Licensee have agreed on the sum paid for such relocation of the Licensee’s facilities.
- 2.8. “Customer Suitability Assessment” means the initial assessment services performed by Motorola to determine whether Licensee’s System (infrastructure) is suitable for updating using the Motorola Software that has been especially modified for purposes of the 800 MHz band reconfiguration.
- 2.9. “Effective Date” means that date upon which all Parties have executed this Agreement.



- 2.10. “Field Services” means the reflashing and installation of a Flash Kit (as defined in Section 3.1.4), firmware, programming, creation of user templates and/or setting of local configurations or other on-site services in accordance with the FCC’s 800MHz band plan on Licensee’s System.
- 2.11. “Force Majeure” means a material event, circumstance, or act of a third party (including Nextel or the TA) that is beyond a Party’s reasonable control. An act of God, the public enemy, a government entity, or another Party (including another Party’s failure to comply with the 800 MHz Rules); strikes or other labor disturbances, general unavailability of necessary materials, hurricanes, earthquakes, fires, floods, epidemics, embargoes, war, and riots are examples of a Force Majeure.
- 2.12. “Infringement Claim” means a third-party claim alleging that the Reconfiguration Implementation Phase Products manufactured by Motorola or any Motorola Software infringes upon the third-party’s United States patent or copyright.
- 2.13. “Motorola Software” means Software that Motorola or its affiliated company owns.
- 2.14. “Nextel” means Nextel Communications, Inc. and any other affiliate, including Sprint Nextel.
- 2.15. “Non-Motorola Software” means Software that a party other than Motorola or its affiliated company owns.
- 2.16. “Non-Kit Accessory” means an accessory that is used for subscriber radios but is not part of the radio kit.
- 2.17. “Products” means either the hardware, Software, or both, that are provided under this Agreement.
- 2.18. “Proprietary Rights” means the patents, patent applications, inventions, copyrights, trade secrets, trademarks, trade names, mask works, know-how, and other intellectual property rights in and to any documents delivered by Motorola under this Agreement or any Motorola Software or equipment.
- 2.19. “Rebanding Radio” means a Motorola manufactured rebanding subscriber radio product (mobile or portable), including the accessories in the radio kit, that is designed and manufactured specifically for the 800 MHz rebanding initiative and is designated by Motorola with an “RB” model number.
- 2.20. “Reconfiguration Implementation Phase Products” means those Products to be provided by Motorola under this Agreement.
- 2.21. “Reconfiguration Implementation Phase Services” means those implementation services to be provided by Motorola under this Agreement.
- 2.22. “Reconfiguration Implementation Phase Products and Services” means those Reconfiguration Implementation Phase Products and Reconfiguration Implementation Phase Services that Motorola sells under this Agreement.
- 2.23. “Software” means the Motorola and Non-Motorola Software in object code format that is furnished under this Agreement, including any releases or software kits to reprogram radios. This Agreement does not involve any source code.
- 2.24. “Specifications” means the functionality and performance requirements that are described in the Technical and Implementation Documents.
- 2.25. “System” means the hardware and software products that comprise the Licensee’s existing 800 MHz radio communications system.
- 2.26. “System Acceptance” means the Acceptance Tests have been successfully completed.



2.27. “Trade-In Non-Kit Accessory” means a legacy accessory that is used for a Trade-In Radio but is not part of the radio kit, is owned and has been used by the Licensee, and which will be provided to Motorola as a trade-in in exchange for a Non-Kit Accessory on a one-for-one basis.

2.28. “Trade-In Radio” means a radio (whether manufactured by Motorola or any other manufacturer) that is owned and has been used by a Customer, and which will be provided to Motorola as a trade-in in exchange for an Rebanding Radio on a one-for-one basis.

### **Section 3 SCOPE OF AGREEMENT AND TERM**

#### **3.1. SCOPE OF WORK.**

3.1.1. General. The Parties will perform their respective contractual responsibilities in accordance with this Agreement, including the Technical and Implementation Documents.

3.1.2. Licensee Responsibilities. Licensee is responsible for all activities that are reasonable, necessary and prudent to make the Licensee’s System satisfy the Comparable Facilities standard. Licensee has selected Motorola to assist it in accomplishing these activities and has determined that the Reconfiguration Implementation Phase Products and Services are necessary for Licensee’s System to satisfy the Comparable Facilities standard.

3.1.2.1. Licensee will designate a project manager who will be Licensee’s point of contact person. Licensee will employ reasonable efforts to assist Motorola in providing the Reconfiguration Implementation Phase Services, and will provide reasonable and timely access to Licensee’s equipment, facilities, personnel and relevant information.

3.1.2.2. Licensee has contracted with Nextel in a Frequency Reconfiguration Agreement (“FRA”) which, among other things, contractually obligates Nextel to pay Motorola the Contract Price per the Payment Milestone Schedule (Exhibit A). Licensee will ensure that the FRA provides for direct payment by Nextel to Motorola. Promptly after execution of the FRA, Licensee will provide to Motorola a copy of those portions of the FRA that pertain to Motorola’s services, products, pricing and payment, including Attachments C and D to the FRA (redacted if necessary to exclude information not pertaining to Motorola).

3.1.2.3. Licensee has submitted its Cost Estimate to Nextel and the TA, and will provide amended certified Cost Estimate(s) to Nextel and the TA if and when appropriate, including when any change order is requested by either Party. For the limited purpose of assisting Nextel and the TA to evaluate Licensee’s Cost Estimate, Motorola authorizes Licensee to and Licensee will provide to Nextel and the TA a copy of this Agreement, including the exhibits and pricing, but such information is and remains Motorola Confidential and Proprietary as provided below in Section 13 (and pursuant to Non-Disclosure Agreements Motorola has with Nextel and the TA). After the successful completion of the Acceptance Tests described in the Reconfiguration ATP, Licensee will perform any other tests necessary for it to verify that its System meets the Comparable Facilities standard; and upon that verification, will submit Licensee’s Final Certification to Nextel and the TA.

3.1.2.4. For the limited purpose of assisting Nextel and the TA to verify consistency concerning the rebanding products and services approved in the FRA and the rebanding Products and services ordered by Licensee and provided to Licensee under this Agreement, either Motorola or Licensee may provide to Nextel and the TA records showing the rebanding Products ordered, shipped, delivered, etc. (or a written summary of these records), and the services performed, but such records shall remain the Confidential Information of the applicable Party as determined by Section 13 below and will be protected under any non-disclosure agreements the Party has with Nextel and the TA.

3.1.3. Motorola Responsibilities. Motorola will provide the Reconfiguration Implementation Phase Products, and perform the Reconfiguration Implementation Phase Services, all in accordance with this Agreement.



3.1.4. Reprogramming. (Note: this section is not applicable to every customer system.)

Motorola and Nextel have entered into an agreement (the “Development Services Agreement”) to modify and test certain Motorola Software for rebanding because some customer systems have equipment that is capable of being reprogrammed rather than being replaced. The Development Services Agreement is confidential, and nothing in this Agreement is intended to reduce or nullify the confidential nature of the Development Services Agreement. As part of the Development Services Agreement and subject to various requirements, limitations and restrictions, Motorola has agreed to offer (for a per unit fee) “Flash Kits” to appropriate customers so that their equipment may be reprogrammed. Concerning infrastructure equipment, Motorola will provide Flash Kits only if Motorola has performed a Customer Suitability Assessment and has determined that the customer’s equipment is suitable for reprogramming. Concerning Motorola-manufactured subscriber equipment, Motorola will provide available Flash Kits without a suitability assessment, but Licensee acknowledges that not all Motorola subscriber models are capable of being reprogrammed. Even if a customer’s system is of the type and model that is suitable for reprogramming, if Motorola determines that the customer’s system is not on the last release of the Motorola Software, reprogramming might be infeasible or may require supplemental services, hardware, cabling, third party licensing fees, or other equipment to migrate the customer’s system to the last supported version of the Motorola Software (referred to as “Direct Installation Services”).

3.1.4.1. If the infrastructure equipment in Licensee’s System is capable of being reprogrammed, then the Reconfiguration Services Statement of Work should include a Customer Suitability Assessment (unless Motorola performed such assessment during planning). The results of the Customer Suitability Assessment should indicate if Direct Installation Services are needed and, if so, the scope of the Direct Installation Services; and the appropriate number and type of Flash Kits to be ordered from Motorola to match the requirements of Licensee’s System and upgrade plan as indicated in the Customer Suitability Assessment; and whether Motorola proposes to perform the Field Services concerning the installation of the Flash Kits. Once the results of the Customer Suitability Assessment are known, these other services may need to be added to the scope of work as described in the Reconfiguration Services Statement of Work by means of a change order to this Agreement.

3.1.4.2. If Licensee (rather than Motorola) performs the inventory of System equipment, it will deliver the written inventory report to Motorola at least two (2) weeks before Motorola is scheduled to perform the Customer Suitability Assessment. Licensee agrees that its inventory report will be accurate and sufficiently detailed so that Motorola may perform the Customer Suitability Assessment. If the inventory report contains inaccurate, erroneous, or incomplete inventory information, Motorola is not liable for an incorrect or incomplete Customer Suitability Assessment; and any reassessment or consequences caused by Licensee’s inaccurate, erroneous, or incomplete inventory information will be the responsibility of Licensee.

3.1.4.3. Motorola is not obligated to (and does not intend to) offer, sell or provide to Licensee the Flash Kits for infrastructure equipment if Motorola does not perform the Customer Suitability Assessment and determines that Licensee’s System is suitable. If Motorola performs the Customer Suitability Assessment and determines that infrastructure equipment in Licensee’s System is suitable, and if Motorola performs the Direct Installation Services, if needed, and if Licensee orders the Flash Kits, then Motorola will offer to perform the Field Services (the scope and price of the Field Services will be addressed by means of a change order). **To the extent applicable, Motorola’s obligations to sell and provide Flash Kits, Direct Installation Services, and/or Field Services will be expressly described in the Reconfiguration Products List and Reconfiguration Services SOW. If they are not so described, then Section 3.1.4 is not applicable to this transaction. Nothing in this Agreement shall restrict or limit a qualified third party service provider selected by Licensee from performing Field Services, but if a party other than Motorola provides the Field Services, the warranty in Section 8.2.1 is inapplicable.**

3.2. **CHANGE ORDERS.**

3.2.1. General. Either Motorola or Licensee may request changes within the general scope of this Agreement which, if agreed, will be reflected in a written change order. A change order is not effective until it is executed by each of the Parties. The Parties will negotiate in good faith any requested change order.



3.2.2. Reconfiguration Implementation Phase Products and Services. If a requested change causes (or is likely to cause) an increase in the Contract Price: (1) Motorola will provide Licensee with its written estimate of: (a) the scope of the changes to the Products and Services, and (b) the increase in the Contract Price due to the requested change, and (2) Licensee will perform its own analysis of the impact of the requested change on the Contract Price and the necessity of the changes to achieve the Comparable Facilities standard, and (3) Licensee will submit to Nextel and the TA its modified Cost Estimate. Licensee will provide to Motorola a copy of any approvals or rejections of change orders by Nextel or the TA. Motorola may include charges for waiting time, down time, or remobilization efforts while Nextel and the TA reviews and approves change orders (collectively, “Waiting Time”) in its calculation of the increase in the Contract Price, and these charges might be fixed, might be based on a per diem after a specified number of Waiting Time days, or a combination thereof.

3.2.3. Change Orders Not Approved by Nextel and the TA. If the commencement of all or a portion of the work is authorized in writing by Licensee but the change order is: (i) not submitted by Licensee to Nextel and the TA, or (ii) submitted but not approved by Nextel and the TA, then the authorized change in the work and to the Contract Price will automatically convert to a request for additional work to be paid by Licensee with its own funds and the conversion will be without prejudice to Licensee’s right to submit or re-submit the change order to Nextel or the TA or to dispute the decision by Nextel or the TA refusing to approve the change order.

3.2.4. Emergency Change Orders. If the subject of a change order involves a Severity Level 1 (Total System Failure) or Severity Level 2 (Critical Failure) problem and if Motorola and Licensee reasonably conclude that remediation efforts must occur before Licensee obtains Nextel and TA approval, then the Parties will follow the change order process to the extent reasonably practical, Motorola will perform the remediation work described in the Emergency Change Order, Licensee will promptly request approval or ratification of the Emergency Change Order by Nextel and the TA, and the provisions of Section 3.2.3 will apply if Nextel or the TA withhold approval.

3.3. **MAINTENANCE AND SUPPORT SERVICES.** Other than the warranty services described in Section 8, this Agreement does not cover any warranty, maintenance and support services. If Licensee and Motorola wish to address maintenance and support services, they may do so in a separate agreement.

3.4. **SOFTWARE.** Motorola Software, including subsequent releases and Flash Kits, is licensed to Licensee in accordance with Motorola’s applicable standard software license agreement (a copy of which will be provided to Licensee upon request and is incorporated herein by this reference). Non-Motorola Software is licensed to Licensee in accordance with the applicable standard software license agreement of the copyright owner on the Effective Date unless the copyright owner has granted to Motorola the right to sublicense the Non-Motorola Software pursuant to the applicable Motorola software license agreement, in which case it applies and the copyright owner will have all of Licensor’s rights and protections under that Motorola software license agreement. Motorola makes no representations or warranties of any kind regarding Non-Motorola Software. Licensee hereby accepts and agrees to abide by all of the terms and restrictions of the applicable software license agreement.

3.5. **REBANDING RADIOS AND TRADE-IN RADIOS.** Licensee agrees that for each and every Rebanding Radio (and, as applicable, Non-Kit Accessory) that Motorola provides to Licensee under this Agreement (and for each and every upgraded radio that is provided in lieu of a Rebanding Radio by Motorola under any agreement), Licensee shall deliver to Motorola a Trade-In Radio (and, as applicable, Trade-In Non-Kit Accessory) on a one-for-one basis. Licensee will deliver the Trade-In Radios and Trade-In Non-Kit Accessories to Motorola as soon as practical after they are replaced by the Rebanding Radios and Non-Kit Accessories or at a different time mutually agreed by the Parties (but in no event later than fourteen (14) calendar days after System Acceptance as described in Section 7.2 below). Title to the Trade-In Radios and Trade-In Non-Kit Accessories shall pass from Licensee to Motorola upon delivery. Licensee acknowledges that Motorola intends to temporarily store the Trade-In Radios and Trade-In Non-Kit Accessories for inspection and inventory by Motorola and Nextel and will destroy them thereafter. Licensee shall be responsible to comply with its asset disposition policies and requirements concerning the Trade-In Radios and Trade-In Non-Kit Accessories.

3.5.1. Licensee's Failure to Deliver Trade-In Radios and/or Trade-In Non-Kit Accessories. If for any reason the number of Rebanding Radios (or upgraded radios) and/or the number of Non-Kit Accessories delivered by Motorola to Licensee exceeds the number of Trade-In Radios and/or the number of Trade-In Non-Kit Accessories delivered by Licensee to Motorola (the "Unmatched Equipment"), then Motorola will notify Licensee of this deficiency and Licensee will at its expense immediately return to Motorola the Unmatched Equipment in new condition. If Licensee fails to return the Unmatched Equipment to Motorola, then Motorola may charge Licensee for retaining the Unmatched Equipment and the unit price will be the full list price of the most similar non-rebanding Motorola radio and/or Non-Kit Accessory (or such lesser price as Motorola in its sole discretion may determine). Alternatively, Motorola may resort to any other available legal or equitable remedy, including specific performance. Licensee acknowledges that Nextel is not responsible to pay for Unmatched Equipment and Licensee agrees to pay Motorola for the Unmatched Equipment. If Licensee returns the Unmatched Equipment to Motorola but it is not in new condition, then Motorola may charge Licensee for the returned used Unmatched Equipment in an amount equal to the diminished value from new condition and Licensee agrees to pay this amount.

