LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

SUBJECT: LA-RICS FINANCE COMMITTEE REPORTS

Attachments:

A) County of Los Angeles Department of Auditor-Controller: Statement of Receipts and Disbursements for LA-RICS for the period of July 1, 2010 through December 31, 2010.

B) Grant Allowability Reports

- Preliminary Grant Allowability Budget Analysis – Allowable and Unallowable Total Costs
- Preliminary Grant Allowability – Cash Flow Analysis
- Quarterly Grant Status

AGENDA ITEM 1a

COUNTY OF LOS ANGELES
DEPARTMENT OF AUDITOR-CONTROLLER

KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET, ROOM 525
LOS ANGELES, CALIFORNIA 90012-3873
PHONE: (213) 974-8301 FAX: (213) 626-5427

WENDY L. WATANABE
AUDITOR-CONTROLLER

MARIA M. OMS
CHIEF DEPUTY

ADDRESS ALL CORRESPONDENCE TO:
ACCOUNTING DIVISION
500 W. TEMPLE ST., ROOM 603
LOS ANGELES, CA 90012-2713

February 24, 2011

The Board of Directors
Los Angeles County Regional Interoperable
Communications System (LA-RICS)
c/o Scott L. Poster, Interim Director
2525 Corporate Place, Suite 200
Monterey Park, CA 91754

Members of the Board:

Enclosed is the Statement of Receipts and Disbursements for the Los Angeles County Regional Interoperable Communications System (LA-RICS) for the period of July 1, 2010 through December 31, 2010.

If you have any questions, please contact Rachelle Anema at (213) 974-0335 or Rachel Rosario at (213) 974-8345.

Very truly yours,

Wendy L. Watanabe
Auditor-Controller

Connie Yee, Division Chief
Accounting Division

WLW:JN:CY:RA:rr
H:\Special Funds\Special Funds Unit\JOINT POWERS AUTHORITIES\LARICS-REGIONAL INTEROPERABILITY COMMUNICATION SYSTEM\LARICS - REPORTS\FY 10-11 LARICS COVER LETTER\Cover Letter-LARICS 1ST HALD FY10-11.doc

Enclosure

c: Mark J. Saladino, County of Los Angeles Treasurer and Tax Collector

AGENDA ITEM 1a – ATTACHMENT A

LOS ANGELES REGIONAL INTEROPERABILITY COMMUNICATION SYSTEM
STATEMENT OF RECEIPTS AND DISBURSEMENTS
JULY 1, 2010 TO DECEMBER 31, 2010

		Fund V58 / Unit 55000
Beginning Cash Balance as of July 1, 2010		$ -
Receipts:		
Interest	11/01/10	76.17
Interest	12/01/10	118.38
Cash Flow Loan from County of Los Angeles	10/21/10	500,000.00
Total Beginning Cash Balance and Receipts:		$500,194.55
Disbursements:		
Administrative Fee - Long-term de Facto Transfer Spectrum Lease Agreement		$ 15,000.00
Grant Management Services - Neeku Group		14,282.50
Legal Services - Fletcher, Heald & Hildreth PLC Attorneys at Law		1,625.19
Travel Expenses		4,659.88
Total Disbursements:		$ 35,567.57
Ending Cash Balance as of December 31, 2010		$464,626.98

Prepared by
Los Angeles County
Department of Auditor-Controller
Accounting Division
RR 1/18/11

LA-RICS Finance Committee: Preliminary Grant Allowability Budget Analysis Using ROM Estimates

Allowable and Unallowable Total Costs

	Allowable	Unallowable	Total
Design	$ 100,000,000	$ -	$ 100,000,000
Site Equip	$ 299,682,364	$ -	$ 299,682,364
Tower and Site Improvements	$ 12,842,240	$ 12,842,240	$ 25,684,480
Shelter & Generator	$ 15,018,117	$ 15,018,117	$ 30,036,234
Construction Overhead	$ -	$ 83,581,069	$ 83,581,069
Installation	$ 61,015,853	$ -	$ 61,015,853
Total	$ 488,558,574	$ 111,441,426	$ 600,000,000

Allowable and Unallowable Costs (FY 11/12 – FY 15/16)

	Allowable	Unallowable	Total
FY11/12	$ 48,855,857	$ 11,144,143	$ 60,000,000
FY12/13	$ 122,139,643	$ 27,860,357	$ 150,000,000
FY13/14	$ 122,139,643	$ 27,860,357	$ 150,000,000
FY14/15	$ 73,283,786	$ 16,716,214	$ 90,000,000
FY15/16	$ 122,139,643	$ 27,860,357	$ 150,000,000
Total	$ 488,558,574	$ 111,441,428	$ 600,000,000

*Amounts are based on a 2006 regional interoperability feasibility study. Actual total costs and itemized costs will be determined during vendor negotiations.

Preliminary Grant Allowability Cash Flow Analysis

*All Figures are based on a 2006 regional interoperability feasibility study. Actual total costs and itemized costs will be determined during vendor negotiations.

Quarter	Purpose	Grant
October – December 2011	▪ Voice and Data Design Plan ▪ Broadband environmental and engineering	✓ PSIC 2007 ✓ BTOP
January – March 2012	▪ Voice and Data Design Plan ▪ Broadband LTE core network site begins ▪ Broadband LTE site preparation/upgrades begins	✓ UASI & SHSGP 2008 ✓ BTOP ✓ BTOP
April – June 2012	▪ Voice and Data Design Plan complete ▪ Voice equipment purchase begins ▪ Broadband LTE core network site complete ▪ Broadband LTE site preparation/upgrades continues ▪ Broadband equipment installation begins	✓ UASI & SHSGP 2009 ✓ UASI 2009 ✓ BTOP ✓ BTOP ✓ BTOP
July – September 2012	▪ Voice equipment purchase ▪ Broadband LTE site preparation/upgrades continues ▪ Broadband equipment installation continues	✓ UASI & SHSGP 2010 ✓ BTOP ✓ BTOP
October – December 2012	▪ Voice equipment purchase ▪ Broadband LTE site preparation/upgrades continues ▪ Broadband equipment installation continues	✓ UASI & SHSGP 2010 ✓ BTOP ✓ BTOP
January – March 2013	▪ Voice equipment purchase ▪ Broadband LTE sites finalized ▪ Broadband equipment installation finalized	✓ UASI & SHSGP 2010 ✓ BTOP ✓ BTOP
April – June 2013	▪ Broadband device installation begins	✓ BTOP
July – September 2013	▪ Broadband device installation complete ▪ Broadband system final testing	✓ BTOP ✓ BTOP

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

LA-RICS TECHNICAL COMMITTEE

NEW SCHEDULE
The Technical Committee is scheduled to meet the fourth Tuesday of the month at 10:30 a.m., following the Operations Committee.

PHASING OPTIONS
Both the Technical and Operations Committees were requested by the Finance Committee to discuss the options of a phased approach for narrow-band/analog, LARTCS, BTOP (Broadband Technology Opportunities Program) and P-25 digital trunking overlays. The Technical Committee also added the 4.9GHz and narrow-band data to the list of issues to prioritize.

The Technical Committee concerns/recommendations were that the:

- BTOP is a separate project and can run in parallel to the voice portion of LA-RICS.
- Specific phasing of the project was not finalized because it is addressed in the confidential vendor proposals so we do not to comment until it is appropriate to do so.

PUBLIC UTILITIES PARTICIPATION IN THE BTOP/LTE DATA SYSTEM
The Technical Committee voted to support the process through the Federal Communications Commission (FCC) to allow the Los Angeles Department of Water & Power (LADWP) to participate in the BTOP/LTE (Long-Term Evolution) broadband data system. This is particularly important for the LA-RICS project as LADWP has numerous sites with fiber optic network access, which if used, will not cause the need for duplication of costly fiber optic installations. The fiber optic network is the primary vehicle to send the data to the network operation centers.

BTOP OVERVIEW
Deltawrx will arrange for a BTOP overview and update at the next Technical Committee meeting on March 22, 2011.

AGENDA ITEM 1d

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

APPROVE AUTHORITY TO CONTRACT FOR MOBILE BROADBAND ENGINEERING SERVICES FOR LA-SAFETYNET FOR A TERM OF THREE YEARS NOT TO EXCEED $1,500,000

SUBJECT

It is recommended that the Authority authorize the Task Force Leader to execute a contract with a qualified engineering firm with expertise in Long Term Evolution ("LTE") technology to consult and serve as subject matter experts for the technical aspects of the LA-SafetyNet project.

This contract would be for a term no longer than three years and for an amount not to exceed $1,500,000. This action would further authorize the Task Force Leader, or his designee, to issue any necessary work orders and pay all invoices under this contract and to report to the Board of Directors monthly on the status of the contract and on any expenditures.

BACKGROUND

The Broadband Technology Opportunities Program ("BTOP") grant from the Department of Commerce's National Telecommunications and Information Administration ("NTIA") will fund the LA-SafetyNet project, a 700 MHz public safety mobile broadband network across all of Los Angeles County, featuring almost 300 wireless LTE sites using new and existing infrastructure, fixed microwave backhaul rings, and 100-miles of high-capacity fiber backbone.

The proposed design for LA-SafetyNet meets the requirements of the FCC Waiver Order issued on May 12, 2010, that requires waiver recipients to use LTE technology. In order to address the technical requirements necessary for implementing this new technology, LA-RICS solicited proposals from qualified engineering firms with public safety communications and cellular wireless communications expertise to address the technical aspects of the LA-SafetyNet project.

AGENDA ITEM 6

PURPOSE/ JUSTIFICATION OF RECOMMENDED ACTION

LTE technology differs substantially from traditional public safety radio systems, meaning that member agencies and their staff have little expertise in these types of systems. As such, the Authority seeks certified and experienced subject matter experts to assist in all phases of implementing the LTE broadband system funded by the BTOP grant.

RFP ISSUANCE AND PROPOSAL EVALUATION

On February 9th, 2011, the Authority released an RFP for "Mobile Broadband Network Engineering Services for the LA-SafetyNet Project." Under the RFP, the Authority sought a qualified engineering firm to:

- Consult with and advise the Authority during contract negotiations with the selected vendor for the construction of LA-SafetyNet;
- Consult with and advise the Authority during the final design review, project plan, and control of change request management;
- Consult with and advise the Authority during contract implementation through final acceptance;
- Serve as a Subject Matter Expert ("SME") on LTE and broadband technology initiatives and activities.

A team of evaluators comprised of subject matter experts from representative member agencies reviewed and evaluated each proposal that met the minimum requirements. The following criteria were used to guide evaluation:

SELECTION CRITERIA	POINTS
Overall Approach and Methodology	20
Staff Experience	30
Contractor's Demonstrated Ability	30
Cost Proposal	20
Total Possible	100

FISCAL IMPACT/FINANCING

All contract costs will be fully reimbursable under the BTOP grant award. The Authority may request advance funding from the grantor or submit invoices for reimbursement.

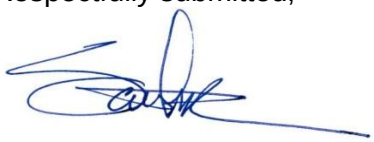
FACTS AND PROVISIONS/ LEGAL REQUIREMENT

The grantor's program officer and grants specialist have reviewed the recommended action. The Authority's counsel and procurement officer have also reviewed the recommended action.

AGREEMENTS/ CONTRACTING

On behalf of the Authority, the Task Force Leader, or his designee, will have full authority to execute a contract with the selected vendor, issue all work orders, and pay all invoices for an amount not to exceed $1,500,000 for a term no longer than three years.

Respectfully submitted,



Scott L. Poster
Task Force Leader
SLP:sjh

cc: Counsel to the Authority

Attachment : A) Request for Proposal (RFP) LA-RICS 003BE
B) DRAFT – Agreement for Professional [***] Services

LOS ANGELES
REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM (LA-RICS) AUTHORITY

REQUEST FOR PROPOSALS (RFP)

RFP#: LA-RICS 003BE

AGENDA ITEM 6 – ATTACHMENT A

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

REQUEST FOR PROPOSALS (RFP)

ISSUE DATE: February 9, 2011

RFP #: LA-RICS 003BE

TITLE: **Los Angeles Regional Interoperable Communications System (LA-RICS) Broadband Engineering Services**

ISSUED BY: Los Angeles Regional Interoperable Communications System Authority

DEADLINE for submitting proposal: Monday, February 28, 8:00am (Pacific Time)

Inquiries concerning proposal submission requirements, terms and conditions or other administrative concerns should be directed to the Authority's RFP contact:

NAME: Mark W. Manning EMAIL: mmanning@isd.lacounty.gov

Responses may be submitted as a hard copy or as an electronic document. Electronic copies must be in MS Word or PDF format and emailed to mmanning@isd.lacounty.gov with the subject line "LA-RICS Broadband Engineering Services".

Hard copies must be marked: **LA-RICS Broadband Engineering Services,** and be delivered to:

Mr. Mark W. Manning
County of Los Angeles
Internal Services Department
1100 N. Eastern Ave., Bid Desk Room 101
Los Angeles, CA 90063

In compliance with this Request for Proposals, the undersigned hereby offers to furnish the services in accordance with its attached proposal, and agrees to hold this offer firm and irrevocable through July 1, 2011.

FIRM NAME: _____

FIRM ADDRESS: _____

DATE: _____

BY (PRINT NAME): _____

SIGNATURE: _____

CERTIFICATION PAGE - RETURN THIS PAGE WITH PROPOSAL SUBMISSION

TABLE OF CONTENTS

I. PURPOSE

The Los Angeles Regional Interoperable Communications System Authority, a California Joint Powers Authority (the "Authority"), is soliciting proposals from qualified vendors to provide broadband engineering services to the Authority for the LA-SafetyNet project.

II. BACKGROUND

A. Authority Background

The Los Angeles Regional Interoperable Communications System ("LA-RICS" or the "System") project is a collaborative effort of law enforcement, fire service, and health service professionals with elected and appointed officials with the goal to provide a single, unified voice and data communication platform for all regional public safety agencies.

When completed, LA-RICS will cover over 4,000 miles of diverse terrain and serve over 34,000 first responders working across 85 municipalities. LA-RICS will incorporate both a land mobile radio ("LMR") system and a wireless broadband data system. The LMR system will be a P25 digital, trunked system. The data system will be built using long term evolution ("LTE") wireless standards and utilize 10MHz of Public Safety Spectrum Trust ("PSST") spectrum in the 700 MHz band. LA-RICS will allow interagency coordination and response to routine, emergency and catastrophic events.

The Authority's Board of Directors (the "Board") is comprised of 17 representatives from the 85 member agencies of LA-RICS located throughout the County of Los Angeles (the "County") as follows:

California Contract Cities Association Representative
Chief Administrative Officer – City of Los Angeles
City of Burbank Water & Power (At Large Seat)
City of Covina Police Department (At Large Seat)
City of Culver City Police Department (At Large Seat)
City of Long Beach
City of Los Angeles Chief Legislative Analyst
City of Los Angeles Fire Department
City of Los Angeles Police Department
City of Torrance
County of Los Angeles Chief Executive Office
County of Los Angeles Department of Health Services
County of Los Angeles Fire Department
County of Los Angeles Sheriff's Department
Los Angeles Area Fire Chiefs Association
Los Angeles County Police Chiefs Association
Los Angeles Unified School District Police Department

B. LA-SafetyNet Background

The Department of Commerce's National Telecommunications and Information Administration (NTIA) awarded the Authority a Comprehensive Community Infrastructure ("CCI") Broadband Technology Opportunity Program ("BTOP") grant in the amount of $154,640,000. BTOP funds were awarded to the Authority to develop and deploy LA-SafetyNet, a 700 MHz public safety mobile broadband network across all of Los Angeles County, featuring almost 300 wireless 700 MHz public safety broadband sites using new and existing infrastructure, fixed microwave backhaul rings, and 100-miles of high-capacity fiber backbone. The network would enable computer-aided dispatch, rapid law-enforcement queries, real-time video streaming, medical telemetry and patient tracking, geographic information systems services for first responders, and many other broadband-specific applications.

LA-SafetyNet is currently in the conceptual design phase. However, certain elements of the overall system design are evident at this stage:

- LA-SafetyNet will utilize approximately 300 transceiver sites to provide wireless data coverage throughout the Los Angeles region. These sites will be located in every geographic zone of the region, including Catalina Island, the Angeles National Forest, the Los Angeles Basin and San Fernando Valley, the Coastal Communities, and the high desert. All sites will be built to public safety standards for power, access, and resilience in the face of natural disaster or civil disturbance.

- All 300 sites in the proposed system will utilize a tower or rooftop pole to support LTE wireless data transceiver equipment, as well as microwave dishes for data backhaul.

- All 300 sites will use a new or existing enclosure to house electronic equipment related to the LTE transceivers and microwave equipment. Sites will also use Uninterrupted Power Supply (UPS) and Heating, Ventilation, and Air Conditioning (HVAC) equipment, where deemed necessary.

- Approximately one-third of these sites will utilize existing towers or rooftop poles, eighty percent of which are 150 feet above ground level (AGL) or shorter, and existing enclosures.

- Approximately one-third of these sites will use existing government facilities, such as police stations, fires stations, schools, courthouses, and libraries, but will require the erection of new towers, all 150 AGL or shorter, with many of these sites needing new enclosures.

- Approximately one-third of sites will require the acquisition of new sites, and the construction of communications towers, all 150 feet AGL or shorter, and

equipment enclosures. Of these sites, approximately 60 are remote, mountaintop sites that will further require access road construction.

- LA-SafetyNet will use up to 100 miles of existing fiber optic cable for high capacity data transmissions.

III. SCOPE OF WORK

The Authority is soliciting proposals from qualified engineering vendors to provide LTE broadband technology expertise for the LA-SafetyNet project.

The selected Contractor shall:

1. Advise the Authority during contract negotiation with the selected vendor for the construction, operations and maintenance of the LTE broadband network generally consisting of 300 eNodeB sites and LTE network core(s) utilizing microwave, fiber, and leased circuits for backhaul. Engineering services shall include, but are not limited to:

    a. Identifying risks with each phase of the implementation and recommending appropriate risk mitigation strategies;

    b. Reviewing and assessing vendor's technical implementation strategy, phasing, testing, and acceptance plan and providing recommendation for improvement and cost containment;

    c. Reviewing and assessing vendor's network operations strategy and providing recommendation for improvement and cost containment;

    d. Reviewing and assessing vendor's network maintenance and support strategy and providing recommendation for improvement and cost containment; and

    e. Reviewing and assessing vendor's project timeline, pricing and payment plan for realistic approach and costs.

2. Advise the Authority during review of the LA-SafetyNet final design, project plan and change order requests.

3. Advise the Authority's Project Manager from contract implementation through final acceptance of the LTE broadband network. Program management/implementation oversight support includes, but is not limited to the following areas:

    a. Compliance with RFP and contract specifications

b. Design validation

c. System integration approach

d. System installation

e. System testing/acceptance test plan

f. Final acceptance, documentation and project closeout

4. Advise the Authority regarding Federal Communications Commission (FCC) actions, 3GPP standards development, National Public Safety Telecommunications Council (NPSTC) Broadband Task Force recommendations, Emergency Response Interoperability Center (ERIC) actions and guidance, and all related policy and regulatory matters related to the application of LTE technology to public safety use.

5. Provide expert support to LARICS's participation in the Public Safety Communications Research (PSCR) activities including Demonstration Network Technical Working Group and the Waiver Recipient Working Group.

6. Serve as Subject Matter Expert (SME) on all LTE broadband related initiatives and activities.

7. Contractor's deliverables for engineering services may include but are not limited to:

   a. A proposed LTE system project plan and a schedule recommendation.

   b. Regular risk/issue reports – weekly (project team), monthly (executive)

   c. Ad hoc issue summary, alternatives analysis and recommendations as requested by the Authority.

   d. Contract status report and risk assessment

   e. Review and assessment of all vendor deliverables

IV. PROPOSAL REQUIREMENTS

A. General Conditions

1. All costs of proposal preparation shall be borne by the proposer. The Authority shall not, in any event, be liable for any pre-contractual expenses incurred by proposers in the preparation and/or submission of the proposals. It is preferred that the proposal be no more than 20 pages.

2. The Authority is responsible only for that which is expressly stated in the solicitation document and any authorized written addenda thereto. Such addenda shall be made available to each person or organization that Authority records indicate has received this RFP. Should such addendum require additional information not previously requested, failure to address the requirements of such addendum may result in the Proposal not being considered, as determined in the sole discretion of the Authority.

3. The Authority reserves the right to request any proposer to clarify its proposal during the selection phase.

4. The Authority reserves the right to modify or alter any requirements herein, at the Authority's sole discretion.

5. The Authority reserves the right to amend this RFP by written addendum.

6. The Authority is not responsible for and shall not be bound by any representations otherwise made by any individual acting or purporting to act on the Authority's behalf.

7. The Authority reserves the right to withdraw this RFP at any time without prior notice.

8. The Authority makes no representation that any contract will be awarded to any proposer responding to the RFP.

9. The Authority reserves the right to require a pre-award interview.

10. The Authority reserves the right to extend the submission deadline of this RFP in its sole discretion.

11. The Authority reserves the right to reject any and all proposals and to waive any informality in the proposal when to do so would be to the advantage of the Authority.

12. The Authority may also reject the proposal of any proposer who has previously failed to timely and satisfactorily perform any contract with any of its member agencies.

13. A proposal may be withdrawn by written request made on the Proposer's letterhead and signed by an authorized signatory or by email at any time prior to the submission deadline.

B. Proposal Content and Submission

Proposals shall include the following information. The Authority will review each proposal in the following areas:

1. Overall Approach and Methodology
    a. Detailed discussion on the Proposer's overall approach and methodology to complete the proposed scope of work.
2. Staff Experience
    a. Describe Proposers' qualifications, experience, and capability to provide the services solicited.
    b. Submit resumes of key personnel that will work on this project
    c. Describe the Contractor's experience in completed projects similar in scope and nature as services solicited in this RFP.
3. Contractors Demonstrated Ability
    a. Indicate the Contractor's financial stability.
    b. Describe the availability of adequate staffing, including support and backup staff and the individual's percentage of time devoted to this project.
    c. Provide written client references that pertain to projects and services that are similar in nature, such as assessments of other telecommunications projects.
4. Cost Proposal
    a. Proposers must provide hourly rates for personnel listed in 2.b directly above.

NOTE: The lowest cost Proposer may not be determined to be the best Proposer when all the evaluation factors have been considered.

Written Questions and Answers

Proposers may submit written questions requesting clarification of specific information contained in this RFP any time before 5pm (Pacific Time) on February 16, 2011. Questions referencing the RFP must include section and page number(s), if applicable. Proposers may also submit questions requesting additional information not addressed in the RFP, which may be answered at the sole discretion of the Authority. The Authority reserves the right to group similar questions when providing answers.

Questions may be submitted by mail or e-mail to the Authority's RFP Contact.

Proposer shall include Proposer's name, address, contact name/title, contact's telephone number, and contact's email address when submitting questions. The written questions should include the following statement: "Questions: Request for Proposals LARICS Broadband Engineering Services."

Appropriate questions will be compiled with their respective answers and will be published on the Authority's website. The Authority may also include questions and answers in an Addendum to this RFP.

Deadline for Submission of Proposals
Proposal must be submitted by email no later than by 8:00 a.m., Monday, February 28, 2011.

Timely submission of the proposal is the sole responsibility of the Proposer. The Authority reserves the right to determine the timeliness of all submissions. Late proposals will not be reviewed.

All proposals delivered in the manner and by the deadline outlined above that are deemed responsive to the RFP, will be advanced to the evaluation team for scoring.

C. Proposal Package

If in hard copy format, proposer shall submit one (1) original and four (4) copies of proposal package. If e-mailed, proposer shall send to the Authority RFP contact one (1) electronic copy. Proposals must be received **no later than 8:00 a.m. on Monday, February 28, 2011 (Pacific Time).**

Inquiries concerning proposal submission requirements, terms and conditions or other administrative concerns should be directed to:

NAME: Mark W. Manning
EMAIL: mmanning@isd.lacounty.gov

Your response must be marked "**LA-RICS Broadband Engineering Services"** and be delivered to:

Mr. Mark W. Manning
County of Los Angeles
Internal Services Department
1100 N. Eastern Ave., Bid Desk Room 101
Los Angeles, CA 90063

Or

mmanning@isd.lacounty.gov

V. PROTEST PROCESS

A Proposer may file a protest in connection with the Authority's selection of a Contractor. The Proposer challenging the decision of the Authority bears the burden of

proof in its claim that the Authority committed a sufficiently material error in the solicitation process to justify invalidation of an award.

Throughout the review process, the Authority has no obligation to delay or otherwise postpone an award of an Agreement based on a Proposer protest. The grounds for Authority review of the Contractor selection are limited to the following:

1. Review of Solicitation Requirements.
2. Review of a Disqualified Proposal.
3. Review of the Authority's Contractor Selection Process.

Review of Solicitation Requirements

A Proposer may seek a Solicitation Requirements Review by the Authority. A request for a Solicitation Requirements Review may be denied, in the Authority's sole discretion, if the request does not satisfy all of the following criteria:

1. The request for a Solicitation Requirements Review is made within five (5) business days of the issuance of the solicitation document;
2. The request for a Solicitation Requirements Review includes documentation, which demonstrates the underlying ability of the person or entity to submit a proposal.
3. The request for a Solicitation Requirements Review itemizes in appropriate detail, each matter contested and factual reasons for the requested review; and
4. The request for a Solicitation Requirements Review asserts either that:
    a. Application of the minimum requirements, evaluation criteria and/or business requirements unfairly disadvantages the Proposer; or,
    b. Due to unclear instructions, the process may result in the Authority not receiving the best possible responses from prospective Proposers.
5. The Solicitation Requirements Review shall be completed and the Authority's determination shall be provided to the requesting Proposer, in writing, within a reasonable time prior to the proposal due date.

Review of a Disqualified Proposal

A Proposal may be disqualified from consideration because the Authority determined it was a non-responsive Proposal at any time during the evaluation process. If the Authority determines that a Proposal is disqualified due to non-responsiveness, the Authority shall notify the Proposer in writing. Upon receipt of the written determination of non-responsiveness, the Proposer may submit a written request for a disqualification review.

A disqualification review shall only be granted under the following circumstances:

1. The firm/person requesting a disqualification review is a Proposer;
2. The request for a disqualification review is submitted within the timeframe specified in the notice; and
3. The request for a disqualification review asserts that the Authority's disqualification was erroneous and Proposer provides factual support on each ground asserted as well as copies of all documents and other material that support the assertions.

The disqualification review shall be completed and the Authority's determination shall be provided to the Proposer prior to the conclusion of the evaluation process.

Review of the Authority's Contractor Selection Process

A Proposer may seek a Proposed Contractor Selection Review by the Authority. A request for a Proposed Contractor Selection Review may, in the Authority's sole discretion, be denied if the request does not satisfy all of the following criteria:

1. The person or entity requesting a Proposed Contractor Selection Review is a Proposer;
2. The request for a Proposed Contractor Selection Review is submitted timely – no later than March 7, 2011;
3. The person or entity requesting a Proposed Contractor Selection Review asserts in appropriate detail with factual reasons one or more of the following grounds for review:
   a. The Authority materially failed to follow procedures specified in its solicitation document. This includes:
      i. Failure to correctly apply the standards for reviewing the proposal format requirements.
      ii. Failure to correctly apply the standards, and/or follow the prescribed methods, for evaluating the proposals as specified in the solicitation document.
      iii. Use of evaluation criteria that were different from the evaluation criteria disclosed in the solicitation document.
   b. The Authority made identifiable mathematical or other errors in evaluating proposals, resulting in the Proposer receiving an incorrect score and not being selected as the recommended contractor.
   c. A member of the Evaluation Committee demonstrated bias in the conduct of the evaluation.
   d. Another basis for review as provided by state or federal law; and
4. The request for a Proposed Contractor Selection Review sets forth sufficient detail to demonstrate that, but for the Authority's alleged failure, the Proposer would have been the lowest cost, responsive and responsible bid or the highest-scored proposal, as the case may be.

Upon completing the Proposed Contractor Selection Review, an Authority representative will issue a written decision to the Proposer within a reasonable time following receipt of the request for a Proposed Contractor Selection Review, and always before the date the contract award recommendation is to be heard by the Board. The written decision will be the final disposition and will be the last available protest of the award.

Contact/Address for Protest Requests.

All Protests shall be submitted in writing to the Authority RFP Contact.

VI. MINIMUM REQUIREMENTS

Interested and qualified Proposers that can demonstrate their ability to successfully provide the required services outlined in the Scope of Work of this RFP are invited to submit proposals provided they meet the following requirements.

1. Five (5) years of experience over the last ten (10) years in assessing and implementing mobile broadband technologies, including 3G networks.
2. Three (3) years of experience over the last ten (10) years in planning, design, or management of regional public safety systems: wireless, broadband, radio/LMR, CAD.
3. Experience in providing consulting services to public organizations in a multi-stakeholder environment.
4. Proposer must not be debarred by the federal government, the State of California, or any local government.

VII. EVALUATION CRITERIA

Proposals shall be evaluation on the following categories:

SELECTION CRITERIA	POINTS
Overall Approach and Methodology	20
Staff Experience	30
Contractor's Demonstrated Ability	30
Cost Proposal	20
Total Possible	100

Following the evaluation of written proposals, the Authority reserves the right to request oral interviews.

VIII. SOURCE OF FUNDS AND FUNDS AVAILABLE

The source of funds for this RFP is the American Recovery and Reinvestment Act (ARRA) Broadband Technology Opportunities Program (BTOP) grant.

Funding for all periods of this RFP and subsequent contract is subject to the continuing availability of federal funds to LARICS for this project.

IX. CONTRACT TERM

Any resulting contract will be for a period of one (1) year, unless terminated for any reason by the Authority. If it is mutually agreeable to the Contractor and the Authority, the term of the agreement may be extended in increments of one (1) year.

Los Angeles Regional Interoperable Communications System Authority

Agreement for Professional [***] Services

THIS AGREEMENT FOR [*DESCRIBE SERVICE] SERVICES (as defined herein, the "Agreement") is made and entered into as of the Effective Date, by and between the Los Angeles Regional Interoperable Communications System Authority, a California Joint Powers Authority (the Authority") and, [*NAME OF FIRM], a [*STATE] corporation ("Consultant").

WHEREAS, the U.S. Department of Commerce's National Telecommunications and Information Administration ("NTIA") awarded the Authority a Comprehensive Community Infrastructure ("CCI") Broadband Technology Opportunity Program ("BTOP") grant to develop and deploy LA-Safety Net, a 700 MHz public safety mobile broadband network across all of the County of Los Angeles ("LA-SafetyNet"), featuring almost 300 wireless 700 MHz public safety broadband sites using new and existing infrastructure, fixed microwave backhaul rings, and 100-miles of high-capacity fiber backbone;

WHEREAS, [*DESCRIPTION OF SERVICES PROCURED]

WHEREAS, in response to the Authority's Request for Proposals for the LASafetyNet project, Consultant has submitted its proposal to the Authority and desires to [*DESCRIPTION OF SERVICES]; and

WHEREAS, Consultant warrants and represents that it is qualified, by reason of experience, due diligence and preparation, organization and staffing, to provide to the Authority each and every Deliverable contemplated by this Agreement.

NOW, THEREFORE, in consideration of the foregoing, and for other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, Consultant and the Authority agree as follows:

AGENDA ITEM 6 – ATTACHMENT B

AGREEMENT

1. Applicable Documents and Definitions

1.1 Interpretation

This base document, along with the Exhibits, Attachments, and Schedules below, collectively form, and are referred to throughout and hereinafter as, the "Agreement." In reading and interpreting this Agreement, this base document and Exhibit E (Funding Requirements) shall be given precedence, and then the remainder of the Exhibits, Attachments, and Schedules shall have precedence in the following descending order:

Exhibit A	Statement of Work
Exhibit B	Schedule of Payments
Exhibit C	Work Approval Certificate
Exhibit D	Administration of Agreement
Exhibit F	Preapproved Subcontractors

1.2 Entire Agreement

This Agreement constitutes the complete and exclusive statement of understanding between the parties, and supersedes any previous agreements, written or oral, and all communications between the parties relating to the subject matter of this Agreement.

1.3 Definitions

The terms and phrases in this Section 1.3, in quotes and with initial letter capitalized, shall have the meanings set forth below when used in this Agreement, throughout and hereafter. Singular nouns and phrases are construed to also include the plural, and vice versa, in the context of their usage.

1.3.1 Agreement

"Agreement" has the meaning specified in Section 1.1(Interpretation).

1.3.2 Amendment

"Amendment" has the meaning specified in Section 6 (Changes to Agreement).

1.3.3 **Authority**

"Authority" means the Los Angeles Regional Interoperable Communications System Authority, a Joint Powers Authority established under California Government Code Section 6500, et seq.

1.3.4 **Authority Key Personnel**

"Authority Key Personnel" has the meaning specified in Section 2.1 (Authority Administration).

1.3.5 **Authority Materials**

"Authority Materials" has the meaning specified in Section 24.1 (Authority Materials)

1.3.6 **Authority Project Director**

"Authority Project Director" has the meaning specified in Section 2.2.1 (Authority Project Director).

1.3.7 **Authority Project Manager**

"Authority Project Manager" has the meaning specified in Section 2.2.2 (Authority Project Manager).

1.3.8 **Business Day**

"Business Day" means Monday through Friday, excluding the Authority-observed holidays, unless stated otherwise.

1.3.9 **Change Order**

"Change Order" has the meaning specified in Section 6.3 (Changes to Agreement).

1.3.10 **Contingency Fund**

"Contingency Fund" means the amount allocated for additional work under this Agreement, if any.

1.3.11 **County**

"County" means the County of Los Angeles, California.

1.3.12 **County Code**

"County Code" means the applicable current Los Angeles County Code.

1.3.13 **Day**

The term "day," whether capitalized or not, means a calendar day.

1.3.14 **Deficiency**

"Deficiency" means and includes any: (1) defect or flaw in design, development, programming, implementation, materials and/or workmanship; (2) error, omission or deviation from any published or mutually agreed upon standard, requirement in this Agreement or Statement of Work; and/or (3) any other problem which results in nonperformance in accordance with the provisions of this Agreement.