#### **Section 4            PERFORMANCE SCHEDULE**

4.1. **SCHEDULE.** The Parties will perform their respective responsibilities in accordance with the Performance Schedule. By executing this Agreement, Licensee represents that it has obtained all necessary approvals (including Nextel, the TA, and if necessary its legislative or governing authority) and authorizes Motorola to proceed with performance of this Agreement.

4.2. **DELAYS.** No Party will be liable for its non-performance or delayed performance if caused by a Force Majeure. A Party will notify the other Party if it becomes aware of a Force Majeure that will significantly delay performance. The notifying Party will give the notice promptly after it discovers the Force Majeure. If a Force Majeure occurs, the Parties will execute a change order to extend the Performance Schedule for a time period that is reasonable under the circumstances. If Licensee (including its other contractors), Nextel or the TA delays the Performance Schedule, the Parties will execute a change order to extend the Performance Schedule and, if requested, compensate Motorola for all reasonable charges incurred because of the delay.

#### **Section 5            CONTRACT PRICE, PAYMENT AND INVOICING**

##### **5.1.        CONTRACT PRICE.**

5.1.1. Contract Price. The Contract Price in U.S. dollars is **\$128,961 (for Phase 1)**. Motorola has priced the Reconfiguration Implementation Phase Products and Services as an integrated solution; a reduction in Product quantities or in services may affect the overall Contract Price. Licensee represents that (1) its Cost Estimate is sufficient to cover the Contract Price and any applicable sales or similar taxes; and (2) Nextel and the TA have reviewed and approved Licensee's Cost Estimate.

5.1.2. Payment from Nextel; Licensee Not Liable for Contract Price. Payment of the Contract Price (and any applicable taxes) is to come from Nextel and not Licensee. If Nextel fails to pay Motorola, Licensee shall not be liable to pay Motorola the Contract Price or applicable taxes. Notwithstanding the above, if Nextel pays the Contract Price (and any applicable taxes) to Licensee rather than to Motorola, Licensee will immediately forward the payment to Motorola. Motorola agrees to accept direct payments from Nextel if Nextel clearly identifies the applicable Motorola invoice; Motorola further agrees to apply these direct payments from Nextel to the Contract Price.

5.1.3. Motorola's Protections Concerning Payment by Nextel. If requested by Motorola, Licensee will execute necessary documents and take all such actions that are reasonable or necessary to promote the prompt payment by Nextel to Motorola.



## 5.2. INVOICING AND PAYMENT.

5.2.1. **Invoicing.** Motorola will submit correct invoices to Licensee, with a copy to Nextel, in accordance with the pre-approved payment milestones set forth in Exhibit B. Licensee's contact person and address for invoice purposes are: **Ms. Wendra Williams, Walton County 911 Communications Center, 2640 Whitney Road, Monroe, GA 30655**. Licensee may change this contact person or address by written notice to Motorola. Upon receipt of an invoice, Licensee will promptly (but in no event longer than seven (7) calendar days) inspect the invoice, verify whether it correctly states the payment milestone, and notify Nextel in writing (via facsimile or priority overnight carrier) that Licensee approves the invoice and accepts the milestone (the "Approval Notification"). Licensee will attach a copy of the invoice to the Approval Notification. When Licensee sends to Nextel the Approval Notification, Licensee will concurrently provide to Motorola's project manager a copy of the Approval Notification so that Motorola may know approximately when Nextel receives it. If for any reason Licensee disapproves the invoice, Licensee will promptly give written notice to both Motorola and Nextel; the disapproval notice will explain the reasons for Licensee's disapproval. Motorola will promptly correct any inaccurate invoice that Licensee disapproves, and resubmit the corrected invoice using the same process as described above in this paragraph.

5.2.1.1. Notwithstanding the provisions in Section 5.2.1 above, Motorola may choose to provide to Licensee only a bill of lading for Rebanding Radios, Non-Kit Accessories, and Flash Kits, and provide the applicable invoice directly to Nextel; or Motorola may provide to Licensee an invoice at the typical sales prices/values for these products or at zero dollars (\$0) with a notation that reflects the fact that Nextel has paid (or will pay) for these products directly to Motorola. If Motorola presents to Licensee a bill of lading or an invoice as permitted by this Section 5.2.1.1, Licensee will follow the Approval Notification process as described above but may assume the invoice amount is correct (and has no liability for incorrect invoices).

5.2.2. **Direct Payment.** Unless otherwise agreed between Nextel and Motorola, payment to Motorola for approved invoices is due thirty (30) days from the date Nextel receives the Approval Notification from Licensee. Motorola's Federal Tax Identification Number is 36-1115800.

5.2.3. **Mutual Cooperation.** The Parties will cooperate with each other and provide to each other, and to Nextel and the TA, such information (other than Confidential Information, which is governed by Section 9.1) as is reasonable or necessary to facilitate the prompt payment of the Contract Price to Motorola.

5.2.4. **Audit of Licensee's Records.** The Order provides that after the reconfiguration work is completed, the TA will perform an audit of Licensee's records and "true up" procedure, whereby the reconfiguration work actually performed will be examined relative to the reconfiguration work described in Licensee's Cost Estimate, and any payment adjustments will be calculated and made. During this true up procedure, Motorola and Licensee will work together in good faith and will act reasonably in order for Licensee to accurately account for the invoices from and payments to Motorola. If necessary, the Parties will execute a change order to conform the scope of the actual reconfigured work performed to the scope of the contracted reconfigured work; this change order will be submitted for approval and may result in an increase or decrease to the Contract Price. Nothing in this Agreement grants Nextel, the TA, the FCC, any part of the U.S. federal government, or Licensee the right to audit Motorola's records concerning this Agreement or any other matter.

5.3. **FREIGHT, TITLE, AND RISK OF LOSS.** Motorola will prepay and add all freight charges to the invoices. Title to the Products, excluding Software, will pass to Licensee upon shipment. Software is governed by the applicable software license agreement. Risk of loss to Products will pass to Licensee upon delivery. Motorola will pack and ship all Products in accordance with good commercial practices.

## Section 6 SITES AND SITE CONDITIONS (To the extent applicable.)

6.1. **ACCESS TO SITES.** Licensee will provide any necessary construction and building permits, zoning variances, licenses, and any other approvals related to Licensee's property and equipment that are necessary to develop or use the sites or equipment; and access to the Licensee's work sites as reasonably requested by Motorola



so that it may perform its duties in accordance with the Performance Schedule and Reconfiguration Services Statement of Work.

6.2. **SITE CONDITIONS.** Licensee will ensure that all work sites it provides will be safe, secure, and in compliance with all applicable OSHA and industry standards. To the extent applicable, Licensee will ensure that these work sites have adequate physical space; air conditioning and other environmental conditions; electrical power outlets, distribution and equipment; and telephone or other communication lines (including modem access and adequate interfacing networking capabilities), all for the installation, use and maintenance of the System. Before installing the Products or performing services at a Licensee work site, Motorola will inspect the work site and advise Licensee of any apparent deficiencies or non-conformities with the requirements of this Section. This Agreement is predicated upon normal soil conditions as defined by the version of E.I.A. standard RS-222 in effect on the Effective Date. If a Party determines that the sites identified in the Technical and Implementation Documents are no longer available or desired, or if subsurface, structural, adverse environmental or latent conditions at any site differ from those indicated in the Technical and Implementation Documents, the Parties will promptly investigate the conditions and will address the issue by a change order.

## **Section 7            SYSTEM ACCEPTANCE**

7.1. **COMMENCEMENT OF ACCEPTANCE TESTING.** Motorola will provide to Licensee at least five (5) days notice before the Acceptance Tests commence. Acceptance testing will occur only in accordance with the Reconfiguration ATP.

7.2. **SYSTEM ACCEPTANCE.** System Acceptance will occur upon successful completion of the Acceptance Tests. Upon System Acceptance, Licensee and Motorola will memorialize this event by promptly executing the System Acceptance Certificate. If Licensee reasonably believes that the completed Acceptance Tests have failed, Licensee will provide to Motorola a written notice that includes the specific details of the failure. If Licensee does not provide to Motorola the notice within thirty (30) days after completion of the Acceptance Tests, System Acceptance will be deemed to have occurred as of the completion of the Acceptance Tests. Minor omissions or variances in the System that do not materially impair the operation of the System as a whole will not postpone System Acceptance, but will be corrected according to a mutually agreed punch list schedule.

7.3. **FINAL PROJECT ACCEPTANCE.** Final Project Acceptance will occur after System Acceptance and when all Motorola deliverables have been delivered and all Motorola work as described in this Agreement has been completed. When Final Project Acceptance occurs, Licensee and Motorola will promptly memorialize this final event by so indicating in the appropriate place on the System Acceptance Certificate.

7.4. **COPIES TO NEXTEL AND THE TRANSITION ADMINISTRATOR.** Licensee will provide to both Nextel and the TA a copy of all executed System Acceptance Certificates.

## **Section 8            REPRESENTATIONS AND WARRANTIES**

8.1. **EQUIPMENT AND PARTS WARRANTY.**

8.1.1. Equipment. For one (1) year from the date of shipment to Licensee, Motorola warrants that newly manufactured equipment it provides under this Agreement will be free from material defects in materials and workmanship under normal use and service. This Agreement does not create or extend any warranties concerning equipment that was part of the System and was already in service at the Effective Date.

8.1.2. Parts. For ninety (90) days from the date of shipment to Licensee, Motorola warrants that component parts and boards that it provides under this Agreement will be free from material defects in materials and workmanship under normal use and service.

## 8.2. MOTOROLA SOFTWARE WARRANTY.

8.2.1. Standard Software Warranty in Newly Manufactured Equipment. For one (1) year from the date of shipment to Licensee, Motorola warrants the unmodified Motorola Software installed or embedded in newly manufactured equipment and delivered under this Agreement, when used properly and in accordance with the product documentation, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Motorola Software. Whether a defect occurs will be determined solely with reference to the published product documentation. Except as provided in Section 8.2.2, this Agreement does not create or extend any warranties concerning Software that was part of the System and was already in service at the Effective Date.

8.2.2. Special Motorola Software Warranty. This special Motorola Software warranty applies only to (i) Flash Kits for subscriber radios if Motorola receives Licensee's order for the appropriate number and type of Flash Kits and performs the Field Services concerning the subscriber radios; and to (ii) Flash Kits for infrastructure Equipment if Motorola performs the Customer Suitability Assessment, determines in writing that Licensee's System is suitable, performs the Direct Installation Services, if needed, receives Licensee's order for the appropriate number and type of Flash Kits, and performs the Field Services concerning the infrastructure equipment.

THE MOTOROLA SOFTWARE THAT IS MODIFIED UNDER THE DEVELOPMENT SERVICES AGREEMENT (EXCLUDING SPECIAL FEATURES AND OTHER SOFTWARE THAT IS OUTSIDE THE SCOPE OF THE DEVELOPMENT SERVICES AGREEMENT), WHEN INSTALLED BY MOTOROLA, WILL PERFORM IN ALL MATERIAL RESPECTS AND WILL INCLUDE MATERIALLY ALL FEATURES AND FUNCTIONALITY AS THE LAST MOTOROLA-SUPPORTED VERSION OF MOTOROLA SOFTWARE IN THE SYSTEM AND SUBSCRIBER EQUIPMENT WHICH IS BEING UPDATED AND/OR REPLACED. TO FURTHER AND SPECIFICALLY CLARIFY, MOTOROLA IS MAKING CHANGES, UPDATES AND MODIFICATIONS TO THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE, AND IT IS THOSE CHANGES (REBANDING CHANGES) THAT MOTOROLA WARRANTS WILL RESULT IN MATERIALLY THE SAME FEATURES AND FUNCTIONALITY VERSUS THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE. THE PARTIES MUTUALLY UNDERSTAND THAT MOTOROLA IS NOT PROVIDING A WARRANTY FOR ANY CHANGES OR LOSS IN FEATURES AND FUNCTIONALITY ("GETTING TO THE BASELINE LAST RELEASE") THAT MIGHT RESULT FROM FIRST HAVING TO UPGRADE ANY EXISTING LEGACY SYSTEM OR EQUIPMENT TO THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE (PRIOR TO MAKING THE REBANDING MODIFICATIONS THAT ARE THE SUBJECT OF THE DEVELOPMENT SERVICES AGREEMENT). LICENSEE WILL HAVE NINETY (90) DAYS FROM SYSTEM ACCEPTANCE OR BENEFICIAL USE OF THE MOTOROLA SOFTWARE, WHICHEVER OCCURS FIRST, TO NOTIFY MOTOROLA IN WRITING OF A SOFTWARE WARRANTY CLAIM AS PROVIDED IN THE PRECEDING TWO SENTENCES. AFTER RECEIPT OF THE NOTICE, MOTOROLA WILL MAKE A GOOD FAITH INVESTIGATION OF THE WARRANTY CLAIM; AND IF THIS INVESTIGATION CONFIRMS A VALID WARRANTY CLAIM, MOTOROLA WILL (AT ITS OPTION AND AS ITS SOLE OBLIGATION AND THE CUSTOMER'S EXCLUSIVE REMEDY) EITHER: (1) CORRECT THE SOFTWARE DEFECT WITHOUT FURTHER CHARGE TO NEXTEL OR LICENSEE; (2) ACCEPT A RETURN OF THE EQUIPMENT THAT CONTAINS THE DEFECTIVE SOFTWARE AND OFFER TO EXCHANGE AN EQUIVALENT PRODUCT PURSUANT TO THIS AGREEMENT AND PROVIDE A CREDIT AGAINST THE PURCHASE PRICE IN THE AMOUNT EQUAL TO THE DIMINUTION IN VALUE OF THE EQUIPMENT CONTAINING THE DEFECTIVE SOFTWARE; OR (3) PAY TO LICENSEE AN AMOUNT EQUAL TO THE DIMINUTION IN VALUE OF THE EQUIPMENT CONTAINING THE DEFECTIVE SOFTWARE. THIS ACTION WILL BE THE FULL EXTENT OF MOTOROLA'S LIABILITY FOR THIS SOFTWARE DEFECT WARRANTY CLAIM. IF MOTOROLA'S INVESTIGATION OF LICENSEE'S WARRANTY CLAIM INDICATES THE CLAIM IS INVALID,



MOTOROLA WILL BE ENTITLED TO CHARGE LICENSEE FOR RESPONDING TO THE CLAIM ON A TIME AND MATERIALS BASIS USING MOTOROLA'S THEN APPLICABLE RATES.

8.2.3. **Flash Kit Medium Warranty.** For 120 days from the date of shipment to Licensee, Motorola warrants that the Flash Kit medium (i.e., the disks and/or dongles) that it provides under this Agreement will be in usable condition. To assert a warranty claim under this Section 8.2.3, Licensee must notify Motorola in writing of the claim before the expiration of the warranty period. Upon receipt of this notice, Motorola will provide one replacement Flash Kit medium to Customer as its sole and exclusive remedy for a breach of this Flash Kit Medium warranty.

8.3. **RECONFIGURATION SERVICES WARRANTY.** Motorola is not providing any new or additional warranties or extensions concerning Licensee-owned equipment or previously installed Software that is modified by the Reconfiguration Implementation Phase Services (except as provided in Section 8.2.2, if applicable). However, if that equipment or Software is covered under a written warranty or a maintenance contract between Licensee and Motorola that was entered into prior to the Effective Date, this Agreement does not adversely affect those pre-existing rights of Licensee. For thirty (30) days from the date of System Acceptance, Motorola warrants that the Reconfiguration Implementation Phase Services were performed in a good and workmanlike manner. THIS RECONFIGURATION SERVICES WARRANTY DOES NOT COVER ANY SERVICES OR DUTIES PERFORMED OR OWED BY NEXTEL, LICENSEE, OR ANY OTHER CONTRACTOR HIRED BY THEM. MOTOROLA DOES NOT WARRANT THAT LICENSEE'S SYSTEM WILL BE COMPARABLE FACILITIES AFTER THE RECONFIGURATION WORK IS COMPLETED. IF LICENSEE BELIEVES ITS SYSTEM DOES NOT ACHIEVE COMPARABLE FACILITIES STATUS AFTER THE RECONFIGURATION WORK IS COMPLETED, IT MAY REQUEST FURTHER CHANGE ORDERS TO ACHIEVE COMPARABLE FACILITIES, THE CONTRACT PRICE WILL BE INCREASED ACCORDINGLY, AND ANY DISPUTE IN THIS MATTER WILL BE SUBMITTED TO THE TRANSITION ADMINISTRATOR FOR NON-BINDING MEDIATION AND RESOLUTION.

8.4. **EXCLUSIONS TO EXPRESS WARRANTIES.** These warranties do not apply to: (i) defects or damage resulting from use of the Products in other than their normal, customary, and authorized manner; misuse, accident, liquids, neglect, or acts of God; testing, maintenance, disassembly, repair, installation, alteration, modification, or adjustment not provided or authorized in writing by Motorola; or Licensee's failure to comply with all applicable industry and OSHA standards; (ii) interoperability of Reconfigured Products with other subsystems (e.g., a CAD); (iii) breakage of or damage to antennas unless caused directly by defects in material or workmanship; (iv) batteries or other consumables; (v) freight costs to ship Equipment to the repair depot; (vi) scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment; and (vii) normal or customary wear and tear.

8.5. **WARRANTY CLAIMS.** To assert a warranty claim (other than concerning Section 8.2.2 or 8.2.3), Licensee must notify Motorola in writing of the claim before the date which is thirty (30) calendar days after the expiration of the warranty period. Upon receipt of this notice, Motorola will investigate the warranty claim. If this investigation confirms a valid warranty claim, Motorola will (at its option and at no additional charge to Licensee) repair the defective Product (or part), replace it with the same or equivalent Product (or part), or re-perform the Reconfiguration Services. This action will be the full extent of Motorola's liability hereunder and constitutes Licensee's sole remedy. If this investigation indicates the warranty claim is invalid or "out of scope," then Motorola may invoice Licensee for responding to the claim on a time and materials basis using Motorola's then current labor rates and for any new or replacement Products (or part) delivered to Licensee. Notwithstanding any reimbursement claim Licensee may have against the Relocation Funds, Licensee will pay the invoice within thirty (30) days from the invoice date. Repaired or replaced Product and parts are warranted for the balance of the original applicable warranty period. All replaced Products or parts will become the property of Motorola.

8.6. **ORIGINAL END USER IS COVERED.** These express limited warranties are extended by Motorola to the original end user and are not assignable or transferable.



8.7. **POTENTIAL DAMAGE TO EXISTING EQUIPMENT.** Licensee acknowledges that Motorola, Licensee's employees, or others might cause damage to equipment that is part of Licensee's System when performing the Reconfiguration Services and that such damage may occur in the absence of negligence by any party. Motorola is not responsible for damage to equipment unless it is caused by Motorola's negligence or intentional wrongdoing, in which case Motorola at its option will repair or replace the damaged equipment or refund its fair market value. This provision does not diminish any rights Licensee might have under any pre-existing Motorola warranty or maintenance agreement.

8.8. **DISCLAIMER OF OTHER WARRANTIES.** THESE WARRANTIES ARE THE COMPLETE WARRANTIES FOR THE PRODUCTS, EQUIPMENT, MOTOROLA SOFTWARE, AND RECONFIGURATION SERVICES PROVIDED UNDER THIS AGREEMENT AND ARE GIVEN IN LIEU OF ALL OTHER WARRANTIES. EXCEPT FOR THE FOREGOING EXPRESS WARRANTIES, THE PRODUCTS, EQUIPMENT, MOTOROLA SOFTWARE, AND RECONFIGURATION SERVICES ARE PROVIDED "AS IS" AND MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. MOTOROLA DOES NOT WARRANT THAT LICENSEE'S USE OF THE MOTOROLA SOFTWARE OR PRODUCTS WILL BE UNINTERRUPTED OR ERROR-FREE OR THAT THE SOFTWARE OR THE PRODUCTS WILL MEET LICENSEE'S PARTICULAR REQUIREMENTS. MOTOROLA MAKES NO WARRANTIES CONCERNING NON-MOTOROLA SOFTWARE. LICENSEE IS RESPONSIBLE FOR, AND MOTOROLA MAKES NO WARRANTY CONCERNING, THE BACK-UP AND DISASTER RECOVERY PROCEDURES, FACILITIES AND EQUIPMENT, OR DATA ENTRY AND LOADING. MOTOROLA DOES NOT WARRANT THAT THE SYSTEM OR EQUIPMENT OR SOFTWARE IN THE SYSTEM THAT IS MODIFIED BY THE RECONFIGURATION SERVICES, OR ANY NEWLY PROVIDED EQUIPMENT OR SOFTWARE, WILL SATISFY THE COMPARABLE FACILITIES STANDARD; THAT DETERMINATION IS FOR LICENSEE TO MAKE. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS AGREEMENT.

## **Section 9           DISPUTES**

9.1. **SETTLEMENT PREFERRED.** Except as otherwise required by the Order (e.g., Cost Estimate disputes) and except for a claim relating to intellectual property or breach of confidentiality provisions, the Parties, through their respective project managers, will attempt to settle any dispute arising from this Agreement through consultation and good faith negotiation. The dispute will be escalated to appropriate higher level managers of the Parties, if necessary. If cooperative efforts fail, the dispute will be mediated by a mediator chosen by the Parties within thirty (30) days after notice by one of the Parties demanding non-binding mediation. The Parties will not unreasonably withhold their consent to the selection of a mediator and will share the cost of the mediation equally; may postpone mediation until they have completed some specified but limited discovery about the dispute; and may replace mediation with another form of non-binding alternative dispute resolution ("ADR").

9.2. **LITIGATION.** A Party may submit to a court of competent jurisdiction in the state in which the System is installed any claim relating to intellectual property or a breach of confidentiality provisions and any dispute that cannot be resolved between the Parties through negotiation or mediation within two (2) months after the date of the initial demand for non-binding mediation. Each Party consents to jurisdiction over it by that court. The use of ADR procedures will not be considered under the doctrine of laches, waiver, or estoppel to affect adversely the rights of either Party. Either Party may resort to the judicial proceedings described in this section before the expiration of the two-month ADR period if good faith efforts to resolve the dispute under these procedures have been unsuccessful; or interim relief from the court is necessary to prevent serious and irreparable injury to the Party.



## **Section 10        DEFAULT AND TERMINATION**

If a Party fails to perform a material obligation under this Agreement, the other Party to whom performance is due may consider the non-performing Party to be in default (unless a Force Majeure causes the failure) and may assert a default claim by giving the non-performing Party a written and detailed notice of default. The defaulting Party will have thirty (30) days after receipt of the notice of default to either cure the default or, if the default is not curable within thirty (30) days, to provide a written cure plan. The defaulting Party will begin implementing the cure plan immediately after receipt of notice by the other Party that it approves the cure plan. If Licensee is the defaulting Party, Motorola may stop work on the project until it approves the cure plan or receives payment. If a defaulting Party fails to cure the default, unless otherwise agreed in writing, the non-defaulting Party may terminate any unfulfilled portion of this Agreement. In the event of termination for default, the defaulting Party will promptly return to the non-defaulting Parties any of its Confidential Information. Non-defaulting Parties will mitigate damages.

## **Section 11        INDEMNIFICATION**

11.1.    **INDEMNITY BY MOTOROLA.** Motorola will defend at its expense and hold harmless Licensee against any claim, suit, demand, or cause of action brought by a third party against Licensee that is based on or to the extent it is caused by the negligence or willful misconduct of Motorola, its subcontractors, or their employees or agents, while performing their duties under this Agreement, and which results in personal injury, death, or direct damage to tangible property (“Motorola Claim”). Motorola will indemnify Licensee from any liability, judgment, awards and damages resulting from a final award that arises from a Motorola Claim and pay all losses, expenses or direct damages incurred by Licensee associated with the Motorola Claim. The foregoing indemnity is conditioned on (i) Licensee giving Motorola prompt, written notice of any Motorola Claim, and providing to Motorola cooperation (and, if requested, reasonable assistance) in the defense of the Motorola Claim; and (ii) Motorola having sole control in the defense of the Motorola Claim and all negotiations for its settlement or compromise. Motorola will have no indemnity liability for the negligence or fault of Licensee, its other contractors, Nextel, or the TA, or any of their employees, agents or representatives. This section states the full extent of Motorola’s general indemnification from liabilities that are in any way related to Motorola’s performance under this Agreement.

11.2.    **JOINT LIABILITY.** If a third party asserts a claim against both Parties, each Party will defend itself and will pay the claim to the extent of its percentage liability. For example, if the Parties have equal liability for the claim, they each will pay one-half of the amount plus their own defense costs.

### **11.3.    PATENT AND COPYRIGHT INFRINGEMENT.**

11.3.1. Motorola will defend at its expense any suit brought against Licensee to the extent that it is based on an Infringement Claim, and Motorola will indemnify Licensee for those costs and damages finally awarded against Licensee for an Infringement Claim. Motorola’s duties to defend and indemnify are conditioned upon: Licensee promptly notifying Motorola in writing of the Infringement Claim; Motorola having sole control of the defense of the suit and all negotiations for its settlement or compromise; Licensee providing to Motorola cooperation and, if requested, reasonable assistance in the defense of the Infringement Claim.

11.3.2. If an Infringement Claim occurs, or in Motorola's opinion is likely to occur, Motorola may at its option and expense procure for Licensee the right to continue using the Products, replace or modify them so that they become non-infringing while providing functionally equivalent performance, or grant Licensee a credit for the Products as depreciated and accept their return.

11.3.3. Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon the combination of the Products with any software, apparatus or device not furnished by Motorola; the use of ancillary equipment or software not furnished by Motorola and that is attached to or used in connection with the Products; any Product that is not Motorola’s design or formula; a modification of the Motorola Software by a party other than

Motorola; the failure by Licensee to install an enhancement release to the Motorola Software that is intended to correct the claimed infringement, or, to the extent that the Infringement Claim could have been avoided or losses diminished if Licensee implemented Motorola's new Products as part of the reconfiguration rather than modifying existing or used products. This section states the entire liability of Motorola for infringement of patents and copyrights by the Products or any parts thereof.

## **Section 12      LIMITATION OF LIABILITY**

Licensee acknowledges that the limitations set forth in this Section are integral to the prices being charged by Motorola under this Agreement, and that if Motorola assumed further liability other than as set forth in this Section 12, the prices would of necessity be set substantially higher. This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision in this Agreement. Except for personal injury or death caused by newly manufactured Motorola Products, Motorola's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, contribution, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the Contract Price. **ALTHOUGH THE PARTIES ACKNOWLEDGE THE POSSIBILITY OF SUCH LOSSES OR DAMAGES, THEY AGREE THAT MOTOROLA (AND ITS OFFICERS, DIRECTORS, EMPLOYEES, SHAREHOLDERS, AGENTS AND REPRESENTATIVES) WILL NOT BE LIABLE FOR ANY COMMERCIAL LOSS; INCONVENIENCE; LOSS OF USE, TIME, DATA, GOOD WILL, REVENUES, PROFITS, OPPORTUNITIES OR SAVINGS; OR OTHER SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT (REGARDLESS OF THE FORM OF ACTION), THE SALE OR USE OF THE PRODUCTS, EQUIPMENT OR SOFTWARE, OR THE PERFORMANCE OF SERVICES BY MOTOROLA PURSUANT TO THIS AGREEMENT. ALL CLAIMS BY A PARTY AGAINST ANOTHER PARTY, WHETHER IN TORT, CONTRACT, STRICT LIABILITY OR OTHERWISE, MUST BE BROUGHT WITHIN TWO YEARS FROM THE DATE THE CAUSE OF ACTION ACCRUES EXCEPT FOR MONEY DUE UPON AN OPEN ACCOUNT.** Some states do not allow the exclusion or limitation of implied warranties or limitation of liability for incidental or consequential damages, so the above limitations or exclusions may not apply in those states. However, the Parties intend for this Section 12 to apply to the maximum extent allowed under applicable law.

## **Section 13      CONFIDENTIALITY AND PROPRIETARY RIGHTS**

13.1. **CONFIDENTIAL INFORMATION.** During the term of this Agreement, the Parties may provide each other with Confidential Information. Any inventory report or Customer Suitability Assessment concerning Licensee's System that Motorola prepares for and delivers to Licensee shall be the Confidential Information of Licensee unless otherwise agreed by the Parties in writing. Any other document concerning the reconfiguration of Licensee's System that Motorola prepares for and delivers to Licensee under this Agreement (collectively, "Documentary Deliverable") shall be the Confidential Information of Motorola unless otherwise agreed by the Parties in writing,

13.1.1. **Non-Disclosure.** Subject to applicable public records laws, each Party will: maintain the confidentiality of the other Party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing Party in writing or as required by a court of competent jurisdiction; restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce the Confidential Information; take necessary and appropriate precautions to guard the confidentiality of the Confidential Information, including informing its employees who have access to it that it is confidential and not to be disclosed to others, but those precautions will be at least the same degree of care that the receiving Party applies to its own confidential information and will not be less than reasonable care. The confidentiality restrictions and obligations contained herein shall be in addition to any confidentiality restrictions or obligations contained in any other agreement (whether prior to, contemporaneous or subsequent to the date of this Agreement) between Motorola on the one hand and the TA, Nextel or Licensee on the other hand, as well any protective order or confidentiality restrictions or rules issued by the FCC or the TA.



13.1.2. Use. Unless otherwise provided in this Agreement, a Party may use the Confidential Information of the other Party only in furtherance of the performance of this Agreement or any other agreement between the Parties. Notwithstanding the preceding sentence, Motorola may use the information in any inventory report or Customer Suitability Assessment for its own business purposes or to assist Licensee or its other contractors or consultants in the overall effort to plan and reconfigure Licensee's System. Except for a Documentary Deliverable, Confidential Information is and will at all times remain the property of the disclosing Party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the recipient to use the Confidential Information in the manner and to the extent permitted by this Agreement or any other agreement between the Parties.