1.3.15 **Deliverable**

"Deliverable" means any goods and/or services to be provided by Consultant under this Agreement, including those identified as a Deliverable in Exhibit A (Statement of Work).

1.3.16 **Dispute Resolution Procedure**

"Dispute Resolution Procedure" refers to the process set forth in Section 42 (Dispute Resolution Procedure).

1.3.17 **Documentation**

"Documentation" means any and all written and electronic materials provided or made available by Consultant, including, but not limited to, documentation relating to materials, specifications, diagrams, handbooks, flowcharts, reference materials, maps, or reports.

1.3.18 **Due Date**

"Due Date" means the date for the completion of any Deliverable set forth in the Project Schedule for the applicable Phase, as further specified in Section 7.1 (Delivery and Approval of Project Schedule).

1.3.19 **Effective Date**

"Effective Date" means the date of execution of this Agreement by the Authority's Board of Directors and Consultant's authorized representative(s).

1.3.20 **FCC**

"FCC" means the United States Federal Communications Commission.

1.3.21 **Funding Requirements**

"Funding Requirements" means the federal, State and local laws, rules, policies, procedures, and other requirements imposed by any Funding Resource, including but not limited to those identified in Exhibit E (Funding Requirements), as such currently exist and may change from time to time during the term of the Agreement.

1.3.22 **Funding Resource**

"Funding Resource" means any of the grants, programs, measures, initiatives or other federal, State or local funding resources used to fund any part of this Agreement or any Authority activity in connection with this Agreement at any time during the term of the Agreement.

1.3.23 **LA-RICS**

"LA-RICS" means the Los Angeles Regional Interoperable Communication System.

1.3.24 **Maximum Contract Sum**

"Maximum Contract Sum" means the total monetary amount payable by the Authority to Consultant hereunder, as set forth in Section 9 (Maximum Contract Sum).

1.3.25 **Member**

"Member" means any entity that has approved and executed the LA-RICS Joint Powers Authority Agreement, and has been recognized by the Authority as a member.

1.3.26 **Milestone**

"Milestone" means a Deliverable that is considered to be a milestone in the Project Schedule.

1.3.27 **Project Schedule**

"Project Schedule" means the agreed upon timeline for the Work, including Milestones, to be provided by Consultant.

1.3.28 **Retention**

"Retention" means the invoice amount withheld by the Authority from Milestone deliverable payments otherwise due to Consultant until receipt of final deliverable, and which monies are to be released to Consultant upon approval of final deliverable, as further specified in Section 12.2 (Retention).

1.3.29 **Subtask**

"Subtask" and "subtask" mean one of the areas of Work to be performed under this Agreement that is part of a Task, including those areas of Work identified as Subtasks in Exhibit A (Statement of Work).

1.3.30 **Task**

"Task" and "task" mean one of the areas of Work to be performed under this Agreement, including those identified as Tasks in Exhibit A (Statement of Work).

1.3.31 **Work**

"Work" means any and all tasks, subtasks, Deliverables, goods and services provided, or to be provided, by or on behalf of Consultant pursuant to this Agreement.

1.3.32 **Work Approval Certificate**

"Work Approval Certificate" means a certificate signifying approval by the Authority of the Work to be provided by Consultant under the Agreement, substantially similar in form to Exhibit B (Schedule of Payments), together with all required supporting documentation.

2. Administration of Agreement - Authority

2.1 Authority Administration

All persons administering this Agreement on behalf of the Authority and listed in this Section 2.2 below ("Authority Key Personnel") are identified in Section 1 (Authority Key Personnel) of Exhibit D (Administration of Agreement). Unless otherwise specified, reference to each of the persons listed in such Section 1 (Authority Key Personnel) of Exhibit D (Administration of Agreement) shall also include his/her designee. The Authority will notify Consultant in writing of any change in the names and/or addresses of the Authority Key Personnel.

No member of the Authority Key Personnel is authorized to make any changes in any of the terms and conditions of this Agreement other than those specifically authorized under Section 6 (Changes to Agreement).

2.2 Authority Key Personnel

2.2.1 Authority Project Director

The Authority Project Director will be responsible for the administration of the entire LA-RICS Project, including the LASafetyNet, on behalf of the Authority and for confirming that the

objectives of this Agreement are met by Consultant. The Authority Project Director will have the right at all times to inspect any and all Work provided by or on behalf of Consultant.

2.2.2 Authority Project Manager

The Authority Project Manager will be responsible for confirming that the LASafetyNet project and requirements of this Agreement are met by Consultant. The Authority Project Manager will advise the Authority Project Director as to Consultant's performance under this Agreement. The Authority Project Manager will interface with the Consultant Project Manager on a regular basis and otherwise. The Authority Project Director will have the right at all times to inspect any and all Work provided by or on behalf of Consultant.

2.3 Authority Resources

All Authority personnel assigned to this Project and all other Authority resources shall be under the exclusive supervision of the Authority. Consultant understands and agrees that all such Authority personnel are assigned only for the convenience of the Authority. Consultant hereby represents and warrants that its price, project schedule and performance hereunder are based solely on the work of Consultant, including all subcontractors, except as otherwise expressly stated in this Agreement.

3. Administration of Agreement - Consultant

3.1 Consultant Administration

All persons administering this Agreement on behalf of Consultant and listed in this Section 3 below (hereinafter "Consultant Key Personnel") are listed in Section 2 (Contractor Key Personnel) of Exhibit D (Administration of Agreement). All staff employed by and/or on behalf of Consultant who will have contact with Authority employees, including the persons identified in such Section 2 (Contractor Key Personnel) of Exhibit D (Administration of Agreement), shall be adults who are fully fluent in both spoken and written English. Consultant shall notify the Authority in writing prior to any change in the names and/or addresses of the Consultant's Key Personnel.

3.2 Consultant Key Personnel

3.2.1 Consultant Project Director

Consultant Project Director (or equivalent) shall be responsible for Consultant's overall performance of and compliance with this Agreement. The Consultant Project Director shall have the authority to commit the Consultant's resources to meet the requirements of the agreement. Consultant Project Director shall be responsible for managing all Work by providing direction to the Consultant's Project management team. Consultant Project Director shall report to the

Authority in the manner set forth in Section 3.4 (Reports by Consultant). Consultant Project Director shall meet and confer with the Authority Project Director on a regular basis and otherwise when and as requested by the Authority Project Director. Such meetings shall be conducted at a time and place convenient to the Authority Project Director.

3.2.1.1 Consultant Project Manager

Consultant Project Manager (or equivalent) shall be responsible for planning and coordinating all Work related to the LASafetyNet on a daily basis. Consultant Project Manager shall be the primary liaison between the Authority and the Consultant and report to the Authority in the manner set forth in Section 3.4 (Reports by Consultant). Consultant Project Manager shall interface with the Authority Project Manager on a regular basis and otherwise when and as requested by the Authority Project Manager. Such meetings shall be conducted at a time and place convenient to the Authority Project Manager.

3.3 Consultant's Staff

3.3.1.1 Approval of Consultant Staff

The Authority has the absolute right to approve or disapprove each member or proposed member of Consultant's staff, including Consultant Project Director, Consultant Project Manager and any subcontractor staff performing any Work hereunder, as well as so approving or disapproving any proposed deletions from or other changes in such staff. The Authority Project Director may require replacement of any member of Consultant's staff performing, or offering to perform, Work hereunder, including Consultant Project Director, Consultant Project Manager and subcontractor staff. Consultant shall provide the Authority with a resume of each such proposed or replacement staff member and an opportunity to interview such person prior to performing any Work hereunder.

3.3.1.2 Continuity of Consultant Staff

In the event Consultant should ever need to remove any staff from performing Work under this Agreement, Consultant shall provide the Authority with notice at least fifteen (15) days in advance, except in circumstances in which such notice is not possible, in which case such notice shall be provided to the Authority Project Director at Consultant's earliest opportunity. In such event, Consultant shall work with the Authority on a mutually agreeable transition plan so as to provide an acceptable replacement and ensure project continuity.

In addition, Consultant represents and warrants that it shall take, to the maximum extent possible, all necessary steps to assure continuity over time of Consultant's staff, including Consultant Project Director and Consultant Project Manager. Consultant shall promptly fill any staff vacancy with personnel having qualifications at least equivalent to those of the staff member being replaced, as determined by the Authority Project Director.

3.3.1.3 Capabilities of Staff

In fulfillment of its responsibilities under this Agreement, Consultant shall utilize, and permit utilization of, only staff fully qualified, trained and experienced and, as appropriate, licensed or certified in the technology, trades, tasks and subtasks required by this Agreement. Consultant shall supply sufficient staff to discharge its responsibilities hereunder in a timely and efficient manner, including as required to comply with Section 5 (Work) and Exhibit A (Statement of Work).

3.3.1.4 Facility Rules and Requirements

During the time that Consultant's staff, including subcontractor's staff, is at the Authority facilities, any such staff shall be subject to the rules and regulations of the Authority facilities. It is the responsibility of Consultant to acquaint such staff with such rules and regulations. In the event that the Authority determines that any such staff has violated any applicable rule or regulation, the Authority shall notify Consultant, and Consultant shall undertake such remedial or disciplinary measures as Consultant determines appropriate. If the problem is not thereby corrected, then Consultant shall permanently withdraw such staff from the provision of Work upon receipt of notice from the Authority that: (i) such staff has violated such rules or regulations; or (ii) such staff's actions, while on the Authority premises, indicate that the staff may adversely affect the delivery of Work. Upon removal of any staff, Consultant shall immediately replace the staff and continue uninterrupted Work hereunder.

3.4 Reports by Consultant

In order to control expenditures and to ensure the reporting of all Work provided by Consultant, Consultant shall provide the Authority Project Director with periodic and other written reports as described in Exhibit A (Statement of Work) and elsewhere in this Agreement, which shall include, at a minimum, the following information:

1. Period covered by the report;
2. The Work provided during the reporting period;
3. The Work completed during the reporting period;
4. The Work scheduled but not completed during the reporting period;
5. Tasks, subtasks, deliverables, goods, services and other work scheduled to be completed in the next reporting period;
6. Issues resolved and remaining to be resolved;
7. Summary of the Project status as of the reporting date;
8. Updated Project control document, if applicable; and
9. Any other information that the Authority may request from time-to-time.

4. Background and Security Investigation

At any time prior to or during the term of this Agreement, the Authority may require that all Consultant and subcontractor staff performing Work under this Agreement undergo and pass, to the satisfaction of the Authority, a background investigation as a condition of beginning and/or continuing Work under this Agreement. The Authority shall use its discretion in determining the method of background investigation to be used, up to and including fingerprint security clearance and background interviews. All fees associated with obtaining the background information shall be at the expense of and paid by Consultant, regardless of whether such staff passes or fails the background investigation.

4.1 Removal of Staff

The Authority, if it so determines, may request that Consultant staff, including subcontractor staff, be immediately removed from working on the Agreement at any time during the term of this Agreement. The Authority will not provide to Consultant or to such staff any information obtained through the Authority conducted background investigation.

4.2 Access to Authority Facilities

The Authority, at its sole discretion, may immediately deny or terminate facility access to any Contactor staff, including subcontractor staff, who do not pass such background investigation(s) to the satisfaction of the Authority or whose background or conduct is incompatible with the Authority facility access.

4.3 Consultant Obligations

Disqualification, if any, of Consultant staff, including subcontractor staff, pursuant to this Section 4, shall not relieve Consultant of its obligation to complete all Work in accordance with the terms and conditions of this Agreement.

5. Work

5.1 Scope of Work

Pursuant to the provisions of this Agreement, Consultant shall on a timely basis fully provide, complete, deliver and implement all Work as set forth in this Agreement and as detailed in Exhibit A (Statement of Work).

5.2 Standard of Services

Consultant warrants and represents that its Work and Deliverables conform to the highest professional standards as they exist in Consultant's profession or field of practice. Consultant shall perform all services in a timely and professional manner.

Without limiting the generality of the foregoing, and, if Consultant's services or other Work provided under this Agreement fail to conform to such high professional standards, upon notice from the Authority specifying the failure of performance, Consultant shall, at Consultant's sole expense, re-perform such services or other Work.

5.3 Approval of Work

5.3.1 Work Approval Certification

All Work provided by Consultant must receive approval of the Authority Project Director as described in this Section 5.3. Approval must be received prior to initiating Work task, subtask or deliverable hereunder. Consultant shall fully complete and submit for review, approval and signature to the Authority Project Director a Work Approval Certificate with respect thereto. In no event shall the Authority be liable or responsible for any payment for work that does not receive approval. Further, the Authority reserves the right to reject any Work not approved by the Authority pursuant to this Section 5.3.

5.3.2 Gratuitous Effort

If Consultant provides any Work to the Authority other than specified in this Agreement or if Consultant provides any Work requiring the Authority's prior approval without first having obtained such approval, the same shall be deemed to be a gratuitous effort on the part of Consultant and Consultant shall have no claim whatsoever against the Authority therefore.

6. Changes to Agreement

6.1 General

No representative of either the Authority or Consultant is authorized to make any changes to this Agreement, including but not limited to a change in any of the terms, obligations, or conditions, except as expressly authorized in this Section 6.

6.2 Amendments

For any change which materially affects any term or condition of this Agreement, such change shall be made via a negotiated Amendment to this Agreement duly executed by the Authority and Consultant.

6.3 Change Orders

Notwithstanding Section 6.2 above, and except as otherwise provided in Section 11.1(Grants) of this Agreement, changes to the following may be made by a written Change Order duly executed by the Authority Project Director and Consultant Project Director, so long as the changes individually or in the aggregate do not increase the Maximum Contract Sum or extend the dates of Milestones:

1. Scope of work
2. Dates of Deliverables that are not Milestones
3. Administrative designations
4. Individual Project modifications that do not exceed $500,000.

Change Orders covering optional items included in the Consultant's proposal shall be provided at prices not to exceed the prices in the detailed price list provided as part of this Agreement.

7. Project Schedule

7.1 Delivery and Approval of Project Schedule

Consultant shall provide the Work related to the LASafetyNet in accordance with the Project Schedule delivered by Consultant in accordance with Exhibit A (Statement of Work) and approved by the Authority Project Director, as subsequently may be modified or updated pursuant to this Section 7.

7.1.1 Project Schedule

The Project Schedule shall set forth the dates for completing all Deliverables, including Milestones (hereinafter "Due Date(s)"). A Deliverable shall be deemed completed for purposes of this Section 7 on the earliest date that all Work required for completion of the Deliverable is completed and delivered to the Authority, provided that all of such Work Deliverables are thereafter approved in writing by the Authority pursuant to Section 5.3 (Approval of Work). A failure by Consultant to complete any Milestone by the applicable Due Date (as such date may be modified pursuant to Section 6 (Changes to Agreement) or Section 37 (Notice of Delays) shall entitle the Authority to terminate this Agreement as provided herein.

7.1.2 Approval of Authority Project Director

All modifications and updates to the Project Schedule shall require the approval of the Authority Project Director. No payments shall be due by the Authority to Consultant under this Agreement until the Project Schedule is delivered by Consultant to the Authority under Exhibit A (Statement of Work) and approved by the Authority pursuant to Section 5.3 (Approval of Work).

7.2 Modification of Project Schedule

Notwithstanding any other provision of this Agreement, the Authority Project Director shall have the right to require modification of the Project Schedule if the Project Schedule: (i) fails to satisfy any requirements in this Agreement; (ii) fails to describe a process which will result in the delivery of any Work or pursuant to a process satisfactory to the Authority; (iii) provides for an unreasonably short period of time to permit the Authority to adequately review and approve any task, subtask, deliverable, good, or service; or (iv) assumes Authority staffing, locations, manner of performance, or other Authority-provided items not consistent with or specifically identified in this Agreement.

Following receipt of a proposed modified Project Schedule from Consultant, the Authority shall provide Consultant with a notice of approval if such Project Schedule is approved. From and after approval of a modified Project Schedule, the modified Project Schedule shall be the Project Schedule hereunder and shall supersede and replace the prior Authority-approved Project Schedule in all respects. In the event a proposed modified Project Schedule is not approved, the Authority Project Director, in sole option, may provide a statement specifying the manner in which such Project Schedule fails to meet the requirements of the Authority. Failure by the Authority Project Director to respond to a proposed modified Project Schedule shall be deemed non-approval. With respect to any proposed modified Project Schedule, if the Authority Project Director provides Consultant with a description of such failures, then Consultant shall correct any such failures and redeliver such Project Schedule within ten (10) Business Days of receipt of notice from the Authority Project Director. If the redelivered Project Schedule still fails to meet the requirements of the Authority, then, at the Authority Project Director's sole option: (i) Consultant shall again correct any such failures and redeliver such Project Schedule within ten (10) Days of receipt of notice from the Authority Project Director or (ii) Consultant Project Director and the Authority Project Director shall invoke the Dispute Resolution Procedure for resolution.

7.3 Milestones and Funding Resources

Consultant shall not commence Work on any Milestone unless and until the Authority provides to Consultant in writing a notice to proceed with the Work under the first Deliverable of such Milestone. The Authority's election to proceed with each Milestone under the Agreement is subject to availability of sufficient Funding Resources to pay for any or all Work under such Milestone. In the event that the Authority is unable to appropriate sufficient Funding Resources for proceeding with the next Milestone, the Authority may, at its sole discretion, either (i) terminate this Agreement up to and including the completed Milestone or (ii) suspend the Agreement indefinitely until sufficient Funding Resources for the next Milestone are appropriated.

8. Term

The term of this Agreement shall commence upon the Effective Date and shall expire on September 15, 2011, unless sooner terminated or extended, in whole or in part, as provided in this Agreement. The Authority may, at its sole option, extend this Agreement for up to two (2) additional consecutive nine (9) month terms. The Authority shall be deemed to have exercised its extension option(s) automatically, without further act, unless, no later than thirty (30) days prior to the expiration of the Term, the Authority notifies Consultant in writing that it elects not to extend the Agreement pursuant to this Section 8.

9. Maximum Contract Sum

The "Maximum Contract Sum" is the total monetary amount payable by the Authority to Consultant for furnishing all Work and Deliverables under this Agreement, inclusive of any applicable taxes. The Maximum Contract Sum under this Agreement shall be One Million Dollars ($1,000,000). All Work and Deliverables completed by Consultant must be approved and accepted by the Authority pursuant to Section 5.3 (Approval of Work). If the Authority does not approve and accept any Work or Deliverables, no payment shall be due to Consultant for that Work.

10. Non-Appropriation of Funds

Notwithstanding any other provision of this Agreement, the Authority is not obligated to pay for any Work and/or Deliverables during any of the Authority's fiscal years unless and until the Authority appropriates funds for this Agreement in the Authority's budget. To the extent that funds are not appropriated for this Agreement, the Authority shall, at its sole discretion, either (i) terminate this Agreement as of the last day of the last fiscal year for which funds were appropriated or (ii) reduce the scope of Work and/or Deliverables commensurate with the funds appropriated. The Authority will endeavor to notify Consultant in writing of any such non-appropriation of funds and its election at the earliest possible date.

11. Consultant Funding Disallowance

11.1 Grants

Notwithstanding any provision of this Agreement to the contrary, Consultant warrants and represents that it shall strictly comply with all requirements necessary for the Authority, or any of its Members, to qualify for Funding Resources and accept funds including, but not limited to, those funds and resources identified in Exhibit E (Funding Requirements), as such Exhibit may be updated from time to time, for expenditures under this Agreement. Without altering the foregoing responsibilities, the Authority may unilaterally update Exhibit E (Funding Requirements) from time to time by Change Orders pursuant to Section 6.3 (Change Orders).

11.2 **Funding Disallowance**

Notwithstanding any provision of this Agreement to the contrary, whether expressly or by implication, to the extent that funds are disallowed as a result of Consultant's acts and/or omissions, Consultant nevertheless shall remain responsible to the Authority for any and all Work and Deliverables, but the Authority shall have no payment obligation to the Consultant.

12. **Invoices and Payments**

12.1 **Invoices**

Consultant shall invoice the Authority only for the Work, which is specified in Exhibit A (Statement of Work), which has been provided by Consultant and approved by the Authority pursuant to the terms of this Agreement and for which payment is required pursuant to the terms of this Agreement. All invoices shall be subject to Authority approval pursuant to Section 12.1.3 (Approval of Invoices). Consultant shall prepare all invoices in the detail and formats required by the Authority Project Director under the terms of this Agreement. Consultant's payments shall be as provided in Exhibit B (Schedule of Payments). Invoices must also be in compliance with any requirements imposed by Exhibit E (Funding Requirements).

12.1.1 **Submission of Invoices**

Consultant shall submit all invoices under this Agreement to the Authority Project Director for approval at the address set forth in Section 2 (Contractor Key Personnel) of Exhibit D (Administration of Agreement).

12.1.2 **Invoice Detail**

Each invoice submitted by Consultant shall indicate:

1. Agreement Name and Number;
2. The Work for which payment is claimed, including Deliverables, etc.;
3. The price of such Work calculated based on the pricing terms set forth in Exhibit B (Schedule of Payments) or any Change Order, as applicable;
4. Indication of any credits or withholds applied to payments, including Retentions, or reversals thereof;
5. The date(s) of approval of the Work by the Authority Project Director; and
6. Any other information required by the Authority Project Director.

12.1.3 **Approval of Invoices**

All invoices submitted by Consultant must have the approval of the Authority Project Director as described in this Section 12.1.3. All invoices submitted by Consultant for payment with respect to any Work hereunder must have a fully signed Work Approval Certificate for such Work prior to any payment thereof. Consultant shall prepare and submit each invoice, together with the applicable fully signed Work Approval Certificate, to the Authority Project Director for review and approval. In no event shall the Authority be liable or responsible for any payment prior to such approval.

12.2 **Retention**

12.2.1 **Use of Retention**

The Authority will authorize payment to Consultant for the amount of the applicable invoices less ten percent (10%) as Retention, as provided in Exhibit B (Schedule of Payments), for each Deliverable to be furnished as part of Statement of Work under Exhibit A (Statement of Work) and for which Deliverable the Authority is obligated to make payment, upon receipt and approval of such Deliverable and upon receipt and approval of the invoice therefore, as provided in Sections 5.3 (Approval of Work) and 12.1.3 (Approval of Invoices). The total amount of such Retention shall be due and payable to Consultant upon receipt of final deliverable, subject to any adjustment for any amounts owed to the Authority by Consultant under the Agreement, including any amounts arising from Section 12.4 (No Payment for Default), Section 12.5 (Authority's Right to Withhold Payment) and any partial termination of any Task, Subtask or Deliverable. No payment may be required to be made by the Authority to Consultant for certain Deliverables except as shown in Exhibit B (Schedule of Payments).

12.2.2 **Payment of Retention**

Consultant shall submit one (1) invoice for payment for all Retention amounts and the Authority will make one (1) aggregate payment for all Retention amounts after receipt of final deliverable, upon receipt and approval of the invoice therefore, as provided in Sections 5.3 (Approval of Work) and 12.1.3 (Approval of Invoices).

12.3 **Taxes**

The Maximum Contract Sum shown in Section 9 (Maximum Contract Sum) is inclusive of any applicable State and local taxes on the Deliverables under this Agreement, as detailed in Exhibit A (Statement of Work). All sales/use taxes shall be paid directly by Consultant to the applicable taxing authority.

12.4 No Payment for Default

If this Agreement is terminated by the Authority as a result of failure by Consultant to achieve timely a Deliverable considered critical or a Milestone as determined by the Authority Project Director, then, without excusing such default, and without prejudice to any other rights or remedies of the Authority in this Agreement or as provided by law, in addition, Consultant shall immediately repay to the Authority the entire amount of the Maximum Contract Sum that Consultant has received from the Authority.

12.5 Authority's Right to Withhold Payment

Notwithstanding any other provision of this Agreement, and in addition to any rights of the Authority given by law or provided in this Agreement, the Authority may upon written notice to Consultant withhold payment for any Work: (i) while Consultant is in default hereunder; (ii) at any time that Consultant has not provided an Authority-approved Deliverable, which under Exhibit A (Statement of Work) is identified as dependent on and is scheduled to be delivered prior to or concurrently with the Deliverable, for which payment would otherwise be due and is withheld; (iii) until Consultant has corrected a Deficiency, which has not been corrected within the prescribed Cure Period; or (iv) until Consultant has provided additional work which has not been provided within the time period specified in the applicable Change Order.

13. Warranties and Correction of Deficiencies

13.1 General Warranties

Consultant represents, warrants, covenants and agrees that throughout the term of this Agreement:

1. All Work shall be provided in a timely manner in accordance with the schedule established pursuant to Section 7 (Project Schedule) and in a professional manner by qualified personnel.
2. All Work shall be completed in strict compliance with this Agreement.
3. This Agreement is neither subject nor subordinate to any right or claim of any third party, including Consultant's creditors. Consultant shall not subordinate this Agreement or any of its rights hereunder to any third party without the prior consent of the Authority.
4. Consultant is not in breach of any other agreement by entering into this Agreement. There is no current, pending litigation with respect to the Work hereunder which could in any way affect Consultant's ability to perform under this. Consultant is not aware of any threatened litigation with respect to any Work hereunder which could in any way affect Consultant's ability to perform under this Agreement.
5. Consultant is a [corporation] duly organized and validly existing under the laws of the State of [state of incorporation]. Consultant is qualified to conduct business in California

[as a foreign corporation] and is in good standing with the State of California. Consultant has full [corporate] power and [corporate] authority to own, or hold under lease, its assets and to conduct its business as is required by this Agreement.

6. This Agreement has been duly executed and delivered by Consultant, constitutes a valid obligation legally binding on Consultant and is enforceable against Consultant in accordance with the terms hereof. The execution, delivery, and performance of this Agreement by Consultant and the consummation of the transactions contemplated hereby by Consultant: (i) are permissible under Consultant's Certificate [Articles] of Incorporation and By-laws; (ii) have been duly and validly authorized by all necessary and appropriate corporate action by the Consultant's Board of Directors; (iii) do not and shall not conflict with, or result in a breach, default, violation, or loss of a material benefit under any agreement, mortgage, lease, license, or other instrument or obligation of Consultant or in connection with the operation of Consultant's business or any of its assets; (iv) do not require the consent or permission of any person or governmental agency; and (v) shall not violate any law, rule, or regulation of any agency or governmental body to which Consultant is subject and that is individually or in the aggregate material to the transactions contemplated hereby.

7. Consultant has obtained and shall maintain in effect during the term of this Agreement all licenses, permits, registrations, accreditations and certificates required by all federal, State, and local laws, rules, regulations, ordinances, guidelines, directives, policies and procedures, which are applicable to Consultant's performance of this Agreement. Consultant shall further ensure that all of its officers, employees, agents and subcontractors performing Work hereunder shall obtain and maintain in effect during the term of this Agreement all licenses, permits, registrations, accreditations and certificates that are applicable to their performance hereunder. A copy of any such license, permit, registration, accreditation or certificate shall be provided to the Authority Project Director upon request. No violations are or have been recorded and Consultant is not aware of any unrecorded violations in respect of any such licenses, permits, registrations, accreditations and certificates and no proceedings are pending or, to Consultant's knowledge, threatened concerning the revocation or limitation of any such licenses, permits, registrations, accreditations, and certificates which would have a material adverse effect on Consultant's ability to perform its obligations hereunder.

8. Consultant has complied, and during the term of this Agreement shall comply, with all laws, rules, regulations and orders applicable to the operation of the business conducted by Consultant. Consultant has not received notice nor taken any action or failed to take any action, which will or would, in any way, preclude or prevent Consultant from performing its obligations under this Agreement. None of the real property owned or leased by Consultant (or the occupation thereof), to be used by Consultant in the performance of its obligations under this Agreement, is in violation of any law, building code, zoning, or other authority, code, or regulation applicable thereto and no notice from any governmental body has been served upon Consultant claiming any violation of any such law, ordinance, code, or regulation or requiring or calling attention to the need for

any work, repair, construction, alteration or installation, or in connection with said properties which has not been complied with or settled. None of such real property is subject to any pending zoning hearing, subdivision filings or related proceedings.

9. Consultant is not engaged in or threatened with any legal proceeding, and there are no proceedings, claims, or investigations of any kind pending or threatened against Consultant relating to Consultant's business that would have a material adverse effect on Consultant's ability to perform its obligations under this Agreement. There are no outstanding adjudications or orders of any agency or tribunal against Consultant relating to its business or prospects that would have a material adverse effect on Consultant's ability to perform its obligations under this Agreement.
10. No representation or warranty by Consultant contained in this Agreement, or in any Exhibit, Attachment or Schedule referenced herein, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained herein or therein not misleading.

14. Prohibition Against Assignment and Delegation

14.1 General

Consultant shall not assign its rights or delegate its duties under this Agreement, or both, whether in whole or in part, without the prior written consent of the Authority, in its discretion, and any attempted assignment or delegation without such consent shall be null and void. For purposes of this Section, Authority consent shall require a written amendment to the Agreement, which is formally approved and executed by the parties. Any payments by the Authority to any approved delegate or assignee on any claim under this Agreement shall be deductible, at the Authority's sole discretion, against the claims, which the Consultant may have against the Authority.

14.2 Changes of Control

Shareholders, partners, members, or other equity holders of Consultant may transfer, sell, exchange, assign, or divest themselves of any interest they may have therein. However, in the event any such sale, transfer, exchange, assignment, or divestment is effected in such a way as to give majority control of Consultant to any person(s), corporation, partnership, or legal entity other than the majority controlling interest therein at the time of execution of this Agreement, such disposition is an assignment requiring the prior written consent of the Authority in accordance with applicable provisions of this Agreement.

14.3 Prior Consent Requirement

Any assumption, assignment, delegation, or takeover of any of the Consultant's duties, responsibilities, obligations, or performance of same by any entity other than the Consultant, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism,

with or without consideration for any reason whatsoever without the Authority's express prior written approval, shall be a material breach of the Agreement which may result in the termination of this Agreement. In the event of such termination, the Authority shall be entitled to pursue the same remedies against Consultant as it could pursue in the event of default by Consultant.

15. Warranty Against Contingent Fees

15.1 Independent Actions

Consultant warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon any agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Consultant for the purpose of securing business.

15.2 Breach of Warranty

For breach of this warranty, the Authority shall have the right to terminate this Agreement and, in its sole discretion, deduct from this Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

16. Independent Consultant Status

16.1 Relationship

This Agreement is not intended nor shall not be construed to create the relationship of agent, servant, employee, partnership, joint venture, or association, as between the Authority and Consultant. The employees and agents of one party shall not be, or be construed to be, the employees or agents of the other party for any purpose whatsoever.

16.2 Payment of Employees

Consultant shall be solely liable and responsible for providing to, or on behalf of, all persons performing work pursuant to this Agreement, all compensation and benefits. The Authority shall have no liability or responsibility for the payment of any salaries, wages, unemployment benefits, disability benefits, federal, State or local taxes, or other compensation, benefits, or taxes for any personnel provided by or on behalf of Consultant.

16.3 Employee and Consultant Relationship

Consultant understands and agrees that all persons performing work pursuant to this Agreement are, for purposes of workers' compensation benefits, solely employees of Consultant and not employees of the Authority. Consultant shall be solely liable and responsible for furnishing any

and all workers' compensation benefits to any person as a result of any injuries arising from or connected with any work performed by or on behalf of Consultant pursuant to this Agreement.

16.4 Compliance with Authority Rules and Regulations

Notwithstanding the provisions of this Section 16, the employees and agents of Consultant shall, while on the premises of the Authority, comply with all rules and regulations of the premises, including, but not limited to, security requirements.

17. Subcontracting

17.1 Prior Consent

In entering into this Agreement, the Authority has relied on the reputation of and on obtaining the personal performance of Consultant itself. Consequently, no performance of this Agreement, or any portion thereof, shall be subcontracted by Consultant without the prior consent of the Authority as provided in this Section 17. Any attempt by Consultant to subcontract any performance, obligation, or responsibility under this Agreement, without the prior consent of the Authority, shall be null and void and shall constitute a material breach of this Agreement, upon which the Authority may immediately terminate this Agreement. Notwithstanding the foregoing, Consultant has identified and entered into subcontract(s) with the following subcontractor (s), which are deemed approved by the Authority (collectively in this Section 17 "Preapproved Subcontractor (s)") for the purpose of this Section 17: refer to Exhibit F (Preapproved Subcontractors).

17.2 Written Request for Approval

If Consultant desires to subcontract any portion of its performance, obligations or responsibilities under this Agreement with Consultants other than Preapproved Subcontract(s), Consultant shall provide to the Authority, in writing, a request for written approval to enter into the particular subcontract, which request shall include:

1. The reason(s) for the particular subcontract;
2. Identification of the proposed subcontractor and an explanation of why and how the proposed subcontractor was selected;
3. A detailed description of the Work to be performed by the proposed subcontractor;
4. Confidentiality provisions applicable to the proposed subcontractor's officers, employees and agents, which would be incorporated into the subcontract;
5. A draft copy of the proposed subcontract which shall, at a minimum:
    a. Include representations and warranties by subcontractor that subcontractor (i) is qualified to perform the work for which subcontractor has been hired; (ii)

maintains the insurance required by this Agreement, and (iii) is solely liable and responsible for any and all of its taxes, payments and compensation, including compensation to its employees,

b. Provide for indemnification by subcontractor of the Authority and Consultant under the same terms and conditions as the indemnification provisions of this Agreement set forth in Sections 18 (Indemnification),

6. Copies of Certificates of Insurance from the proposed subcontractor that establishes that the subcontractor maintains all the programs of insurance required by this Agreement; and
7. Any other information and/or certifications requested by the Authority.
8. The Authority will review Consultant's request to subcontract and determine whether or not to consent to such request on a case-by-case basis. The Authority's approval or written disapproval for Consultant to enter into a particular subcontract shall be given or withheld within thirty (30) days after receipt of all the information and documentation set forth above in Section 17.2. The Authority's failure to either approve or disapprove the proposed subcontract within thirty (30) days shall be deemed disapproval by the Authority. In the event that the Authority approves any subcontract, such approval shall apply only to the particular subcontract approved and shall not be deemed approval of any additional subcontract.