13.2. **PRESERVATION OF MOTOROLA'S PROPRIETARY RIGHTS.** Motorola, the third party manufacturer of any Equipment, and the owner of any Non-Motorola Software own and retain all of their respective Proprietary Rights in the Equipment and Software. Nothing in this Agreement is intended to restrict the Proprietary Rights of Motorola, any owner of Non-Motorola Software, or any third party manufacturer of Equipment. All intellectual property developed, originated, or prepared by Motorola in connection with providing to Licensee the Products or services remain vested exclusively in Motorola, and this Agreement does not grant to Licensee (or Nextel) any shared development rights of intellectual property.

Except as explicitly provided in the applicable Software License Agreement, Motorola does not grant to Licensee (or Nextel), either directly or by implication, estoppel, or otherwise, any right, title or interest in Motorola's Proprietary Rights. Licensee (and Nextel) will not modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence will not apply to Open Source Software, if any, which is governed by the standard license of the copyright owner.

## **Section 14        GENERAL**

14.1. **TAXES.** The Contract Price does not include any amount for taxes, assessments or duties, all of which will be paid by Nextel except as exempt by law.

14.2. **ASSIGNABILITY AND SUBCONTRACTING.** No Party may assign this Agreement without the prior written consent of the other Party. Motorola may subcontract any portion of the work, but subcontracting will not relieve Motorola of its duties under this Agreement.

14.3. **WAIVER.** Failure or delay by a Party to exercise any right or power under this Agreement will not operate as a waiver of the right or power. For a waiver of a right or power to be effective, it must be in writing signed by the waiving Party. An effective waiver of a right or power will not be construed as either a future or continuing waiver of that same right or power, or the waiver of any other right or power.

14.4. **SEVERABILITY.** If a court of competent jurisdiction renders any provision of this Agreement (or portion of a provision) to be invalid or otherwise unenforceable, that provision or portion of the provision will be severed and the remainder of this Agreement will continue in full force and effect as if the invalid provision or portion of the provision were not part of this Agreement.

14.5. **INDEPENDENT CONTRACTORS.** Each Party is an independent contractor with respect to the other, and a Party and its personnel will not be considered to be employees or agents of the other Party. Nothing in this Agreement grants a Party the right or authority to make commitments of any kind for the other. This Agreement will not constitute, create, or in any way be interpreted as a joint venture, partnership or formal business organization of any kind.

14.6. **HEADINGS AND SECTION REFERENCES.** The section headings in this Agreement are inserted only for convenience and are not to be construed as part of this Agreement or as a limitation of the scope of the particular

section to which the heading refers. This Agreement is an arm's length transaction and will be fairly interpreted in accordance with its terms and conditions and not for or against a Party.

14.7. **GOVERNING LAW.** This Agreement and the rights and duties of the parties will be governed by and interpreted in accordance with the laws of the State in which the System is installed.

14.8. **ENTIRE AGREEMENT.** This Agreement, including all Exhibits and the applicable Software License Agreement, constitutes the entire agreement of the Parties regarding the subject matter of this Agreement and supersedes all previous agreements, proposals, and understandings, whether written or oral, relating to that subject matter (but not any other product sales, software license, or maintenance and support agreements). This Agreement may be amended or modified only by a written instrument signed by authorized representatives of the Parties. The preprinted terms and conditions found on any Licensee purchase order, acknowledgment or other form will not be considered an amendment or modification of this Agreement, even if a representative of each Party signs the document.

14.9. **NOTICES.** Notices required to be given by a Party to the others must be in writing and either delivered in person or sent to the address shown below by certified mail, return receipt requested and postage prepaid (or by a recognized courier service, such as Federal Express, UPS, or DHL), or by facsimile with correct answerback received, and will be effective upon receipt:

**Motorola**

**Licensee**

Attn: \_\_\_\_\_ Attn: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

14.10. **COMPLIANCE WITH APPLICABLE LAWS.** Each Party will comply with all applicable federal, state, and local laws, regulations and rules concerning the performance of this Agreement or use of the System. Licensee will obtain and comply with all FCC licenses and authorizations required for the installation, operation and use of the System before the scheduled installation of the Equipment.

14.11. **AUTHORITY TO EXECUTE AGREEMENT.** Each Party represents to the other that it has obtained all necessary approvals, consents and authorizations to enter into this Agreement and to perform its duties under this Agreement; the person executing this Agreement on its behalf has the authority to do so; upon execution and delivery of this Agreement by the Parties, it is a valid and binding contract, enforceable in accordance with its terms; and the execution, delivery, and performance of this Agreement does not violate any bylaw, charter, regulation, law or any other governing authority of the Party.

14.12. **VOLUNTARY AGREEMENT.** Each Party represents and warrants that it is fully aware of the terms contained in this Agreement and has voluntarily entered into this Agreement, having had a full and fair opportunity to seek the advice of counsel and other professionals or consultants as it considers necessary.

14.13. **NO LIENS.** Motorola agrees not to lien Licensee's System to secure payment of the Contract Price.

14.14. **SURVIVAL OF TERMS.** The following provisions survive the expiration or termination of this Agreement for any reason: Section 3.4 (Software); Section 3.5 (Rebanding Radios and Trade-In Radios); if any payment obligations exist, Section 5 (Contract Price, Payment and Invoicing); to the extent applicable, Section 8 (Representations and Warranties); Section 9 (Disputes); Section 11 (Indemnity); Section 12 (Limitation of Liability); and Section 13 (Confidentiality and Proprietary Rights); and all of the General provisions in Section 14.



The Parties hereby enter into this Agreement as of the Effective Date.

**Licensee**

**Motorola**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**Nextel Assigned Deal Number:** \_\_\_\_\_



**Motorola Proprietary and Confidential**

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola, Inc., or its designees.

**Exhibit A**

**Payment Milestone Schedule**

Depending on the Contract Price set forth in Section 5.1.1, the following payment milestones apply:

1. Contract Price < \$300,000

Mobilization (i.e., contract execution)	50%
Motorola SOW Complete/System Acceptance	50%

2. Contract Price \$300,000 to \$1,000,000

Mobilization (i.e., contract execution)	35%
Complete Programming & Installation of Subscriber Equipment	45%
Motorola SOW Complete/System Acceptance	20%

3. Contract Price > \$1,000,000

Mobilization (i.e., contract execution)	35%
Shipment of Subscriber Equipment	20%
Complete Programming & Installation of Subscriber Equipment	15%
Complete Rebanding Infrastructure/Final Cutover	15%
Motorola SOW Complete/System Acceptance	15%

**Exhibit B**

**System Acceptance Certificate**

**Licensee Name:** Walton County, Georgia

**Project Name:** 800 MHz. Rebanding of a Three Site, SmartNet Simulcast System Phase I (Non-NPSPAC)

This System Acceptance Certificate memorializes the occurrence of System Acceptance. Motorola and Licensee acknowledge that:

1. The Acceptance Tests set forth in the Acceptance Test Plan have been successfully completed.
2. The System is accepted.

Licensee Representative:

Motorola Representative:

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**FINAL PROJECT ACCEPTANCE:**

Motorola has provided and Licensee has received all deliverables, and Motorola has performed all other work required for Final Project Acceptance.

Licensee Representative:

Motorola Representative:

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



**Exhibit C**

**Motorola's Proposal Phase I  
Including the Technical and Implementation Documents**





**RECONFIGURATION PROPOSAL PHASE I  
INCLUDING PLANNING PHASE DELIVERABLES**

**Walton County, Georgia**  
*Three Site, Six Channel SmartNet  
Simulcast System  
Phase I*

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## **1.0 INTRODUCTION**

This document provides the deliverables as described in the Reconfiguration Planning Statement of Work as well as **Phase 1** of the proposal to reconfigure the Walton County, Georgia radio communications system.

## **2.0 SYSTEM DESCRIPTION**

### **SYSTEM DESCRIPTION WALTON COUNTY, GEORGIA**

Walton County, Georgia operates a Motorola “SmartNet” Simulcast Trunking system that serves the Public Safety, Public Service agencies of all the agencies and jurisdictions of Walton County and the Walton Electric Membership Cooperative. The County is licensed for four General Band channels under FCC license WPGC379 (1-120 frequencies) with three frequencies in use. The one frequency held in reserve is not affected by rebanding. The County is also licensed for four NPSPAC channels under FCC license WPIE591 with three frequencies in use. The SmartNet Trunking system is simulcast and has three tower sites. There are six frequencies simulcast from each of the three sites. Walton County is located within the Southeast Band Plan Area for rebanding and is also within the Atlanta Band Plan Area. All six of the frequencies utilized in the system are affected by rebanding. The Walton County system utilizes three control channels and all three are to be rebanded.

Not all subscriber units on the Walton County system utilize the NPSPAC channels and accordingly they will not have Motorola Rebanding Software applied to the radios. By contrast, radios utilizing the NPSPAC channels will have Motorola Rebanding Software pre-installed, thereby allowing these radios to accommodate both the current Frequency List and the rebanded Frequency List.

The rebanding of the Walton County System will take place under two separate FRA agreements. This agreement is for **Phase 1** and will address the non-NPSPAC frequencies, and the retuning/replacement of subscriber radios. The second agreement, for Phase 2 will cover the rebanding of the NPSPAC frequencies

### **ASSUMPTIONS**

This quotation to provide rebanding services to Walton County is based upon information supplied by Walton County or those authorized to act on its behalf. Motorola deems this information credible, accurate and current.

Any missing information should be provided to Motorola as soon as possible. Any unconfirmed information should be validated as soon as possible. Inaccurate information could alter or modify the terms of this quotation.

## SYSTEM SUMMARY

The Walton County SmartNet system consists of three sites. At each site there are 6 channels transmitting on 5 Motorola MSF-5000 repeaters and 1 Motorola Quantar repeater. The system is controlled via a Motorola 6809 SmartNet Controller. Motorola analyzed the impact of rebanding on the system and the details are contained in Attachment B- Suitability Assessment Impact Report.

### Subscriber Summary

Quantity of Subscribers	Total	Qty of Retune	Qty Re-Prog	Qty Replace
<b>Portables</b>	647	249	286	112
<b>Mobiles</b>	241	163	26	53
<b>Total</b>	888	412	312	165

## IMPACT ON FREQUENCIES

### Trunked Frequencies

The following frequencies were provided by Walton County.

Phase 1	
WPGC379	
Current Frequencies	Post Rebanding Frequencies
851.0875/806.0875	856.5625/811.5625
851.8125/806.8125	857.1125/812.1125
853.9375/808.9375	857.5875/812.5875
854.4125/809.4125 (in reserve)	854.4125/809.4125 (in reserve)

### System Impact Phase 1

#### Control System

The Motorola 6809 SmartNet Controller will have new Code Plugs added to the master controller as repeater frequencies are changed.

#### Transmitters

Each site contains 3 Motorola MSF-5000 repeaters operating on the non-NPSPAC channels. Each repeater will be retuned to its new frequency assignment.

#### Combiners

Each transmitter site contains a TX/RX transmitter combiner system. The combiner systems will require a major re-cabling and re-tuning to accommodate the new frequency assignments. New cables will be supplied for each frequency.

## System Management Consoles

The Walton County SIMS II system is not upgradeable to accommodate the new NPSPAC frequencies. It will be replaced by a Genesis GW3HC in Phase 2 of the rebanding project. The System Watch II console will be upgraded via new software and a new PC running Windows XP in phase 2 of the rebanding project. In phase 1 the System Watch will have a new programming tape installed to remap the new channel frequencies. See Attachment B for details.

## Subscriber Equipment

Motorola analyzed the subscriber radios deployed on the Walton County system and made the following determinations.

Model Name	Model No.	Count	NPSPAC	Action
MTS2000	H01UCD6PW1BN	192	YES	Flash and Retune
MTS2000	H01UCF6PW1BN	54	YES	Flash and Retune
MTS2000	H01UCF6PW1BN	19	YES	Flash and Retune
MTX8000	H01UCC6DF3AN	95	YES	Replace and Retune
MTX8000	H01UCF6DB5AN	198	NO	Retune
LCS2000	M10UGD6DC5BN	10	YES	Replace and Retune
MTX820	H25JKH51C5AN	22	NO	Retune
MTX820	H25JKF51B6BN	2	NO	Retune
XTS2500	H46UCF9PW6AN	7	YES	Flash and Retune
XTL2500	M21URM9PW1AN	3	YES	Flash and Retune
MCS2000	M01UGL6PW4BN	22	YES	Flash and Retune
MCS2000	M11UGD6CB1AN	1	YES	Flash and Retune
Spectra	D45KGA5JC5AK	26	YES	Replace and Retune
Spectra	D?5KG030W	6	YES	Replace and Retune
Spectra	D35ZXA5JC2AK	5	YES	Replace and Retune
LTS2000	H10UCH6DC5BN	17	YES	Replace and Retune
Maxtrac	D45MWA5JC9AK	1	NO	Retune
Maxtrac	D45MWA5GC3AK	106	NO	Retune
GTX Mobile	M11UGD6B1AN	39	NO	Retune
MTX8250	H25UCH6GB6AN	25	YES	Retune
Spectra	D?2ZX071W	6	YES	Replace and Retune
Maxtrac	D45MOA5GG6AK	16	NO	Retune
XTS2500	H46UCF9PW5AN	3	YES	Flash and Retune
Other		2	NO	Retune
XTS2500	H46UCH9W7AN	11	YES	Flash and Retune
		888		

### 3.0 INTERMODULATION STUDY (IM)

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmitting frequency at a site, an IM analysis is necessary to check for possible IM interference problems. This IM study has been performed to predict IM



products that could be generated as a specific result of adding the newly proposed receiver frequencies (as listed in the Transition Administrators Frequency Proposal Report (FPR) to the existing sites. Please see the complete Intermodulation Study which is included as Attachment A.

#### **4.0 SYSTEM INVENTORY AND SUITABILITY ASSESSMENT**

Motorola completed detailed audits of the customer's system inventory and a Suitability Assessment Impact Report has been produced based on that data collection. The proposed rebanding operation is based on specific impacts anticipated for this system and all of its components. Specifically the report indicates whether each of these system components may be easily retuned, whether they first require reprogramming to allow retuning, or whether they must be replaced to accomplish the migration to the new frequencies prescribed in the FCC order. Please review the Suitability Assessment Impact Report included as Attachment B.

#### **5.0 INTEROPERABILITY**

Walton County does not have formal interoperability agreements with other agencies. Accordingly, no interoperability plan is included.

#### **6.0 IMPLEMENTATION PLAN FOR SYSTEM RECONFIGURATION**

The rebanding of the Walton County Trunked Radio System will consist of four major steps..

- Step one- conduct RF Performance Verification Baseline tests. Install the # 1 code plug locking the control channel to 851.0875
- Step two- replace subscriber sets and reprogram/retune subscriber sets as required. All radios will have their Frequency List retuned to contain 856.5625, 857.1125, 857.5875 and 851.0875.
- Step three- re-rack the TX/RX combiners for the frequency change. Retune the 851.8125 transmitters to 857.1125 and install the #2 code plug locking the control channel to 857.1125.
- Step four- retune the transmitters on 851.0875 to 856.5625 and retune the transmitters on 853.9375 to 857.5875. Install the #3 code plug placing 856.5625, 857.1125 and 857.5875 in rotation as the control channels.