17.3 Consultant Responsibilities

Notwithstanding any Authority consent to any subcontracting, Consultant shall remain responsible for any and all performance required of it under this Agreement, including the obligation to properly supervise, coordinate, and perform all work required hereunder, and no subcontract shall bind or purport to bind the Authority. Further, the Authority approval of any subcontract shall not be construed to limit in any way Consultant's performance, obligations, or responsibilities to the Authority, nor shall such approval limit in any way any of the Authority's rights or remedies contained in this Agreement.

17.4 Maintenance of Authority's Rights of Approval

The Authority's consent to any subcontracting shall not waive the Authority's right to prior and continuing approval of any and all subcontractor personnel providing services under this Agreement. Consultant shall assure that any subcontractor personnel not approved by the Authority shall be immediately removed from the provision of any services under the particular subcontract or that other action is taken as requested by the Authority. Further, in the event that the Authority consents to any subcontracting, such consent shall be subject to the Authority's right to terminate, in whole or in part, any subcontract at any time upon written notice to Consultant when such subcontractor is deemed by the Authority to be in material breach of its subcontract or this Agreement. The Authority shall not be liable or responsible in any way to

Consultant, to any subcontractor, or to any officers, employees, or agents of Consultant or any subcontractor, for any claims, demands, damages, liabilities, losses, costs, or expenses, including defense costs and legal, accounting and other expert, consulting or professional fees, in any way arising from, connected with, or related to the Authority's exercise of such rights.

17.5 Extension of Requirements to Subcontractor Staff

In the event that the Authority consents to any subcontracting, the Authority's ongoing approval rights with regard to Consultant's staff as set forth in Sections 3.3 (Consultant's Staff) and 4 (Background and Security Investigation) shall be extended to all subcontractor staff performing work under this Agreement. The Authority shall not be liable or responsible in any way to Consultant, to any subcontractor, or to any officers, employees, or agents of Consultant or any subcontractor, for any liability, damages, costs, or expenses arising from, connected with, or related to the Authority's exercise of such rights.

17.6 Binding Agreement

In the event that the Authority consents to any subcontracting, the subcontractor, on behalf of itself, its successors and administrators, shall assume and be bound by and shall be deemed to have assumed and agreed to be bound by each and all of the provisions of this Agreement and any amendment hereto. Consultant shall be liable for any breach of this Agreement by a subcontractor.

17.7 Powers of Authority Project Director

The Authority Project Director is hereby authorized to act for and on behalf of the Authority pursuant to this Section 17, including consenting to any subcontracting.

17.8 Consultant Liability

Notwithstanding the Authority's consent to any subcontracting, Consultant shall be solely liable and responsible for any and all payments and other compensation to all subcontractor and their officers, employees, and agents. The Authority shall have no liability or responsibility whatsoever for any payment or other compensation for any subcontractor or their officers, employees, and agents.

17.9 Documentation of Subcontractor

In the event that the Authority consents to any subcontracting, for each subcontract entered into by Consultant, Consultant shall deliver to the Authority Project Director immediately after the effective date of the subcontract, but in no event later than the date any work is performed under the subcontract:

1. A fully executed copy of each subcontract entered into by Consultant, including those entered into with any Preapproved Subcontractor;
2. Unless otherwise waived by the Authority, certificates of insurance, which establish that the subcontractor maintains the minimum programs of insurance required by the Authority under this Agreement.

17.10 Limitations of Authority Consent

In the event that the Authority consents to any subcontracting, such consent shall apply to each particular subcontract only and shall not be, or be construed to be, a waiver of this Section 17 or a blanket consent to any further subcontracting.

18. Indemnification

Consultant shall indemnify, defend, and hold harmless the Authority, its Members, Users, elected and appointed officers, employees, and agents (hereafter in this Section 18 the "Authority") from and against any and all liability arising from or related to Consultant's act(s) and/or omission(s). Such liability includes but is not limited to: claims; demands; damages; liabilities; losses; and fees, costs, and/or expenses (including attorney and expert witness fees). Without limiting the generality of this Section 18, Consultant's indemnity obligations cover, but are not limited to, the following particular categories:

1. Subcontractor. The act(s) and/or omission(s) of any of Consultant's subcontractor;
2. CPRA Requests. Third-party requests under the California Public Records Act;
3. Compliance with Law. Failure to comply with any applicable laws, rules, regulations, ordinances, guidelines, directives, policies or procedures, including the Funding Requirements;
4. Employer Sanctions. Employer sanctions and any other liability which may be assessed against the Authority in connection with any alleged violation of any federal or State statutes or regulations pertaining to the eligibility for employment of any persons performing work under this Agreement;
5. Infringement Claims. Any actual or alleged infringement of any patent, copyright, trade secret disclosure or misappropriation (collectively, "Infringement Claims").

19. Insurance and Performance Security

19.1 General Insurance Provisions

Without limiting Consultant's indemnification of the Authority or any of its Members, and in the performance of this Agreement and until all of its obligations pursuant to this Agreement have been met, Consultant shall provide and maintain at its own expense insurance coverage

satisfying the requirements specified in this Section 19. These minimum insurance coverage terms, types and limits ("Required Insurance") also are in addition to and separate from any other contractual obligation imposed upon Consultant pursuant to this Agreement. The Authority in no way warrants that the Required Insurance is sufficient to protect Consultant for liabilities, which may arise from or relate to this Agreement.

19.1.1 **Evidence of Coverage and Notice**

Proposer shall ensure the following insurance and coverage requirements are met for the Authority and its Members:

1. A certificate(s) of insurance coverage (Certificate) satisfactory to the Authority, and a copy of an Additional Insured endorsement confirming that the Authority, including all of its Members, has been given Insured status under Consultant's General Liability policy, shall be delivered to the Authority Project Director at the address specified in Exhibit D (Administration of Agreement) and provided prior to commencing any Work under this Agreement.
2. Renewal Certificates shall be provided to the Authority not less than ten (10) days prior to Consultant's policy expiration dates. The Authority reserves the right to obtain complete, certified copies of any required Consultant and/or subcontractor insurance policies at any time.
3. Certificates shall identify all Required Insurance coverage types and limits specified herein, reference this Agreement by name or number and be signed by an authorized representative of the insurer(s). The Insured party named on the Certificate shall match the name of Consultant identified as the contracting party in this Agreement. Certificates shall provide the full name of each insurer providing coverage, its NAIC (National Association of Insurance Commissioners) identification number, its financial rating, the amounts of any policy deductibles or self-insured retentions exceeding fifty thousand ($50,000.00) dollars and list any Authority required endorsement forms.
4. Neither the Authority's failure to obtain, nor the Authority's receipt of, or failure to object to a non-complying insurance certificate or endorsement, or any other insurance documentation or information provided by Consultant, its insurance broker(s) and/or insurer(s), shall be construed as a waiver of any of the Required Insurance provisions.
5. Consultant also shall promptly report to the Authority any injury or property damage accident or incident, including any injury to a Consultant employee occurring on the Authority or Member property, and any loss, disappearance, destruction, misuse, or theft of the Authority or Member property, monies or securities entrusted to Consultant. Consultant also shall promptly notify the Authority of any third party claim or suit filed against Consultant or any of its subcontractors, which arises from or relates to this Agreement and could result in the filing of a claim or lawsuit against Consultant and/or the Authority or any of its Members.

19.1.2 **Additional Insured Status and Scope of Coverage**

The Authority, its Members, elected or appointed officers, agents, employees and volunteers (collectively for the purpose of this Section 19 "Authority") shall be provided additional insured status under Consultant's General Liability policy with respect to liability arising out of Consultant's ongoing and completed operations performed on behalf of the Authority. County and its Agents additional insured status shall apply with respect to liability and defense of suits arising out of the Consultant's acts or omissions, whether such liability is attributable to Consultant, to the Authority or any Members. The full policy limits and scope of protection also shall apply to the Authority and its Members as an additional insured, even if they exceed the Authority's minimum Required Insurance specifications herein. Use of an automatic additional insured endorsement form is acceptable providing it satisfies the Required Insurance provisions herein.

19.1.3 **Cancellation of Insurance**

Except in the case of cancellation for non-payment of premium, Consultant's insurance policies shall provide, and Certificates shall specify, that the Authority shall receive not less than thirty (30) days advance written notice by mail of any cancellation of the Required Insurance. Ten (10) days prior notice may be given to the Authority in event of cancellation for non-payment of premium.

19.1.4 **Insurer Financial Ratings**

Coverage shall be placed with insurers acceptable to the Authority with A.M. Best ratings of not less than A: VII unless otherwise approved by the Authority.

19.1.5 **Consultant's Insurance Shall be Primary**

Consultant's insurance policies, with respect to any claims related to this Agreement, shall be primary with respect to all other sources of coverage available to Consultant. Any Authority maintained insurance or self-insurance coverage shall be in excess of and not contribute to any Consultant coverage.

19.1.6 **Waivers of Subrogation**

To the fullest extent permitted by law, Consultant hereby waives its rights and its insurer(s)' rights of recovery against the Authority or any of its Members under all the Required Insurance for any loss arising from or relating to this Agreement. Consultant shall require its insurers to execute any waiver of subrogation endorsements, which may be necessary to affect such waiver.

19.1.7 **Subcontractor Insurance Coverage Requirements**

Consultant shall include all subcontractors as insureds under Consultant's own policies, or shall provide the Authority with each subcontractor's separate evidence of insurance coverage. Consultant shall be responsible for verifying each subcontractor complies with the Required Insurance provisions herein and shall require that each subcontractor name the Authority, including all of its Members, and Consultant as additional insureds on the subcontractor General Liability policy. Consultant shall obtain the Authority's prior review and approval of any subcontractor request for modification of the Required Insurance.

19.1.8 **Deductibles and Self-Insured Retentions**

Consultant's policies shall not obligate the Authority to pay any portion of any Consultant deductible or self-insured retention (SIR). The Authority retains the right to require Consultant to reduce or eliminate policy deductibles and SIRs as they apply to the Authority, or to provide a bond guaranteeing Consultant's payment of all deductibles and SIRs, including all related claims investigation, administration and defense expenses. Such bond shall be executed by a corporate surety licensed to transact business in the State of California.

19.1.9 **Claims Made Coverage**

If any part of the Required Insurance is written on a claims made basis, any policy retroactive date shall precede the effective date of this Agreement. Consultant understands and agrees it shall maintain such coverage for a period of not less than three (3) years following Agreement expiration, termination or cancellation.

19.1.10 **Application of Excess Liability Coverage**

Consultants may use a combination of primary and excess insurance policies which provide coverage as broad as ("follow form" over) the underlying primary policies, to satisfy the Required Insurance provisions.

19.1.11 **Separation of Insureds**

All liability policies shall provide cross-liability coverage as would be afforded by the standard ISO (Insurance Services Office, Inc.) separation of insureds provision with no insured versus insured exclusions or limitations.

19.1.12 **Alternative Risk Financing Programs**

The Authority reserves the right to review, and then approve, Consultant use of self-insurance, risk retention groups, risk purchasing groups, pooling arrangements and captive insurance to satisfy the Required Insurance provisions. The Authority and its Members shall be designated as an Additional Covered Party under any approved program.

19.1.13**Authority Review and Approval of Insurance Requirements**

The Authority reserves the right to review and adjust the Required Insurance provisions, conditioned upon the Authority's determination of changes in risk exposures.

19.2 Insurance Coverage Requirements

Consultant's insurance shall include the following:

Commercial General Liability insurance (providing scope of coverage equivalent to ISO policy form CG 00 01), naming the Authority, including its Members, as an additional insured, with limits of not less than:

COVERAGE	LIMIT
General Aggregate	$*** million
Products/Completed Operations Aggregate	$*** million
Personal and Advertising Injury	$*** million
Each Occurrence	$*** million

19.2.1 Automotive Liability

Automobile Liability insurance (providing scope of coverage equivalent to ISO policy form CA 00 01) with limits of not less than $1 million for bodily injury and property damage, in combined or equivalent split limits, for each single accident. Insurance shall cover liability arising out of Consultant's use of autos pursuant to this Agreement, including owned, leased, hired and/or non-owned autos, as each may be applicable.

19.2.2 Workers' Compensation and Employers' Liability

Workers' Compensation and Employers' Liability insurance or qualified self-insurance satisfying statutory requirements, which includes Employers' Liability coverage with limits of not less than $1 million per accident. If Consultant will provide leased employees or is an employee leasing or temporary staffing firm or a professional employer organization (PEO), coverage also shall include an Alternate Employer Endorsement (providing scope of coverage equivalent to ISO policy form WC 00 03 01 A) naming the Authority as the Alternate Employer, and the endorsement form shall be modified to provide that the Authority will receive not less than thirty (30) days advance written notice of cancellation of this coverage provision. If applicable to Consultant's operations, coverage also shall be arranged to satisfy the requirements of any federal workers or workmen's compensation law or any federal occupational disease law.

19.2.3 **Professional Liability / Errors and Omissions**

Professional Liability / Errors and Omissions insurance covering Consultant's liability arising from or related to this Agreement with limits of not less than $1million per claim and $2 million aggregate. Further, Consultant understands and agrees it shall maintain such coverage for a period of not less than three (3) years following this Agreement's expiration, termination or cancellation.

19.3 **Failure to Maintain Insurance**

Failure by Consultant to maintain or to provide acceptable evidence that it maintains the Required Insurance shall constitute a material breach of this Agreement, upon which the Authority may immediately withhold payments due to Consultant and/or terminate or suspend this Agreement. The Authority, at its sole option, may obtain damages from Consultant resulting from such breach. Alternatively, the Authority may purchase such required insurance coverage, and without further notice to Consultant, the Authority may deduct from sums due to Consultant any premium costs advanced by the Authority for such insurance.

20. Records and Audits

20.1 **Accurate and Complete Financial Records**

Consultant shall maintain accurate and complete financial records of its activities and operations relating to this Agreement in accordance with generally accepted accounting principles. Consultant shall also maintain accurate and complete employment and other records relating to its performance of this Agreement. Consultant agrees that the Authority, or its authorized representatives, shall have access to and the right to examine, audit, excerpt, copy, or transcribe any pertinent transaction, activity, or records relating to this Agreement. All such material, including all financial records, bank statements, cancelled checks, or other proof of payment, time cards, signed-in/signed-out sheets, and other time and employment records, and proprietary data and information, shall be kept and maintained by Consultant and shall be made available to the Authority during the term of this Agreement and for a period of five (5) years thereafter unless the Authority's written permission is given to dispose of any such material prior to such time. All such material shall be maintained by Consultant at a location in Los Angeles County or Orange County, provided that if any such material is located outside Los Angeles County, then, at the Authority's option, Consultant shall pay the Authority for travel, per diem, and other costs incurred by the Authority to examine, audit, excerpt, copy, or transcribe such material at such other location.

20.2 **Notification of Authority**

In the event that an audit is conducted of Consultant specifically regarding this Agreement by any federal or State auditor, or by any auditor or accountant employed by Consultant or

otherwise, then Consultant shall file a copy of such audit report with the Authority within thirty (30) days of Consultant's receipt thereof, unless otherwise provided by applicable federal or State law or under this Agreement.

20.3 **Breach**

Failure on the part of Consultant to comply with any of the provisions of this Section 20 shall constitute a material breach of this Agreement upon which the Authority may immediately terminate this Agreement.

21. **Authority Audit Settlements**

If, at any time during the term of this Agreement or within five (5) years after the expiration or termination of this Agreement, representatives of the Authority conduct an audit of Consultant regarding the Work performed under this Agreement, and if such audit finds that the Authority's dollar liability for any such Work is less than payments made by the Authority to Consultant, then the difference, together with the Authority's reasonable costs of audit, shall be either repaid by Consultant to the Authority by cash payment upon demand or, at the sole option of the Authority, deducted from any amounts due to Consultant from the Authority, whether under this Agreement or otherwise.

22. **Confidentiality and Security**

22.1 **Confidential Information**

Consultant shall maintain the security of and keep confidential all records, materials, documents, data and/or information (collectively in this Section 22.1 "information") received, observable, obtained and/or produced by Consultant pursuant to the provisions of this Agreement including, but not limited to: (i) any identifying, characterizing or related to any trait, feature, function, risk, threat, vulnerability, weakness or problem regarding any data or system security in the Authority's, or any of its Members', computer systems or to any safeguard, contingency plan, countermeasure, policy or procedure for any data or system security contemplated or implemented by the Authority, or any of its Members; (ii) any public safety, health, mental health, criminal and financial information; and (iii) any information of the Authority, or any of its Members, otherwise deemed confidential by applicable federal, State and local laws, rules, regulations, ordinances, guidelines, directives, policies and procedures (hereinafter "Confidential Information"). Consultant shall inform all of its officers, employees and agents providing services hereunder of the confidentiality provisions of this Agreement. Consultant shall use whatever appropriate security measures are necessary to protect such Confidential Information from loss, damage and/or unauthorized dissemination by any cause, including but not limited to fire and theft.

Consultant shall ensure that all of its officers, employees, agents and subcontractors performing Work hereunder have entered into confidentiality agreement no less protective of the Authority than the terms of this Agreement, including this Section 22 and Section 23 (Disclosure of Information).

22.2 **Disclosure**

With respect to any Confidential Information that is obtained by Consultant or any other information, Consultant shall: (i) not use any such information for any purpose whatsoever other than carrying out the express terms of this Agreement; (ii) promptly transmit to the Authority all requests for disclosure of any such information; (iii) not disclose, except as otherwise specifically permitted by this Agreement, any such information to any person or organization other than the Authority without the Authority's prior written authorization that the information is releasable; and (iv) at the expiration or termination of this Agreement, return all such information to the Authority or maintain such information according to the written procedures provided to Consultant by the Authority for this purpose.

23. **Disclosure of Information**

23.1 **Disclosure Requirements**

Consultant shall not disclose any terms or conditions of, or any circumstances or events that occur during the performance of, this Agreement to any person or entity except as may be otherwise provided herein or required by law. In the event Consultant receives any court or administrative agency order, service of process, or request by any person or entity (other than Consultant's professionals) for disclosure of any such details, Consultant shall immediately notify the Authority Project Director. Thereafter, Consultant shall comply with such order, process, or request only to the extent required by applicable law. Notwithstanding the preceding sentence, to the extent permitted by law, Consultant shall delay such compliance and cooperate with the Authority to obtain relief from such obligations to disclose until the Authority shall have been given a reasonable opportunity to obtain such relief.

23.2 **Identification of Services Pertaining to this Agreement**

In recognizing Consultant's desire to identify its services and related clients to sustain itself, the authority shall not inhibit Consultant from publishing its role under this Agreement within the following conditions:

1. Consultant shall develop all publicity material in a professional manner.
2. During the term of this Agreement, Consultant shall not publish or disseminate any commercial advertisements, press releases, feature articles, or other materials using the name of the Authority without the prior consent of the Authority Project Director for each such item. The Authority shall not unreasonably withhold consent.

3. Consultant may, without the prior consent of the Authority, indicate in its proposals and sales materials that it has been awarded this Agreement with the Authority, provided that the requirements of this Section 22 shall apply.

23.3 Applicable Exceptions

Notwithstanding any other provision of this Agreement, either party may disclose information that: (i) is lawfully in the public domain at the time of disclosure; (ii) is disclosed with the prior written approval of the party to which such information pertains; or (iii) is required by law to be disclosed.

24. Proprietary Considerations

24.1 Authority Materials

Consultant and the Authority agree that all materials, documents, maps, plans, designs, Project Schedule, Specifications, diagrams, configurations, reports, manuals, project control document, departmental procedures and processes, deliverables, tools, notes, algorithms, formulas, procedures, processes, data, and information, developed under or in connection with this Agreement, together, in each case, with all copyrights, patent rights, trade secret rights and other proprietary rights therein and thereto (hereinafter collectively "Authority Materials"), shall be the sole property of the Authority, and Consultant hereby assigns and transfers to the Authority all Consultant's right, title, and interest in and to all the Authority Materials, provided that notwithstanding such Authority ownership, Consultant may retain possession of all working papers prepared by Consultant. During and for a minimum of five (5) years subsequent to the term of this Agreement, Consultant shall retain any and all working papers. The Authority shall have the right to inspect at any time any and all such working papers, make copies thereof, and to use the working papers and the information contained therein.

24.2 Transfer to Authority

Consultant shall execute all necessary documents and shall perform all other necessary acts in order to assign and transfer to, and vest in, the Authority all Consultant's right, title and interest in and to the Authority Materials and other Work products as required under the Agreement or by the Authority, including all copyrights, patents, trade secret and other proprietary rights. The Authority shall have the right to register all copyrights and patents in the name of the Authority. Further, the Authority shall have the right to assign, license or otherwise transfer any and all Authority's right, title and interest, including copyrights and patents, in and to the Authority Materials.

24.3 Consultant's Obligations

24.3.1 Protection of Authority Materials

Consultant shall protect the security of and keep confidential all Authority Materials obtained or developed under this Agreement. Further, Consultant shall use whatever security measures are reasonably necessary to protect all such Authority Materials from loss or damage by any cause, including fire and theft.

24.3.2 Confidentiality

Consultant shall not reproduce, distribute, or disclose to any person or entity any information identifying, characterizing, or relating to any risk, threat, vulnerability, weakness, or problem regarding data security in the Authority's systems, or to any safeguard, countermeasure, or contingency plan, policy or procedure for data security contemplated or implemented by the Authority, without the Authority's prior consent.

24.3.3 Security

During the term of this Agreement and for five (5) years thereafter, Consultant shall maintain and provide security for all Consultants' working papers prepared under this Agreement.

24.4 Proprietary and Confidential

24.4.1 Identification of Consultant Materials

Any and all materials of all types other than Authority Materials which are developed or were originally acquired by Consultant outside the scope of this Agreement, which Consultant desires to use hereunder, and which Consultant considers to be proprietary or confidential (hereinafter collectively "Consultant Materials"), shall be specifically identified, in writing, by Consultant to the Authority Project Director as proprietary or confidential, and shall be plainly and prominently marked by Consultant as "proprietary" or "confidential".

24.4.2 Reproduction Rights

Consultant hereby grants to the Authority for the use of the Authority and all users a perpetual, no-cost, royalty-free, nonexclusive, unrestricted, and irrevocable license to use, modify, and reproduce all Consultant materials.

24.4.3 Confidentiality of Consultant Materials

The Authority will use reasonable means to ensure that Consultant's proprietary and confidential Consultant materials described and marked in accordance with this Section 24.4 are safeguarded

and held in confidence. The Authority agrees not to reproduce, distribute, or disclose to non-Authority entities (other than outside counsel, consultants, or others as required by law, subject to non-disclosure agreements or obligations) Consultant's proprietary and confidential Consultant materials, without the prior written permission of Consultant or as required by law.

Notwithstanding any other provision of this Agreement, the Authority shall not be obligated in any way under this Agreement for:

1. Any Consultant's proprietary and/or confidential Consultant Materials not plainly and prominently marked with restrictive legends required pursuant to this Section 24.4; and
2. Any disclosure of any Consultant Materials which the Authority is required to make under the California Public Records Act or otherwise by applicable federal, State, and local laws, rules, regulations, ordinances, guidelines, directives, policies, and procedures.

25. Compliance with Applicable Laws

Consultant warrants and represents that its performance hereunder, fully complies with all applicable federal, State, and local laws, rules, regulations, ordinances, guidelines, directives, policies and procedures, including the Funding Requirements. Any provisions required thereby to be included in this Agreement are hereby incorporated herein by reference.

26. Nondiscrimination and Compliance with Civil Rights Laws

26.1 Certification

Consultant certifies and agrees that all persons employed by it, its affiliates, subsidiaries, or holding companies are and shall be treated equally without regard to or because of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, sexual orientation, or political affiliation, in compliance with all applicable federal and State anti-discrimination laws and regulations.

26.2 Treatment of Employees

Consultant shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, sexual orientation, or political affiliation, in compliance with all applicable federal and State anti-discrimination laws and regulations. Such affirmative action shall include employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

26.3 As Applied to Third Parties

Consultant certifies and agrees that it will deal with its subcontractors, bidders, or vendors without regard to or because of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, sexual orientation, or political affiliation.

26.4 Compliance with Federal and State laws

Consultant certifies and agrees that it, its affiliates, subsidiaries or holding companies, shall comply with all applicable federal and State laws and regulations to the end that no person shall, on the grounds of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, sexual orientation, or political affiliation, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under this Agreement, or under any project, program or activity supported by this Agreement.

26.5 Authority Access to Records

Consultant shall allow the Authority representatives access to Consultant's employment records during regular business hours to verify compliance with the provisions of this Section 26 when so requested by the Authority.

26.6 Failure to Comply

If the Authority finds that any of the provisions of this Section 26 have been violated, such violation shall, at the election of the Authority, constitute a material breach of this Agreement upon which the Authority may immediately terminate this Agreement. While the Authority reserves the right to determine independently that the anti-discrimination provisions of this Agreement have been violated, in addition, a determination by the California Fair Employment Practices Commission or the Federal Equal Employment Opportunity Commission that Consultant has violated federal or State anti-discrimination laws or regulations shall constitute a finding by Authority that Consultant has violated the anti-discrimination provisions of this Agreement.

26.7 Damages

The parties agree that in the event Consultant violates the anti-discrimination provisions of this Agreement, Authority shall be entitled, at its option, to the sum of five hundred dollars ($500) for each such violation pursuant to California Civil Code Section 1671 as liquidated damages, and not as a penalty, in lieu of terminating or suspending this Agreement.

27. Employment Eligibility Verification

Consultant warrants that it fully complies with all federal and State statutes and regulations regarding the employment of aliens and others and that all its employees performing work under this Agreement meet the citizenship or alien status requirements set forth in federal and State statutes and regulations. Consultant shall obtain, from all employees performing work hereunder, all verification and other documentation of employment eligibility status required by federal statutes and regulations as they currently exist and as they may be hereafter amended.

28. Waiver

28.1 Authority's Use of Waiver

No waiver by the Authority of any breach of any provision of this Agreement shall constitute a waiver of any other breach or of such provision. Failure of the Authority to enforce at any time, or from time-to-time, any provision of this Agreement shall not be construed as a waiver thereof. The rights and remedies set forth in this Section 28 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

28.2 Damages

Without limitation of the foregoing, the Authority may deduct from amounts otherwise payable to Consultant hereunder the Authority's uncompensated damages for Consultant's breach of any provision hereof. The preceding sentence is intended only as a clarification of the Authority's remedies in the event of breach, and shall not be deemed to impair any claims that Consultant may have against the Authority or Consultant's rights to assert such claims.

29. Governing Law, Jurisdiction and Venue

This Agreement shall be governed by, and construed in accordance with, the laws of the State of California applicable to agreements made and to be performed within that State. Consultant agrees and consents to the exclusive jurisdiction of the courts of the State of California in the County of Los Angeles (except with respect to claims that are subject to exclusive federal subject matter jurisdiction, as to which Consultant agrees and consents to the exclusive jurisdiction of the Federal District Court of the Central District of California) for all purposes regarding this Agreement and further agrees and consents that venue of any action brought hereunder shall be exclusively in the County of Los Angeles, California.

30. Validity and Severability

30.1 Validity

The invalidity or illegality of any provision of this Agreement shall not render the other provisions hereof invalid or illegal, unless the essential purposes of this Agreement shall be materially impaired thereby.

30.2 Severability

In the event that any provision herein contained is held to be invalid, void or illegal by any court of competent jurisdiction, the same shall be deemed severable from the remainder of this Agreement, if practicable, and shall in no way affect, impair or invalidate any other provision contained herein. If any such provision shall be deemed invalid in its scope or breadth, such provision shall be deemed valid to the extent of the scope or breadth permitted by law. If any provision of this Agreement is adjudged void or invalid for any reason whatsoever, but would be valid if part of the wording thereof were deleted or changed, then such provision shall apply with such modifications as may be necessary to make it valid and effective.

31. Non-Exclusivity

Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Consultant. This Agreement shall not restrict the Authority from acquiring similar, equal or like goods and/or services from other entities or sources.

32. Termination for Convenience

32.1 Authority's Rights and Privileges

This Agreement may be terminated, in whole or in part, from time-to-time, when such action is determined by the Authority to be in its best interest. Termination of work hereunder shall be effected by delivery to Consultant of a notice of termination specifying the extent to which performance of work is terminated and the date upon which such termination becomes effective. The date upon which such termination becomes effective shall be no less than thirty (30) days after the notice is sent, provided that in the event the Authority has purported to terminate this Agreement for default by notice pursuant to Section 34 (Termination for Default) and it has later been determined that Consultant was not in default, no additional notice shall be required upon such determination.

33. Termination for Insolvency

33.1 Authority's Power of Termination for Insolvency

The Authority may terminate this Agreement immediately at any time following the occurrence of any of the following:

1. Insolvency of Consultant: Consultant shall be deemed to be insolvent if it has ceased to pay or has admitted in writing its inability to pay its debts for at least sixty (60) days in the ordinary course of business or cannot pay its debts as they become due, whether or not a petition has been filed under the United States Bankruptcy Code and whether or not Consultant is insolvent within the meaning of the United States Bankruptcy Code, provided that Consultant shall not be deemed insolvent if it has ceased in the normal course of business to pay its debts which are disputed in good faith and which are not related to this Agreement as determined by the Authority.
2. The filing of a voluntary or involuntary petition (which involuntary petition is not dismissed within sixty (60) days) regarding Consultant under the United States Bankruptcy Code.
3. The appointment of a receiver or trustee for Consultant.
4. The execution by Consultant of a general assignment for the benefit of creditors.

33.2 Rights and Remedies

The rights and remedies of the Authority provided in this Section 33 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

34. Termination for Default

34.1 Authority's Power of Termination for Default

The Authority may, by notice to Consultant, terminate the whole or any part of this Agreement in any one of the following circumstances:

1. If, as determined by the Authority, Consultant fails to perform or provide any Work within the times specified in this Agreement, as may be extended upon the Authority authorization, including the applicable notice and/or cure periods, if any (if no cure period is specified in this Agreement, Consultant shall have ten (10) days to cure prior to termination under this Section 34.1); provided that (i) nothing in this Section 34.1 shall in any way limit or modify any rights of the Authority or obligations of Consultant relating to timely performance by Consultant as otherwise set forth in this; or
2. If, as determined by the Authority, Consultant fails to perform or comply with any of the provisions of this Agreement, or so fails to make progress as to endanger performance of

this Agreement in accordance with its terms, and, in either of these two circumstances, does not cure such failure within a period of ten (10) days (or such longer period as the Authority Project Director may authorize in writing) after receipt of notice from the Authority specifying such failure; provided that: (i) Consultant shall not be entitled to any cure period, and the Authority may terminate this Agreement immediately, in the event that the Authority determines that Consultant's failure to perform or comply is not reasonably capable of being cured or cannot be cured by Consultant in a reasonable time. If, pursuant to the preceding sentence, the Authority has terminated this Agreement without providing a cure period, and subsequently a final determination is made that the default was capable of being cured, then the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to Section 32 (Termination for Convenience).

34.2 **Consultant Liability**

Except with respect to defaults of any subcontractors, Consultant shall not be liable for any additional costs, if its failure to perform this Agreement arises out of fires, floods, epidemics, quarantine restrictions, other acts of god, strikes, or freight embargoes, but in every such case the failure to perform must be totally beyond the control and without any fault or negligence of Consultant. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both Consultant and subcontractor, and without any fault or negligence of either of them, Consultant shall not be liable for any additional costs for failure to perform, unless the goods or services to be furnished by the subcontractor were obtainable from other sources: (i) in sufficient time to permit Consultant to meet the required performance schedule; or (ii) in a materially shorter time in a commercially reasonable manner. Consultant agrees to use all reasonable commercial efforts to obtain such goods or services from other sources. As used in this Section 34.2 the terms "subcontractor" and "subcontractors" mean subcontractor at any tier.

34.3 **Notice of Absolution**

If, after the Authority has given notice of termination under the provisions of this Section 34, it is determined by the Authority that Consultant was not in default under the provisions of this Section 34, or that the default was excusable under the provisions of this Section 34, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to Section 32 (Termination for Convenience).

34.4 **Rights and Remedies**

The rights and remedies of the Authority provided in this Section 34 shall not be exclusive and are in addition to any other rights and remedies provided by law, at equity, or under this Agreement.

35. Termination for Improper Consideration

35.1 Improper Consideration

The Authority may, by written notice to Consultant, immediately terminate this Agreement if it is found that consideration, in any form, was offered or given by Consultant or any subcontractor, either directly or through an intermediary, to any Authority or Member officer, employee or agent with the intent of securing this Agreement or securing favorable treatment with respect to the award, amendment, or extension of this Agreement or the making of any determinations with respect to Consultant's or any subcontractor's performance pursuant to this Agreement. In the event of such termination, the Authority shall be entitled to pursue the same remedies against Consultant as it could pursue in the event of default of Consultant.

35.2 Reporting Improper Consideration

Consultant shall immediately report any attempt by the Authority or Member officer or employee to solicit such improper consideration. The report shall be made to the Authority Project Director or a designee of the Authority's Board of Directors.

35.3 Actions Considered Improper

Among other items, such improper consideration may take the form of cash, discounts, services, the provision of travel or entertainment, or tangible gifts.

36. Effect of Termination

In the event that the Authority terminates this Agreement in whole or in part as provided herein, then:

1. Consultant shall stop Work under this Agreement on the date and to the extent specified in such notice and complete performance of such part of the Work as shall not have been terminated by such notice;
2. The Authority shall have the right to procure, upon such terms and in such a manner as the Authority may deem appropriate, any Work similar to that so terminated. Unless the termination is for convenience pursuant to Section 32 (Termination for Convenience), Consultant shall be liable to the Authority for, and shall promptly pay to the Authority by cash payment, any and all excess costs incurred by the Authority, as determined by the Authority, to procure and furnish such similar Work;
3. For a period of five (5) years after final settlement under this Agreement, Consultant shall make available to the Authority, at all reasonable times, all its books, records, documents, or other evidence bearing on the costs and expenses of Consultant under this Agreement with respect to the termination of work hereunder.

37. Notice of Delays

When Consultant has knowledge that any actual or potential situation is delaying or threatens to delay the timely performance of this Agreement, then Consultant shall, within three (3) Days, give notice thereof, including all relevant information with respect thereto, to the Authority.