The Rebanding process is invasive. During the process the entire system will revert to failsoft for short periods of time. Walton County will be notified in advance of all system disturbances. To minimize impact to users, all system interrupting tasks will be scheduled for after hours.

Walton County needs to be aware that should there be unscheduled system outage, subscribers set not containing rebanding software may not be able to access failsoft channels.

To more fully detail the phases, Motorola has produced a Reconfiguration Design consisting of MOP (Methods of Procedures). Motorola developed the MOP which details the process steps,

timeline, measurable deliverables, resources needed and cutover steps. Where applicable, contingency planning required to effectively reband the system will be provided in the least disruptive manner. The MOP also includes the Cut-over and Fall-back Plan from the current frequencies to the new ones. The Cut-over and Fall-back plans ensure consistent operation of all system functionality throughout the rebanding reconfiguration. Please see Attachment E.

Motorola has also produced RF Performance Verification Plan and Acceptance Test Plan to demonstrate system performance before and after reconfiguration. Please see Attachment C and Attachment D detailing the test plans.

## **7.0 MOTOROLA PROJECT MANAGEMENT**

The Motorola Project Manager will oversee the activities for each stage of the rebanding effort to ensure a smooth execution of all deliverables and that the requirements of the Walton County's system are fully met. Project management tasks include activities such as subcontracting, project kickoff meetings, monitoring project progress, required status meetings and project close.

The Project Manager will coordinate with the Walton County System Manager and any subcontractor or other third-party organization participating in this work; to keep this effort within the schedule to be agreed upon and finalized at the kick-off meeting.

A representative from the Walton County will serve as a single point of contact for Motorola during the rebanding process for all affected equipment. Assuming no unanticipated delays, the project is estimated to be completed in 111 work days from Notice to Proceed. This does not include the Nextel work stoppage. A work day is defined as 8:00 AM to 5:00 PM, Monday through Friday with the exception of work to be performed on the Fixed Network Equipment. All work on the Fixed Network Equipment is to be performed *after* normal work day hours.

### **Motorola Responsibilities**

Motorola will:

- Schedule a project kick off meeting with the Walton County at the project's start.
- Execute the project contract deliverables and coordinate ensuing project activities with appropriate Motorola and Walton County resources.
- After project kick-off Motorola will provide the Walton County with schedule and progress updates. This schedule will outline a cutover plan used during the reconfiguration process to ensure disruptions are minimized. The schedule should reflect the following;
  - Timeline of events
  - Identified deliverables

## **Walton County Responsibilities**

Walton County will:

- Provide a signatory who has authority to sign all appropriate project documents required for this project and any other agreements required
- Ensure all radios to be replaced are turned in and accounted for.
- Provide site access to Walton County owned and controlled sites for Motorola personnel and Motorola's subcontractors for the purpose of reconfiguring the equipment located at that site
- Responsible for providing the subscriber radios and fleet coordination to ensure on-time project completion
- Provide all spare units identified in preliminary inventory, if any at the beginning of the project
- Will not unreasonably delay the execution of work by Motorola and will extend the timeline of the project when delays caused by Walton County are experienced
- May be required to provide personnel during the reconfiguration process
- Responsible for updating, filing, and coordinating the frequency changes that become a part of this rebanding program with the FCC. As a note, all radio transmitters must be properly licensed by the FCC.
- Identify any outstanding Motorola deliverables and formally request their completion through the mutual development of a project punch list
- Grant final acceptance upon completion of the reconfiguration of the Walton County system

## **8.0 LOCAL SERVICE SUPPORT**

Motorola will utilize its authorized service center network and/or approved third party contractors to perform the reconfiguration of the equipment.

## **9.0 NOTIFICATION AND CONDITIONS FOR WORK**

Motorola will notify Walton County assigned point of contact a minimum of five (5) business days prior to starting any work on the system. Motorola will commence work at the designated location only after Walton County has notified Motorola with instructions to proceed. Whenever possible, prior notification of at least 24 hours will be given when expected disruptions are to occur.

## **10.0 LICENSING**

The Walton County is responsible for updating, filing, and coordinating the frequency changes that become a part of this Rebanding program with the FCC. As a note, all radio transmitters must be properly licensed by the FCC.

## **11.0 RISKS**

Motorola is committed to mitigating all known risks and will engage Walton County whenever situations are identified in which a risk situation presents itself. Any event or occurrence that affects the project schedule is to be immediately reported to the Project Managers. A decision will be jointly made between Motorola and Walton County to consider the options and mutually agreed-to solution.

There are risks associated with the work that needs to be performed on each piece of equipment. It is conceivable that a particular piece of equipment can be functional at the time of inventory but when rebanded, failures may occur when re-initializing the unit. Motorola will make every effort to ensure that any failure occurring in this situation be rectified immediately. In some cases adequate spares may not be available and could lead to a prolonged outage of equipment while obtaining replacement parts. If the system in question is currently under a direct service agreement with Motorola, any resolution to correct the failure will be covered under the agreement. If the equipment involved is not covered under a direct Motorola Service Agreement, resolution may require reimbursement for material and labor to correct the failure and restore the defective equipment from Sprint Nextel.

## **12.0 SYSTEM ACCEPTANCE**

Upon completion of the work for Walton County, a System Acceptance Certificate will be provided for customer signature (see Reconfiguration Implementation Phase Agreement, Exhibit B). This certificate acknowledges that all the Phase I effort necessary to reconfigure the Walton County system has been completed.

### 13.0 RECONFIGURATION PRICING

#### SERVICES PRICING

<b>Walton County Reconfiguration Quote - Phase 1</b>				
<b>Infrastructure</b>				
Service	Qty - Hours	Qty - Units	Unit Price	Extended Price
Reband Prime Controller		1	\$2,358	\$2,358
Reband Remote Sites		3	\$2,358	\$7,074
Install programming in SimsII	4		\$153	\$612
Pre-Post RF Performance Verification		1	\$1,831	\$1,831
Project Manager	16		\$175	\$2,800
System Engineer/ST	24		\$175	\$4,200
Travel Expenses		1	\$1,943	\$1,943
<b>Total</b>				<b>\$20,818</b>
<b>Subscribers</b>				
Service	Qty-Hours	Qty - Units	Unit Price	Extended Price
Reprogram & Tune		888	\$65	\$57,720
Flash Units		312	\$18	\$5,616
Install Dash Mount		50	\$183	\$9,150
Install Dual Control		3	\$218	\$654
Project Manager	60		\$175	\$10,500
Travel Expenses		1	\$1,943	\$1,943
<b>Total</b>				<b>\$85,583</b>
<b>Others</b>				
Service	Qty-Hours	Qty - Units	Unit Price	Extended Price
Acceptance Testing	4		\$153	\$612
Project Manager Customer Support / Admin	28		\$175	\$4,900
Engineering - Customer Support / Admin	8		\$175	\$1,400
Packing/Handling Returned Radios		165	\$18	\$2,970
Travel Expenses - PM		2	\$1,943	\$3,886
<b>Total</b>				<b>\$13,768</b>
<b>Equipment</b>				
Equipment	Part #	Qty	Unit Price	Extended Price
Code Plugs	UOST-0001	4	\$1,289	\$5,156
Combiner Cables		21	\$69	\$1,449
SimsII Programming Tape	UOST-0106	1	\$2,187	\$2,187
<b>Total</b>				<b>\$8,792</b>
<b>Total Reconfiguration Phase 1 Price</b>			<b>\$128,961.00</b>	
<b>Contingency</b>				<b>\$4,200.00</b>
<b>Total Reconfiguration Phase-1 plus Contingency</b>			<b>\$133,161.00</b>	

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## TRAVEL EXPENSES DETAIL

## CONTINGENCY DETAIL

Project Area	Risk Description	Resource Description	Qty	Rate	Contingency Amount
Project Slippage	slippage/project delays	PM	24	\$ 175.00	\$ 4,200.00
Under Estimate of Subscriber units					\$ -
<b>Total</b>					\$ 4,200.00

## TRAVEL DETAIL

Based on M-F work week											
Labor Category				Air fare	Per diem	Car rental					
	Number of resources	Number of trips	Days out per week				Week totals/trip	Mileage Estimate	Project totals	Per Trip + Agreed 5% mark-up	Totals + Agreed 5% mark up
				1000.00	\$ 200	\$ 250.00					
Project Manager	1	3	3	1000.00	\$ 200	\$ 250.00	\$ 1,850		\$ 5,550	\$ 1,943	\$ 5,829
Systems Engineer	1	0	0	1000.00	\$ 200	\$ 250.00	\$ 1,250		\$ -	\$ 1,313	\$ -
System Technologist	1	1	3	1000.00	\$ 200	\$ 250.00	\$ 1,850	\$ -	\$ 1,850	\$ 1,943	\$ 1,943
							Estimated Total Travel Expenses				\$ 7,772
<b>Note:</b> Expenses shown are estimates based on the Scope of Work and required travel for completing the Reconfiguration Design. Sprint/Nextel will be billed actual expenses plus 5% markup.											

## REPLACEMENT RADIOS LIST

### **RBP03 - XTS2500**

			Smartnet	Select	Select	
			Analog	Mode?	Mode?	
			Model 3	Model?	Model?	
			Hi Cap	Battery?	STD	
QTY	Model	Item	config 1	config 2	config 3	Price
		<i>Portable, High Spec</i>				
		<b>Items Comprising the Base Kit Smartnet Package are in Bold</b>				
17	H46UCH9PW2AN	<b>XTS2500 Rebanding Portable Radio Model 3</b>	17	0	0	Paid by Sprint Nextel
		Included Std Whip Antenna				
		Included Std Belt Clip				
		Included Standard Battery				
17	H335	HiCap Battery - H335	17	0	0	Paid by Sprint Nextel
17	QA00354AA	Analog Smartnet	17	0	0	Paid by Sprint Nextel
17	H43	Remote Monitor - H43	17	0	0	Paid by Sprint Nextel
17	NTN9858	Spare HiCap Battery - NTN9858	17	0	0	Paid by Sprint Nextel
17	NTN1873	Single Unit Rapid Charger - NTN1873	17	0	0	Paid by Sprint Nextel
		<b>Additional Accessories Available</b>				

### **RBP01 - XTS1500**

			Smartnet	System	System	
			Analog	Mode?	Mode?	
			Hi Cap	Battery?	Battery?	
			config 1	config 2	config 3	
QTY	Model	Item	config 1	config 2	config 3	Price
		<i>Portable, Low Spec</i>				
		<b>Items Comprising the Base Kit Smartnet Package are in Bold</b>				
95	H66UCC9PW2AN	<b>XTS1500 Rebanding Portable Radio Model 1</b>	95	0	0	Paid by Sprint Nextel
		Included Std Whip Antenna				
		Included Std Belt Clip				
		Included Standard Battery				
95	H335	HiCap Battery - H335	95	0	0	Paid by Sprint Nextel
95	QA00353AA	Analog Smartnet	95	0	0	Paid by Sprint Nextel
95	NTN9858	Spare HiCap Battery - NTN9858	95	0	0	Paid by Sprint Nextel
95	NTN1873	Single Unit Rapid Charger - NTN1873	95	0	0	Paid by Sprint Nextel

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### **RBM03 - XTL2500**

			Smartnet Analog	Smartnet Analog	Smartnet Analog	
			Dash	Control Station	Dual Control	
			Palm Mic 7.5 watt 3dB	Desktop None	Palm Mic 7.5 watt 1/4 Wave	
QTY	Model	Item	config 1	config 2	config 3	Price
		Mobile, High Spec				
		<i>Items Comprising the Base Kit Smartnet Package are in Bold</i>				
53	M21URM9PW2AN	<b>XTL2500 Rebanding Mobile Radio Model 3</b>	34	16	3	Paid by Sprint Nextel
3	G335	Antenna 1/4 Wave	0	0	3	Paid by Sprint Nextel
34	G174	Antenna 3dB Low Profile	34	0	0	Paid by Sprint Nextel
16	G89	No Antenna Required - G89	0	16	0	Paid by Sprint Nextel
37	W22	Palm Microphone - W22	34	0	3	Paid by Sprint Nextel
16	W382	Desktop Microphone	0	16	0	Paid by Sprint Nextel
37	B18	7.5W Speaker - B18	34	0	3	Paid by Sprint Nextel
16	G142	No External Speaker Needed	0	16	0	Paid by Sprint Nextel
53	G442	Control Head - G442	34	16	3	Paid by Sprint Nextel
53	G444	Control Head software - G444	34	16	3	Paid by Sprint Nextel
3	GA00092	Dual Control Hardware/Software	0	0	3	Paid by Sprint Nextel
34	G66	Mounting Kit G66 or G67 included in base	34	0	0	Paid by Sprint Nextel
3	G67	Thumb screw remote mount w/Keylock	0	0	3	Paid by Sprint Nextel
16	G91	Control Station Power Supply	0	16	0	Paid by Sprint Nextel
16	W665	Control Station Operation	0	16	0	Paid by Sprint Nextel
53	G241	Analog operation	34	16	3	Paid by Sprint Nextel
53	GA00008AA	Software SmartNet/singletone	34	16	3	Paid by Sprint Nextel
53	G114	Enh ID Display - G114	34	16	3	Paid by Sprint Nextel
53	G170	Radio Trace - G170	34	16	3	Paid by Sprint Nextel
53	G683	One Touch - G683	34	16	3	Paid by Sprint Nextel
		Remote Mount Cable - 17 ft (incl w/G67 kit)	0	0	3	Paid by Sprint Nextel
		Dual Control Head Mic				
3	W22	Palm Microphone - W22	0	0	3	Paid by Sprint Nextel
		Dual Control Head Cable				
3	G835	Dual Control Head Cable 50'	0	0	3	Paid by Sprint Nextel
		Dual Control Head Speaker				
3	B18	7.5W Speaker - B18	0	0	3	Paid by Sprint Nextel

### FLASHKITS

Generic Radio Model	Item	Total QTY Flashes Required	Number of Flash kits	T model	Flashcode	Option	Price
<b>MTS2000</b>							
H01UCF6PW1BN	3600 Analog (Type II / Type III)	265	3	N1706	000008-000000-2	Q880AF	Paid by Sprint/Nextel Master Agreement
<b>MCS2000</b>							
M01UJM6PW6BN	3600 Analog (Type II / Type III)	23	2	H1628A	000008-000000-2	G880AD	Paid by Sprint/Nextel Master Agreement
<b>XTS2500</b>							
H46UCH9PW7AN	3600 IMBE/Analog & P25	21	2	T6811	500008-000410-5	Q880AC	Paid by Sprint/Nextel Master Agreement
<b>XTL2500</b>							
M21URM9PW1AN	3600 IMBE/Analog & P25	3	1	T7247	100008-000000-0	G880AG	Paid by Sprint/Nextel Master Agreement
<b>Total</b>		<b>312</b>					

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## **PHASE I**

### **ATTACHMENTS**

- Attachment A. INTERMODULATION REPORT**
- Attachment B. SUITABILITY ASSESSMENT IMPACT REPORT**
- Attachment C. FUNCTIONAL ACCEPTANCE TEST PROCEDURES (ATP)**
- Attachment D. RF PERFORMANCE VERIFICATION PLAN**
- Attachment E. PHASE I CUT-OVER & FALL BACK PLAN**
- Attachment F. PHASE I RECONFIGURATION PROJECT SCHEDULE**



***ATTACHMENT A***

***INTERMODULATION REPORT***





**800 MHz Re-banding  
Walton County, Prime Site  
Intermodulation Analysis**

**Networks and Enterprise**

**Version D01.00.01**

<b>1. Intermodulation Summary:</b>	<b>3</b>
<b>2. Analysis Introduction:</b>	<b>3</b>
<b>3. Analysis Factors:</b>	<b>4</b>
<b>4. Analysis Results:</b>	<b>5</b>
<b>5. Recommendations:</b>	<b>8</b>
<b>6. Disclaimer:</b>	<b>8</b>

## Intermodulation Summary:

The Intermodulation (IM) study indicates no 3<sup>rd</sup> order but significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 3<sup>rd</sup>, 5<sup>th</sup>, and 7<sup>th</sup> order intermodulation products affecting existing receiver at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Prime site.