38. Conflict of Interest

38.1 Personnel

No Authority or Member employee whose position with the Authority or Member enables such employee to influence the award of this Agreement or any competing agreement, and no spouse or economic dependent of such employee, shall be employed in any capacity by Consultant or have any other direct or indirect financial interest in this Agreement. No officer or employee of Consultant, who may financially benefit from the performance of work hereunder, shall participate in any way in the Authority's approval, or ongoing evaluation, of such work, or in any way attempt to unlawfully influence the Authority's approval or ongoing evaluation of such work.

38.2 Consultant Compliance with Applicable Laws

Consultant shall comply with all conflict of interest laws, ordinances, and regulations (e.g., California fair political practices commission regulations that can be found at http://www.fppc.ca.gov) now in effect or hereafter to be enacted during the term of this Agreement. Consultant warrants that it is not now aware of any facts that do or could create a conflict of interest. If Consultant hereafter becomes aware of any facts that might reasonably be expected to create a conflict of interest, it shall immediately make full written disclosure of such facts to the Authority. Full written disclosure shall include identification of all persons implicated and a complete description of all relevant circumstances.

39. Authorization Warranty

Consultant hereby represents and warrants that the person executing this Agreement for Consultant is an authorized agent who has actual authority to bind Consultant to each and every term, condition, and obligation of this Agreement and that all requirements of Consultant have been fulfilled to provide such actual authority.

40. Consultant's Offices

Consultant's principal business office is located at 16431 Scientific Way, Irvine, CA 92618. Consultant shall notify in writing the Authority Project Director at the address set forth in Section 1 (Authority Key Personnel) of Exhibit D (Administration of Agreement) of any change in its principal business office at least thirty (30) calendar days prior to the effective date thereof.

41. Restrictions on Lobbying

41.1 Federal Funds Projects

If federal funds are to be used to pay for a portion of Consultant's services or other Work under this Agreement, Consultant shall fully comply with all certification and disclosure requirements prescribed by Section 319 of Public Law 101-121 (31 United States Code Section 1352) and any implementing regulations, and shall ensure that each subcontractor receiving funds provided under this Agreement also fully complies with all such certification and disclosure requirements.

41.2 Lobbyist Ordinance

In accordance with Section 25 (Compliance with Applicable Laws), Consultant and each County lobbyist or County lobbying firm, as defined in Los Angeles County Code Section 2.160.010, retained by Consultant, shall fully comply with County's Lobbyist Ordinance, Los Angeles County Code Chapter 2.160. Failure on the part of Consultant or any County lobbyist or County lobbying firm retained by Consultant to fully comply with County's Lobbyist Ordinance shall constitute a material breach of this Agreement upon which the Authority may immediately terminate or suspend this Agreement.

42. Dispute Resolution Procedure

42.1 Time is of the Essence

Consultant and the Authority agree to act promptly to mutually resolve any disputes that may arise with respect to this Agreement. All such disputes shall be subject to the provisions of this Section 42. Time is of the essence in the resolution of disputes.

42.2 Continuation of Performance

Consultant and the Authority agree that, the existence and details of a dispute notwithstanding, both parties shall continue without delay their performance hereunder, except for any performance by either party that the Authority determines should be delayed as a result of such dispute.

42.3 Costs of Delay in Performance

If Consultant fails to continue without delay its performance hereunder, which the Authority determines should not be delayed as a result of such dispute, then any additional costs which may be incurred by Consultant or the Authority as a result of Consultant's failure to continue to so perform shall be borne solely by Consultant, and Consultant shall make no claim whatsoever against the Authority for such costs. Consultant shall promptly reimburse the Authority for any costs incurred by the Authority as a result of Consultant's failure to continue to so perform, as

determined by the Authority, or the Authority may deduct all such additional costs from any amounts due to Consultant from the Authority.

42.4 **Escalation of Resolution**

In the event of any dispute between the parties with respect to this Agreement, Consultant and the Authority shall submit the matter to Consultant Project Director and the Authority Project Director for the purpose of endeavoring to resolve such dispute.

If the Project Managers are unable to resolve the dispute within a reasonable time not to exceed ten (10) days from the date of submission of the dispute, then the matter shall be immediately submitted to Consultant Project Director and the Authority Project Director for further consideration and discussion to attempt to resolve the dispute.

If the Project Directors are unable to resolve the dispute within a reasonable time not to exceed ten (10) days from the date of submission of the dispute to them, then the matter shall be immediately submitted to Consultant's president or Chief Executive Officer and the Authority's Board of Directors. These persons shall have additional ten (10) days to attempt to resolve the dispute.

If the parties have exhausted the forgoing escalation, but it did not result in a mutually acceptable resolution, then each party may pursue any other rights and/or remedies under this Agreement, at law, and/or in equity.

42.5 **Good Faith Negotiations**

All disputes under this dispute resolution procedure shall be documented in writing by each party and shall state the specifics of each alleged dispute and all actions taken. The parties shall act in good faith to resolve all disputes. At all levels described in this Section 42, the efforts to resolve a dispute shall be undertaken by conference between the parties' respective representatives, either by face-to-face meeting or by telephone.

42.6 **Exemptions**

Notwithstanding any other provision of this Agreement, the Authority's right to seek injunctive relief to enforce the provisions of Sections 22 (Confidentiality and Security) and 24 (Proprietary Considerations), or any other provisions hereunder, and the Authority's right to terminate this Agreement pursuant to Sections 33 (Termination for Insolvency), 34 (Termination for Default), 35 (Termination for Improper Consideration), 32 (Termination for Convenience) or any other termination provision hereunder, shall not be subject to this dispute resolution procedure.

43. Performance During Civil Unrest and Disaster

Consultant recognizes that facilities maintained by the Authority provide services essential to the residents of the communities they serve, and that these services are of particular importance at the time of a riot, insurrection, civil unrest, natural disaster, or similar event. Notwithstanding any other provision of this Agreement, full performance by Consultant during any riot, insurrection, civil unrest, natural disaster, or similar event is not excused if such performance remains physically possible without unreasonable risk. Failure to comply with this requirement shall be considered a material breach of this Agreement by Consultant for which the Authority may immediately terminate this Agreement.

44. Access to Authority Facilities

Consultant, its employees and agents, will be granted access to Authority and Member facilities, subject to Consultant's prior notification to the Authority Project Director, for the purpose of executing Consultant's obligations hereunder. Unless otherwise so provided, access to Authority and Member facilities outside of normal business hours must be approved in advance by the Authority Project Director.

45. Federal Earned Income Credit

Consultant shall notify its employees, and shall require each subcontractor to notify its employees, that they may be eligible for the Federal Earned Income Credit under the federal income tax laws. Such notice shall be provided in accordance with the requirements set forth in Internal Revenue Service Notice 1015.

46. Physical Alterations

Consultant shall not in any way physically alter or improve any Authority or Member facility without the prior approval of the Authority Project Director.

47. Notices

47.1 Receipt of Notice

All notices or demands required or permitted to be given or made under this Agreement, unless otherwise specified, shall be in writing and shall be delivered: (i) by hand with signed receipt; (ii) by first class registered or certified mail, postage prepaid; or (iii) by facsimile or electronic mail transmission followed within twenty-four (24) hours by a confirmation copy mailed by first-class registered or certified mail, postage prepaid. Notices shall be deemed given at the time of signed receipt in the case of hand delivery, three (3) days after deposit in the United States mail as set forth above, or on the date of facsimile or electronic mail transmission if

followed by timely confirmation mailing. Addresses may be changed by either party giving ten (10) days prior notice thereof to the other party.

47.2 **Point of Contact**

The Authority Project Director shall have the authority to issue all notices or demands that are required or permitted by the Authority under this Agreement. During the term of this Agreement, Consultant's legal counsel shall only communicate with the Authority Counsel or his designee, and shall not, without the Authority Counsel's prior consent, communicate with any Authority staff.

Notices to the Authority shall be sent to the attention of the Authority Project Director and the Authority Project Manager at the respective locations set forth in Section 1 (Authority Key Personnel) of Exhibit D (Administration of Agreement).

Notices to Consultant shall be sent to the attention of the Consultant Project Director at the location set forth in Section 2 (Contractor Key Personnel) of Exhibit D (Administration of Agreement)

48. **No Third Party Beneficiaries**

Consultant and the Authority do not intend, in any way, that any person or entity shall acquire any rights as a third party beneficiary of this Agreement, except that this provision shall not be construed to diminish Consultant's indemnification obligations hereunder.

49. **Most Favored Public Entity**

If Consultant's prices decline, or should Consultant, at any time during the term of this Agreement, provide the same goods or services under similar quantity and delivery conditions to any county, municipality, state, district of any state or other government agency at prices below those set forth in this Agreement, then such lower prices shall be extended immediately to the Authority. The Authority shall have the right to utilize the Authority auditor to verify Consultant's compliance with this Section 49 by review of Consultant's books and records.

50. **Time is of the Essence**

Time is of the essence for Consultant's performance under this Agreement.

51. **Assignment by Authority**

The Consultant understands and agrees that the Authority may assign this Agreement, in whole or in part, in its sole discretion, without the consent of Consultant, to a third party which agrees in writing to perform the Authority's obligations under this Agreement.

52. Authority's Quality Assurance Plan

The Authority or its agent will evaluate Consultant's performance under this Agreement on not less than an annual basis. Such evaluation will include assessing Consultant's compliance with the terms and performance standards of this Agreement. Any Consultant deficiencies that the Authority determines are severe or continuing and that may place performance of this Agreement in jeopardy if not corrected will be reported to the Authority's Board of Directors. The report will include improvement/corrective action measures taken by the Authority and Consultant. If improvement does not occur consistent with the corrective action measures, the Authority may terminate this Agreement or impose other penalties as specified in this Agreement.

53. Debarment

Consultant is subject to the federal, State and local laws regarding debarment, suspension, ineligibility and voluntary exclusion from participation in the Agreement, including, but not limited to, 45 C.F.R. Part 76, the Los Angeles County Code or specified in the Funding Requirements.

53.1 Debarment, Suspension, Ineligibility and Voluntary Exclusion

Pursuant to applicable law, the Authority may be prohibited from contracting or making sub-awards with parties that are suspended, debarred, ineligible or excluded or whose principals are suspended, debarred or excluded from securing federally funded contracts. By executing this Agreement, Consultant certifies that neither it nor any of its owners, officers, partners, directors or other principals is currently suspended, debarred, ineligible, or excluded from securing federally funded contracts. Further, by executing this Agreement, Consultant certifies that, to its knowledge, none of its subcontractors at any tier or any owner, officer, partner, director or other principal of any subcontractors is currently suspended, debarred, ineligible, or excluded from securing State or federal funded contracts. Consultant shall immediately notify the Authority, during the term of this Agreement, should it or any of its subcontractors or any principals of either be suspended, debarred, ineligible, or excluded from securing federally funded contracts. Failure of Consultant to comply with this provision shall constitute a material breach of this Agreement upon which the Authority may immediately terminate or suspend this Agreement.

53.2 Applicable Local Law

It is the Authority's policy to contract only with responsible Consultants that have demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform a contract. Consultant is hereby notified that, in accordance with Chapter 2.202 of the Los Angeles County Code and Section 10.40 of the Los Angeles Administrative Code, if the Authority acquires information concerning the performance of Consultant on this or other contracts indicating that Consultant is not responsible, the Authority may, in addition to other remedies provided in this Agreement, debar Consultant from bidding or proposing on or

being awarded and/or performing work on Authority contracts for a specified period of time and terminate any or all existing contracts Consultant may have with the Authority.

54. Services after Expiration/Termination of Agreement

Consultant shall have no claim against the Authority for payment of any money or reimbursement, of any kind whatsoever, for any service provided by Consultant after the expiration or other termination of this Agreement. Should Consultant receive any such payment, it shall immediately notify the Authority and shall immediately repay all such funds to the Authority. Payment by the Authority for services rendered after expiration/termination of the Agreement shall not constitute a waiver of the Authority's right to recover such payment from Consultant. This provision shall survive the expiration or other termination of this Agreement.

55. Captions and Section Headings

Captions and Section headings used in this Agreement are for convenience only and are not a substantive part of this Agreement and shall not be used in construing this Agreement.

56. Arm's Length Negotiations

This Agreement is the product of arm's length negotiation between Consultant and the Authority, where each party has had the opportunity to receive advice from independent counsel of its own choosing. This Agreement is to be interpreted as if both parties participated equally in its drafting, and not construed against either party.

57. Survival

The following Sections of this Agreement shall survive its expiration or termination:

1 Applicable Documents and Definitions

6 Changes to Agreement

9 Maximum Contract Sum

12 Invoices and Payments

17 Subcontracting

18 Indemnification

19 Insurance and Performance Security

20 Records and Audits

21 Authority Audit Settlements

22 Confidentiality and Security

24 Proprietary Considerations

25 Compliance with Applicable Laws

27 Employment Eligibility Verification

28 Waiver

29 Governing Law, Jurisdiction and Venue

30 Validity and Severability

36 Effect of Termination

39 Authorization Warranty

54 Services after Expiration/Termination of Agreement

IN WITNESS WHEREOF, the Board of Directors of the Authority has caused this Agreement to be subscribed on its behalf by its Task Force Leader, and Consultant has caused this Agreement to be subscribed on its behalf by its duly authorized officer, as of this _____ day of _____, 2011.

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY	CONSULTANT [*COMPANY NAME]
_____	_____
Scott L. Poster	[*NAME]
Task Force Leader	[*TITLE]

Exhibit A Statement of Work

I. BACKGROUND [*INSERT]

II. SCOPE OF SERVICES [*INSERT]

Exhibit B Schedule of Payments

Exhibit C Work Approval Certificate

Date: _____

Submitted By: _____

Title: _____

1. Work/task to be performed:

2. Work/task description:

3. Estimated start date:

4. Estimated completion date:

5. Estimated hours required to complete work/task:

LA-RICS APPROVAL:

Approved by: _____ Date: _____

Title: _____

Exhibit D Administration of Agreement

1. Authority Key Personnel

1.1 Authority Project Director

Name:

Title:

Address:

Telephone:

E-mail:

1.2 Authority Project Manager

Name:

Title:

Address:

Telephone:

E-mail:

2. Contractor Key Personnel

2.1 Contractor Project Director

Name:

Title:

Address:

Telephone:

E-mail:

2.2 Contractor Project Manager

Name:

Title:

Address:

Telephone:

E-mail:

2.3 Contractor's Office

Address:

Telephone:

E-mail:

Exhibit E Funding Requirements

1. Funding Resources

It is anticipated that various government Funding Resources, including municipal, State, federal and/or local grants or other funds, will be used to pay for the Project, including any Work to be performed by the selected Contractor under the Agreement. Particular federal and/or State grant programs which might provide such funding may include, but are not limited to, those listed in this Section 1 below. This list of Funding Resources is not exhaustive and additional Funding Resources which are as yet unidentified may be used to fund portions of the Agreement.

1.1 Broadband Technology Opportunities Program ("BTOP") Grant

The American Recovery and Reinvestment Act provided the Department of Commerce's National Telecommunications and Information Administration (NTIA) and the U.S. Department of Agriculture's Rural Utilities Service (RUS) with $7.2 billion to expand access to broadband services in the United States. Of those funds, the Act provided $4.7 billion to NTIA to support the deployment of broadband infrastructure, enhance and expand public computer centers, encourage sustainable adoption of broadband service, and develop and maintain a nationwide public map of broadband service capability and availability. Further information may be found at: http://www2.ntia.doc.gov/

2. General

2.1 Funding of Agreement

Funding for all periods of this Agreement is subject to the continuing availability of federal grants or other funds for the LA-RICS Project. This Agreement may be terminated immediately upon written notice to Contractor of a loss or reduction of grant funds or other applicable Funding Resources.

2.2 Payment to Contractor

2.2.1 The Authority makes no commitment to fund this Project beyond the term of the Agreement. The Authority shall review Contractor's performance on a periodic basis. In the event the Authority determines that Contractor is not meeting its proposed performance measures, the Authority may unilaterally reduce the compensation due to Contractor in compliance with the provisions set forth in the Agreement upon written notice to Contractor and as set forth by a written amendment to the Agreement.

2.2.2 Contractor shall be reimbursed only for reasonable and allowable expenses incurred under the Agreement. Unless Contractor has been approved to receive advance payments, all payments shall be on reimbursement basis.

2.2.3 If not on an advanced payment plan, Contractor shall request reimbursements by submitting the cash request, monthly expenditure report and all other documents as required by the Authority. Contractor shall be reimbursed after the Authority has received the monthly expenditure report and all other required documents and after the Authority determines that Contractor has incurred and expended funds for reasonable and allowable costs under the Agreement.

2.2.4 Contractor shall submit a final close out fiscal report showing final expenditures and other documents as required by the Authority within 45 days after the termination date of the Agreement, or as otherwise required by the terms of any applicable grant guidelines.

3. Compliance With State And Federal Requirements

3.1 Compliance Warranty

Contractor, in performance of the Agreement, warrants and certifies that it shall comply with all applicable statutes, rules, regulations and orders of the United States, the State of California and the County of Los Angeles. Contractor understands that failure to comply with any of the following assurances may result in suspension, termination or reduction of grant funds, and require repayment by Contractor to the Authority of any unlawful expenditures. Contractor further warrants and certifies that it shall comply with new, amended, or revised laws, regulations, and/or procedures that apply to the performance of the Agreement.

3.2 Requirements Applicable To All Grant Agreements

Contractor shall comply with all applicable requirements of State, federal and County of Los Angeles laws, executive orders, regulations, program and administrative requirements, policies and any other requirements governing the Agreement. Contractor shall comply with State and federal laws and regulations pertaining to labor, wages, hours and other conditions of employment. Contractor shall comply with new, amended or revised laws, regulations and/or procedures that apply to the performance of the Agreement. These requirements include, but are not limited to, those listed below in this Section 2.2.

3.2.1 Office of Management and Budget (OMB) Circulars

Contractor shall comply with OMB Circulars, as applicable: OMB Circular A-21 (Cost Principles for Educational Institutions); OMB Circular A-87 (Cost Principles for State, Local, and Indian Tribal Governments); OMB Circular A-102 (Grants and Cooperative Agreements

with State and Local Governments); Common Rule, Subpart C for public agencies, OMB Circular A-110 and/or 2 CFR 215 (Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations); OMB Circular A-122 (Cost Principles for Non-Profit Organizations); OMB Circular A-133 (Audits of States, Local Governments, and Non-Profit Organizations).

3.2.2 Single Audit Act

If federal funds are used in the performance of the Agreement, Contractor shall adhere to the rules and regulations of the Single Audit Act, 31 USC Sec. 7501 et seq. and any administrative regulation or field memos implementing the Act. The provisions of this section shall survive expiration or termination of the Agreement.

3.2.3 Americans with Disabilities Act

Contractor hereby certifies that it shall comply with the Americans with Disabilities Act 42, USC §§ 12101et seq. and its implementing regulations. Contractor shall provide reasonable accommodations to allow qualified individuals with disabilities to have access to and to participate in its programs, services and activities in accordance with the provisions of the Americans with Disabilities Act. Contractor shall not discriminate against persons with disabilities or against persons due to their relationship to or association with a person with a disability. Any subcontract entered into by Contractor relating to this Agreement, to the extent allowed hereunder, shall be subject to the provisions of this section.

3.2.4 Political and Sectarian Activity Prohibited

None of the funds, materials, property or services provided directly or indirectly under the Agreement shall be used for any partisan political activity or to further the election or defeat of any candidate for public office. Neither shall any funds provided under the Agreement be used for any purpose designed to support or defeat any pending legislation or administrative regulation. None of the funds provided pursuant to the Agreement shall be used for any sectarian purpose or to support or benefit any sectarian activity.

If the Agreement provides for more than $100,000 in grant funds or more than $150,000 in loan funds, Contractor shall submit to the Authority a Certification Regarding Lobbying and a Disclosure Form, if required, in accordance with 31 USC 1352. A copy of the Certificate is attached hereto as Attachment A. No funds will be released to Contractor until the Certification is filed.

Contractor shall file a Disclosure Form at the end of each calendar quarter in which there occurs any event requiring disclosure or which materially affects the accuracy of any of the information contained in any Disclosure Form previously filed by Contractor. Contractor shall require that the language of this Certification be included in the award documents for all sub-awards at all tiers and that all Contractors shall certify and disclose accordingly.

3.2.5 Records Inspection

At any time during normal business hours and as often as the Authority, the U.S. Comptroller General and the Auditor General of the State of California, through any authorized representative, may deem necessary, Contractor shall make available for examination all of its records, paper or electronic, with respect to all matters covered by the Agreement. The Authority, the U.S. Comptroller General and the Auditor General of the State of California, through any authorized representative, shall have the authority to audit, examine and make excerpts or transcripts from records, including all Contractor's invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement.

Contractor agrees to provide any reports requested by the Authority regarding performance of the Agreement.

3.2.6 Records Maintenance

Records, in their original form, shall be maintained in accordance with requirements prescribed by the Authority with respect to all matters covered on file for all documents specified in the Agreement. Original forms are to be maintained on file for all documents specified in the Agreement. Such records shall be retained for a period of five (5) years after termination of the Agreement and after final disposition of all pending matters. "Pending matters" shall include, but are not limited to, an audit, litigation or other actions involving records. The Authority may, at its discretion, take possession of, retain and audit said records. Records, in their original form pertaining to matters covered by the Agreement, shall at all times be retained within the County of Los Angeles unless authorization to remove them is granted in writing by the Authority.

3.2.7 Subcontracts and Procurement

Contractor shall comply with the federal and Authority standards in the award of any subcontracts. For purposes of the Agreement, subcontracts shall include but not be limited to, purchase agreements, rental and lease agreements, third party agreements, consultant service contracts and construction subcontracts.

Contractor shall ensure that the terms of the Agreement are incorporated into all its Contractor agreements. Contractor shall submit all its Contractor agreements to the Authority for review prior to the release of any funds to the Contractor. Contractor shall withhold funds to any of its Contractors that fails to comply with the terms and conditions of the Agreement and the respective Contractor agreement.

3.2.8 Labor

Contractor shall comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed requirements for merit systems for programs funded under one of the

19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System Personnel Administration (5 C.F.R. 900, Subpart F).

Contractor shall comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally assisted construction sub agreements.

Where labor is required for public works as part of any requirements covered by this Agreement and as such is defined by the California Labor Code, Contractor shall pay no less than the applicable prevailing wages specified. Copy of prevailing wage rates is available for perusal on request.

Contractor shall comply with the Federal Fair Labor Standards Act (29 USC § 201) regarding wages and hours of employment.

None of the funds shall be used to promote or deter union/labor organizing activities. CA Gov't Code Sec. 16645 et seq.

Contractor shall comply with the Hatch Act (5 USC §§1501-1508 and 7324-7328).

Contractor shall comply with the provisions of Article 3, Chapter 1, Part 7, Division 2 of the Labor Code of California, the California Child Labor Laws and all other applicable statutes, ordinances, and regulations relative to employment, wages, hours of labor and industrial safety.

3.2.9 Civil Rights

Contractor shall comply with all federal statutes relating to nondiscrimination. These include, but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352, 42 U.S.C. §2000d, and implementing regulations), which prohibits discrimination on the basis of race, color, or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681- 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Sections 503 and 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794, 45 CFR, Part 84), which prohibits discrimination on the basis of handicaps; (d) The Age Discrimination act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation act of 1970 (P.L. 91-616) as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for federal assistance is being made; (j) the requirements of any other nondiscrimination statute(s) which may apply to the application; (k) P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported

by this award of assistance; and (l) Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972 (42 U.S.C. 2000e).

3.2.10 Environmental

Contractor shall comply, or has already complied, with the requirements of Titles II and III of the Uniform relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of federal participation in purchases.

Contractor shall comply with environmental standards which may be prescribed pursuant to the following, as applicable: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523) and the California Safe Drinking Water and Toxic Enforcement Act of 1986; (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205); (i) Flood Disaster Protection Act of 1973 §102(a) (P.L. 93-234); and (j) Section 508 of the Clean Water Act (38 U.S.C. 1360).

Contractor shall comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

Contractor shall comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4822 et seq.) that prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

Contractor shall comply with the Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) that restores and maintains the chemical, physical and biological integrity of the nation's waters.

Contractor shall ensure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of this Project are not listed in the Environmental Protection Agency's (EPA) list of Violating Facilities and that it will notify the Federal Grantor agency of the receipt of any communication from the Director of the EPA Office of Federal Activities indicating that a facility to be used in the project is under consideration for listing by the EPA.

By signing this Agreement, Contractor ensures that it is in compliance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 et seq. and is not impacting the environment negatively.

Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163, 89 Stat. 871).

Contractor shall comply, as applicable, with the provisions of the Coastal Barrier Resources Act (P.L. 97-348) dated October 19, 1982 (16 USC 3501 et.seq.) which prohibits the expenditure of most new Federal funds within the units of the Coastal Barrier Resources System.

Contractor shall comply with all applicable Federal, State, and local environmental and historical preservation (EHP) requirements. Failure to meet Federal, State, and local EHP requirements and obtain applicable permits may jeopardize Federal funding. Contractor will comply with all conditions placed on any project as the result of the EHP review; any change to the scope of work of a project will require re-evaluation of compliance with these EHP requirements.

Contractor shall assist the Authority and OJP Bureau of Justice Assistance ("BJA") in complying with the National Environmental Policy Act (NEPA), the National Historic Preservation Act, and other related federal environmental impact analyses requirements in the use of these Grant funds.

3.2.11 Preservation

Contractor shall comply with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

3.2.12 Suspension and Debarment

Contractor shall comply with Federal Register, Volume 68, Number 228, regarding Suspension and Debarment, and Contractor shall submit a Certification Regarding Debarment (Attachment E) required by Executive Orders 12459 and 12689, and any amendment thereto. Said Certification shall be submitted to the Authority concurrent with the execution of the Agreement and shall certify that neither Contractor nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department head or agency. Contractor shall require that the language of this Certification be included in the award documents for all sub-award at all tiers and that all its Contractors shall certify accordingly.

3.2.13 Drug-Free Workplace

Contractor shall comply with the Federal Drug-Free Workplace Act of 1988, 41 USC §701, 28 CFR Part 67; the California Drug-Free Workplace Act of 1990, CA Gov't Code §§ 8350-8357 (Attachment B).

3.2.14 Animal Welfare

Contractor shall comply with the Laboratory Animal Welfare Act of 1966, as amended (P.L. 89-544, 7 USC §§2131 et. seq.).

3.2.15 Public Law 110-161

Contractor shall ensure, pursuant to the Consolidated Appropriations Act of 2008 (P.L. 110-161), that grant funds must not be used in contravention of the federal buildings performance and reporting requirements of Executive Order No. 13123, part 3 of title V of the National Energy Conservation Policy Act (42 USC 8251 et Seq.) or subtitle A of title I of the Energy Policy Act of 2005 (including the amendments made thereby), nor shall grant funds be used in contravention of Section 303 of the Energy Policy Act of 1992 (42 USC 13212).

3.2.16 Public Law 103-227

Contractor must comply with Public Law 103-227, Part C-Environmental Tobacco Smoke, also known as the Pro-Children Act of 1994 (Act). This Act requires that smoking not be permitted in any portion of any indoor facility owned or leased or contracted by entity and used routinely or regularly for the provision of health, day care, education, or library services to children under the age of 18, if the services are funded by federal programs either directly or through State and local governments. Federal programs include grants, cooperative agreements, loans or loan guarantees, and contracts. The law does not apply to children's services provided in private residences, facilities funded solely by Medicare or Medicaid funds, and portions of facilities used for inpatient drug and alcohol treatment.

Contractor further agrees that the above language will be included in any subcontracts that contain provisions for children's services and that all its Contractors shall certify compliance accordingly.

3.2.17 Public Law 103-333

Contractor shall assure, pursuant to Public Law 103-333, to the extent practicable, that all equipment and products purchased with funds made available under the Agreement shall be American made.

3.2.18 OMB Requirements

Contractor shall administer this Agreement in accordance with OMB requirements contained in the following circulars: Common Rule, Subpart C, for public agencies, or 2 CFR 215 for nonprofit organizations.

4. Audits and Inspections

4.1 Availability of Records

At any time during normal business hours and as often as the Grantor, the U.S. Comptroller General, Auditor General of the State of California or the Authority may deem necessary, Contractor shall make available for examination, all of its records with respect to all matters

covered by the Agreement. The Authority, the U.S. Comptroller General and the Auditor General of the State of California shall have the authority to audit, examine and make excerpts, or transcripts from records, including all Contractor's and its Contractor's invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by the Agreement.

4.2 Right to Access

Access by the Authority, the State of California, the Department of Justice, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers and records (including computer records) of Contractor which are directly pertinent to charges to the Project, shall not be denied in order to conduct audits and examinations and make excerpts, transcripts, and photocopies. This right also includes timely and reasonable access to Contractor's and Contractor's personnel for the purpose of interviews and discussions related to such documents.

4.3 Reporting

Contractor agrees to provide any reports requested by the Authority regarding performance of the Agreement. Contractor shall adhere to the rules and regulations of the Single Audit Act PL 98-502 and the implementing OMB Circulars, and any administrative regulation or field memos implementing the Act. When total expenditures under all federal programs in a fiscal year equal or exceed $500,000, Contractor shall conduct, or have conducted on an annual basis, audits in accordance with the Single Audit Act of 1984, PL 98-502, implementing regulations in OMB Circulars A-133 as applicable, and administrative regulations or field memos implementing revisions or updates to the audit requirements. The auditor's reports, prepared in accordance with the aforementioned requirements, and any accompanying management reports on the operation of the Contractor or the Agreement, shall be submitted to the Authority within nine (9) months after the close of Contractor's fiscal year.

4.4 Independent Auditor

Contractors who meet the above threshold shall annually subcontract with a qualified independent auditor.

4.5 Fiscal Integrity

The audit is to be conducted annually to test the fiscal integrity of financial transactions as well as compliance with the applicable laws and regulations.

4.6 Submission to Authority

Contractor, not later than thirty (30) days following receipt of the final audit report and within nine (9) months after the close of Contractor's fiscal year, shall submit a copy of the report to the Authority's financial management department.

4.7 Solutions for Deficiency(ies)

If the auditor's report or management report identifies deficiencies with internal controls or contract compliance, Contractor shall prepare and submit a corrective action plan along with the auditor's reports. The plan shall address all deficiencies and provide specific details on corrective actions to be taken along with the date the action was or will be implemented.

4.8 Performance Review

If the expenditures under all federal programs are less than $500,000, Contractor shall permit the Authority to conduct a performance review of the Agreement and all related records in accordance with directives received from the Authority.

4.9 For-Profit Contractor

In the event that Contractor is operating on a for-profit basis, Contractor shall conduct a program-specific annual independent financial and compliance audit in accordance with generally accepted government auditing standards, or an organization-wide audit that includes coverage of the Project within its scope.

4.10 Failure to Comply

The Authority reserves the right to impose any or all of the following sanctions for Contractor's failure to comply with the Single Audit Act and the provisions of the Agreement:

1. Withhold a percentage of payments, at the Authority's sole discretion, until the audit is completed satisfactorily and submitted to the department;
2. Suspend payments due to Contractor until the audit is completed satisfactorily and submitted to the Authority; and/or
3. Impose Section 34 (Termination for Default), Section 11 (Consultant Funding Disallowance), Section 12.4 (No Payment for Default) or other applicable provisions of the Agreement as set forth therein.

4.11 Excerpts and Transcripts

The Authority, Auditor General of the State of California, Grantor, Director of the Office of Civil Rights and the U.S. Comptroller General shall have the authority to audit, examine, and

make excerpts or transcripts from records, including contracts, invoices, customer records and other records supporting the Agreement. Audits of earned funds are limited to determining if such funds were earned in accordance with the Agreement.

4.12 Inadequate Fiscal or Administrative Procedures

If the Authority determines that Contractor has inadequate fiscal or administrative procedures, the Authority may require Contractor to use any or all of the Authority's accounting or administrative procedures used in the planning, controlling, monitoring and reporting of fiscal matters relating to the Agreement; or secure at Contractor's expense the service of independent experts.

4.13 Physical Inspections

The Authority shall have the authority to make physical inspections and to require such physical safeguarding devices as locks, alarms, safes, fire extinguishers, sprinkler systems, etc., to safeguard property, records and/or equipment used in the performance of the Agreement.

4.14 Notice of Fault

Should a fiscal or special audit determine that Contractor has earned funds which are questioned under the criteria set forth herein, Contractor shall be notified and given the opportunity to justify questioned expenditures prior to the Authority's final determination of disallowed costs, in accordance with the procedures established under these Funding Requirements.

5. Prohibition of Legal Proceedings

Contractor is prohibited from using any Funding Resources received under the Agreement for the purpose of instituting legal proceeding against the Authority, its Members or their official representatives.

6. Participation of Small, Minority and Women's Business

Consistent with Executive Order Nos. 11625, 12432, and 12138, Contractor shall provide opportunities for small, minority and women's businesses to participate in contracting and procurement activities generated under the Agreement. Contractor shall:

1. Invite small, minority and women's businesses to participate in procurements under the Agreement.
2. Divide total requirements into small requirements to permit maximum small, minority and women's business participation whenever economically feasible.

3. Use the services and assistance of the Small Business Administration, the Minority Business Development Agency of the Department of Commerce and the Community Services Administration, or its successor, as required.
4. Contractor shall include the requirements of this section in every subcontract for work in connection with the Agreement and the Project.

7. Recovery Act Grant Requirements

7.1 Recovery Act: Buy American

If Funding Resources are used under this Agreement to construct, alter, maintain or repair a public building or public work, Contractor should be aware that the Recovery Act (in Section 1605) contains a "Buy American" provision that applies to iron, steel and manufactured goods, subject to certain exceptions. The provision is to be applied in a manner consistent with United States obligations under international agreements. Government-wide guidance on this provision is not yet available, but is expected. For the text of Section 1605, please refer to the "OJP Recovery Act Additional Requirements" web page at www.ojp.usdoj.gov/recovery/solicitationrequirements.htm.

7.2 Recovery Act: Wage Rate Requirements

Contractor should be aware that the Recovery Act contains a provision on wage rate requirements that concerns projects funded or assisted by Recovery Act funds that employ laborers and mechanics. See Section 1606 of the Recovery Act, the text of which appears on the "OJP Recovery Act Additional Requirements" web page at www.ojp.usdoj.gov/recovery/solicitationrequirements.htm. Government-wide guidance on this provision is not yet available, but is expected.

7.3 Recovery Act: Limit on Funds

The Recovery Act specifically provides that funds may not be used by any state or local government, or any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course or swimming pool.

7.4 Recovery Act: Use of Funds in Conjunction with Funds from Other Sources

Recovery Act funds may be used in conjunction with other funding as necessary to complete projects, but tracking and reporting of Recovery Act funds must be separate, to meet the reporting and other requirements of the Recovery Act and other applicable law. There can be no commingling of funds. (See "Accountability and Transparency under the Recovery Act," below.)

7.5 Accountability and Transparency Under the Recovery Act

7.5.1 Separate Tracking and Reporting of Recovery Act Funds and Outcomes

Consistent with the special purposes and goals of the Recovery Act, and its strong emphasis on accountability and transparency, it is essential that all funds from a Recovery Act grant be tracked, accounted for and reported on separately from all other funds (including DOJ grant funds from non-Recovery Act grants awarded for the same or similar purposes or programs). Contractor must also be prepared to track and report on the specific outcomes and benefits attributable to use of Recovery Act funds.

The accounting systems of Contractor and all its Contractors must ensure that funds from any award under the Recovery Act in connection with this Agreement are not commingled with funds from any other source.

Misuse of grant funds may result in a range of penalties, including suspension of current and future funds, suspension or debarment from federal grants, recoupment of monies provided under a grant and civil and/or criminal penalties.

7.5.2 Quarterly Financial and Programmatic Reporting

Consistent with the Recovery Act emphasis on accountability and transparency, reporting requirements under Recovery Act grant programs will differ from and expand upon OJP's standard reporting requirements for grants. In particular, Section 1512(c) of the Recovery Act sets out detailed requirements for quarterly reports that must be submitted within 10 days of the end of each calendar quarter. Receipt of funds will be contingent on meeting the Recovery Act reporting requirements.

Under this Recovery Act program, quarterly financial and programmatic reporting will be required and will be due within 10 calendar days after the end of each calendar quarter, starting on July 10, 2009.

7.5.2.1 Programmatic and Financial Reporting Periods

This Recovery Act Grant award requires Contractors to complete projects or activities which are funded under the Recovery Act and to report on use of Recovery Act funds provided by this Grant. Information from these reports will be made available to the public.

The reporting schedule is as follows:

Reporting Period	Type of Data Required	PMT Due Date
July 1– September 30	Program Performance Measures and Narrative	October 30th
October 1 - December 31	Program Performance Measures	January 30th
January 1 - March 31	Program Performance Measures	April 30th
April 1 - June 30	Program Performance Measures	July 30th

Pursuant to Section 1512 of the Recovery Act, the Federal Office of Management and Budget (OMB) requires quarterly reporting of all Recovery Act grant recipients and Contractors beginning October 10, 2009. The Recipient is required to comply with these OMB reporting requirements using a template provided by OMB to submit the requested data. This template utilizes the Recipient Reporting Data Model, a document created for Recovery Act data standardization. The Recipient Reporting Data Model can be downloaded from the "Downloads" tab of www.FederalReporting.gov and is also accessible via http://www.Recovery.gov.

In order to assist the Recipient in complying with its OMB reporting requirements regarding the use of Grant funds by the Contractor, Contractor shall provide sufficiently detailed information regarding job creation in connection with its use of Grant funds to the Recipient on a quarterly basis. Contractor will provide any additional information as may be necessary for the Recipient to submit complete and full quarterly reports to OMB using the Recipient Reporting Data Model (the "Job Creation Information").

Contractor shall complete and submit to the Recipient the required Job Creation documentation which shall include, without limitation, the following information for each quarter for the duration of the life of the grant:

1. the amount of recovery funds received that were expended or obligated to projects or activities; and
2. a detailed list of all projects or activities for which recovery funds were expended or obligated, including:
    a. the name of the project or activity;
    b. a description of the project or activity;
    c. an evaluation of the completion status of the project or activity;
    d. an estimate of the number of jobs created and the number of jobs retained by the project or activity;
    e. for infrastructure investments made by State and local governments, the purpose, total cost, and rationale of the agency for funding the infrastructure investment

with funds made available under this Grant, and name of the person to contact at the agency if there are concerns with the infrastructure investment.

f. for any vendors receiving funds from the Contractor, the identity of the vendor by reporting the DUNS number, if available, or otherwise the name and zip code of the vendor's headquarters.

Contractor will provide to the Authority any other information requested by the Authority that is required to fulfill the OMB reporting requirements.

Contractors must maintain, and provide to the Recipient on a quarterly basis, auditable documentation supporting all reported data, including jobs data and provide copies to Recipient as requested. Documentation should provide evidence that i) Created/retained positions and overtime hours are funded by Recovery Act awards, ii) Personnel are directly supporting Recovery Act projects and activities, and iii) Positions meet the criteria for "created"/"retained" positions and overtime hours.

Recommended documentation includes: Old and new organizational charts; New position descriptions; Job postings, offer letters and acceptance forms; Staffing lists; Timecards and payroll records; Budget comparisons and/or projections before and after the Recovery Act award date; Formal layoff recommendations and retractions (memos, reports); Minutes of formal meetings where official budget decisions are made; Timecards and payroll records; Employee activity reports.

The Job Creation Worksheet shall by submitted to the Authority in accordance with the following reporting schedule:

Reporting Period	**Due Date**
July 1 – September 31	October 5th
October 1 - December 31	January 5th
January 1 - March 31	April 5th
April 1 - June 30	July 5th

Contractor understands that failure to comply with any of the above assurances may result in suspension, termination or reduction of Grant funds, and repayment by Contractor to Recipient of any unlawful expenditures.

To obtain the Grant funds, the Grantor required an authorized representative of the Authority to sign certain promises and special conditions regarding the way the Grant funds would be spent ("Special Conditions"). By signing these Special Conditions, the Authority became liable to the Grantor for any funds that are used in violation of the Grant requirements. Contractor shall be liable to the Grantor for any funds the Grantor determines Contractor used in violation of these

Special Conditions. Contractor shall indemnify and hold harmless the Recipient for any sums the Grantor determines Contractor used in violation of the Special Conditions.

The information from grantee reports will be posted on a public website. To the extent that grant funds are available to pay a grantee's administrative expenses, those funds may be used to assist the grantee in meeting the accelerated time-frame and extensive reporting requirements of the Recovery Act.

Funding recipients may expect that a standard form and/or reporting mechanism may be available. Additional instructions and guidance regarding the required reporting will be provided as they become available.

7.5.2.2 Recipient Reports

Not later than 10 days after the end of each calendar quarter, each recipient that received recovery funds from a federal agency shall submit a report to that agency that contains:

1. the total amount of recovery funds received from that agency;
2. the amount of recovery funds received that were expended or obligated to projects or activities;
3. a detailed list of all projects or activities for which recovery funds were expended or obligated, including:
    a. the name of the project or activity;
    b. a description of the project or activity;
    c. an evaluation of the completion status of the project or activity;
    d. an estimate of the number of jobs created and the number of jobs retained by the project or activity; and
    e. for infrastructure investments made by State and local governments, the purpose, total cost, and rationale of the agency for funding the infrastructure investment with funds made available under this Act, and name of the person to contact at the agency if there are concerns with the infrastructure investment; and
4. Detailed information on any subcontracts or sub-grants awarded by the recipient to include the data elements required to comply with the Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), allowing aggregate reporting on awards below $25,000 or to individuals, as prescribed by the Director of the Office of Management and Budget.

7.5.2.3 Sub-Awards under Recovery Act Grants

1. Reporting; DUNS and CCR

As indicated above, quarterly reporting requirements for Recovery Act awards include reporting with respect to sub-awards. In order to facilitate that reporting, award recipients must work with their first-tier sub-awardees (if any) to ensure that, no later than the due date of the award recipient's first quarterly report after a sub-award is made, the sub-awardee has a DUNS numbers and is registered with the Central Contractor Registration (CCR) database. See "Deadline: Registration," above, for more information on CCR and DUNS numbers.

2. Monitoring of Sub-Awards

All applicants should bear in mind that any recipient of an award under this RFP will be responsible for monitoring of sub-awards under the Funding Resources in accordance with all applicable statutes, regulations, OMB circulars, and guidelines, including the OJP Financial Guide. Primary recipients will be responsible for oversight of sub-awardee spending and monitoring of specific outcomes and benefits attributable to use of Recovery Act funds.

7.5.3 Reporting Fraud, Waste, Error and Abuse

Each grantee or sub-grantee awarded funds made available under the Recovery Act is to promptly refer to an appropriate inspector general any credible evidence that a principal, employee, agent, Contractor, sub-grantee, Contractor or other person has submitted false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity or similar misconduct involving Recovery Act funds.

You may report potential fraud, waste, abuse, or misconduct to the U.S. Department of Justice, Office of the Inspector General (OIG) by mail:

Office of the Inspector General
U.S. Department of Justice Investigations Division
950 Pennsylvania Avenue, N.W. Room 4706
Washington, DC 20530
e-mail: oig.hotline@usdoj.gov
hotline: (contact information in English and Spanish)
(800) 869-4499 or hotline fax: (202) 616-9881

Additional information is available from the DOJ OIG web site at www.usdoj.gov/oig/.

The Recovery Act provides certain protections against reprisals for employees of non-Federal employers who disclose information reasonably believed to be evidence of gross management, gross waste, substantial and specific danger to public health or safety, abuse of authority, or violations of law related to contracts or grants using Recovery Act funds. For additional information, refer to Section 1553 of the Recovery Act.

7.6 **Performance Measures**

7.6.1 Measurable Data

To assist in fulfilling the accountability objectives of the Recovery Act, as well as the Authority's responsibilities under the Government Performance and Results Act of 1993 (GPRA), Public Law 103-62, Contractor must provide data that measures the results of its work. In addition, Contractor must discuss its data collection methods in the application. The following are required measures for awards made under the Recovery Act:

1. Objective
2. Performance Measures
3. Data the Grantee Provides for Three Month Reporting Period
4. Description

7.6.2 Plain Language Explanation of the Recovery Act Implications

Number of jobs saved (by type) due to Recovery Act funding.

1. How many jobs were prevented from being eliminated with the Recovery Act funding during this reporting period?
2. How many jobs that were eliminated within the last 12 months were reinstated with Recovery Act funding?
3. An unduplicated number of jobs that would have been eliminated if not for the Recovery Act funding during the three-month quarter. Report this data for each position only once during the grant. A job can include full time, part time, contractual, or other employment relationship.

Number of jobs created (by type) due to Recovery Act funding

1. How many jobs were created with Recovery Act funding this reporting period?
2. An unduplicated number of jobs created due to Recovery Act funding during the three month quarter. Report this data for each position only once during the grant. A job can include full time, part time, contractual, or other employment relationship.

7.7 **Additional Requirements**

Contractor must agree to comply with additional applicable requirements prior to receiving grant funding. Additional information for each can be found at www.ojp.usdoj.gov/recovery/solicitationrequirements.htm.

1. Civil Rights Compliance
2. Funding to Faith-Based Organizations
3. Confidentiality and Human Subjects Protection
4. Anti-Lobbying Act
5. Financial and Government Audit Requirements, includes Single Audit Act Requirements

6. National Environmental Policy Act (NEPA)
7. DOJ Information Technology Standards
8. Single Point of Contact Review
9. Non-Supplanting of State and Local Funds
10. Criminal Penalty for False Statements
11. Compliance with Office of Justice Programs Financial Guide
12. Suspension or Termination of Funding
13. Non-Profit Organizations
14. For-Profit Organizations
15. Government Performance and Results Act (GPRA)
16. Rights in Intellectual Property
17. Federal Funding Accountability and Transparency Act (FFATA) of 2006
18. Recovery Act Reporting Requirements; Section 1512(c) of the Recovery Act
19. Section 1511 of the Recovery Act: Certifications
20. Section 1602 of the Recovery Act: Preference for Quick-Start Activities
21. Section 1604 of the Recovery Act: Limit on Funds
22. Section 1605 of the Recovery Act: Buy American
23. Section 1606 of the Recovery Act: Wage Rate Requirements
24. Section 1607 of the Recovery Act: Additional Funding Distribution and Assurance of Appropriate Use of Funds
25. Section 1609 of the Recovery Act: Relating to National Environmental Policy Act

8. Use of Grant Funds

8.1 Budget Plan

Any request by Contractor to modify the budget must be made in writing with the appropriate justification and submitted to the Authority for approval. If, during the Authority's review process, additional information or documentation is required, Contractor will have (10) business days to comply with the request. If Contractor does not respond, the Authority will issue a letter indicating that the requested modification will be denied. Modification must be approved in writing by the Authority during the term of the Agreement. Upon approval, all other terms and conditions of the Agreement will remain in effect.

Contractor shall utilize grant funds in accordance with all federal regulations and State guidelines.

Contractor shall review the Federal Debarment Listing at www.epls.gov/epls/search prior to the purchase of equipment or services to ensure the intended vendor is not listed and also maintain documentation that the list was verified.

Prior to the purchase of equipment or services utilizing a sole source contract justification must be presented to the Authority for approval in writing. Such approval in writing must be obtained prior to the commitment of funds or any other Funding Resources.

8.2 Corrective Action Plan

Contractor shall provide a Corrective Action Plan for any audits within 30 days of the audit finding or such shorter period of time as required by any applicable Funding Requirements.

8.3 Equipment Purchases

Any equipment ("Equipment") shall be used by Contractor in this Project, for which it was acquired, as long as needed, whether or not the Project continues to be supported by federal funds. When no longer needed for the original scope of the Project, the Equipment may be used in other activities currently or previously supported by a federal agency.

Contractor shall make Equipment available for use on other like projects or programs currently or previously supported by the federal government, providing such use will not interfere with the work on the projects or program for which it was originally acquired. First preference for other use shall be given to other programs or projects supported by the awarding agency.

An Equipment Ledger shall be maintained listing each item of Equipment acquired with each grants funds. The Equipment Ledger must be kept up to date at all times. Any changes shall be recorded in the Ledger within ten (10) business days, and the updated Ledger shall be forwarded to the Authority. The Equipment Ledger shall include:

1. description of the item of Equipment,
2. manufacturer's model and serial number,
3. Federal Stock number, national stock number, or other identification number,
4. the fund source/grant year of acquisition of the Equipment, including the award number,
5. date of acquisition,
6. the per unit acquisition cost of the Equipment,
7. location and condition of Equipment and
8. disposition data, including date and sale price, if applicable.

All Equipment obtained under the Agreement shall have an appropriate identification decal affixed to it, and when practical, shall be affixed where it is readily visible.

A physical inventory of the Equipment shall be taken by Contractor and the results reconciled with the Equipment Ledger at least once every year or prior to any site visit by State or federal

auditor/monitors. Contractor is required to submit a letter certifying as to the accuracy of the Equipment Ledger to the Authority, in the frequency as above.

9. Conflict of Interest

9.1 General

Contractor covenants that none of its directors, officers, employees or agents shall participate in selecting or administrating any subcontract supported (in whole or in part) by federal funds where such person is a director, officer, employee or agent of the Contractor; or where the selection of Contractors is or has the appearance of being motivated by a desire for personal gain for themselves or others such as family business, etc.; or where such person knows or should have known that:

1. A member of such person's immediate family or domestic partner or organization has a financial interest in the subcontract;
2. The Contractor is someone with whom such person has or is negotiating any prospective employment; or
3. The participation of such person would be prohibitive by the California Political Reform Act, California Government Code Section 8711 et seq. if such person were a public officer, because such person would have a "financial or other interest" in the subcontract.

9.2 Definitions

9.2.1 Immediate Family

The term "immediate family" includes but is not limited to domestic partner and/or those persons related by blood or marriage, such as husband, wife, father, mother, brother, sister, son , daughter, father in law, mother in law, brother in law, sister in law, son in law, daughter in law.

9.2.2 Financial or Other Interest

The term "financial or other interest" includes but is not limited to:

1. Any direct or indirect financial interest in the specific contract, including a commission or fee,, a share of the proceeds, prospect of a promotion or of future employment, a profit, or any other form of financial reward.
2. Any of the following interests in the Contractor ownership: partnership interest or other beneficial interest of five percent or more; ownership of five percent or more of the stock; employment in a managerial capacity; or membership on the board of directors or governing body.

9.3 **Representations**

9.3.1 Contractor further covenants that no officer, director, employee or agent shall solicit or accept gratuities, favors, anything of monetary value from any actual or potential Contractor, supplier, a party to a sub agreement, (or persons who are otherwise in a position to benefit from the actions of any officer, employee or agent).

9.3.2 Contractor shall not subcontract with a former director, officer or employee within a one (1) year period following the termination of the relationship between said person and Contractor.

9.3.3 Prior to obtaining the Authority's approval of any subcontract, Contractor shall disclose to the Authority any relationship, financial or otherwise, direct or indirect, of Contractor or any of its officer, directors or employees or their immediate family with the proposed Contractor and its officer, directors or employees.

9.3.4 For further clarification of the meaning of any of the terms used herein, the parties agree that references shall be made to the guidelines, rules, and laws of the County of Los Angeles, State of California, and federal regulations regarding conflict of interest.

9.3.5 Contractor warrants that it has not paid or given and will not pay or give to any third person any money or other consideration for obtaining the Agreement.

9.3.6 Contractor covenants that no member, officer or employee of Contractor shall have interest, direct or indirect, in any contract or subcontract or the proceeds thereof for work to be performed in connection with this Project during his/her tenure as such employee, member or officer or for one year thereafter.

9.3.7 Contractor shall incorporate the foregoing subsections of this section into every agreement that it enters into in connection with this Agreement and shall substitute the term "subcontractor" for the term "Contractor".

10. Compliance with Grant Requirements

Contractor hereby acknowledges that the terms and conditions of this Agreement are subject to grant requirements relating to Funding Resources which are not subject to negotiation, and the Authority retains the right to unilaterally amend this Agreement from time to time to conform to such grant requirements. Contractor shall be liable to the Authority for any funds received from Funding Resources with respect to which a determination is made that Contractor used in violation of the any such grant requirements, and Contractor shall indemnify and hold harmless the Authority from any liability arising from such violation.

11. Statutes and Regulations Applicable to the State Homeland Security Grant

Contractor shall comply with all applicable requirements of State and federal laws, executive orders, regulations, program and administrative requirements, policies and any other requirements governing this particular grant program. Contractor shall, as applicable, comply with new, amended, or revised laws, regulations and/or procedures that apply to the performance of the resultant Agreement. These requirements include, but are not limited to:

1. Title 28 CFR Part 66; EO 12372; (Financial Management Guide US Department of Homeland Security Directorates Preparedness January 2006, Financial Guide; U.S. Department of Homeland Security, Office of State and Local Government Coordination and Preparedness, Office for Domestic Preparedness, ODP WMD Training Course Catalogue; and DOJ Office for Civil Rights.
2. Standardized Emergency Management System (SEMS) requirements as stated in the California Emergency Services Act, Government Code Chapter 7 of the Division 1 of Title 2, § 8607.1(e) and CCR Title 19, §§ 2445-2448.
3. Provisions of Title 2, 6, 28, 44 CFR applicable to grants and cooperative agreements, including Part 18, Administrative Review Procedures; Part 20, Criminal Justice Information Systems; Part 22, Criminal Intelligence Systems Operating Policies; Part 30, Intergovernmental Review of Department of Justice Programs and Activities; part 35, Nondiscrimination on the Basis of Disability in State and Local Government Services; Part 38, Equal Treatment of Faith-based Organizations; Part 42, Nondiscrimination; Part 61, Procedures for Implementing the National Environmental Policy Act; part 63, Floodplain Management and Wetland Protection Procedures; Part 64, Floodplain Management and Wetland Protection Procedures; Federal laws or regulations applicable to Federal Assistance programs; part 69, New Restriction on Lobbying; Part 70, Uniform Administrative Requirements for Grants and Cooperative Agreements (including sub-awards) with Institutions of Higher Learning, Hospitals and other Non-Profit Organizations; and Part 83, Government-Wide Requirements for a Drug Free Workplace (grants).
4. Nondiscrimination requirements of the Omnibus Crime Control and Safe Streets Act of 1968, as amended, 42 USC 3789(d), or the Juvenile Justice and Delinquency Prevention Act, or the Victims of Crime Act, as appropriate; the provisions of the current edition of the Office of Justice Programs Financial and Administrative Guide for Grants, M7100.1, and all other applicable Federal laws, orders, circulars, or regulations.

12. Miscellaneous

12.1 Travel Expenses

Contractor as provided herein shall be compensated for Contractor's reasonable travel expenses incurred in the performance of the resultant Agreement, to include travel and per diem, unless otherwise expressed. Contractor's total travel for in-State and/or out-of-State and per diem costs shall be included in the contract budget(s). All travel including out-of-State travel not included in the budget(s) shall not be reimbursed without prior written authorization from the Authority.

12.2 Copyright Policy

When copyrightable material is developed under the resultant Agreement ("Material"), the Authority, at its discretion, may copyright the material. If the Authority declines to copyright the Material, the Authority shall have an unencumbered right and a non-exclusive, irrevocable, royalty-free license, to use, manufacture, improve upon, and allow others to do so for all government purposes, any Material developed under the Agreement.

12.3 Obligations Binding on Subcontractors

Contractor shall require all Contractors to comply with the obligations of the resultant Agreement, including all Funding Requirements, by incorporation the terms of the agreement into all subcontracts.

13. Instructions for Certification

13.1 Signature

By signing and submitting this document, including all Attachments hereto, the prospective recipient of Funding Resources is providing the certification as set out below.

13.2 Material Representation of Fact

The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

13.3 Notification of Erroneous Certification

The prospective recipient of Funding Resources shall provide immediate written notice to the person or entity entering into the resultant Agreement, if at any time the prospective recipient of

federal assistance funds learns that its certification was erroneous, when submitted or has become erroneous by reason of changed circumstances.

13.4 Definitions and Coverage

The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal" and "voluntarily excluded", as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Orders 12459 and 12689.

13.5 Contracts with Other Entities

The prospective recipient of Funding Resources agrees by submitting the proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

13.6 Inclusion of Clause

The prospective recipient of Funding Resources further agrees by submitting the proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

13.7 Lower Tiered Certification

A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Procurement or Non-Procurement Programs.

13.8 Establishment of a System of Records

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

13.9 **Available Remedies**

Except for transactions authorized under Section 14.5 (Contracts with other Entities) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntary excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Lobbying

Certification for Contracts, Grants, Loans Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.
2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL "Disclosure Form to Report Lobbying" in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.
4. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352 Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Agreement Number:

Contractor/Borrower/Agency:

Name and Title of Authorized Representative:

_____ _____

Signature Date

Certification Regarding Drug Free Workplace Requirements

Contractor certifies that it will provide a drug-free workplace, in accordance with the California Drug Free Workplace Act of 1990 (Title 2 Govt. Code of State of California §§8351 et seq.) by:

1. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violation of such prohibition.
2. Establishing a drug-free awareness program to inform employees about:
    a. The dangers of drug abuse in the workplace;
    b. Contractor's policy of maintaining a drug-free workplace;
    c. Any available drug counseling, rehabilitation and employee assistance programs; and
    d. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.
3. Making it a requirement that each employee to be engaged in the performance of the LA-RICS Project be given a copy of the statement required by Section 1 above.
4. Notifying the employee in the statement required by Section 1 that, as a condition of employment under the LA-RICS Project, the employee will:
    a. Abide by the terms of the statement, and
    b. Notify Contractor of any criminal drug statute convictions for a violation occurring in the workplace no later than five days after such conviction.
5. Notifying the Authority within ten (10) days after receiving notice under Section 4.b from an employee or otherwise receiving actual notice of such conviction.
6. Taking one of the following actions, within thirty (30) days of receiving notice under Section 4.b with respect to any employee who is so convicted:
    a. Taking appropriate personnel action against such an employee, up to and including termination.
    b. Making a good faith effort to continue to maintain a drug-free workplace through implementation of the provision of this certification.

Agreement Number:

Contractor/Borrower/Agency:

Name and Title of Authorized Representative:

_____ _____

Signature Date

Form OCC/LW-1 (Rev. 6/04)

Required Insurance and Minimum Limits

Name: _____ Date: _____

Agreement/Reference: _____

Evidence of coverage's checked below, with the specified minimum limits, must be submitted and approved prior to occupancy/start of operations. Amounts shown are Combined Single Limits ("CSLs"). For Automobile Liability, split limits may be substituted for a CSL if the total per occurrence equals or exceeds the CSL amount.

☐ Workers' Compensation – Workers' Compensation (WC) and WC Statutory Employer's Liability (EL)	WC Statutory EL _____
☐ Waiver of Subrogation in favor of LA-RICS	☐ Longshore & Harbor Workers ☐ Jones Act
☐ General Liability	$
☐ Products/Completed Operations ☐ Fire Legal Liability	☐ Sexual Misconduct ☐ _____
☐ Automobile Liability (for any and all vehicles used for this contract, other than commuting to/from work)	$
☐ Professional Liability (Errors and Omissions) (Discovery Period 12 Months After Completion of Work or Date of Termination)	$
☐ Property Insurance (to cover replacement cost of building - as determined by insurance company)	$
☐ All Risk Coverage ☐ Flood ☐ Earthquake	☐ Boiler and Machinery ☐ Builder's Risk ☐ _____
☐ Pollution Liability $ _____	☐ _____ $ _____
☐ Pollution Liability	$ _____
☐ Surety Bonds – Performance & Payment (Labor & Materials) Bonds	$ _____
☐ Crime Insurance	$ _____

Other: _____

Instructions and Information On Complying With LA-RICS Insurance Requirements

(Share This Information with Your Insurance Agent or Broker)

Direct all correspondence, questions, requests for additional forms, etc., to the contact person listed here or to the department that administers your contract, lease or permit:

Name: _____

General Information

1. **Agreement/Reference**: All evidence of insurance must identify the nature of your business with the LA-RICS. Clearly show any assigned number of a bid, contract, lease, permit, etc. or give the project name and the job site or street address to ensure that your submission will be properly credited. Provide the types of coverage and minimum dollar amounts specified on the Required Insurance and Minimum Limits sheet (Form Gen. 146) included in your LA-RICS documents.
2. **When to Submit**: Normally, no work may begin until the Authority's approval has been obtained, so documents should be submitted as early as practicable. For As-needed Contracts, insurance need not be submitted until a specific job has been awarded. Design Professionals coverage for new construction work may be submitted simultaneously with final plans and drawings, but before construction commences.
3. **Acceptable Evidence and Approval:** An Insurance Industry Certificate of Insurance (such as an ACORD Certificate) containing a thirty (30) days' cancellation notice provision (ten (10) days for non-payment of premium) AND an Additional Insured Endorsement naming the Authority an additional insured completed by your insurance company or its designee is the preferred form of evidence of insurance. If policy includes an automatic or blanket additional insured endorsement, the ACORD certificate must state the Authority is covered by this endorsement. An endorsement naming the Authority an Additional Named Insured and Loss Payee as Its Interests May Appear is required on property policies. All evidence of insurance must be authorized by a person with authority to bind coverage, whether that is the authorized agent/broker or insurance underwriter.
    1. Acceptable Alternatives to Insurance Industry Certificates of Insurance:
        a. A copy of the full insurance policy which contains a thirty (30) days' cancellation notice provision (ten (10) days for non-payment of premium) and additional insured and/or loss-payee status, when appropriate, for the Authority.
        b. Binders and Cover Notes are also acceptable as interim evidence for up to 90 days from date of approval.
    2. Additional Insured Endorsements DO NOT apply to the following:

a. Indication of compliance with statute, such as Workers' Compensation Law or the California Financial Responsibility Law for Automobile Liability.
b. Professional Liability insurance.

3. Completed Insurance Industry Certificates of Insurance can be sent electronically or faxed to the LA-RICS contact. Electronic submission is the preferred method of submitting your documents.

4. **Renewal:** When an existing policy is renewed, submit an Insurance Industry Certificate of Insurance or a renewal endorsement. If your policy number changes, you must submit a new Additional Insured Endorsement.

5. **Alternative Programs/Self-Insurance:** Risk financing mechanisms such as Risk Retention Groups, Risk Purchasing Groups, off-shore carriers, captive insurance programs and self-insurance programs are subject to separate approval after the Authority has reviewed the relevant audited financial statements. To initiate a review for approval of your program, you should contact Authority's RFP Contact.

6. **General Liability**: General Liability insurance covering your operations (and products, where applicable) is required whenever the LA-RICS is at risk of third-party claims which may arise out of your work or your presence or special event on LA-RICS premises. Sexual Misconduct coverage is a required coverage when the work performed involves minors. Fire Legal Liability is required for persons occupying a portion of LA-RICS premises.

7. **Automobile Liability**: Automobile Liability insurance is required only when vehicles are used in performing the work of your Agreement or when they are driven off-road on the Authority premises; it is not required for simple commuting unless LA-RICS is paying mileage. However, compliance with California law requiring auto liability insurance is a contractual requirement.

8. **Errors and Omissions**: Errors and Omissions coverage will be specified on a project-by-project basis if you are working as a licensed or other professional. The length of the claims discovery period required will vary with the circumstances of the individual job.

9. **Workers' Compensation and Employer's Liability Insurance** are not required for single-person contractors. However, under state law these coverages (or a copy of the state's Consent To Self Insure) must be provided if you have any employees at any time during the period of this contract. Contractors with no employees must complete a Request for Waiver of Workers' Compensation Insurance Requirement form. A Waiver of Subrogation on the coverage is required only for jobs where your employees are working on the Authority premises under hazardous conditions, e.g., uneven terrain, scaffolding, caustic chemicals, toxic materials, power tools, etc. The Waiver of Subrogation waives the insurer's right to recover from the Authority any workers' compensation paid to an injured employee of Contractor/Consultant.

10. **Property Insurance** is required for persons having exclusive use of premises or equipment owned or controlled by the Authority. Builder's Risk/Course of Construction is required

during construction projects and should include building materials in transit and stored at the project site.

11. **Surety** coverage may be required to guarantee performance of work. A Crime Policy may be required to handle LA-RICS funds or securities, and under certain other conditions. Specialty coverage's may be needed for certain operations.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Orders 12459 and 12689, Debarment and Suspension, 24 CFR Part 24 Section 24.510, and 29 CFR Parts 97.35 and 98.510, Participants' responsibilities.

(Read Attached Instructions for Certification Before Completing)

1. The prospective recipient of Funding Resources certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.
2. Where the prospective recipient of Funding Resources is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Agreement Number:

Contractor/Borrower/Agency:

Name and Title of Authorized Representative:

_____ _____

Signature Date

Instructions for Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions

1. By signing and submitting this document, the prospective recipient of Funding Resources is providing the certification as set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Funding Resources knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective recipient of Funding Resources shall provide immediate written notice to the person(s) with whom he enters into this agreement, if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous, when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal" and "voluntarily excluded", as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Orders 12459 and 12689.
5. The prospective recipient of Funding Resources agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective recipient of Funding Resources further agrees by submitting the proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Procurement or Non-Procurement Programs.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause.

The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under Section 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntary excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Management Representation

As a prerequisite to receipt of a Funding Resources funded Agreement and as material facts upon which the Authority may rely in preparing the Agreement, I, an authorized representative of Contractor, make the following representations:

1. I am responsible for the fair presentation of Contractor's financial records/reports in conformity with Generally Accepted Accounting Principles (GAAP) and have provided such records/reports accordingly to the Authority. I will make available to the Authority all related data and information. I am not aware of any material transactions that have not been properly recorded and disclosed.

   True ☐ False ☐

2. Contractor has adopted sound accounting policies and procedures in accordance with GAAP that include procedures for maintaining internal controls, and preventing and detecting fraud and abuse.

   True ☐ False ☐

3. I have advised and will continue to advise the Authority of any actions taken at meetings of Contractor's Board of Directors and Committees of the Board of Directors which may have a material impact on Contractor's ability to perform the Agreement.

   True ☐ False ☐

4. Except as recorded or disclosed to you herein, I know of no instances of:

   4.1. Conflict of interests (direct or indirect), nepotism, related (direct or indirect) party transactions including revenues, expenses, loans, transfers, leasing arrangements, and guarantees, and amounts receivable from or payable to related parties.

   True ☐ False ☐

   4.2. Guarantees, whether written or oral, under which Contractor is contingently liable.

   True ☐ False ☐

   4.3. Actual, forthcoming or possible terminations of funding from regulatory agencies or other sources due to noncompliance, deficiencies or for any other reason, that would affect the financial records and/or continuing viability of Contractor as an on-going concern.

   True ☐ False ☐

5. I have no knowledge that a board member/s is/are also an employee of this Contractor whose salary costs are reimbursed under this agreement.

   True ☐ False ☐

6. I have no knowledge of and am not in receipt of any communication regarding allegations of fraud, suspected fraud or abuse affecting Contractor involving management, employees who have significant roles in internal control, or others where fraud/abuse could have a material effect on the financial records or performance of the Agreement.

   True ☐ False ☐

7. I have no knowledge of any allegations, written or oral, of misstatements or misapplication of funds in the Contractor's conduct of its financial affairs or in its financial records.

   True ☐ False ☐

8. I am not aware of any pending litigation, bankruptcy, judgment, liens and other significant issues that may threaten the financial viability, legal and continuing existence of Contractor.

   True ☐ False ☐

9. Contractor has satisfactory title to all assets being used in the LA-RICS Project, and there are no liens or encumbrances on such assets, nor has any asset been pledged as collateral.

   True ☐ False ☐

10. Contractor has complied with all aspects of contractual agreements, related laws and regulations that could have a material effect on the financial records, the program/s, or on the organization as a whole.

    True ☐ False ☐

11. I have properly reported and paid to the appropriate governmental agencies all payroll taxes due on employees' (LA-RICS Project related or otherwise) compensation.

    True ☐ False ☐

12. I have responded fully to all the Authority's inquiries related to Contractor's financial records and/or reports.

    True ☐ False ☐

13. I understand that the Authority's auditing and monitoring procedures of Contractor are limited to those which the Authority determines best meet its informational needs and may not necessarily disclose all errors, irregularities, including fraud or defalcation or illegal acts, that may exist.