The 3<sup>rd</sup> order IM study indicates no IM products received by the newly proposed 806MHz rebanded receive frequencies. The 3<sup>rd</sup> order IM study yielded 22 direct and indirect hits received by various VHF receivers at the site. Of the 22 IM hits of 3<sup>rd</sup> order, 16 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 16 IM products, all are indirect hits.

The 5<sup>th</sup> order IM study results yielded 702 direct and indirect hits received by various receivers at the site. The 5<sup>th</sup> order IM study indicates 18 IM products received by the newly proposed 806MHz rebanded receive frequencies. Of the 18 IM products received by newly proposed rebanded receive frequencies, 3 are direct hits and 15 are indirect hits. The 5<sup>th</sup> order IM study also indicates significant amount of IM products generated by mixing the newly rebanded transmit frequencies and existing frequencies. Of the 702 IM hits of 5<sup>th</sup> order, 549 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 549 IM products generated by mixing newly rebanded transmit frequencies, 28 are direct hits and 521 are indirect hits.

The 7<sup>th</sup> order IM study shows 10835 IM products generated at the site. Of the 10835 IM products of 7<sup>th</sup> order, 905 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 905 IM products received by the newly rebanded receive frequencies, 156 are direct hits and 749 are indirect hits.

Motorola has determined that television Channel 69 broadcasts in your area. TV Channel 69 transmitters can have effective radiated power levels in the megawatt range. These transmitters produce spurious emissions in the 806.0125MHz to 809.9875MHz region (new NPSPAC) high enough to interfere with licensees assigned to that portion of spectrum. Unfortunately, these by-product frequencies are completely legal.

The most common strategy for minimizing interference from Channel 69 broadcast stations is to apply notch filters on the TV transmitter. Another step is to also apply notch filters to the 800-MHz tower top/multicoupler assembly(s) in your system.

It should be noted that simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. The detailed intermodulation analysis is included in the following sections.

## Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequencies at a site, an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced,

transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict IM products that could be generated by the potential new frequencies as they are used at the Prime site after rebanding. During rebanding, six of the 821 frequencies used at Prime site will move to the 806 MHz sub-band.

## Analysis Factors:

Following are the frequencies used in generating the Prime site IM report:  
Red frequencies in the table are new rebanding frequencies at the site. Blue frequencies in the table are frequencies at the site that did not change due to rebanding.

	Transmit Frequencies	Receive Frequencies
1	851.0875	806.0875
2	851.8125	806.8125
3	853.9375	808.9375
4	866.6625	821.6625
5	866.8750	821.8750
6	867.6750	822.6750
7	856.5625	811.5625
8	857.1125	812.1125
9	857.5875	812.5875
10	851.6625	806.6625
11	851.8750	806.8750
12	852.6750	807.6750
13	154.2800	154.2800
14	154.3400	154.3400
15	154.9050	154.9050
16	155.3700	155.3700
17	155.6400	155.6400
18	156.1350	156.1350
19	929.6625	
20	929.7125	

The analysis calculates possible IM product frequencies through the seventh (7<sup>th</sup>) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are:

Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver. Following are the parameters used for the Prime Site IM analysis:

Minimum Product Order = 2  
Maximum Product Order = 7  
Minimum Harmonic = 1  
Maximum Harmonic = 6  
Minimum Number of Transmitters = 2  
Maximum Number of Transmitters = 7  
Half Window = 25 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7<sup>th</sup> order is the maximum product order considered in this analysis. To generate 7<sup>th</sup> order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

Harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7<sup>th</sup> order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.

Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within half window (+/-KHz) of all Rx frequencies. For this analysis 25 KHz was used as receiver half bandwidth.

## Analysis Results:

Hydra was used to generate 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM report. Following is the summary of the three reports.

### Intermod Hits By Order

RX ID	RX Frequency	Order 3	Order 4	Order 5	Order 6	Order 7
1	806.0875	0	0	6	11	218
2	806.8125	0	0	3	6	157
3	808.9375	0	0	4	0	149
4	821.6625	0	0	9	5	201
5	821.875	0	0	10	8	202
6	822.675	0	0	7	5	195
7	811.5625	0	0	1	0	123

8	812.1125	0	0	1	0	109
9	812.5875	0	0	0	0	108
10	806.6625	0	0	8	6	227
11	806.875	0	0	5	3	170
12	807.675	0	0	3	1	168
13	154.28	2	1	102	56	1426
14	154.34	7	1	103	60	1483
15	154.905	4	1	92	59	1486
16	155.37	5	0	117	72	1476
17	155.64	2	3	122	59	1500
18	156.135	2	0	109	67	1437

Intermodulation Hits (Direct and Total Hits)

Direct hit is the IM product that is one of the frequencies used at the site. Indirect hit is IM product that generate frequencies that fall within receivers IF bandwidth.

RX ID	RX Frequency	Total Hits	Direct Hits
1	806.0875	235	37
2	806.8125	166	24
3	808.9375	153	32
4	821.6625	215	24
5	821.875	220	20
6	822.675	207	25
7	811.5625	124	26
8	812.1125	110	26
9	812.5875	108	28
10	806.6625	241	27
11	806.875	178	24
12	807.675	172	28
13	154.28	1587	54
14	154.34	1654	59
15	154.905	1642	49
16	155.37	1670	44
17	155.64	1686	61
18	156.135	1615	38

Intermod Hits By Number of Transmitters

RX ID	RX Frequency	Order 3	Order 4	Order 5	Order 6	Order 7
1	806.0875	0	0	6	11	218
2	806.8125	0	0	3	6	157
3	808.9375	0	0	4	0	149
4	821.6625	0	0	9	5	201
5	821.875	0	0	10	8	202
6	822.675	0	0	7	5	195
7	811.5625	0	0	1	0	123
8	812.1125	0	0	1	0	109
9	812.5875	0	0	0	0	108
10	806.6625	0	0	8	6	227
11	806.875	0	0	5	3	170
12	807.675	0	0	3	1	168
13	154.28	2	1	102	56	1426

14	154.34	7	1	103	60	1483
15	154.905	4	1	92	59	1486
16	155.37	5	0	117	72	1476
17	155.64	2	3	122	59	1500
18	156.135	2	0	109	67	1437

\*\*\*\*\*

As seen in the report, the Intermodulation (IM) study indicates no 3<sup>rd</sup> order but significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 3<sup>rd</sup>, 5<sup>th</sup>, and 7<sup>th</sup> order intermodulation products affecting existing receiver at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Prime site. Even order IM products are not considered in the analysis because even order IM products are eliminated by RF filters.

The 3<sup>rd</sup> order IM study indicates no IM products received by the newly proposed 806MHz rebanded receive frequencies. The 3<sup>rd</sup> order study does indicate significant amount of IM products affecting existing receivers at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the site. The 3<sup>rd</sup> order IM study yielded 22 direct and indirect hits received by various VHF receivers at the site. Of the 22 IM hits of 3<sup>rd</sup> order, 16 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 16 IM products, all are indirect hits. The impact of a 3<sup>rd</sup> order indirect hit would not be as significant as a direct hit, but the intermodulation products within close proximity to the receiver frequency could cause interference. As a result, the indirect hits with a high probability of occurrence should be investigated further.

The 5<sup>th</sup> order IM study results yielded 702 direct and indirect hits received by various receivers at the site. The 5<sup>th</sup> order IM study indicates 18 IM products received by the newly proposed 806MHz rebanded receive frequencies. Of the 18 IM products received by newly proposed rebanded receive frequencies, 3 are direct hits and 15 are indirect hits. The 5<sup>th</sup> order IM study also indicates significant amount of IM products generated by mixing the newly rebanded transmit frequencies and existing frequencies. Of the 702 IM hits of 5<sup>th</sup> order, 549 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 549 IM products generated by mixing newly rebanded transmit frequencies, 28 are direct hits and 521 are indirect hits. Generally, 5<sup>th</sup> order IM products have lower impact than 3<sup>rd</sup> order, but can cause significant IM problems if the power level at mixing point is high. The impact of a 5<sup>th</sup> order indirect hit would not be as significant as a direct hit, but the intermodulation products within close proximity to the receiver frequency could cause interference. As a result, the indirect hits with a high probability of occurrence should be investigated further.

The 7<sup>th</sup> order IM study shows 10835 IM products generated at the site. Of the 10835 IM products of 7<sup>th</sup> order, 905 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 905 IM products received by the newly rebanded receive frequencies, 156 are direct hits and 749 are indirect hits. The 7<sup>th</sup> order study also indicates significant amount of direct and indirect hits generated by the mixing

of the newly rebanded transmit frequencies and existing transmit frequencies. To evaluate the impact of direct and indirect hits, further investigation is needed, which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, etc. The severity of the 7<sup>th</sup> order IM hit is relatively low and can be ignored if the power level is low.

Simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, IM analysis should be done to re-evaluate the impact of intermodulation.

## **Recommendations:**

1. Avoid using frequencies that have 3<sup>rd</sup> order IM direct hits or create 3<sup>rd</sup> order IM direct hits.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct hits are more significant than indirect hits. The impact of indirect hit will depend on signal level and how far apart is the IM product from the receiver frequency.

## **Disclaimer:**

Intermodulation distortion products (I.M.) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the I.M. signals developed through proper system design will determine whether they cause harmful interference to communications.

The I.M. analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an I.M. product in the analysis does not mean such a product will cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.



**800 MHz Re-banding  
Walton County, Campton Site  
Intermodulation Analysis**

**Networks and Enterprise**

**Version D01.00.01**

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## Intermodulation Summary:

The Intermodulation (IM) study indicates no 3<sup>rd</sup> and 5<sup>th</sup> order but significant 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products affecting existing receivers at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Campton site. The 3<sup>rd</sup> order IM study indicates no IM products generated at the site. The 5<sup>th</sup> order IM study indicates no IM products received by the newly proposed 806MHz rebanded receive frequencies. The 5<sup>th</sup> order IM study results yielded 41 direct and indirect hits received by various receivers at the site. Of the 41 IM hits of 5<sup>th</sup> order, 38 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 38 IM products generated by mixing newly rebanded transmit frequencies, 21 are direct hits and 17 are indirect hits. The 7<sup>th</sup> order IM study shows 718 IM products generated at the site. Of the 718 IM products of 7<sup>th</sup> order, 175 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 175 IM products received by the newly rebanded receive frequencies, 72 are direct hits and 103 are indirect hits.

Motorola has determined that television Channel 69 broadcasts in your area. TV Channel 69 transmitters can have effective radiated power levels in the megawatt range. These transmitters produce spurious emissions in the 806.0125MHz to 809.9875MHz region (new NPSPAC) high enough to interfere with licensees assigned to that portion of spectrum. Unfortunately, these by-product frequencies are completely legal.

The most common strategy for minimizing interference from Channel 69 broadcast stations is to apply notch filters on the TV transmitter. Another step is to also apply notch filters to the 800-MHz tower top/multicoupler assembly(s) in your system.

It should be noted that simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. The detailed intermodulation analysis is included in the following sections.

## Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequencies at a site, an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear

metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict IM products that could be generated by the potential new frequencies as they are used at the Campton site after rebanding. During rebanding, six of the 821 frequencies used at Campton site will move to the 806 MHz sub-band.

## Analysis Factors:

Following are the frequencies used in generating the Campton site IM report:  
Red frequencies in the table are new rebanding frequencies at the site. Blue frequencies in the table are frequencies at the site that did not change due to rebanding.

	Transmit Frequencies	Receive Frequencies
1	851.0875	806.0875
2	851.8125	806.8125
3	853.9375	808.9375
4	866.6625	821.6625
5	866.8750	821.8750
6	867.6750	822.6750
7	856.5625	811.5625
8	857.1125	812.1125
9	857.5875	812.5875
10	851.6625	806.6625
11	851.8750	806.8750
12	852.6750	807.6750
13	855.6125	810.6125
14	447.0500	442.0500

The analysis calculates possible IM product frequencies through the seventh (7<sup>th</sup>) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver. Following are the parameters used for the Campton IM analysis:

Minimum Product Order = 2  
Maximum Product Order = 7  
Minimum Harmonic = 1  
Maximum Harmonic = 6  
Minimum Number of Transmitters = 2  
Maximum Number of Transmitters = 7  
Half Window = 25 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7<sup>th</sup> order is the maximum product order considered in this analysis. To generate 7<sup>th</sup> order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

Harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7<sup>th</sup> order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.

Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within half window (+/-KHz) of all Rx frequencies. For this analysis 25 KHz was used as receiver half bandwidth.

## Analysis Results:

Hydra was used to generate 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM report. Following is the summary of the three reports.

### Intermod Hits By Order

RX ID	RX Frequency	Order 4	Order 5	Order 6	Order 7
1	806.0875	0	0	7	24
2	806.8125	0	0	7	16
3	808.9375	0	0	8	30
4	821.6625	0	8	8	100
5	821.875	0	10	8	91
6	822.675	0	7	7	110
7	811.5625	0	0	7	41
8	812.1125	0	0	5	32
9	812.5875	1	0	5	41
10	806.6625	0	0	4	21
11	806.875	0	0	5	22
12	807.675	0	0	5	18
13	810.6125	0	0	12	26
14	442.05	0	16	2	146

### Intermodulation Hits (Direct and Total Hits)

Direct hit is the IM product that is one of the frequencies used at the site. Indirect hit is IM product that generate frequencies that fall within receivers IF bandwidth.

RX ID	RX Frequency	Total Hits	Direct Hits
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1	806.0875	31	11
2	806.8125	23	14
3	808.9375	38	15
4	821.6625	116	24
5	821.875	109	25
6	822.675	124	28
7	811.5625	48	17
8	812.1125	37	14
9	812.5875	47	16
10	806.6625	25	11
11	806.875	27	11
12	807.675	23	11
13	810.6125	38	13
14	442.05	164	37

Intermod Hits By Number of Transmitters

RX ID	RX Frequency	2 TXs	3 TXs	4 TXs	5 TXs	6 TXs	7 TXs
1	806.0875	0	6	13	11	0	1
2	806.8125	0	6	4	11	1	1
3	808.9375	0	4	10	17	5	2
4	821.6625	2	6	15	57	26	10
5	821.875	1	5	26	33	31	13
6	822.675	1	6	20	42	42	13
7	811.5625	0	3	11	22	10	2
8	812.1125	0	5	6	18	6	2
9	812.5875	0	6	7	21	11	2
10	806.6625	1	3	11	9	1	0
11	806.875	1	3	11	9	3	0
12	807.675	1	2	8	11	1	0
13	810.6125	0	5	6	23	3	1
14	442.05	0	1	11	33	59	60

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As seen in the report, the Intermodulation (IM) study indicates no 3<sup>rd</sup> and 5<sup>th</sup> order but significant 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products affecting existing receiver at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Campton site. Even order IM products are not considered in the analysis because even order IM products are eliminated by RF filters.