    True ☐ False ☐

14. I understand that the Authority's audit and monitoring reports are intended solely for use by Contractor and the other authorized parties, and are not intended for other purposes, unless otherwise required by law.

    True ☐ False ☐

15. If one or more of the above statements is found to be false, I understand that the Authority may terminate this Agreement immediately. I also understand that I have a continuing duty to report to the Authority any material factual change to any of these statements.

    True ☐ False ☐

Use this space to provide any additional information:

I declare under penalty of perjury that I have read the foregoing statements and they are true and complete to the best of my knowledge.

For (Name of Contractor): _____

_____

Signature
(Person Authorized by the Board of Directors to Bind Corporation)

_____

Printed Name

_____ _____

Title Date Signed

Exhibit F Preapproved Subcontractors

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

APPROVE REQUIRED 1511 CERTIFICATION LETTER FOR THE BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM (BTOP) GRANT

SUBJECT

The American Recovery and Reinvestment Act (ARRA) provided the Department of Commerce's National Telecommunications and Information Administration (NTIA) $4.7 billion to support the deployment of broadband infrastructure, enhance and expand public computer centers, encourage sustainable adoption of broadband service, and develop and maintain a nationwide public map of broadband service capability and availability.

Funds appropriated under ARRA must be spent with a high level of transparency and accountability. ARRA, Title XV, Subtitle A, Section 1511, requires recipients of ARRA infrastructure investment funds to certify that their infrastructure investment has received the full review and vetting required by law. As a part of the terms and conditions of the BTOP grant pursuant to ARRA, LA-RICS must comply with the Section 1511 Certification requirement.

BACKGROUND

As a BTOP recipient LA-RICS must comply with ARRA requirements, including Section 1511 Certification. To comply with Section 1511 Certification, all infrastructure projects with the recipient as a state or local government must receive a certification from the state governor, city mayor, or other chief executive confirming that the project has been reviewed and vetted as required by law and that the project uses taxpayer dollars appropriately.

Certification must include:

- Description of the project
- Estimated total cost
- Breakout of matching funds and BTOP funds

The certification must be posted on Recovery.gov and the LA-RICS website before any BTOP funds are made available.

AGENDA ITEM 7

PURPOSE/ JUSTIFICATION OF RECOMMENDED ACTION

It is recommended that the Authority authorize the Task Force Leader to execute the certification in accordance with the federal requirement.

FISCAL IMPACT/FINANCING

There is no cost associated with complying with the 1511 Certification.

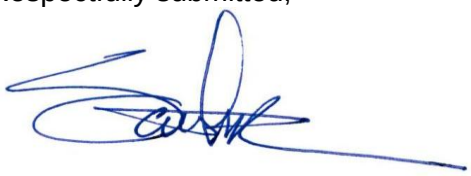
FACTS AND PROVISIONS/LEGAL REQUIREMENT

The grantor's program officer and grants specialist have reviewed the recommended action. The Authority's counsel and Task Force Leader have also reviewed the recommended action.

AGREEMENTS/CONTRACTING

No agreement or contract is necessary. The Authority complies with the ARRA requirement by issuing a certification letter.

Respectfully submitted,



Scott L. Poster
Task Force Leader

SLP:sjh

cc: Counsel to the Authority

Attachment : A) 1511 Certification Letter

American Recovery and Reinvestment Act
Section 1511 Certification

Pursuant to Title XV, Subtitle A, Section 1511 of the American Recovery and Reinvestment Act (Pub. L. 111-5 (Feb. 17, 2009) ("ARRA"), I _____, hereby certify that the infrastructure investment funded by ARRA has received the full review and vetting required by law and that I accept responsibility that such investment is an appropriate use of taxpayer dollars. I further certify that the specific information required by section 1511 concerning each such investment (a description of the investment, the estimated total cost, and the amount of ARRA funds to be used) is posted on the LA-RICS website at www.la-rics.org, which is linked to Recovery.gov at www.recovery.gov.

I understand that my represented agency may not receive ARRA infrastructure investment funding unless this certification is made and posted.

Project Description:
The LA-RICS Authority plans to develop and deploy LA-SafetyNet, a 700 MHz public safety mobile broadband network across all of Los Angeles County, featuring almost 300 wireless 700 MHz public safety broadband sites using new and existing infrastructure, fixed microwave backhaul rings, and 100-miles of high-capacity fiber backbone. The network would enable computer-aided dispatch, rapid law-enforcement queries, real-time video streaming, medical telemetry and patient tracking, geographic information systems services for first responders, and many other broadband-specific applications.

Estimated Cost:
$217,894,365

ARRA Funds:
$154,640,000

Match Contribution:
$63,254,365

_____ _____
NAME DATE
TITLE

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

APPROVE RECOMMENDATION OF THE LEGISLATIVE COMMITTEE TO FILE COMMENTS IN RESPONSE TO THE FEDERAL COMMUNICATIONS COMMISSION'S ("FCC") NOTICE OF PROPOSED RULEMAKING ("NPRM") ON THE REALLOCATION OF UP TO 120 MHz OF TV BROADCAST SPECTRUM

SUBJECT

It is recommended that the Authority authorize the Task Force Leader to engage retained legal counsel to file comments to the FCC's NPRM prior to the March 18, 2011 deadline.

BACKGROUND

On November 30, 2010, the FCC adopted a NPRM in regards to the reallocation of up to 120 MHz of TV broadcast spectrum for use in the provision of wireless broadband services, which the FCC expects to make available through incentive auctions.

The NPRM does not address the actual reassignment of spectrum via competitive bidding, or the sharing of potential auction proceeds with broadcasters, as these steps would require specific Congressional authorization. Instead, the NPRM is a table-setting step for such future action in which the FCC requests comment in three areas:

- Adding new "co-primary" allocations for fixed and mobile services in the current TV broadcast bands;
- A proposed framework for permitting two or more television stations to share a single 6 MHz channel; and
- Approaches for improving reception of television service in the VHF band.

Although the NPRM notes the need to repack the broadcast bands if spectrum is repurposed for wireless use, which it euphemistically refers to as "Allotment Optimization," it states only that it anticipates that "the fully developed model will be complete and validated in the near future."

AGENDA ITEM 8

The FCC seeks comments to the NPRM. The deadlines for public comments and reply comments on the NPRM are 45 days and 75 days, respectively, after publication in the Federal Registry. The NPRM was published in the Federal Registry on February 1, 2011.

PURPOSE/ JUSTIFICATION OF RECOMMENDED ACTION

The LA-RICS staff met and reviewed the NPRM in order to assess any potential impacts to LA-RICS. After careful review, the LA-RICS staff presented to the Legislative Committee their recommendation to submit comments in regards to the fixed and land mobile allocations in the 470-512 MHz band segment (channels 14-20), specifically that LA-RICS should oppose the proposal made by the FCC as the region has suffered from intermittent harmful interference from licensed, unlicensed, and uncoordinated users.

The Legislative Committee approved recommendations made by the LA-RICS staff to oppose the FCC's position to allow these channels to remain for land mobile radio use.

FISCAL IMPACT/FINANCING

Legal fees from retained counsel will be charged to the LA-RICS fund. These costs are not reimbursable under the grants.

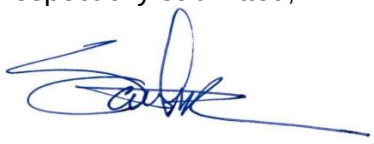
FACTS AND PROVISIONS/ LEGAL REQUIREMENT

The Authority's counsel has reviewed the recommended action.

AGREEMENTS/ CONTRACTING

On behalf of the Authority, the Task Force Leader, or his designee, will have full authority to engage legal counsel to file comments in response to the FNPRM by the March 18, 2011 deadline and pay all invoices associated with the filing.

Respectfully submitted,



Scott L. Poster
Task Force Leader
SLP:sjh

cc: Counsel to the Authority

Attachment: A) FCC 10-196 Notice of Proposed Rulemaking

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Innovation in the Broadcast Television Bands:	)	
Allocations, Channel Sharing and Improvements	)	ET Docket No. 10-235
to VHF	)	

NOTICE OF PROPOSED RULEMAKING

Adopted: November 30, 2010 **Released: November 30, 2010**

Comment Date: [45 days after date of publication in the Federal Register]
Reply Comment Date: [75 days after date of publication in the Federal Register]

By the Commission: Chairman Genachowski, Commissioners Copps, McDowell, Clyburn, and Baker issuing separate statements.

I. INTRODUCTION

1. In this Notice, we initiate a process to further our ongoing commitment to addressing America's growing demand for wireless broadband services, spur ongoing innovation and investment in mobile and ensure that America keeps pace with the global wireless revolution, by making a significant amount of new spectrum available for broadband. Through this Notice, we take preliminary steps to enable the repurposing of a portion of the UHF and VHF frequency bands that are currently used by the broadcast television service, which in later actions we expect to make available for flexible use by fixed and mobile wireless communications services, including mobile broadband. At the same time, we recognize that over-the-air TV serves important public interests, and our approach will help preserve this service as a healthy, viable medium. The approach we are proposing is consistent with the goal set forth in the National Broadband Plan (the "*Plan*")[1] to repurpose up to 120 megahertz from the broadcast television bands for new wireless broadband uses through, in part, voluntary contributions of spectrum to an incentive auction. Reallocation of this spectrum as proposed will provide the necessary flexibility for meeting the requirements of these new applications.

2. The specific bands under consideration are the low VHF spectrum at 54-72 MHz (TV channels 2-4) and 76-88 MHz (TV channels 5 and 6), the high VHF spectrum at 174-216 MHz (TV channels 7-13), and the UHF bands at 470-608 MHz (TV channels 14-36) and 614-698 MHz (TV channels 38-51); for purposes of this Notice, we will refer to this spectrum as the "U/V Bands."[2] This Notice proposes three actions that will establish the underlying regulatory framework to facilitate wireless broadband uses of the U/V Bands, while maintaining current license assignments in the band. First, we

[1] *See Connecting America: The National Broadband Plan*, Federal Communications Commission, Washington, DC (March 2010); available at http://www.broadband.gov/plan/. The *Plan* was developed by the Commission pursuant to the direction of Congress in the American Recovery and Reinvestment Act of 2009 (Recovery Act), *see* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

[2] The band 608-614 MHz, *i.e.*, TV channel 37, is used for radio astronomy and is not part of the spectrum being considered for reallocation. *See* 47 C.F.R. § 2.106., US 74 and US 246.

are proposing to add new allocations for fixed and mobile services in the U/V Bands to be co-primary with the existing broadcasting allocation in those bands. The additional allocations would provide the maximum flexibility for planning efforts to increase spectrum available for flexible use, including the possibility of assigning portions of the U/V Bands for new mobile broadband services in the future. Second, we are proposing to establish a framework that, for the first time, permits two or more television stations to share a single six-megahertz channel, thereby fostering efficient use of the U/V Bands. Third, we intend to consider approaches to improve service for television viewers and create additional value for broadcasters by increasing the utility of the VHF bands for the operation of television services.

3. By taking these important steps to facilitate wireless broadband uses in the U/V Bands, this Notice is the first in a series of actions that will allow us to make progress toward our goal of improving efficient use of the bands and enable ongoing innovation and investment through flexible use. We intend to propose further actions consistent with other of the *Plan's* recommendations for the U/V Bands, including, but not limited to, the process of voluntarily returning broadcast licenses to the Commission and the licensing process and service rules for new fixed and mobile wireless communications services. As part of that process, the Commission will address the *Plan's* proposal for channel re-packing, the band plan for recovered spectrum and other related issues and will provide full opportunity for public comment on those issues at that time.

II. BACKGROUND

4. *The National Broadband Plan.* The *Plan* was issued on March 17, 2010. As required under the Recovery Act, the *Plan* seeks to ensure that every American has access to broadband capability and establishes clear benchmarks for meeting that goal.[3] The *Plan* recommends making 500 megahertz of spectrum between 225 MHz and 3.7 GHz newly available to meet the needs of mobile, fixed and unlicensed wireless broadband in the next 10 years and for providing 300 megahertz of that amount for mobile flexible uses within 5 years,[4] of which up to 120 megahertz would come from the broadcast television bands.[5]

5. *Current Uses of the U/V Bands Spectrum.* The U/V Bands occupy 294 megahertz of spectrum in five frequency bands and are all currently allocated for use by broadcasting services.[6] In addition, the 470-512 MHz band segment is allocated for fixed and land mobile services on a co-primary basis with broadcasting.[7] However, use of the fixed and land mobile services in this band is limited to the geographic areas and purposes stated in footnote NG66 to the Table of Allocations. All five bands currently are allocated principally to broadcast television under Part 73 of the rules.[8] Full power television stations have recently completed a statutorily mandated conversion from analog to digital transmissions. As part of that transition, 108 megahertz of UHF spectrum at 698-806 MHz was recovered for new uses,[9] including fixed, mobile, and broadcasting; a portion of that spectrum has been set aside for

[3] Recovery Act, § 6001(k).

[4] *Id.* at 84. The frequency range between 225 MHz and 3.7 GHz is generally to be considered the most suitable spectrum for mobile communications.

[5] *Id.* at 88.

[6] *See* 47 C.F.R. § 2.106 (Table of Frequency Allocations); *see also* 47 C.F.R. § 73.603. The overall VHF and UHF regions occupy the spectrum in the frequency ranges 30 MHz to 300 MHz and 300 MHz to 3000 MHz, respectively.

[7] *See* 47 C.F.R. § 2.106, footnote NG66.

[8] 47 C.F.R. Part 73. In addition, low power television stations (TV translators and low power TV stations) operate under regulations set forth in Part 74 of the Commission's rules.

[9] *See* Digital Television and Public Safety Act of 2005 ("DTV Act"), which is Title III of the Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006) ("DRA") (*codified at* 47 U.S.C. §§ 309(j)(14) and 337(e)); *see also* DTV Delay Act, Pub. L. No. 111-4, 123 Stat. 112 (2009).

public safety uses.[10] Television stations now operate on six-megahertz channels designated 2 to 51 in the five U/V Bands.

6. In addition to full power TV stations, certain other licensed services are permitted to operate in the U/V Bands' TV channels. Class A television stations operate under Subpart J of Part 73 of the rules.[11] Low power TV and TV translator stations are permitted to operate under Subpart G of Part 74 of the rules on a "must protect" basis to full power TV stations and on an equal basis with Class A TV stations, provided they meet technical rules to prevent interference to reception of such stations.[12] Part 74 also allows certain broadcast auxiliary operations on TV channels 14-69 on a secondary basis.[13] In addition, the Part 74 and Part 15 rules permit certain entities to operate wireless microphones and other low power auxiliary transmitters on vacant TV channels on a non-interference basis.[14]

7. Pursuant to the fixed and land mobile allocations in the 470-512 MHz band segment (channels 14-20), licensees in the Private Land Mobile Radio Service (PLMRS) under Part 90 of the rules and in the Commercial Mobile Radio Service (CMRS) under Part 20 of the rules operate in 13 metropolitan areas on one to three six-megahertz channels.[15] These operations are for public safety and related land mobile communications and for CMRS backhaul operations. In addition, under Part 15 of the rules medical telemetry equipment is permitted to operate on an unlicensed basis on any vacant TV channels in the range of channels 7-46, and unlicensed remote control devices are allowed to operate on any TV channels above 70 MHz (*i.e.*, above channel 4), except for channel 37.[16] The Offshore Radiotelephone Service uses channels 15-17 in certain regions along the Gulf of Mexico.[17] In Hawaii, channel 17 is reserved for inter-island communications.[18] However, no active licensees currently use this channel in Hawaii. Finally, the Commission has allowed low power unlicensed devices to operate on

[10] *See Sixth Report and Order* in MM Docket No. 87-268, *supra; see also, First Report and Order* in WT Docket No. 99-168, 15 FCC Rcd 476 (2000), *Report and Order* in ET Docket No. 97-157, 12 FCC Rcd 22953 (1998) and *Report and Order* in GN Docket No. 01-74, 17 FCC Rcd 1022 (2002).

[11] *See* 47 C.F.R. Part 73 Subpart J. Class A TV stations operate at the power levels permitted for low power television stations under Part 74 of the rules, but have certain protection rights with respect to full service analog and digital TV stations that are not available to TV translator and low power stations.

[12] *See* 47 C.F.R. Part 74 Subpart G. Collectively, Class A, low power TV and TV translator stations are commonly known as "LPTV stations."

[13] *See* 47 C.F.R. § 74.602(h). This rule section permits TV studio-transmitter links, TV relay stations, and TV translator relay stations to be authorized to operate fixed point-to-point service on UHF TV channels 14-69 on a secondary basis, subject to the provisions in Part 74, subpart G.

[14] *See* 47 C.F.R. Part 74 Subpart H and Part 15, Subpart C.

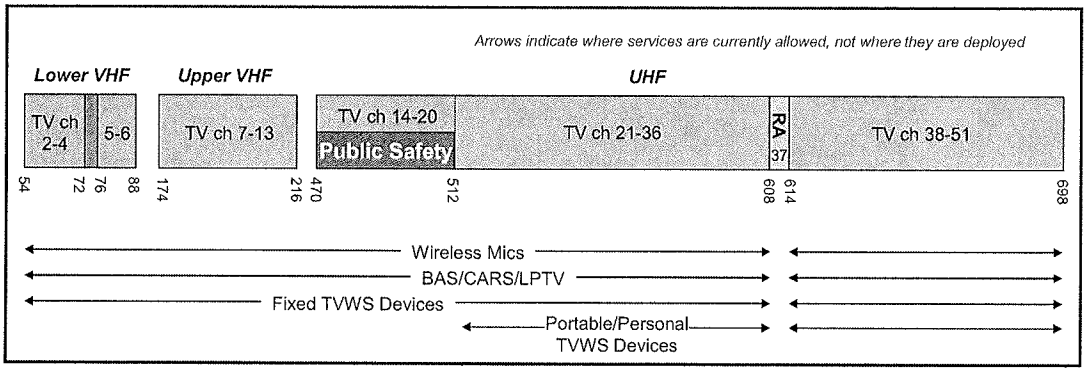
[15] *See* 47 C.F.R. Part 90 Subpart L and 47 C.F.R. Part 22 Subpart E.

[16] *See* 47 C.F.R. §§ 15.231, 15.241 and 15.242. Effective October 16, 2002, the Commission ceased granting certifications for new medical telemetry equipment that operates on TV channels, but there is no cutoff on the sale or use of equipment that was certified before that date, *see* 47 C.F.R. § 15.37(i). To provide spectrum for wireless medical telemetry equipment, the Commission established the Wireless Medical Telemetry Service to operate on a primary basis in 13.5 megahertz of spectrum in three spectrum blocks at 608-614 MHz (TV channel 37, which the WMTS now shares with radio astronomy), 1395-1400 MHz, and 1427-1429.5 MHz. *See* Amendment of Parts 2 and 95 of the Commission's Rules to Create A Wireless Medical Telemetry Service, *Report and Order,* ET Docket No. 99-255, 15 FCC Rcd 11206 (2000). *See also,* Amendments to Parts 1, 2, 27, and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, WT Docket No. 02-8, *Memorandum Opinion and Order*, 18 FCC Rcd 16920 (2003).

[17] See 47 C.F.R. § 2.106 NG66(b) and 47 C.F.R. § 22.1007.

[18] *See* 47 C.F.R. § 22.591.

unused channels (white space) in the U/V Bands.[19] The Commission has recently finalized rules for these "TV white space" devices and manufacturers can now begin to market products for this category of devices.[20] The figure below provides a graphical depiction of the current allocations in the U/V Bands.



8. *Broadcast Spectrum Analysis White Paper.* In June, 2010, the third Omnibus Broadband Initiative technical paper was released, entitled, "Spectrum Analysis: Options for Broadcast Spectrum" (the "Technical Paper").[21] This paper describes the opportunity to create value in the U/V Bands by leveraging their favorable technical characteristics for broadband while maintaining the public benefits of over-the-air television. Specifically, the Technical Paper describes a voluntary, market-based process for repurposing a portion of the U/V Bands by enabling individual stations to participate in an incentive auction, including the ability to set minimum prices on the return of broadcast licenses as a means of providing financial certainty. Stations could choose not to participate, or to participate and maintain a primary stream by sharing a channel; and the Commission would administer the process in a manner that recognizes the public interest benefits of free over-the-air television broadcasts. The Technical Paper observes that over-the-air television continues to serve important functions in our society, and recommends an approach that emphasizes that the voluntary, market-based reallocation be implemented in a way to provide additional options for broadcast licensees to serve their communities. In this regard, it suggests that in providing a potential means of one-time financing and the option to reduce operating expenses, longstanding policy goals for broadcast television will be served, such as localism, viewpoint diversity, and competition.[22]

9. *Broadcast Engineering Forum.* On June 25, 2010, the Commission's Office of Engineering and Technology held a Broadcast Engineering Forum (the "Forum") of industry technical experts to discuss several issues pertaining to topics raised in the Technical Paper.[23] The issues discussed at the Forum included: 1) improving efficiency in broadcasting through use of distributed transmission systems (DTS) and cellularized architecture, 2) methodologies for repacking the channels used by stations to increase the efficiency of spectrum use, including possibilities for recovery of channels nationwide, 3)

[19] *See Second Report And Order And Memorandum Opinion And Order* in ET Docket Nos. 04-186 and 02-380, 23 FCC Rcd 16807 (2008).

[20] *Second Memorandum Opinion and Order* in ET Docket Nos. 04-186 and 02-380, adopted and released September 23, 2010, FCC 10-174.

[21] *See* http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-technical-paper-spectrum-analysis-options-for-broadband-spectrum.pdf.

[22] Technical Paper at 30.

[23] Information regarding the *Broadcast Engineering Forum*, including video of its closing session, is available on the Commission's website at http://reboot.fcc.gov/workshops/broadcast-engineering-forum.

improvements in transmission and reception of television signals on VHF channels, and 4) advancements in video compression technology, including use of video compression for stations sharing channels. Separate panels were convened on each of these issues to solicit technical information and input. The reports of each of the four panels, lists of the panel members and other information are available on the Commission's website.[24] This information was used in developing the proposals in this Notice regarding channel sharing by broadcast television licensees and will be used also in preparing future proposals in this proceeding.

10. *Allotment Optimization Model.* As part of its effort to improve the efficiency of U/V Band spectrum use, the Commission has undertaken the development of a model for optimizing the assignment of channels to television stations nationwide. This model, the Allotment Optimization Model (the "AOM" or the "Model"), allows the user to optimize broadcast channel assignments when clearing spectrum for new uses, subject to technical and other constraints. An initial version of this model was used by the staff in developing the spectrum analyses underlying the recommendations for recovery of U/V Bands spectrum set forth in the *Plan* and the Technical Paper. We anticipate that the fully developed model will be completed and validated in the near future for use in subsequent stages of this process to increase the efficient use of the U/V Bands and facilitate ongoing wireless innovation.

III. DISCUSSION

11. Wireless broadband services are in high demand by the public and that demand is expected to grow significantly in the coming years. As discussed in the *Plan*, we are concerned that the growth of wireless broadband services will be constrained if sufficient spectrum is not made available to enable mobile network expansion and technology upgrades.[25] Without additional spectrum, users of mobile services will be faced with congestion and degraded service, or much higher prices, or both. Specifically, lack of sufficient spectrum will lead to more blocked and/or dropped calls/connections, slower connection rates and significantly higher prices for desirable applications and services. It is essential to our nation's economic future that the demand for a robust mobile broadband infrastructure is met. Given its desirability for use by mobile wireless systems, the UHF spectrum currently occupied by broadcast television, in particular, is one of a number of areas the Commission is looking at to ensure that our spectrum policies address the need for additional spectrum for mobile broadband. For example, we have recently taken actions to make additional spectrum available for mobile broadband services in frequencies currently used by mobile satellite operations and the Wireless Communications Service.[26] We are also working with the National Telecommunications and Information Administration to identify additional spectrum that may be made available for flexible commercial use, including wireless broadband services.[27]

12. We are faced with an important opportunity to provide more flexibility and greater efficiency in use of the U/V bands spectrum. While the ATSC digital television standard used for television

[24] *Id.*

[25] *See Plan* at 77.

[26] *See Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, ET Docket No. 10-142, *Notice of Proposed Rulemaking and Notice of Inquiry*, 25 FCC Rcd 9481 (2010); *see also Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, ET Docket No. 07-293, 25 FCC Rcd 11710 (2010).

[27] *See Plan and Timetable to Make Available 500 Megahertz of Spectrum for Wireless Broadband*, U.S. Department of Commerce, October 2010 and *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands*, U.S. Department of Commerce, October 2010.

broadcasting in this country provides for a data rate of 19.4 mbps,[28] that data rate is fixed irrespective of whether it is actually being used for transmission of television programming or other services such that at times a TV channel is essentially idle. For example, if a TV station transmits an HD program that uses an average of 10 mbps and one additional 2.5 mbps video program, approximately 7 mbps of the stations available capacity/bandwidth would be unused. Any applications that use a portion of the capacity of a television signal are constrained to the ATSC transmission system and do not have the option of a radiofrequency return path in the same spectrum. In keeping with our intention to ensure that the spectrum is used as efficiently and effectively as possible, whether in terms of bandwidth or data capacity, we offer the proposals below.

13. This Notice takes the first step towards achieving these important objectives by proposing additional frequency allocations, a framework that will permit two or more television stations to share a single six-megahertz channel, and changes to rules for use of the VHF band to improve its utility for television service. We recognize that broadcast television provides an important service to the public, and our actions in this proceeding will take full account of the vital role played by over-the-air television while increasing the flexible use of spectrum in a manner that meets consumer and business needs. We remain committed to preserving the free, over-the-air broadcast television service and maintaining the diversity of local voices and important informational and entertainment benefits it provides the American public.

14. It is our strong intention to provide for an orderly transition of a portion of the U/V Bands to flexible use, in a manner that will minimize any impact on over-the-air television broadcasting and the consumers it serves, both off-the-air and through multichannel video program distributors. In this regard, broadcast television stations and other primary services operating on the spectrum to be recovered will be co-primary with and be protected from interference from new broadband services for as long as they remain on channels in that spectrum.

15. To facilitate the recovery of underutilized television channels while continuing to maintain existing broadcast television services, we are also proposing in this Notice new rules that would allow a television service licensee to voluntarily reduce its occupation of spectrum by offering to operate on a shared six megahertz channel. Under this provision, all of the stations sharing channels would broadcast their services through the same ATSC digital television signal using that signal's multicasting capabilities. Each licensee would have the same rights and service obligations as a licensee operating from a full channel today, including the right to carriage by cable and satellite providers pursuant to the rules for mandatory carriage or retransmission consent.[29] We believe that channel sharing could be beneficial to certain licensees, particularly those that wish to save on their operating costs or minimize the amount of their investment in spectrum or transmission facilities. In addition, channel sharing could provide an incentive for broadcasters to relinquish spectrum for a portion of the proceeds of the revenues of a U/V Band spectrum auction, subject to Congress providing the Commission the authority to conduct an incentive auction. Further, channel sharing could offer opportunities for broadcasters serving minority, foreign language and niche interests that might have smaller audiences and lower income to operate at reduced cost and thereby improve their viability. In allowing stations to share channels, we note that in some instances changes in the operation of television stations could raise the possibility of interference to radioastronomy operations on channel 37 or to services operating on frequencies immediately above channel 51. It is our intent that any channel or other facilities changes that might be requested as part of sharing agreements not result in increased interference to radioastronomy operations on channel 37 or to operations of other services above channel 51. We request comments on specific steps that could be

[28] Terrestrial digital television broadcasting in the U.S. is transmitted using the Advanced Television Systems Committee's (ATSC) A/53 (video), A/52 (audio) and A/65 (program and system information protocol) standards. *See* 47 C.F.R. § 73.682(d)

[29] 47 C.F.R. § 76.51-.70.

taken as part of the implementation of our sharing rules to mitigate the potential for such interference. We describe our initial proposed rules for channel sharing by television licensees in this Notice. We also are aware that broadcasters have encountered technical issues in using VHF channels to provide satisfactory service to viewers. We intend to consider rule changes and other alternatives for making the VHF channels more desirable for DTV operation. Our proposals for adding new allocations to the U/V bands, channel sharing by television stations and improving television service from VHF channels are discussed below.[30]

A. Spectrum Allocations

16. *New Spectrum Allocations.* We are proposing changes to the U.S. Table of Frequency Allocations in Section 2.106 of the rules that would allow us to make a significant portion of the spectrum currently used for broadcast television available for flexible use, including fixed and mobile wireless broadband services.[31] To facilitate repurposing of a portion of the U/V Bands in a later action, we are proposing in this Notice to add allocations for fixed and mobile services in the U/V Bands (excluding channel 37) for non-Federal use, to be co-primary with that for broadcast services.[32] This proposal would also expand the existing land mobile allocation in the areas where PLMRS and CMRS systems operate on specified frequencies in the 470-512 MHz band to be the same more generalized and flexible mobile allocation that would be specified for other frequencies in the U/V Bands.

17. These new allotments would allow us to consider the entire range of the U/V Bands in selecting the specific frequencies to be designated for new licensed and/or unlicensed uses. This approach will provide maximum flexibility in planning for the future assignment of a portion of the U/V Bands for flexible use, including new broadband services. Our goal is to adopt a band plan that will provide for flexible use while continuing to support the needs of the television service. We are not proposing to change or add to the existing allocations for land mobile (medical telemetry and medical telecommand) and radioastronomy that are at 608-614 MHz (at channel 37).[33] We request comment on this proposed plan for adding new allocations to the U/V Bands and invite suggestions for alternative approaches.

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[30] It is important to note the potential effect the proposals outlined in this Notice may have on technical coordination with Canada and Mexico. The current international agreements with Canada and Mexico identify specific technical criteria and specific stations, with acceptable parameters, in a plan of U.S. and foreign assignments that was negotiated with each country. To the extent, future Commission action causes any broadcast station in the border regions to alter its existing station structure, the Commission will need to coordinate these changes with Canada and Mexico. In addition, the current agreements in place only offer protection for the existing primary services in the U/V bands. The Commission would need to reach new coordination agreements with Canada and Mexico to cover implementation of new wireless broadband services in these frequency bands in the border areas.

[31] 47 C.F.R. § 2.106.

[32] The land mobile service is a mobile service between base stations and land mobile stations, or between land mobile stations. A base station is a land station in the land mobile service. A land mobile station is a mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent. The fixed service is a radiocommunication service between specified fixed points. 47 C.F.R. § 2.1(c).

[33] The operations of land mobile services on channels 14-20 and the Offshore Radiotelephone Service on channels 15-17 in regions along the Gulf of Mexico and the reservation of channel 17 for inter-island communications in Hawaii could be affected by our proposal to recover U/V Bands spectrum if the bands to be recovered encompassed all or portions of channels 14-20. We would address appropriate changes for the Private Land Mobile Service and the Offshore Radiotelephone Service in the event that we were to decide to recover spectrum now used by those services.

B. Broadcast Television Channel Sharing

18. The *Plan* recommends that, to facilitate the recovery of spectrum, the Commission initiate a rulemaking proceeding to "establish a licensing framework to permit two or more stations to share a six-megahertz channel."[34] We believe that the option of channel sharing, in addition to aiding in the broadband goals of the *Plan*, could also be beneficial to the television industry and to viewers. Television stations operating on shared channels could use the cost savings and additional income from such arrangements to strengthen their financial condition and to develop new and enhanced programming. Channel sharing could also provide existing small- and minority-owned stations an opportunity to enhance or preserve their local program offerings. We anticipate providing broadcast stations an opportunity to voluntarily elect to share a channel. We therefore seek comment in this proceeding on the development of an appropriate regulatory structure for voluntary television channel sharing that will preserve over-the-air television as a healthy, viable medium going forward, in a way that would benefit consumers overall, while establishing mechanisms to make available additional spectrum for flexible broadband uses.

19. We envision, consistent with the Plan, that two stations could generally broadcast one primary HD video stream each over a shared six-megahertz channel or more than two stations broadcasting in SD (not HD) could share a six-megahertz channel.[35] As noted in the Plan, "numerous permutations are possible, including dynamic arrangements whereby broadcasters sharing a channel reach agreements to exchange capacity to enable higher or lower transmission bit rates depending on market-driven choices."[36] In this regard, we observe that at the Broadcast Engineering Forum participants expressed concerns that sharing a single channel would not be practical because it would not provide sufficient transmission capacity for two or more stations to offer the highest quality HD programming simultaneously. Stations were also concerned that channel sharing could impact or eliminate current and future DTV services, such as expansion of high-definition programming and deployment of mobile television service. We intend to consider these issues in this proceeding and welcome comments on these concerns.

20. Other approaches to channel sharing that involve sub-channel services such as mobile broadcast may also be possible. We seek comment on those approaches. The only requirement would be that all stations utilizing a shared channel be required to retain at least enough spectrum to operate one SD channel.[37] We seek comment on this approach and whether stations sharing a single channel will be able to continue to comply with the requirement to operate at least one SD channel.

21. In designing a channel sharing plan that will result in the more efficient use of television spectrum and free channels for flexible use, our goal will be to retain as much of our existing policy framework for allocating, licensing, and operating television stations as possible. Despite sharing a single channel and transmission facility, each station will continue to be licensed and operated separately, have its own call sign and be separately subject to all of the Commission's obligations, rules, and policies. Each station's programming obligations will remain the same (e.g., children's programming, political broadcasting, EAS, indecency), and a station will not be responsible for the programming or violations of any other station sharing its channel. In addition, stations sharing a channel will retain their rights to

[34] *Plan* at 88.

[35] *Id.*

[36] *Id.* 90. These arrangements could further mitigate any risk to HD signal quality resulting from reduced bandwidth capacity per station." *Id.* at note 99.