The 3<sup>rd</sup> order IM study indicates no IM products generated at the site. The 5<sup>th</sup> order IM study indicates no IM products received by the newly proposed 806MHz rebanded receive frequencies. The 5<sup>th</sup> order IM study results yielded 41 direct and indirect hits received by various receivers at the site. Of the 41 IM hits of 5<sup>th</sup> order, 38 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 38 IM products generated by mixing newly rebanded transmit frequencies, 21 are direct hits and 17 are indirect hits. Generally, 5<sup>th</sup> order IM products have lower impact than 3<sup>rd</sup> order, but can cause significant IM problems if the power level at mixing point is high. The impact of a 5<sup>th</sup> order indirect hit

would not be as significant as a direct hit, but the intermodulation products within close proximity to the receiver frequency could cause interference. As a result, the indirect hits with a high probability of occurrence should be investigated further.

The 7<sup>th</sup> order IM study shows 718 IM products generated at the site. Of the 718 IM products of 7<sup>th</sup> order, 175 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 175 IM products received by the newly rebanded receive frequencies, 72 are direct hits and 103 are indirect hits. The 7<sup>th</sup> order study also indicates significant amount of direct and indirect hits generated by the mixing of the newly rebanded transmit frequencies and existing transmit frequencies. To evaluate the impact of direct and indirect hits, further investigation is needed, which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, etc. The severity of the 7<sup>th</sup> order IM hit is relatively low and can be ignored if the power level is low.

Simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, IM analysis should be done to re-evaluate the impact of intermodulation.

## Recommendations:

1. Avoid using frequencies that have 3<sup>rd</sup> order IM direct hits or create 3<sup>rd</sup> order IM direct hits.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct hits are more significant than indirect hits. The impact of indirect hit will depend on signal level and how far apart is the IM product from the receiver frequency.

## Disclaimer:

Intermodulation distortion products (I.M.) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the I.M. signals developed through proper system design will determine whether they cause harmful interference to communications.

The I.M. analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an I.M. product in the analysis does not mean such a product will

cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.



**800 MHz Re-banding  
Walton County, Lowery Site  
Intermodulation Analysis**

**Networks and Enterprise**

**Version D01.00.01**

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## Intermodulation Summary:

The Intermodulation (IM) study indicates no 3<sup>rd</sup> order but significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products affecting existing receivers at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Lowery site. The 3<sup>rd</sup> order IM study indicates no IM products generated at the site. The 5<sup>th</sup> order IM study indicates 8 indirect IM products received by the newly proposed 806MHz rebanded receive frequencies. All the indirect hits received by the newly rebanded receive frequencies are 12.5 KHz or 25 KHz away from the incumbent frequencies. The 5<sup>th</sup> order IM study results yielded 47 direct and indirect hits received by various receivers at the site. Of the 47 IM hits of 5<sup>th</sup> order, 44 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 44 IM products generated by mixing newly rebanded transmit frequencies, 20 are direct hits and 24 are indirect hits. The 7<sup>th</sup> order IM study shows 902 IM products generated at the site. Of the 902 IM products of 7<sup>th</sup> order, 390 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 390 IM products received by the newly rebanded receive frequencies, 116 are direct hits and 274 are indirect hits.

Motorola has determined that television Channel 69 broadcasts in your area. TV Channel 69 transmitters can have effective radiated power levels in the megawatt range. These transmitters produce spurious emissions in the 806.0125MHz to 809.9875MHz region (new NPSPAC) high enough to interfere with licensees assigned to that portion of spectrum. Unfortunately, these by-product frequencies are completely legal.

The most common strategy for minimizing interference from Channel 69 broadcast stations is to apply notch filters on the TV transmitter. Another step is to also apply notch filters to the 800-MHz tower top/multicoupler assembly(s) in your system.

It should be noted that simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. The detailed intermodulation analysis is included in the following sections.

## Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequencies at a site, an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually

metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict IM products that could be generated by the potential new frequencies as they are used at the Lowery site after rebanding. During rebanding, six of the 821 frequencies used at Lowery site will move to the 806 MHz sub-band.

## Analysis Factors:

Following are the frequencies used in generating the Lowery site IM report:

Red frequencies in the table are new rebanding frequencies at the site. Blue frequencies in the table are frequencies at the site that did not change due to rebanding.

	Transmit Frequencies	Receive Frequencies
1	851.0875	806.0875
2	851.8125	806.8125
3	853.9375	808.9375
4	866.6625	821.6625
5	866.875	821.875
6	867.675	822.675
7	856.5625	811.5625
8	857.1125	812.1125
9	857.5875	812.5875
10	851.6625	806.6625
11	851.875	806.875
12	852.675	807.675
13	153.005	158.385
14	931.0875	

The analysis calculates possible IM product frequencies through the seventh (7<sup>th</sup>) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver. Following are the parameters used for the Lowery IM analysis:

Minimum Product Order = 2

Maximum Product Order = 7

Minimum Harmonic = 1

Maximum Harmonic = 6

Minimum Number of Transmitters = 2

Maximum Number of Transmitters = 7

Half Window = 25 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7<sup>th</sup> order is the maximum product order considered in this analysis. To generate 7<sup>th</sup> order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

Harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7<sup>th</sup> order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.

Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within half window (+/-KHz) of all Rx frequencies. For this analysis 25 KHz was used as receiver half bandwidth.

## Analysis Results:

Hydra was used to generate 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> order IM report. Following is the summary of the three reports.

### Intermod Hits By Order

RX ID	RX Frequency	Order 5	Order 6	Order 7
1	806.0875	3	1	78
2	806.8125	0	4	50
3	808.9375	5	4	66
4	821.6625	8	0	81
5	821.875	10	0	83
6	822.675	7	0	86
7	811.5625	0	0	74
8	812.1125	0	0	50
9	812.5875	0	0	70
10	806.6625	2	1	62
11	806.875	3	2	73
12	807.675	3	2	61
13	158.385	6	5	68

### Intermodulation Hits (Direct and Total Hits)

Direct hit is the IM product that is one of the frequencies used at the site. Indirect hit is IM product that generate frequencies that fall within receivers IF bandwidth.

RX ID	RX Frequency	Total Hits	Direct Hits
1	806.0875	82	23

2	806.8125	54	13
3	808.9375	75	21
4	821.6625	89	18
5	821.875	93	19
6	822.675	93	22
7	811.5625	74	17
8	812.1125	50	18
9	812.5875	70	25
10	806.6625	65	17
11	806.875	78	19
12	807.675	66	20
13	158.385	79	0

Intermod Hits By Number of Transmitters

RX ID	RX Frequency	2 TXs	3 TXs	4 TXs	5 TXs	6 TXs	7 TXs
1	806.0875	0	5	9	24	30	14
2	806.8125	0	5	4	17	19	9
3	808.9375	0	3	7	26	30	9
4	821.6625	2	4	13	45	18	7
5	821.875	1	5	19	27	34	7
6	822.675	1	6	16	30	30	10
7	811.5625	0	3	12	28	21	10
8	812.1125	0	3	7	22	12	6
9	812.5875	0	5	6	23	27	9
10	806.6625	1	3	9	20	18	14
11	806.875	1	3	10	16	36	12
12	807.675	1	2	11	17	21	14
13	158.385	0	2	5	18	35	19

\*\*\*\*\*

As seen in the report, the Intermodulation (IM) study indicates no 3<sup>rd</sup> order but significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products received by the newly proposed 806 MHz rebanded frequencies. The study also indicates significant 5<sup>th</sup> and 7<sup>th</sup> order intermodulation products affecting existing receiver at the site. These products are generated by mixing the newly rebanded transmit frequencies and existing transmit frequencies at the Lowery site. Even order IM products are not considered in the analysis because even order IM products are eliminated by RF filters.

The 3<sup>rd</sup> order IM study indicates no IM products generated at the site. The 5<sup>th</sup> order IM study indicates 8 indirect IM products received by the newly proposed 806MHz rebanded receive frequencies. All the indirect hits received by the newly rebanded receive frequencies are 12.5 KHz or 25 KHz away from the incumbent frequencies. The 5<sup>th</sup> order IM study results yielded 47 direct and indirect hits received by various receivers at the site. Of the 47 IM hits of 5<sup>th</sup> order, 44 IM hits are generated by mixing the newly rebanded transmit frequencies with existing transmit frequencies at the site. Of the 44 IM products generated by mixing newly rebanded transmit frequencies, 20 are direct hits and 24 are indirect hits. Generally, 5<sup>th</sup> order IM products have lower impact than 3<sup>rd</sup> order, but can cause significant IM problems if the power level at mixing point is high. The impact of a 5<sup>th</sup> order indirect hit would not be as significant as a direct hit, but the

intermodulation products within close proximity to the receiver frequency could cause interference. As a result, the indirect hits with a high probability of occurrence should be investigated further.

The 7<sup>th</sup> order IM study shows 902 IM products generated at the site. Of the 902 IM products of 7<sup>th</sup> order, 390 IM products are received by the newly proposed 806MHz rebanded receive frequencies. Of the 390 IM products received by the newly rebanded receive frequencies, 116 are direct hits and 274 are indirect hits. The 7<sup>th</sup> order study also indicates significant amount of direct and indirect hits generated by the mixing of the newly rebanded transmit frequencies and existing transmit frequencies. To evaluate the impact of direct and indirect hits, further investigation is needed, which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, etc. The severity of the 7<sup>th</sup> order IM hit is relatively low and can be ignored if the power level is low.

Simplex channels should not be affected by the IM products as the receiver and transmitter in these stations are never engaged simultaneously. These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, IM analysis should be done to re-evaluate the impact of intermodulation.

## Recommendations:

1. Avoid using frequencies that have 3<sup>rd</sup> order IM direct hits or create 3<sup>rd</sup> order IM direct hits.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct hits are more significant than indirect hits. The impact of indirect hit will depend on signal level and how far apart is the IM product from the receiver frequency.

## Disclaimer:

Intermodulation distortion products (I.M.) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the I.M. signals developed through proper system design will determine whether they cause harmful interference to communications.

The I.M. analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an I.M. product in the analysis does not mean such a product will

cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.

***ATTACHMENT B***

***SUITABILITY ASSESSMENT IMPACT REPORT  
(SAIR)***

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## **Suitability Assessment Impact Report**

Licensee Name: WALTON, COUNTY OF

Customer Name: WALTON, COUNTY OF

Submitted by: Kevin Hull

System Type: SmartNet Simulcast

Preparation Date: Friday, January 05, 2007

*The content of this report is dependent upon the data entered into the inventory workbook as supplied by the Customer or the Customer's agent*

*Concerning the Suitability Assessment Process, Motorola has completed its preliminary evaluation and has determined that the products listed in the inventory you provided will be impacted as described in the following text. However, Motorola may perform additional regression tests as required on these products. In the unlikely event the regression testing indicates the above information is incorrect, Motorola will gladly provide corrected information to you and advise you of the effects of rebanding; further, if it is appropriate, Motorola will provide to you a quote for software, hardware or services to address the effects of rebanding.*

### **Impact to Base Stations or Repeaters**

Retune the MSF5000 base station new frequency with RSS

Retune the Non-IR Quantar base station new frequency with existing Quantar RSS

### **Impact to System Controllers**

Open an upgrade Operations CASE to order new Rebanding CSC codeplug(s) for the Prime Site Controller (Type II Fleet map only). Rebanding software / firmware does not support Type I fleets.

Replace the existing Central Site Controller (CSC) firmware with Smartnet II Plus CSC firmware with version R36.20.03

Open an Upgrade Operations CASE to order new Rebanding CSC firmware R36.20.03 for the Prime Site controller.

Replace the existing Transmitter Site Controller (TSC) firmware with new Smartnet II Plus TSC firmware version R6.40.00

Replace the Data Concentrator Board (DCB) firmware with new Smartnet II Plus DCB firmware version R7.07

Replace the Trunked Console Interface (TCI) firmware with new Smartnet II Plus TCI firmware version R10.01.05

Replace the Transmitter Interface Board (TIB) with a new TRN6683B/DLN1323A

In the Remote Site Controller replace the Remote Receiver Site Controller (ReSC) firmware with new Smartnet II Plus ReSC firmware version R7.00.09

### **Impact to Management Terminals**

Replace SIMS II with new Genesis GW3HC product.

Replace SyntorX or Spectra RF Modem with an MCS2000 RF Modem and retune with RVN4175T CPS software

The Genwatch 3 product uses LAN/WAN IP connectivity between the server and user terminals. Ensure IP connectivity between sites.

Order new Software for Systems Watch II and configure for new frequency

Upgrade System Watch computer to run Windows XP

### **Impact to Subscribers**

REPLACE the MTX8000 portable with the XTS1500 RB for the model I radio or XTS2500RB for the model II and III then retune with the new rebanding RVN4181T CPS software.

Retune the MTX8000 portable with existing RSS programming software

Replace the LTS2000 portable with XTS2500RB then retune with new Rebanding RVN4181T CPS

Retune the MTX820 portable with existing RSS programming software

XTS2500 radios shipped before Feb. 2006 flash with rebanding firmware then retune with new RVN4181T CPS software. Radios shipped after Jan. 2006 retune with new RVN4181T CPS software.

XTL2500 radios shipped before Feb. 2006 flash with rebanding firmware then retune with new RVN4185T CPS software. Radios shipped after Jan. 2006 retune with new RVN4185T CPS software.

Flash the MCS2000 mobile with rebanding firmware then retune with new RVN 4175T CPS software

Replace Spectra with XTL2500RB. For Dual control head, replace with XTL2500 dual control head then, retune with new rebanding CPS RVN4185T.

Retune the Maxtrac radio with existing RSS programming software

Retune the GTX mobile with existing RSS programming software

The MTX8250 radio is a Privacy Plus radio that is not intended to operate in the NPSPAC band. Therefore, there is no replacement and/or software upgrade required. Relocation within the interleaved section of the band (854/809.0125-861/816.9875) can be accomplished using standard RSS. This applies to all Motorola Privacy Plus radios. Call the Rebanding Product Group for further information.

The subscriber radio listed in the inventory could not be located in the database. Please contact Motorola to determine the rebanding requirements.

For MTS2000 with 256Kb memory or codeplug size greater than 13.5 Kbyte replace with XTS2500RB (Model III or II, Encry, > 48Ch) / XTS1500RB for Model I then retune with new RVN4181T CPS. If a Converta-Com or MTVA is used replace with XTS5000 and XTVA.