[37] Television stations are required to "transmit at least one over-the-air video broadcast signal provided at no direct charge to viewers." *See Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, Fifth Report and Order*, 12 FCC Rcd 12809, 12859 (1997); 47 C.F.R. § 73.624(b) & (c).

mandatory carriage. While the licensees sharing a given channel and facility will independently maintain their own rights and obligations under their respective licenses, we do not envision that channel sharing, from a technological perspective would entail a fixed split of the six-megahertz channel into two three-megahertz blocks. Rather, the capacity of the six-megahertz would be shared and we would leave it up to the licensees to determine the precise manner in which that capacity would be shared. Moreover, we observe that the Commission has licensed spectrum on a shared use basis – with each licensee remaining responsible for its own obligations and holding its own licensed rights – for a variety of services and under a number of different frameworks. For example, during the course of charting out an MSS licensing regime for Big LEO systems, the Commission adopted a plan in which four CDMA systems would each be authorized to operate over 11.35 megahertz of bandwidth in the same 1.6 GHz band, leaving the inter-system coordination to the satellite licensees themselves. Other examples of shared use include certain Part 90 Private Land Mobile Radio Services (where the large number of shared users are coordinated through a system of frequency coordinators), many Part 95 Personal Radio Services (such as the General Mobile Radio Service, where licensees share the same channels through an informal system of cooperation), and the Part 97 Amateur Radio Service (where all frequencies are shared and coordinated by adherence to rules of operation set forth in Part 97). We seek comment on how television broadcast stations can most effectively coordinate their individual rights and responsibilities while operating under the type of sharing arrangement proposed here. Finally, we point out that only where necessary to implement a shared channel licensing scheme will we seek to change our existing policies and rules.

22. We also propose to limit channel sharing to television stations with existing applications, construction permits or licenses as of the date of adoption of this Notice. Our dual intentions in proposing this channel option are to provide 1) a means for stations that may need to be more economically efficient in their operations to share transmission resources and 2) a path for stations to make their spectrum available for new broadband services and continue to operate a broadcast television service. We request comment on this proposal.

1. Basic Qualifications for Channel Sharing

23. Voluntary operation of broadcast stations on shared channels will help to increase the efficient use of the U/V Bands while ensuring that local public interest and service requirements continue to be fulfilled. Since we ultimately seek an appropriate, market-based balance with flexible use in the U/V Bands, we expect that the extent of channel sharing will vary between markets.

a. Commercial and Noncommercial Educational Stations

24. We seek comment on whether commercial and noncommercial educational (NCE) stations should be permitted to share a single television channel. NCE television stations operate on special reserved channels and are prohibited from airing commercial material.[38] We contemplate that stations that share a channel will continue to be licensed and operated separately, although they will be sharing a single transmitting facility. Therefore, there would be no overlap of programming between a commercial and NCE station. However, we seek comment on whether a commercial station should be permitted to operate on a shared channel reserved for NCE use. We seek to determine how the new "shared" channel might be partitioned or designated to preserve the NCE status while allowing the channel to be shared by a non-NCE entity.

[38] *See* 47 U.S.C. § 399B; Revised Program Policies and Reporting Requirements Related to Public TV and Radio Programming, *Notice of Proposed Rulemaking*, 87 FCC 2d 716, 730 (1981) and Reexamination of Comparative Standards for Noncommercial Educational Applicants, *Further Notice of Proposed Rulemaking*, 13 FCC Rcd 21167, n.2 (1998).

b. Consideration of Service Losses

25. We seek comment on whether to require that a certain level of television service be preserved in the shared channel environment. Specifically, we seek comment on whether the Commission should consider any prospective loss of television service when determining whether to permit stations to make the modifications to their transmission facilities necessary to achieve channel sharing. Since stations sharing a single television channel must operate from a single transmission facility, changes to one or more of the stations' existing facilities will be necessary for sharing to occur. Such changes could result in a loss of television service to some persons presently able to receive over-the-air signal from one or more of the stations, and could also result in gains to television service.

26. We note that our current policy is to consider losses of service on a case-by-case basis, and we seek comment on continuing that policy in the context of channel sharing arrangements. Although the Commission historically has viewed any loss of service as *prima facie* inconsistent with the public interest, it has been our policy to consider and evaluate any counterbalancing factors an applicant may present to justify service losses.[39] This balancing process, to determine whether the projected loss of service will be outweighed by other factors, involves more than a mere comparison of numbers.[40] The Commission examines the extent of the loss, and whether any "white" or "gray" loss areas will be created.[41] The Commission defines "white area" as an area where the population does not receive any over-the-air television service and "gray area" as one where the population receives only one over-the-air television service.[42] The Commission may also examine whether the loss area is "underserved," *i.e.*, where the population receives less than five other existing services.[43] The Commission may also examine whether the loss involves specialized programming such as that from a network.

27. In terms of counterbalancing factors, the Commission has examined whether gain areas will be created including establishment of first television service, second television service, first network service, etc.[44] However, the mere fact that total gains exceed losses does not, standing alone, constitute an affirmative factor offsetting those losses.[45] The Commission may also consider the availability of other television services in the loss area[46] as well as whether the population which would lose service is outside the station's DMA and is predicted to receive the same network programming from a station in their home DMA. We seek comment on whether to consider these factors in a similar fashion when evaluating losses that result from facility modifications and relocations related to channel sharing.

28. In weighing the public interest benefits that will result from channel sharing, should we consider mitigating circumstances such as the percentage of local cable penetration or satellite use in the loss area? Should sharing stations be allowed to offset otherwise disqualifying service losses by offering to deploy on-channel Digital Transmission Systems (DTS) or other technical measures to restore service

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[39] *See Hall v. FCC*, 237 F.2d 567, 572 (D.C.Cir.1956).

[40] *See West Michigan Telecasters, Inc.*, 22 F.C.C.2d 943, recon. denied, 26 F.C.C.2d 668 (1970), *aff'd*, 460 F.2d 883 (D.C.Cir.1972).

[41] *See* John McCutcheon d/b/a Communications, 4 FCC Rcd 2079, 2083 n. 3 (1989).

[42] *See* Apogee, Inc., 99 FCC 2d 979, ¶ 7 (1985).

[43] *See Cambridge and St. Michaels, Maryland*, 19 FCC Rcd 2592 (AD 2004).

[44] *See John McCutcheon d/b/a MCC Communications*, 4 FCC Rcd 2079 (1989) (permitting modification that resulted in first network service to 30,000 persons).

[45] *See Central Coast Television*, 14 FCC 2d 985, 1001 (Rev. Bd. 1968).

[46] *See, e.g., Eagle 22, Ltd.*, 7 FCC Rcd 5295 (1992) (permitting a modification where at least 60 percent of the population in the loss area was within the Grade B contours of between five and 17 full-service stations).

to the loss area?[47]

c. Other Issues

29. In addition to the specific areas set forth above, we seek comment on other areas of interest with respect to channel sharing in conjunction with the recommendations of the *Plan*. For instance, what is the impact of channel sharing on the media ownership rules? We contemplate that stations that share a channel will continue to be licensed and operated separately, although they will be sharing a single transmitting facility. What are the implications of channel sharing for the local TV ownership rule, the radio/TV cross-ownership rule and the newspaper/broadcast cross-ownership rule?

2. Preservation of Must Carry Rights

30. Full power television broadcast stations, and certain qualified low-power television broadcast stations, have a right to carriage on cable systems that the Supreme Court has recognized as essential to preserving "the widest possible dissemination of information from diverse and antagonistic sources."[48] Full power broadcasters have similar rights to mandatory carriage on satellite (DBS) systems.[49] The rules proposed in this proceeding are designed to ensure that stations voluntarily electing to share a channel retain their existing rights to mandatory carriage, and we seek comment on such rules.

31. The Communications Act of 1934, as amended, provides for the mandatory carriage, by cable operators and satellite providers, of certain local broadcast signals.[50] The Act and our implementing rules[51] establish slightly different thresholds for carriage, depending on whether the station is full power or low-power, or commercial or noncommercial, and also depending on whether carriage is sought on a cable or DBS system. Stations meeting these thresholds are guaranteed carriage of only a single "primary" stream of programming, and carriage for any additional streams must always be negotiated.[52] It is our intent to adopt a channel sharing framework that will neither increase nor decrease the carriage rights of any broadcaster on any type of system. We anticipate, therefore, that regardless of the number of licensed stations sharing a six-megahertz channel, each would continue to have at least one, but only one, "primary" stream of programming. We seek comment on the specific proposals below and in general on the rules necessary to achieve this result.

32. *Cable Carriage.* A full power commercial station is entitled to carriage on a cable system when it is "licensed and operating on a channel regularly assigned to its community by the Commission," and that community is within the same DMA as the cable system.[53] A qualified noncommercial educational station ("NCE"), on the other hand, can be considered "local," and eligible for mandatory

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[47] *See* Digital Television Distributed Transmission System Technologies, *Report and Order*, 23 FCC Rcd 16731 (2008).

[48] *Turner Broadcasting System, Inc. v. FCC*, 520 U.S. 180, 192-193 (1997) (internal citations and quotations omitted); *see also* 47 U.S.C. §§ 534 and 535.

[49] 47 U.S.C. §338.

[50] *See* 47 U.S.C. §§ 338, 534, 535.

[51] *Broadcast Signal Carriage Issues*, 8 FCC Rcd 2965 (1993); *see also*, *Broadcast Signal Carriage Issues*, 9 FCC Rcd 6723 (1994) *and Implementation of the Satellite Home Viewer Improvement Act of 1999*, Report and Order, 16 FCC Rcd 1918 (2000).

[52] *See, Carriage of Digital Television Broadcast Signals: Amendments to Part 76 of the Commission's Rules*, CS Docket No. 98-120, *Second Report and Order and First Order on Reconsideration*, 20 FCC Rcd 4516 (2005) (reiterating the Commission's rejection of mandatory multicast carriage).

[53] 47 U.S.C. § 534(h)(1)(A).

carriage on a cable system, in one of two ways. It may either be licensed to a principal community within 50 miles of the system's headend, or place a "Grade B" signal[54] over the headend.[55] Under very narrow circumstances, certain low-power broadcasters can also become "qualified" and eligible for must carry.[56] Among the several requirements for reaching "qualified" status with respect to a particular cable operator, the low-power station must be "located no more than 35 miles from the cable system's headend."[57]

33. *DBS Carriage.* A full power station is entitled to request carriage by a DBS provider any time that provider relies on the statutory copyright license[58] to retransmit the signal of any other "local" full power station[59] (*i.e.*, one located in the same DMA[60]). The standards are the same for both commercial and noncommercial broadcasters, and low-power broadcasters do not have DBS carriage rights.[61]

34. *Carriage of Shared Signals.* We seek comment on whether the procedures we propose herein would ensure that a television station operating on a shared channel would continue to be:

[54] In the digital broadcasting context, the Commission uses the digital noise limited service contour ("NLSC"), set forth in 47 C.F.R. § 73.622(e), in place of the analog Grade B contour, set forth in 47 C.F.R. § 73.683(a). *See In the Matter of 2010 Quadrennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996,* Notice of Inquiry, 25 FCC Rcd 6086, 6117 n. 148 (2010) (stating that the Commission developed the digital NLSC to approximate the same probability of service as the Grade B contour and has stated that the two are roughly equivalent). This has been true in both cable proceedings and in other settings (satellite proceedings, ownership proceedings, etc.). *See, e.g., Tennessee Broadcasting Partners, Memorandum Opinion and Order*, 25 FCC Rcd. 4857, 4859 at ¶ 6, footnote 14 (2010) (stating that the Commission has treated a digital station's noise-limited service contour as the functional equivalent of an analog station's Grade B contour). Congress has also acted on the presumption that the two standards are roughly equivalent, in the recently adopted STELA legislation, by adopting parallel definitions for households that are "unserved" by analog (measured by Grade B) or digital (measured by NLSC) broadcasters. 17 U.S.C. § 119(d)(10)(A)(i). The two standards define the noise-limited service contours for the respective analog and digital television transmission systems.

[55] 47 U.S.C. § 535(l)(2).

[56] 47 U.S.C. § 534(h)(2). The Commission's rules implementing this section state that a low-power station becomes qualified for mandatory carriage if the station conforms to the Commission's LPTV rules, broadcasts for at least the minimum number of hours required of commercial broadcast stations by the Commission, and adheres to certain Commission requirements regarding non-entertainment programming and equal employment opportunity. 47 C.F.R. § 76.55(d)(1), (2). However, an LPTV station will not be qualified unless the Commission determines that the provision of programming by such station would address local news and informational needs not being adequately served by full service television stations, because such full service stations are distant from the LPTV station's community of license. 47 C.F.R. § 76.55(d)(2). In addition, the LPTV station must comply with the Commission's interference regulations for LPTV stations; it must be within 35 miles of the cable system's principal headend and deliver to the headend a good quality over-the-air signal; its community of license and the franchise area of the cable system must both have been located outside of the largest 160 Metropolitan Statistical Areas (MSAs) on June 30, 1990, and the population of the LPTV station's community of license on that date must not have exceeded 35,000; and there cannot be any full service television station licensed to any community within the county or other political subdivision (of a State) served by the cable system. 47 CFR § 76.55(d)(3)-(6).

[57] 47 C.F.R. § 76.55(d)(4).

[58] 17 U.S.C. § 122.

[59] 47 U.S.C. § 338(a)(1) (stating that satellite carriers must carry "upon request the signals of all television broadcast stations located within that local market").

[60] 17 U.S.C. § 122(j)(2).

[61] 47 U.S.C. §§ 338(a)(1) and (3).

- "licensed and operating on a channel regularly assigned to its community by the Commission (for purposes of cable carriage of a commercial station)";[62]
- licensed to a specific "principal community" or configured with technical facilities that have an NLSC that encompasses the cable system's principal headend (for purposes of cable carriage of a non-commercial station);[63] and
- "located within" a designated market area (for purposes of DBS carriage of commercial and noncommercial stations).[64]

35. *NCE Issues.* We seek comment on whether an NCE television station sharing a channel with a commercial television station could affect the NCE station's continued eligibility for carriage.[65] This is particularly relevant in the cable context, because, as discussed above, commercial stations and NCEs must meet different criteria in order to be eligible for mandatory carriage. Because we anticipate that sharing stations would continue to be licensed and operated separately, we do not anticipate that an NCE television station would lose its NCE status or eligibility by sharing a channel with a commercial station. We seek comment on this issue.

36. *Technical Issues.* We also seek comment on whether a station sharing a channel with one or more other stations, or the redesignation of a given 6 MHz channel as a "shared" channel, would affect the stations' ability to request local carriage on cable and DBS systems serving subscribers within the stations' market. Are there any unique aspects of channel sharing that could prevent a broadcaster, of any type, from achieving the necessary thresholds for mandatory carriage on any cable or DBS system on which it is currently carried? Cable and DBS systems are currently receiving the full 6 MHz signal from broadcasters but only carrying certain streams; would there be any technical differences, from the carrier's perspective, if two or more of these streams on a shared channel were the "primary" streams of different, individually licensed stations? Are there other technical issues that would be unique to a sharing scenario?

37. *Differing Elections.* Even if a commercial station meets the threshold for carriage, it may elect to pursue retransmission consent agreements with one or more MVPDs.[66] When a station has made such an election, it may not be carried by the MVPD without its consent. We seek comment on how stations' carriage rights would be affected if one sharing station elects retransmission consent and the other elects must carry. As noted above, we anticipate that each station operating on a shared channel will be licensed and operated as a totally distinct entity with its own "primary" stream of programming, and that the sharing of a channel would not affect a sharing station's carriage election options or rights. We seek comment on this issue, particularly any technical implications for carrying one stream of a broadcast channel while not carrying another.

38. *Shared signal issues.* There are certain essential issues inherent to sharing a channel that we expect will be resolved by stations sharing a channel. For example, in addition to the threshold requirements discussed above, local stations are only eligible for mandatory carriage if they provide a "good quality signal" of at least -61 dBm to the cable or satellite provider.[67] Failure to provide this signal

[62] 47 U.S.C. § 534(h).

[63] 47 U.S.C. § 535(l)(2); *see also, supra* note [X] (discussing the use of the NLSC in place of Grade B).

[64] 47 U.S.C. § 338(a)(1).

[65] *See supra* ¶¶ 24, 32.

[66] 47 U.S.C. §325(b); see also §(b)(2)(A) (noncommercial stations may not elect retransmission consent).

[67] 47 U.S.C. §§ 338(b), 534(h)(1)(B)(iii). *See also Carriage of Digital Television Broadcast Signals*, First Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 2598 (2001) (establishing the service level for cable) *and Implementation of the Satellite Home Viewer Improvement Act of 1999: Local Broadcast Signal Carriage Issues and Retransmission Consent Issues*, Second Report and Order, Memorandum Opinion and Order, and Second (continued....)

level would therefore affect the carriage rights of all stations using the same channel. We anticipate that stations will make any necessary changes to their proposed shared transmission facility to ensure continued carriage for sharing stations. We seek comment on what those changes might be, and, in general, what matters must be resolved by the stations themselves to ensure the success of channel sharing.

39. *New Stations.* Currently, licensees of newly operating stations that are otherwise qualified local stations may seek mandatory carriage of such stations, even outside of the standard election cycle.[68] If we permit new stations, or permittees with unbuilt stations, to operate on shared channels, will we need any revisions to our rules in order to ensure that they are eligible to seek mandatory carriage as new stations after they commence broadcasting? We seek comment on this issue.

40. *Low-power Stations.* We are considering allowing LPTV, Class A, and translator stations to operate on shared channels, both among themselves and with full power stations.[69] If we do permit low-power stations to operate on shared channels, we are also proposing to provide that currently qualified low-power stations retain their eligibility for must carry rights, but to create no new rights. We seek comment on these proposals. Are there other issues we should consider with regard to allowing low power stations to channel share?

41. *Other Carriage Issues.* There are a number of other issues that may be relevant to the mandatory carriage of shared signals. For instance, if, as we propose, one stream of each individually licensed station on a single 6 MHz channel will be "primary" for purposes of must carry rights, should sharing broadcasters have any special obligation to identify the "primary" signals at the time they elect carriage?[70] Given the variety of questions that may have some bearing on the development of these rules, we seek comment on any issues pertaining to the mandatory carriage of shared broadcast signals, including those not specifically raised in this Notice.

C. Improving Reception of VHF TV Service

42. Recognizing that UHF spectrum is highly desirable for flexible use, we are interested in exploring the steps needed to increase the utility of VHF spectrum for television broadcasts. VHF channels have certain characteristics that have posed challenges for their use in providing digital television service. In particular, the propagation characteristics of these channels allow undesired signals and noise to be receivable at relatively farther distances, nearby electrical devices tends to emit noise in this band that can cause interference, and reception of VHF signals requires physically larger antennas that are generally not well suited to the mobile applications expected under flexible use, relative to UHF channels. We recognize that television broadcasters have had some difficulty in ensuring consistent reception of VHF signals, and we seek comment through this Notice on technical changes to Commission rules, broadcast transmission equipment, or television receiver technology, that would improve VHF for television broadcasts, including the costs and benefits associated with such changes. Our intent is to treat stakeholders in a fair and equitable manner through procedures established in later action.

(...continued from previous page)
Further Notice of Proposed Rulemaking, 23 FCC Rcd 5351 (2008) (adopting identical requirements in the satellite context).

[68] 47 C.F.R. §§ 76.64(f)(5) and 76.66(d)(3); s*ee supra* ¶[7] for a more general discussion of permitting sharing for new stations.

[69] *See discussion supra* ¶ 22 for a more general discussion of permitting sharing for low-power stations.

[70] *See supra* ¶ 31. Currently, although each broadcaster has only a single "primary" stream of programming that is potentially eligible for mandatory carriage, we do not regulate the manner in which that stream is identified by the broadcaster.

43. *Background.* The VHF TV reception difficulties appear to be most common among consumers who use indoor antennas. Complaints from individuals typically have indicated that a consumer who was previously able to receive a station's analog VHF signal was not able to receive that station's digital VHF signal. Most of these reports involved situations where the consumer was using an indoor antenna. In addition, earlier in the transition process it was recognized that use of the low-VHF channels 2-6 for digital service could be particularly difficult because of the generally higher levels of background noise on those channels.[71]

44. Independent investigations of currently marketed indoor antennas by the consulting engineering firm of Meintel, Sgrignoli and Wallace (MSW) and our Laboratory staff showed large variability in the performance (especially intrinsic gain) of indoor antennas available to consumers, with most antennas receiving fairly well at UHF and the substantial majority not so well to very poor at high-VHF. The MSW study reported net gain in receiving UHF signals that ranged from +21.0 to -6.2 dB relative to a ½-wave dipole antenna, with the great majority above 6 dBd (negative gain indicates that the tested antenna showed performed worse than the reference half-wave dipole). However, the net gain in receiving high VHF signals was generally much lower, with the substantial majority having negative gain ranging down as low as -25.0 dBd; only three of the 10 tested antennas showed positive gain at high-VHF.[72] The study by the FCC Laboratory staff similarly showed reception capabilities at high-VHF channels that were lower than a reference biconical antenna.[73] We note that neither of these studies examined antenna performance in receiving low-VHF signals. Nonetheless, we would expect that because of the need for longer elements to receive longer wavelength low-VHF signals, it is likely that the reception capabilities of an indoor antenna at low-VHF will generally to be less than at high-VHF. We note that many indoor antennas are not marketed for reception of low-VHF channels.

45. As indicated above, the engineers participating in our Broadcast Engineering Forum indicated the view that the options for improving TV service on the VHF channels, especially those in the low-VHF band, are limited. They indicated that while practical power increases could marginally improve reception there are physical and practical limitations to achieving any significant reception improvement.[74] Their general opinion was that the effect of a power increase would not be sufficient to compensate for reception problems caused by the increased RF noise level in the band and physical limitations on the size and efficiency of the transmit and receive antennas.[75] They submitted that VHF power improvement of as much 10 dB would be possible, but difficult, and higher than that would be

[71] To assist consumers in resolving these and other DTV reception problems, the Commission has prepared and made available several Fact Sheets and Consumer Advisories. *See* for example "Antennas and Digital Television" and "Troubleshooting Guide for Digital-to-Analog Converter Boxes and Digital Televisions, which are available at http://www.dtv.gov/publications.html. In addition, the Association for Maximum Service Television and the Commission have jointly published a tip sheet "Consumer Tips for DTV Reception Problems on VHF TV Channels 2-13" and an advisory "Consumer Advisory: Proper Use of Indoor Antennas for Over-the-Air Television Reception"; these are available at www.dtv.gov and http://www.mstv.org/docs.

[72] See A *Report on Television Indoor Antenna Performance Attributes*, Gary Sgrignoli and Dennis Wallace, Meintel, Sgrignoli and Wallace, LLC, Waldorf, MD, May 8, 2007. The MSW study examined 10 indoor antennas (5 passive and 5 active, *i.e.*, with a pre-amplifier). Three of these antennas performed relatively well in both the high-VHF and UHF bands. Those three antennas provided gain at VHF ranging from +7.2 to +24.3 dB.

[73] *See Investigation of High VHF Band DTV Reception, Report: TR 09-1004*, Thomas W. Philips, Laboratory Division, Office of Engineering and Technology, Federal Communications Commission, August 12, 2009 (revised September 15, 2009). The FCC Laboratory study examined indoor antenna performance and interference from localized noise sources and; it examined the ability of 12 models of indoor antennas to receive local high-VHF signals off-the-air but did not measure their gain.

[74] *See* VHF Report at Slide 21.

[75] *Id.* at Slide 27.

impractical.[76] The broadcast engineering panel also indicated reducing the spurious and out-of-band emissions from consumers devices might help.

46. *Solutions for VHF Reception Challenges.* It is plain from the channel choices being made by broadcasters that reception problems are posing problems for use of the VHF channels. We are therefore seeking solutions to the VHF digital TV reception difficulties. In this regard, we are considering changes to our DTV operating rules to mitigate or overcome these challenges. We also intend to consider other solutions, including the possibility of indoor antenna performances standards, to make the VHF channels more useful to broadcasters. We also note that we have seen no indications that there are issues with the performance of television receivers, either traditional models with display screens or stand-alone set-top tuners, in receiving VHF channels.

47. *VHF Band Noise/Power Increases.* One of the problems with indoor VHF reception is noise from nearby (typically in the same room) consumer electronics equipment. While it would be desirable to reduce that noise, the rules limiting spurious emissions from unintentional radiators have been crafted to provide protection of licensed services while allowing production of economically viable devices. Further, any more stringent limits we might impose would not reduce emissions from existing products, nor would such limits reduce noise from incidental emitters (electric motors, switches, etc.), atmospheric disturbances and long range propagation effects that occur in the VHF bands (the latter especially at the low-VHF channels).[77] Thus, at least at this time, we do not believe it would be fruitful to attempt to reduce the permitted level of noise in the VHF bands. We request comment on whether there are actions we might take to reduce noise levels in the VHF bands used by the television service.

48. The other approach to overcoming noise is to increase the signal-to-noise ratio (S/N ratio) by raising the transmitted power, *i.e.*, effective radiated power (ERP). A number of stations operating on high-VHF channels have already improved their service by increasing their transmitted power.[78] Those stations received special temporary authorizations from the Commission for power increases that exceed the existing maximum power limits.[79] In each of these cases, either the power increase does not cause increased interference to other stations or the station licensee has negotiated with another station to accept some minimum level of new interference. While we are cognizant of the views regarding the limited expectations from power increases expressed at the Broadcast Engineers' Forum, we nonetheless believe that, as demonstrated by the stations that have already increased their transmitted power, such increases can provide some level of improvement in reception of VHF television service. We therefore believe it may be desirable to amend our rules to increase the maximum allowed ERP for VHF stations at least in Zone I, where the current maximum power levels are relatively low. We are specifically proposing to raise the nominal maximum allowed ERP for low-VHF stations in Zones I to 40 kW and for high-VHF stations in Zone I to 120 kW if the station's antenna height above average terrain is 305 meters or less. At antenna heights above 305 meters, the maximum power for both low-VHF and high-VHF stations would be lower in accordance with the table in the proposed rules in Appendix A. This proposal would effectively increase the maximum power for low-VHF and high-VHF stations in Zone I by 6 dB, a level

[76] *Id.* at Slide 14.

[77] *See First Report and Order* in GEN Docket No. 87-389, 4 FCC Rcd 3493 (1989) at ¶ 75.

[78] *See* for example, WHAS-TV, Louisville, KY, Ch. 11, BDSTA-20091014AAM; WABC-TV, New York, NY, Ch. 7, BDSTA-20100108ACK; WUSA, Washington, DC, Ch. 9, BDSTA-20091218ACS; WPVI, Philadelphia, PA, Ch. 6, BLDSTA-20090619ABQ; KRCR-TV, Redding, CA, Ch. 7, BDSTA-20090717ABBADD. These stations were previously operating at power levels below the maximum allowed levels.

[79] The maximum transmitted power limits for low-VHF and high-VHF stations are set forth in Sections 73.622(f)(6) and .622(f)(7), respectively, 47 C.F.R. §§ 73.622(f)(6) and (f)(7). §Those limits are nominally: 10 kW (Zone I) and 45 kW (Zones II and III) ERP for low-VHF stations and 30 kW (Zone I) and 160 kW (Zones II and III) ERP for highVHF stations.

consistent with that indicated as achievable by the VHF Reception Panel. We are not proposing to raise the maximum power limits for VHF stations in Zones II and III, as the existing limits still afford those stations the ability to provide stronger signals indoors to consumers who view their signals at locations close to their transmitters. The proposed new maximum power limits for VHF stations would allow such stations to provide signal strengths to areas close to their transmitters, *i.e.*, generally their principle community areas, that are higher by an amount that would help to compensate for some of the higher noise levels that tend to be present where consumers use indoor antennas.

49. Stations requesting power increases under the proposed new limits would be subject to affording protection to other full power television stations from new interference under the existing regime of desired-to-undesired (D/U) signals limits.[80] We believe such an increase would nonetheless allow many VHF stations experiencing difficulties in reaching viewers indoors to raise their signal levels by a reasonable level to overcome localized noise indoors, consistent with maintaining the approximate range of service provided by the existing maximum power limits. We do, however, recognize that higher power operation would increase the service range of VHF stations by as much at 14 km (9 miles). It is not generally our intention to extend the service range of these stations, as such expansions can to some degree limit the potential for introduction of new stations and changes by other co-channel and first-adjacent channel stations by enlarging the service area that must be protected. Nonetheless, we believe the interests of making the VHF channels more useful to stations and consumers outweigh these concerns about limiting opportunities of other stations. We request comment on this proposal and suggestions for alternative approaches, including both power limits and protection of service. In this regard, any increases in VHF power under this proposal by existing stations and new stations that are located within 300 kilometers (183 miles) of our border with Canada or within 400 kilometers (248.5 miles) of our border with Mexico will need to be coordinated with the appropriate foreign administration.

50. We also observe that the provisions governing transmission of television signals in Sections 73.682(a)(14) and 73.625(c) of the rules specify that it shall be standard to employ horizontal polarization. The ERP of a television station is therefore considered to be that of its horizontally polarized component. However, Section 73.682(a)(14) also provides that circular or elliptical polarization may be employed and that, in such cases, transmission of the horizontal and vertical components in time and space quadrature shall be used. Where such polarizations are used, the ERP of the vertically polarized component may not exceed the ERP of the horizontally polarized component. Stations therefore could achieve an increase in signal levels at indoor locations of perhaps 3 dB by using circular polarization. This step could also be combined with an increase in ERP (horizontal ERP) under the proposal to allow higher VHF maximum power levels. We encourage stations to make use of the option to use increased power under the vertical polarization provisions as a means to improve reception of their signals by indoor viewers.

51. A collateral issue that arises in the context of our consideration of increases in the power limits for digital television stations on VHF channels is whether we should also increase the minimum distance requirements for new, post-transition channel allotments with regard to other stations or channel allotments on the same and first-adjacent channels, as specified in Sections 73.616 and 73.623(d) of the rules.[81] Stations on new allotments that operate at the proposed new power limits and are at or close to

[80] The D/U limits for protection of television service are set forth in Section 73.623(c), 47 C.F.R. § 73.623(c).

[81] Section 73.616 sets forth requirements for protection of existing services from interference resulting from digital television stations operating on new channels added to the post-transition DTV Table of Allotments; these provisions invoke the geographic spacing requirements (distance standards) in Section 73.623(d), *see* 47 C.F.R. §§ 73.616(b) and 73.623(d). Specifically, Section 73.616(b) provides, *inter alia*, that "[a] petition to add a new channel to the post-transition DTV Table of Allotments contained in section 73.622(i) of this subpart will not be accepted unless it meets: the DTV-to-DTV geographic spacing requirements in § 73.623(d) with respect to all existing DTV allotments in the post-transition DTV Table ..."

the current minimum distances with regard to other stations could cause more interference to such stations (and vice versa) than would occur under the current power limits. Increasing those distances would resolve the interference concerns but would also tend to limit opportunities or new stations or for stations desiring to change channels (which necessitates modifying the allotment on which they operate). We generally believe it would be desirable to maintain the current distance standards for new and changed allotments in order to avoid further limiting opportunities for new allotments. We therefore are not proposing to change the minimum distance requirements for new and modified allotments.

52. In taking this approach, we observe that the rules require a station that operates on a new allotment that meets the distance standards to protect other co-channel and adjacent channel stations from new interference in accordance with the desired-to-undesired (D/U) ratio interference protection criteria in Section 73.616(e).[82] In describing the services to be protected, this paragraph provides that "[f]or this purpose, the population served by the station receiving additional interference does not include portions of the population within the noise-limited service contour of that station that are predicted to receive interference from the post-transition DTV allotment facilities of the applicant ..." The rules are not specific, however, as to the post-transition DTV allotment facilities of the applicant, that is, the facilities that a station would be allowed under the allotment without concern for new interference. We propose to amend Section 73.616(e) to clarify that the post-transition DTV allotment facilities are the maximum facilities allowed currently under Section 73.622(f). Thus, an applicant for a new station would be allowed to operate up to the current maximum facilities of ERP and antenna height on a new allotment that meets the distance requirements.

53. A station on a new allotment could also operate with facilities that exceed the post-transition allotment facilities if such operation would not cause new interference to other stations as defined under Section 73.616(e). In addition, a licensee could apply to operate a station on a new allotment at facilities that exceed the post-transition allotment facilities (up to the proposed new limits) and could possibly cause new interference to another station by taking steps to avoid such interference. Such steps could include use of a directional antenna and/or location if the station's transmitter at a site that is different from the site of the allotment (such sites are generally farther from any stations that would otherwise receive interference). We request comment on our plan to maintain the existing distance requirements as we increase the maximum allowed power for digital TV stations on VHF channels and on whether we should alternatively increase the minimum distance requirements to match the changes in the power limits. We also ask parties that advocate that we increase the minimum distance requirements to submit suggestions for new minimum distance standards.[83]

54. *Indoor Antennas.* The antenna used to receive signals is a critical element in the television service path. The antenna component of a TV receive system (which consists of an antenna, connecting cable and receiver) should be able to pick up as much of the available signal energy as possible. If an antenna has a very low ability to receive signals or if the level of the desired signal is low, reception may not be possible.[84] In view of the observed poor high-VHF reception capabilities of the majority of the indoor antennas examined in the two studies mentioned above and the likelihood that the low-VHF performance of those antennas is even poorer, we intend to consider establishing standards to ensure that indoor antennas are effective for low-VHF channel reception. While we have not regulated these

[82] *See* 47 C.F.R. § 73.616(e).

[83] We note that the existing minimum distance standards do not provide interference protection that meets the desired-to-undesired signal ratios in Section 73.623(c) and licensees are required to demonstrate that their station will not cause interference in the application process.