### **Impact to RF Antenna Site Equipment**

Call Bird Technologies / Tx-Rx for replacement transmit combiner intercavity cables and retune each port for new frequency

Retune each transmitter combiner port of the Tx-Rx transmitter combiner for the new frequency

If there is a Tx combiner post filter and the new frequency is outside the bandwidth of the filter then order a new filter with the appropriate bandwidth

No Action Required for the Tx-Rx Tower Mounted Amplifier or Receive Multicoupler

Motorola has determined that TV channel 69 broadcasts in your area. Channel 69 TV transmitters can produce spurious emissions in the new NPSPAC frequency segment while remaining completely legal. Such interference must be addressed at the source, therefore Motorola has not included any solutions for interference involving TV channel 69 frequencies should it occur.

### **Impact to Dispatch Console Systems**

No change required for Centracom II Gold Elite console systems

### **Impact to MOSCAD Sub-Systems**

No MOSCAD Inventory Input Provided

## ***ATTACHMENT C***

### ***FUNCTIONAL ACCEPTANCE TEST PROCEDURES (ATP)***



## FUNCTIONAL & ACCEPTANCE TEST PROCEDURES

*For:*

**WALTON COUNTY, GA**

**800 MHz. COMMUNICATIONS SYSTEM REBANDING**

*February 15, 2007*

Prepared by:



Enterprise Mobility Solutions Group  
1309 E. Algonquin Road  
Schaumburg, IL 60196

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## Test Methodology

The basic purpose of any communications system is the ability to pass information on the assigned frequency. With this in mind, these basic tests were compiled to verify this process both before retuning and again after the retuning process is complete. It is not the intent of these test scripts to test every function that the system is capable of, but rather to verify the operation of the infrastructure and functions which may be effected through the retuning process. Passing this series of scripts after retuning will serve as prove of functional comparable facilities.

The scripts in this test plan are a sub-set of the tests which were run on this system while in Motorola's System Factory and again during the in-field system acceptance tests. As these scripts are generic in nature, the procedural steps followed may need to be customized to fit the system under test.

Many of these test scripts will require repeating for multiple stations and/or multiple controllers. Please make notations to reflect what equipment has been tested and pass/fail on the associated test script page.

**This document along with the RF pre and post rebanding data forms will become part of the final system documentation.**

## Trunking Features

Trunked radio communications systems allow the sharing of infrastructure components to facilitate the communications process. Rather than having one frequency resource (repeater) assigned to each talk group, a trunked system permits talk groups to be assigned to available resources using a priority basis. This control is accomplished through the use of a trunked system controller with customized code plug data.

### Trunked Radio Talkgroup Call

These test scripts will verify the repeaters ability to pass two-way information from the selected talk group through the repeater on the rebanded frequency in both clear and coded, if optioned, mode. They will also verify the ability of the trunking system controller to decode the Inbound Signaling Word (ISW) and generate the Outbound Signaling Word (OSW) to assign the requesting subscriber to a repeater.

### Control Channel Rotation

This test script will verify the controller's ability to automatically assign a control channel, rotate the control channel through the eligible channels as required either at set times or through failure. Control channel assignment is based on data contained in the controller's code plug.

These scripts should be repeated for each repeater affected by rebanding, including those at backup sites. The trunking system controller assigns repeaters and control channels based on the data contained in its code plug; this necessitates that the scripts be repeated for each controller in the system. In the instance of transmitter sites utilizing Intellirepeaters®, each repeater must be tested as each can function as the controller.

## Trunking Features

### Talkgroup Call - Clear Mode

#### 1. DESCRIPTION

The talkgroup call is the primary level of organization for communications on a trunked radio system. Radios with talkgroup call capability will be able to communicate with other members of the same talkgroup.

Radio users can select between the different talkgroups that are programmed in the radio using a manual switch or keypad.

#### SETUP

RADIO-1 - TALKGROUP 1  
RADIO-2 - TALKGROUP 1

#### 2. TEST

Step 1. Initiate a talkgroup call with RADIO-1.

Step 2. Verify the ISW is decoded by the Central Controller.

Step 3. Verify communication with RADIO-2.

**Post-Rebanding**      **Pass**\_\_\_\_ **Fail**\_\_\_\_

VERSION #1.01

Control Channel Rotation

## 1. DESCRIPTION

In the event that the assigned control channel fails, the Central Controller automatically selects one of the other eligible channels as the active control channel.

The Central Controller will automatically rotate the control channel at midnight each night.

Assignment of the control channel falls into two categories: assignment when the system comes into trunking operation and reassignment after a control channel failure or at assigned rotation times.

## 2. TEST

Step 1. Verify that the control channel is channel 1.

Step 2. Front panel disable the active control channel.

Step 3. Verify that the control channel has rotated to the next available channel and is processing calls.

Step 4. Disable the control channel via the SMT CHAN command.

Step 5. Verify that the control channel has rotated to the next available channel and is processing calls.

**Post-Rebanding**      **Pass**\_\_\_\_ **Fail**\_\_\_\_

**VERSION #1**

## Console Features

Control of a base station or repeater from a central dispatch facility requires that the station or controller be optioned for console interface.

### Trunked Console Talkgroup Call

This test script also seems more suitable for console testing than repeater testing but it will verify the operation of the console-to-station interface and that the console interface option switch in the trunked system controller's code plug is functional.

## Console Feature

### Console Talkgroup Call - Clear Mode

#### 1. DESCRIPTION

Resource Windows are used to communicate with talkgroups. Each talkgroup in the system will have its own resource window.

A call from a subscriber unit to a console is indicated on each dispatch operator position that has a resource window associated with the channel the subscriber unit is transmitting on.

When a subscriber keys on a talkgroup that the console has selected, the subscriber's audio comes out of the select speaker of the console. Audio on talkgroups that the console has not selected is heard on the unselected speaker.

If the resource has secure capability, a padlock button appears in the resource window. If an incoming call is uncoded and is received on a channel where the transmit mode is set to coded, an unlocked padlock appears in the call indicator area on the resource. If an incoming call is coded and the transmit mode is set to clear, a locked padlock appears in the call indicator area.

#### SETUP

RADIO-1 - TALKGROUP 1  
CONSOLE - TALKGROUP 1 Resource Window

#### 2. TEST

Step 1. The console operator selects the TALKGROUP 1 resource window and changes his mode to clear by depressing the padlock button so that it displays an open padlock.

Step 2. Transmit on RADIO-1 in the clear mode.

Step 3. Verify that the console hears audio through the select speaker.

Step 4. Verify the display of RADIO-1's ID on the TALKGROUP 1 resource window, and that no padlock is displayed because the transmit and receive modes match.

Step 5. Transmit on console in the clear mode, verify communication with RADIO-1.

Post-Rebanding      Pass \_\_\_\_ Fail \_\_\_\_  
VERSION #1.02

## Signoff Certificate

By their signatures below, the following witnesses certify they have observed the In-Field System Verification Test Procedures.

Signatures

LICENSEE WITNESS:

_____ Date: _____
-------------------

Please Print Name: \_\_\_\_\_



***ATTACHMENT D***

***RF PERFORMANCE VERIFICATION PLAN***



## **RF Performance Verification Plan Walton County, GA**

Walton County operates and maintains a three site, six channel, trunked radio system. The rebanding of the system will not require changes to the antenna network at any of the sites.

RF performance verification procedures for systems of this type are defined by the Transition Administrator as follows:

### *Method 1 – Repeater Site Measurements*

This method is appropriate for sites where reconfiguration does not require substantial changes to the antenna or coax feed line. This method can be used if other transmission elements such as transmitter combiners, or filtering devices change, if those changes do not result in a change to the transmit power into the feed line. For those systems where the transmit power to the feed line does not change, it is sufficient to make a series of measurements at the repeater site.

This method assumes all existing equipment is specified to operate with comparable losses for the new channels compared to the existing channels. If the antenna bandwidth specifications include the new channels, then the radiated pattern and signal strength should not change assuming that equivalent transmit power is delivered to the antenna.

Prior to reconfiguring the site, measured losses for each component are recorded including the transmit power entering the transmission line. The measurements should include the return loss of the transmission line and antenna. After reconfiguration, the same measurements are made and compared to the prior measurements. If the two sets of measurements are comparable, then coverage will be comparable.

The coverage performance verification plan that follows has been designed to closely align with the Transition Administrator's guidance.

### **RF Performance Verification Plan**

Before a device is rebanded, it will be inspected for any preexisting defects that may impede the rebanding process. Motorola will report all identifiable defects to Walton County. It will be Walton County's responsibility to correct these issues through its normal service channels prior to rebanding.

### **RF Performance Verification Procedure**

The following checks will be performed on each applicable data base station prior to changing the frequency.

Transmitter

- Frequency
- Transmit RF power output
- Transmit reflected power from the combiner port
- Transmitter Modulation

Receiver

- Frequency
- Effective receiver sensitivity
- Squelch setting

The following checks will be performed on each applicable transmit combiner component prior to changing the frequency.

- Transmit RF power into each applicable port of the combiner
- Transmit RF power out of the combiner for each applicable channel
- Transmit RF power reflected from the antenna

The following checks will be performed on each applicable Tower Mounted Amplifier and Multicoupler prior to changing the frequency:

- System gain

Once these tests are completed, the Voice system will be rebanded and the tests repeated. The results of both exercises will be compared and the findings presented to Walton County for approval.

Per the TA, the “focus of any testing must be on showing if comparable coverage is achieved”. For the Voice systems system, Motorola believes these procedures adequately meet this goal.

***ATTACHMENT E***

***PHASE I CUT-OVER & FALL BACK PLAN***

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## CUTOVER PLAN

### Proposed Transition Method of Procedures

The following table is a sequential listing of the major tasks that have to be completed to reband this system. This table is not meant to detail each task necessary to cut-over the Walton County system.

<b>Walton County Three Site Simulcast System - Phase 1</b>					
	<b>Task Description</b>	<b>Reduced System Capacity</b>	<b>Reduced Channel Capacity</b>	<b>Voice Console System</b>	<b>Voice Subs</b>
Step 1	Conduct Kick-Off Meeting	A	A	A	A
Step 2	Provide proper system notifications and announcements before each system effecting step	A	A	A	A
Step3	Perform RF Performance Verification Tests at each site	A	R	A	A
Step 4	Install Code Plug #1 locking 856.5625 as Control Channel. Perform Go, No-Go test	F	A	A	A
Step 5	Install New Radios and Retune/Flash Existing Radios	A	A	A	R
Step 6	Disable 851.8125 at master controller, Retune 851.8125 to 857.1125 at all sites.	A	R	A	A
Step 7	Install Code Plug #2 locking 857.1125 as Control Channel. Perform Go, No-Go test. Endable Channel	F	A	A	A
Step 8	Disable 851.8125 and 853.9375 at master controller. Install Code Plug #3. Perform Go, No-Go test.	F	R	A	A
Step 9	Retune 851.8125 to 857.1125 and 853.9375 to 857.5875 at all sites. Enable channels Placing all Control Channels into normal rotation	A	R	A	A
Step 10	Perform Simulcast Optimization	A	R	A	A
Step 11	Perform post-rebanding RF Verification Acceptance Testing at each site.	A	R	A	A
Step 12	Conduct Acceptance Test Procedure with Walton County	A	A	A	A
	Legend	Resource Available	Reduce Capacity	Failsoft Operation	

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***ATTACHMENT F***

***PHASE I RECONFIGURATION PROJECT SCHEDULE***

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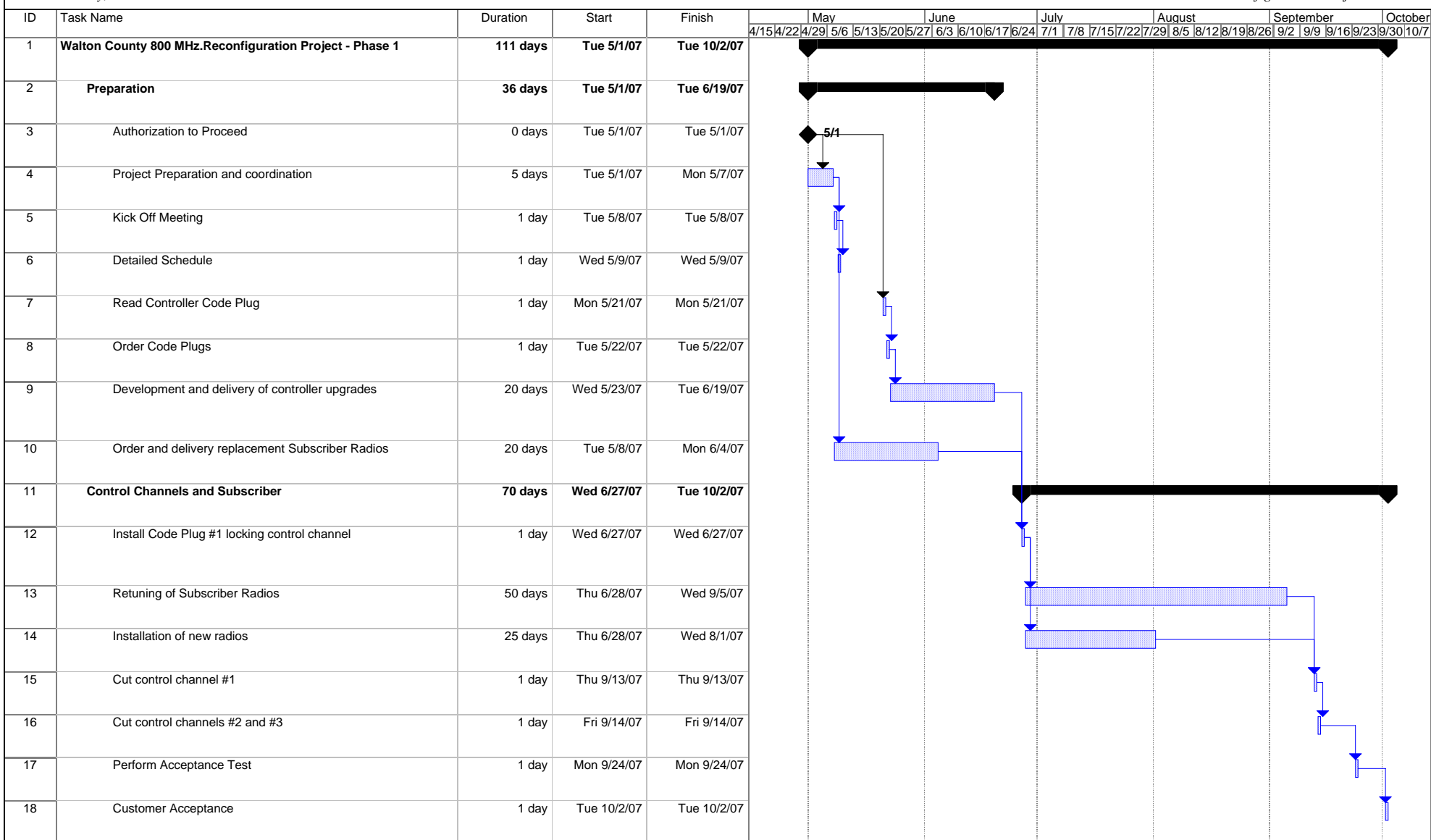


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Motorola 800 MHz.Rebanding Project  
Walton County, GA - Phase 1

Attachment F / Reconfiguration Project Schedule



Project: Walton County, GA Phase 1 Date: Thu 2/15/07	Task		Milestone		External Tasks		Deadline	
	Split		Summary		External Milestone			
	Progress		Project Summary		External Milestone			