[84] We point out that the presence of spurious noise generally does not exacerbate reception difficulties in cases where the antenna used has low gain. In such instances, a low gain antenna will receive less of the energy of both the noise and desired signal.

products previously, we believe that we have authority to set standards to ensure that the performance of indoor antennas is adequate to allow reception of low-VHF channels by TV receive systems under the All Channel Receiver Act, which is codified in Section 303(s) of the Communications Act of 1934, as amended.[85] In this regard, Section 303(s) specifically provides that the Commission shall "[h]ave authority to require that apparatus designed to receive television pictures broadcast simultaneously with sound be capable of *adequately* receiving all frequencies allocated by the Commission to television broadcasting..."[86] Because an antenna capable of adequately picking up low-VHF channels is necessary to allow all-channel reception of over-the-air broadcast signals, we believe that the standards proposed below would further our Section 303(s) mandate. We request comment on our authority to establish standards for the ability of indoor antennas to receive all of the channels allocated for television service.[87]

55. We request comment, information and suggestions regarding the need for, and desirability of, standards for indoor antennas. We are specifically proposing to require that indoor antennas, comply with the industry set standards in ANSI/CEA-2032-A, "Indoor TV Receiving Antenna Performance Standard," February 2009.[88] The ANSI/CEA-2032-A standard defines test and measurement procedures for determining the performance of indoor TV receiving antennas. Section 3.2.2 of this standard provides that to meet the standard, an antenna must have measured gain that exceeds:

- -12 dBd on all CEA test channels 2, 4, and 6 in the VHF low band
- -8 dBd on all CEA test channels 7, 9, 11 and 13 in the VHF high band and
- -8 dBd on all CEA test channels contained in the UHF band (channels 14-[51])

ANSI/CEA-2032-A further specifies that the test procedures in CEA-744-B are to be employed to measure the antenna performance.[89] It also provides standards for active (amplified) antennas, including gain, intermodulation and spurious emission. Further, it provides for labeling antenna packaging and antennas to indicate the channels or bands of channels for which the antenna meets the specified technical requirements. We observe that the high-VHF and UHF performance levels under this industry-developed standard are well within the capabilities of the antennas tested in the MSW and FCC Laboratory studies of indoor antennas. Under this proposal, all indoor television antennas would be required to meet the ANSI/CEA-2032-A standards for reception of low-VHF, high-VHF and UHF signals. In addition, to ensure compliance with these standards indoor antennas would be subject to the Commission's "verification" equipment procedure in Part 2 of the rules.[90] This would promote our objective of improving indoor reception in the VHF bands and well as ensure that indoor antennas are able to adequately receive UHF signals. Antennas that are built-in to, or designed for use with, specific devices such as portable television receivers, dongles, laptop computers, and similar TV reception equipment would not be subject to this requirement. Given the findings of the antenna studies by MSW and our Laboratory staff discussed above, we believe that the performance levels set forth in ANSI/CEA-2032-A

[85] 47 U.S.C. 303(s).

[86] All Channel Receiver Act, Pub.L. No. 87-529, 76 Stat. 150, codified at 47 U.S.C. § 303(s) (emphasis added). *See Elec. Indus. Assoc. Consumer Elec. Group v. FCC*, 636 F.2d 689, 694-96 (D.C.Cir. 1980) (discussing Act and its legislative history).

[87] We have seen no indications that there are VHF/UHF performance issues with outdoor antennas that result in consumers not able to receive either VHF or UHF signals. While many outdoor antennas currently on the market are designed for only VHF or only UHF reception, consumers do not seem to have difficulties in identifying and obtaining the outdoor antenna(s) they need to receive the television signals available in their area.

[88] ANSI/CEA-2032-A is available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112-5704, http://global.ihs.com or e-mail global@ihs.com.

[89] *See* CEA-744-B, Febriary 2009. This standard is also available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112-5704, http://global.ihs.com or e-mail global@ihs.com..

[90] The verification procedure is set forth in Sections 2.951-2.956 of the rules, 47 C.F.R. §§ 2.951-2.956.

are well within the capabilities of currently available consumer grade television receive antennas.

56. We request comment on whether the ANSI/CEA-2032-A performance standards are sufficient to ensure adequate reception of digital television signals at most indoor locations and whether the CEA-744-B measurement procedures are appropriate for determining compliance. We also ask whether there might be other standards or measurement methods that might be more appropriate. Our intent is to ensure that consumers are able to achieve indoor reception of digital television signals, and especially of VHF signals, that is comparable to indoor reception of the signals of the former analog television system. We also ask for comment an alternative approach under which we would require only that manufacturers measure indoor antennas using the CEA-744-B test procedure and comply with the labeling requirements of ANSI/CEA-2032-A. Under this approach, antennas would also be subject to our verification equipment authorization procedure. We invite interested parties to submit comment, information and suggestions for alternative standards regarding all aspects of the indoor antenna issue.

57. *Other Approaches/Solutions for Improving Reception of VHF TV Services.* In addition to power increases for VHF band stations and standards for indoor antennas, we also intend to consider additional options for improving television service in the VHF bands. Interested parties are invited to submit ideas and suggestions for additional measures we could take to improve reception of television signals on VHF channels. We request that parties submit materials information and analyses describing conditions and phenomenon that contribute to VHF reception difficulties and ideas for overcoming or mitigating them.

IV. PROCEDURAL MATTERS

58. *Initial Regulatory Flexibility Analysis for the Notice of Proposed Rule Making.* As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the proposals suggested in this document. The IRFA is set forth in Appendix B.

59. *Initial Paperwork Reduction Analysis.* The *Notice of Proposed Rule Making* contains proposed new or modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. Public and agency comments are due [X] days after the date of publication in the Federal Register. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition, pursuant to the Small Business Paperwork Relief Act of 2002,[91] we seek specific comment on how we might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

60. In addition to filing comments with the Secretary, a copy of any comments on the Paperwork Reduction Act information collections requirements contained herein should be submitted to the Federal Communications Commission via email to PRA@fcc.gov and to Nicholas A. Fraser, Office of Management and Budget via email to Nicholas_A._Fraser@omb.eop.gov or via fax at (202) 395-5167.

61. *Ex Parte Rules – Permit-But-Disclose Proceeding.* This is a permit-but-disclose notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in the Commission's rules. *See generally*

[91] Public Law 107-198, *see* 44 U.S.C. 3506(c) (4).

47 C.F.R. §§ 1.1202, 1.1203, and 1.1206(a).

62. *Comments.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://fjallfoss.fcc.gov/ecfs2/ or the Federal eRulemaking Portal: http://www.regulations.gov.

- Paper Filers: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

  - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

  - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

63. *Further Information.* For further information, contact, Alan Stillwell of the Office of Engineering and Technology, at (202) 418-2470, or via the Internet at alan.stillwell@fcc.gov or Hugh Van Tuyl Office of the Engineering and Technology, at (202) 418-2472, or via the Internet at hugh.vantuyl@fcc.gov.

V. ORDERING CLAUSES

64. IT IS ORDERED that pursuant to Sections 4(i), 301, 302, 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 USC Sections 154(i), 301, 302, 303(e), 303(f) and 303(r), this *Notice of Proposed Rule Making* IS ADOPTED.

65. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Notice of Proposed Rule Making,* including the Initial Regulatory Flexibility Analysis to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

PROPOSED RULES

Parts 2, 15, and 73 of Title 47 of the Code of Federal Regulations are proposed to be amended as follows:

PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

   a. Pages 19, 20, 24, and 28 are revised.

   b. In the list of Non-Federal Government (NG) Footnotes, footnotes NG66 and NG149 are removed.

§ 2.106 Table of Frequency Allocations.

The revisions read as follows:

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
	50-54 AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170		50-73	50-54 AMATEUR	Amateur Radio (97)
5.162A 5.163 5.164 5.165 5.169 5.171	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A		54-72 FIXED MOBILE BROADCASTING NG5 NG14 NG115	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
68-74.8 FIXED MOBILE except aeronautical Mobile	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE			
	72-73 FIXED MOBILE			72-73 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	73-74.6 RADIO ASTRONOMY 5.178		73-74.6 RADIO ASTRONOMY US74 US246		
	74.6-74.8 FIXED MOBILE		74.6-74.8 FIXED MOBILE US273		Private Land Mobile (90)
5.149 5.175 5.177 5.179		5.149 5.176 5.179			
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE US273		Private Land Mobile (90)

	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	76-88 BROADCASTING Fixed Mobile	5.182 5.183 5.188 87-100 FIXED MOBILE BROADCASTING		76-88 FIXED MOBILE BROADCASTING NG5 NG14 NG115	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
5.175 5.179 5.187 87.5-100 BROADCASTING 5.190	5.185 88-100 BROADCASTING		88-108	88-108 BROADCASTING NG2	Broadcast Radio (FM)(73) FM Translator/Booster (74L)
100-108 BROADCASTING 5.192 5.194			US93	US93 NG5	
108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A			108-117.975 AERONAUTICAL RADIONAVIGATION US93 US343		Aviation (87)
117.975-137 AERONAUTICAL MOBILE (R)			117.975-121.9375 AERONAUTICAL MOBILE (R) 5.111 5.200 US26 US28 US403		
			121.9375-123.0875 US30 US31 US33 US80 US102 US213	121.9375-123.0875 AERONAUTICAL MOBILE US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE 5.200 US32 US33 US112		
			123.5875-128.8125 AERONAUTICAL MOBILE (R) US26 US403		
			128.8125-132.0125	128.8125-132.0125 AERONAUTICAL MOBILE (R)	
			132.0125-136 AERONAUTICAL MOBILE (R) US26		
5.111 5.200 5.201 5.202			136-137 US244	136-137 AERONAUTICAL MOBILE (R) US244	Page 20

174-223 BROADCASTING	174-216 BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING	174-216	174-216 FIXED MOBILE BROADCASTING NG5 NG14 NG115	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		216-217 Fixed Land mobile US210 US241 G2	216-219 FIXED MOBILE except aeronautical mobile US210 US241 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95)
			217-220 Fixed Mobile US210 US241	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US241 NG173	Maritime (80) Private Land Mobile (90) Amateur Radio (97)
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		220-222 FIXED LAND MOBILE US241 US242		Private Land Mobile (90)
5.235 5.237 5.243		5.233 5.238 5.240 5.245	222-225	222-225 AMATEUR	Amateur Radio (97)
223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247	225-235 FIXED MOBILE	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	225-235 FIXED MOBILE	225-235	
230-235 FIXED MOBILE 5.247 5.251 5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250	G27		
235-267 FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A			235-267 FIXED MOBILE 5.111 5.256 G27 G100	235-267 5.111 5.256	Page 24

456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288			456-459 5.287 5.288	456-460 FIXED LAND MOBILE	Public Mobile (22) Maritime (80) Private Land Mobile (90)
459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460	5.287 5.288 NG12 NG112 NG124 NG148	
460-470 FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			460-470 Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 US73 US201 US209	460-462.5375 FIXED LAND MOBILE 5.289 US201 US209 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE 5.289 US201	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE 5.287 5.289 US73 US201 US209 NG124	Private Land Mobile (90)
				467.5375-467.7375 LAND MOBILE 5.287 5.289 US201	Personal Radio (95)
				467.7375-470 FIXED LAND MOBILE 5.288 5.289 US73 US201 NG124	Maritime (80) Private Land Mobile (90)
470-790 BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298	470-608	470-608 FIXED MOBILE BROADCASTING NG5 NG14 NG115	Public Mobile (22) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90)
	512-608 BROADCASTING 5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307	608-614 LAND MOBILE (medical telemetry and medical telecommand) RADIO ASTRONOMY US74 US246		Personal Radio (95)
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)				
	614-698 BROADCASTING Fixed Mobile 5.293 5.309 5.311A	610-890 FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.311A 5.320	614-698	614-698 FIXED MOBILE BROADCASTING NG5 NG14 NG115	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)

PART 15 – RADIO FREQUENCY DEVICES

3. The authority for Part 15 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, 304, 307, 336, and 544a.

4. Section 15.38 is amended by adding new paragraphs (b)(14) and (b)(15) to read as follows:

§ 15.38 Incorporation by Reference.

* * * * *

(b) * * *

(14) ANSI/CEA-2032-A: "Indoor TV Receiving Antenna Performance Standard," May 2005, IBR approved for § 15.117(l).

(15) ANSI/CEA-744-B: "TV Receiving antenna Performance Presentation and Measurement," February 2009, IBR approved for § 15.117(l).

5. Section 15.117 is amended by adding new paragraph (l) to read as follows:

§ 15.117 TV Broadcast Receivers.

* * * * *

(l) *Indoor Antennas.* Effective [12 MONTHS AFTER ADOPTION OF THE FINAL ORDER IN THIS PROCEEDING], antennas intended for indoor reception of television broadcast service shall comply with the standards set forth in ANSI/CEA-2032-A: "Indoor TV Receiving Antenna Performance Standard," May 2005, (incorporated by reference, *see* § 15.38(c)), including the requirement for measurements in accordance with the procedures set forth in ANSI/CEA-744-B: "TV Receiving antenna Performance Presentation and Measurement," February 2009, (incorporated by reference, *see* § 15.38(c). Antennas that are built-in to, or designed for use with specific devices, such as portable television receivers, dongles, laptop computers, and similar TV reception equipment are not be subject to this requirement.

PART 73 – RADIO BROADCAST SERVICES

6. The authority for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334 and 336

7. Section 73.616 is amended by adding new paragraph (e)(3) to read as follows:

§ 73.616 Post-transition DTV station interference protection.

* * * * *

(e) * * *

(3) The facilities of a post-transition DTV allotment are as follows:

(i) For a station that operates on a channel 2-6 allotment, the allotment ERP is 40 kW if its antenna HAAT is at or below 305 meters and the station is located in Zone I or 45 kW if its HAAT is at or below 305 meters and the station is located in Zone II or Zone III. For a station located in Zone I that operates on channels 2-6 with HAAT that exceeds 305 meters, the allotment ERP, expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP = 92.57 - 33.24*\log_{10}(HAAT)$

For a station located in Zone II or Zone III that operates on channels 2-6 with an antenna HAAT that exceeds 305 meters, the allotment ERP level is determined from the following table (the allotment ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

Allotment ERP and Antenna
Height for DTV Stations in Zones II or III
On Channels 2-6

Antenna HAAT (meters)	ERP (kW)
610	10
580	11
550	12
520	14
490	16
460	19
425	22
395	26
365	31
335	37
305	45

For a DTV station located in Zone II or Zone III that operates on channels 2-6 with an antenna HAAT that exceeds 610 meters, the allotment ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP = 57.57 - 17.08*\log_{10}(HAAT)$

(ii) For a station that operates on a channel 7-13 allotment, the allotment ERP is 120 kW if its antenna HAAT is at or below 305 meters and the station is located in Zone I or 160 kW if its HAAT is at or below 305 meters and the station is located in Zone II or Zone III. For a station located in Zone I that operates on channels 7-13 with HAAT that exceeds 305 meters, the allotment ERP, expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP = 97.35 - 33.24*\log_{10}(HAAT)$

For a station located in Zone II or Zone III that operates on channels 7-13 with an antenna HAAT above 305 meters, the allotment ERP level is determined from the following table (the allotment ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

Allotment ERP and Antenna
Height for DTV Stations in Zones II or III
On Channels 7-13

Antenna HAAT (meters)	ERP (KW)
610	30
580	34
550	40
520	47
490	54
460	64
425	76
395	92
365	110
335	132
305	160

For a station located in Zone II or Zone III that operates on channels 7-13 with an antenna HAAT that exceeds 610 meters, the allotment ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$ERP = 62.34 - 17.08*\log_{10}(HAAT)$$

(iii) For a station that operates on a channel 14-51 allotment, the allotment ERP is 1000 kW if its antenna HAAT is at or below 365 meters. At higher antenna HAAT levels, the allotment ERP level for such a station is determined from the following table (the allotment ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

Allotment ERP and Antenna
Height for DTV Stations
On Channels 14-51, All Zones

Antenna HAAT (meters)	ERP (kW)
610	10
580	11
550	12
520	14
490	16
460	19
425	22
395	26
365	31

For a station located in Zone I, II or III that operates on channels 14-51 with an antenna HAAT that exceeds 610 meters, the allotment ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$$ERP = 72.57 - 17.08*\log_{10}(HAAT)$$

8. Section 73.622 is amended by revising paragraphs (f)(6) and (f)(7) to read as follows:

§ 73.622 Digital television table of allotments.

* * * * *

(f) * * *

(6) A DTV station that operates on a channel 2-6 allotment will be allowed a maximum ERP of 40 kW if its antenna HAAT is at or below 305 meters and the station is located in Zone I or a maximum ERP of 45 kW if its HAAT is at or below 305 meters and the station is located in Zone II or Zone III. An existing DTV station that operates on a channel 2-6 allotment may request an increase in power and/or HAAT up to these power levels, provided that the increase also complies with the provisions of paragraph (f)(5) of this section.(i) For DTV stations located in Zone I that operate on channels 2-6 with an antenna HAAT that exceeds 305 meters, the allowable maximum ERP, expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP_{max} = 98.57\text{-}33.24*\log_{10}(HAAT)$

(ii) For DTV stations located in Zone II or Zone III that operate on channels 2-6 with an antenna HAAT that exceeds 305 meters, the allowable maximum ERP level is determined from the following table (the allowable maximum ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

Maximum Allowable ERP and Antenna
Height for DTV Stations in Zones II or III
On Channels 2-6

Antenna HAAT (meters)	ERP (KW)
610	10
580	11
550	12
520	14
490	16
460	19
425	22
395	26
365	31
335	37
305	45

(iii) For DTV stations located in Zone II or Zone III that operate on channels 2-6 with an antenna HAAT that exceeds 610 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP_{max} = 57.57\text{-}17.08*\log_{10}(HAAT)$

(7) A DTV station that operates on a channel 7-13 allotment will be allowed a maximum ERP of 120 kW if its antenna HAAT is at or below 305 meters and the station is located in Zone I or a maximum ERP of 160 kW if its HAAT is at or below 305 meters and the station is located in Zone II or Zone III. An existing DTV station that operates on a channel 7-13 allotment may request an increase in power and/or HAAT up to these power levels, provided that the increase also complies with the provisions of paragraph (f)(5) of this section.

(i) For DTV stations located in Zone I that operate on channels 7-13 with an antenna HAAT that exceeds 305 meters, the allowable maximum ERP, expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP_{max} = 103.35\text{-}33.24*\log_{10}(HAAT)$

(ii) For DTV stations located in Zone II or Zone III that operate on channels 7-13 with an antenna HAAT above 305 meters, the allowable maximum ERP level is determined from the following table (the allowable maximum ERP for intermediate values of HAAT is determined using linear interpolation based on the units employed in the table):

Maximum Allowable ERP and Antenna
Height for DTV Stations in Zones II or III
On Channels 7-13

Antenna HAAT (meters)	ERP (KW)
610	30
580	34
550	40
520	47
490	54
460	64
425	76
395	92
365	110
335	132
305	160

(iii) For DTV stations located in Zone II or Zone III that operate on channels 7-13 with an antenna HAAT that exceeds 610 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:

$ERP_{max} = 62.34\text{-}17.08*\log_{10}(HAAT)$

• * * * *

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act (RFA),[1] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this *Notice of Proposed Rule Making* (*NPRM*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for specified on the first page of this *NPRM*. The Commission will send a copy of this *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

A. Need for, and Objectives of, the Proposed Rules

2. In this Notice of Proposed Rulemaking the Commission is initiating a process to address America's growing demand for wireless broadband services, spur ongoing innovation and investment in mobile and ensure that America keeps pace with the global wireless revolution, by making a significant amount of new spectrum available for broadband. Through this Notice, we take preliminary steps to repurpose a portion of the UHF and VHF frequency bands that are currently used by the broadcast television service, which in later actions we expect to make available for flexible use by fixed and mobile wireless communications services, including mobile broadband. This approach is consistent with the National Broadband Plan (the "*Plan*")[4] recommendation to repurpose 120 megahertz from the broadcast television bands for new wireless broadband uses through revising (repacking) the channel assignments of TV stations and voluntary contributions of spectrum to an incentive auction. Reallocation of this spectrum as proposed will provide the Commission flexibility in providing additional spectrum resources for meeting the needs of these new applications. At the same time, we recognize that over-the-air TV serves important public interests, and our approach will help preserve this service as a healthy, viable medium. We remain mindful of the informational and entertainment benefits broadcast television provides the public, and our goal is to provide additional options for broadcast licensees.

B. Legal Basis

3. The proposed action is authorized under Sections 4(i), 301, 302, 303(e), 303(f), 303(r),of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 301, 302, 303(e), 303(f), and 303(r) .

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

4. The RFA directs agencies to provide a description of and, where feasible, an estimate of the

[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[2] *See* 5 U.S.C. § 603(a).

[3] *Id.*

[4] *See Connecting America: The National Broadband Plan*, Federal Communications Commission, Washington, DC (March 2010); available at http://www.broadband.gov/plan/. The *Plan* was developed by the Commission pursuant to the direction of Congress in the American Recovery and Reinvestment Act of 2009 (Recovery Act), *see* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

number of small entities that may be affected by the proposed rules, if adopted.[5] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[6] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[7] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[8]

5. **Television Broadcasting.** This Economic Census category "comprises establishments primarily engaged in broadcasting images together with sound. These establishments operate television broadcasting studios and facilities for the programming and transmission of programs to the public."[9] The SBA has created the following small business size standard for Television Broadcasting firms: those having $14 million or less in annual receipts.[10] The Commission has estimated the number of licensed commercial television stations to be 1,395.[11] In addition, according to Commission staff review of the BIA Publications, Inc., Master Access Television Analyzer Database (BIA) on March 30, 2007, about 986 of an estimated 1,395 commercial television stations (or approximately 72 percent) had revenues of $13 million or less.[12] We therefore estimate that the majority of commercial television broadcasters are small entities.

6. We note, however, that in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations[13] must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, an element of the definition of "small business" is that the entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply does not exclude any television station from the definition of a small business on this basis and is therefore possibly over-inclusive to that extent.

7. In addition, the Commission has estimated the number of licensed noncommercial educational (NCE) television stations to be 390.[14] These stations are non-profit, and therefore considered

[5] 5 U.S.C. § 603(b)(3).

[6] 5 U.S.C. § 601(6).

[7] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[8] Small Business Act, 15 U.S.C. § 632 (1996).

[9] U.S. Census Bureau, 2007 NAICS Definitions, "515120 Television Broadcasting" (partial definition); http://www.census.gov/naics/2007/def/ND515120.HTM#N515120.

[10] 13 C.F.R. § 121.201, NAICS code 515120 (updated for inflation in 2008).

[11] *See FCC News Release*, "Broadcast Station Totals as of June 30, 2009," dated September 4, 2009; http://www.fcc.gov/Daily_Releases/Daily_Business/2008/db0318/DOC-280836A1.pdf.

[12] We recognize that BIA's estimate differs slightly from the FCC total given *supra*.

[13] "[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties controls or has to power to control both." 13 C.F.R. § 21.103(a)(1).

[14] *See FCC News Release*, "Broadcast Station Totals as of June 30, 2009," dated September 4, 2009; http://www.fcc.gov/Daily_Releases/Daily_Business/2008/db0318/DOC-280836A1.pdf.

to be small entities.[15]

8. In addition, there are also 2,386 low power television stations (LPTV).[16] Given the nature of this service, we will presume that all LPTV licensees qualify as small entities under the above SBA small business size standard.

9. **Cable Television Distribution Services.** Since 2007, these services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies."[17] The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: all such firms having $13.5 million or less in annual receipts.[18] According to Census Bureau data for 2002, there were a total of 1,191 firms in this previous category that operated for the entire year.[19] Of this total, 1,087 firms had annual receipts of under $10 million, and 43 firms had receipts of $10 million or more but less than $25 million.[20] Thus, the majority of these firms can be considered small.

10. **Cable Companies and Systems.** The Commission has also developed its own small business size standards, for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers, nationwide.[21] Industry data indicate that, of 1,076 cable operators nationwide, all but eleven are small under this size standard.[22] In addition, under the Commission's rules, a "small system" is a cable system serving 15,000 or fewer subscribers.[23] Industry data indicate that, of 6,635 systems nationwide, 5,802 systems have under 10,000 subscribers, and an additional 302 systems have 10,000-19,999 subscribers.[24] Thus, under this second size standard, most cable systems are small.

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[15] *See generally* 5 U.S.C. §§ 601(4), (6).

[16] *See FCC News Release*, "Broadcast Station Totals as of June 30, 2009," dated September 4, 2009; http://www.fcc.gov/Daily_Releases/Daily_Business/2008/db0318/DOC-280836A1.pdf.

[17] U.S. Census Bureau, 2007 NAICS Definitions, "517110 Wired Telecommunications Carriers" (partial definition); http://www.census.gov/naics/2007/def/ND517110.HTM#N517110.

[18] 13 C.F.R. § 121.201, NAICS code 517110.

[19] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, Table 4, Receipts Size of Firms for the United States: 2002, NAICS code 517510 (issued November 2005).

[20] *Id.* An additional 61 firms had annual receipts of $25 million or more.

[21] 47 C.F.R. § 76.901(e). The Commission determined that this size standard equates approximately to a size standard of $100 million or less in annual revenues. *Implementation of Sections of the 1992 Cable Act: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393, 7408 (1995).

[22] These data are derived from: R.R. Bowker, *Broadcasting & Cable Yearbook 2006*, "Top 25 Cable/Satellite Operators," pages A-8 & C-2 (data current as of June 30, 2005); Warren Communications News, *Television & Cable Factbook 2006*, "Ownership of Cable Systems in the United States," pages D-1805 to D-1857.

[23] 47 C.F.R. § 76.901(c).

[24] Warren Communications News, *Television & Cable Factbook 2008*, "U.S. Cable Systems by Subscriber Size," page F-2 (data current as of Oct. 2007). The data do not include 851 systems for which classifying data were not available.

11. **Cable System Operators**. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000."[25] The Commission has determined that an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate.[26] Industry data indicate that, of 1,076 cable operators nationwide, all but ten are small under this size standard.[27] We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million,[28] and therefore we are unable to estimate more accurately the number of cable system operators that would qualify as small under this size standard.

D. Description of Projected Reporting, Recordkeeping, and other Compliance Requirements for Small Entities

12. The specific bands under consideration are the low VHF spectrum at 54-72 MHz (TV channels 2-4) and 76-88 MHz (TV channels 5 and 6), the high VHF spectrum at 174-216 MHz (TV channels 7-13), and the UHF bands at 470-608 MHz (TV channels 14-36) and 614-698 MHz (TV channels 38-51); for purposes of this Notice, we will refer to this spectrum as the "U/V Bands."[29] This Notice proposes three actions that will establish the underlying regulatory framework to facilitate wireless broadband uses of the U/V Bands, without affecting current license assignments in the band. First, we are proposing to add new allocations for fixed and mobile services in the U/V Bands to be co-primary with the existing broadcasting allocation in those bands. The additional allocations would provide the maximum flexibility for planning efforts to increase spectrum available for flexible use, including the possibility of assigning portions of the U/V Bands for new mobile broadband services in the future. Second, we are proposing to establish a framework that permits two or more television stations to share a single six-megahertz channel, thereby enhancing efficient use of the U/V Bands. Third, we intend to consider approaches to create value for television viewers and broadcasters by increasing the utility of the VHF bands for the operation of television services.

13. By establishing the underlying regulatory framework to facilitate wireless broadband uses in the U/V Bands, this Notice is the first in a series of actions that will allow us to make progress toward our goal of improving efficient use of the bands and enable ongoing innovation and investment through flexible use. We will propose further actions consistent with other of the *Plan's* recommendations for the U/V Bands, including, but not limited to, the process of voluntarily returning broadcast licenses to the Commission and the licensing process and service rules for new fixed and mobile wireless communications services.

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[25] 47 U.S.C. § 543(m)(2); *see* 47 C.F.R. § 76.901(f) & nn. 1-3.

[26] 47 C.F.R. § 76.901(f); *see* Public Notice, *FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, DA 01-158 (Cable Services Bureau, Jan. 24, 2001).

[27] These data are derived from: R.R. Bowker, *Broadcasting & Cable Yearbook 2006*, "Top 25 Cable/Satellite Operators," pages A-8 & C-2 (data current as of June 30, 2005); Warren Communications News, *Television & Cable Factbook 2006*, "Ownership of Cable Systems in the United States," pages D-1805 to D-1857.

[28] The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority's finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission's rules. *See* 47 C.F.R. § 76.909(b).

[29] The band 608-614 MHz, *i.e.*, TV channel 37, is used for radio astronomy and is not part of the spectrum being considered for reallocation. *See* 47 C.F.R. § 2.106., US 74 and US 246.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

14. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[30]

15. We do not propose in this Notice to specify a band plan for the spectrum to be recovered, we do, however, request comment on how we should re-configure the current U/V Bands to ensure that the services involved, *i.e.*, broadcast television as well as new fixed and mobile services, can best be supported. Recognizing that UHF spectrum is useful for mobile services, one approach would be to select the spectrum to be recovered from the upper portion of the UHF band and designate it for use by the wireless communications service (WCS). This would effectively extend the current allocation plan and WCS spectrum in the adjacent WCS bands at 700 MHz (WCS 700 MHz bands) to include new lower adjacent frequencies. Alternatively, it might be technically desirable to configure the bands to provide paired spectrum in separate bands for broadband applications, or to designate a portion of the spectrum for unpaired uses or different wireless services. For example, current rules in the U/V Band allow for unlicensed use of unassigned channels ("white spaces"), and the *Plan* recommended the creation of a nationwide contiguous band for unlicensed use. We also request comment on whether a new U/V Band plan should incorporate an unlicensed block of spectrum, or if other bands would be better suited to this purpose.

16. We seek comment on other areas of interest with respect to channel sharing in conjunction with the recommendations of the National *Plan*. We welcome comments from stations that anticipate that they may participate in channel sharing as well as from other interested parties.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

17. None.

[30] *See* 5 U.S.C. § 603(c).

STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI

Re: ***Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF,*** **ET Docket No. 10-235, Notice of Proposed Rulemaking.**

This item is the first of three the Commission is considering today that will help meet our nation's need for cutting-edge wireless services and technologies for the 21st Century – helping spur our economy and create jobs. One way to think of spectrum is as "invisible infrastructure." Though you can't see it, spectrum is the backbone of our mobile communications infrastructure – and so is essential to one of the most robust and promising sectors of our economy.

We are at an inflection point with our invisible infrastructure. The explosive growth in mobile communications threatens to outpace the infrastructure on which it relies. I've said this before, but it bears repeating and emphasis: If we don't act to update our spectrum policies for the 21st century, we're going to run into a wall – a spectrum crunch – that will stifle American innovation and economic growth and cost us the opportunity to lead the world in mobile communications.

The spectrum crunch threatens to create millions of dissatisfied consumers, who – if we don't tackle this challenge – will be forced to choose between poor service and higher prices.

As we outlined in the National Broadband Plan and more recently at the FCC's Spectrum Summit, we have a two-pronged plan for bridging the gap between spectrum supply and demand. First, we'll pursue policies to drive the most efficient and flexible use of spectrum. Second, we'll seek to bring market forces to bands of spectrum where markets currently aren't given the opportunity to work.

This item advances both goals. It starts what I hope will become a landmark rulemaking to bring efficiency to the use of our TV broadcast spectrum, and lays essential groundwork for market-based policies in the form of voluntary incentive auctions, which I strongly hope Congress authorizes in the near future.

The roughly 300 MHz of spectrum in the TV bands is among the most robust available. Beachfront property. The transition to digital made it possible to transmit over-the-air broadcast programming using less spectrum than before. While some stations are seizing the opportunity to offer multicast streams or mobile TV that serve the public interest, others are not.

We might think of the steady stream of broadcast DTV transmissions as trains with a fixed number of boxcars delivering digital content – but many of the boxcars are empty. This spectrum is too valuable – and our spectrum needs too great – for it to be used inefficiently. Especially given that less than 10% of Americans receive broadcast television only through over-the-air spectrum signals.

Yet our rules currently don't permit certain types of efficient use, such as channel sharing. To stick with the metaphor, channel sharing would allow two or more TV stations to fill the boxcars on a train of spectrum. Today's rulemaking proposes rules for voluntary channel sharing, increased flexibility of allocations, and seeks comment on improving VHF reception. In so doing we lay important groundwork for incentive auctions in the broadcast TV band. Our goal is to be ready to move quickly in the event that Congress authorizes incentive auctions.

I believe that moving forward with incentive auctions is vital to our economy and to American consumers. By bringing market forces to broadcast spectrum, it would free up airwaves for mobile broadband, drive private investment, enhance our global competitiveness, and lead to improved service to consumers. It would also yield significant revenue for the Treasury.

It is fair to broadcasters, providing additional optionality, while recognizing broadcasters' important ongoing obligation to serve the public interest and the needs of viewers who continue to rely only on over-the-air broadcasting.

The action we take today is our first formal step to set the stage for incentive auctions. It's perhaps reminiscent of an action taken more than 20 years ago at the Commission, when the FCC started a process to provide for digital television. While it wasn't headline news at the time, it ultimately led to the emergence of a new generation of TV technology and freed more than 100 megahertz of spectrum that is about to usher in Fourth Generation or 4G wireless services and technologies and new broadband services for public safety.

We know it will not be easy to free up spectrum for mobile broadband from the existing broadcast TV band. Neither was the process that led to the DTV transition and the resulting freeing of spectrum. Yet it is at least as necessary as the process that began more than 20 years ago. And, because of how fast our global competitors are moving, it's essential that we move rapidly. We don't have anywhere close to 20 years.

We can't afford to fall behind, and that is why today, we take this important step to begin the process of freeing up a significant amount of broadcast TV spectrum for mobile broadband.

I thank the staff of the Office of Engineering and Technology, the Wireless Bureau, and the Media Bureau, and the Office of the General Counsel for their hard work on this item. This item is a great example of how we can achieve a great product through close collaboration among Bureaus and Offices.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

Re: ***Innovation in the Broadcast Television Bands; Allocations, Channel Sharing and Improvements to VHF,*** **ET Docket No. 10-235, Notice of Proposed Rulemaking.**

I approach today's Notice with cautious optimism as we begin to contemplate spectrum innovation and how to make the best use of the spectrum we have. I agree that we need to act in a forward-looking manner to realize the tremendous promise of wireless broadband. There are a number of ways to help accomplish this, but we are going to be called upon to think really creatively—and outside the proverbial box—in order to make it a success. I think of this item as contingency planning for the better allocation of spectrum, and that applies to the concept of channel sharing. We don't yet know whether legislative action or economic conditions will allow for implementation of the full range of spectrum recommendations put forth in the National Broadband Plan, but we do know that we need to be smarter about spectrum utilization and that we need to maximize spectrum performance so that it may better serve the many communications needs of the American people.

I am, of course, mightily interested in the future of broadcasting. At the outset, I commend the Notice's recognition of the public value that free-to-all, over-the-air television can bring to American citizens. Many broadcasters have worked hard to turn this value into reality. I believe in the power of broadcasting and the potential for broadcasters to not only survive, but to thrive, if they will but recognize their strengths and the advantages that localism and the public-spirited administration of the airwaves bring to them. It's an advantage that not all—in fact, not nearly enough—broadcasters have pursued. It is no secret that I have been disappointed that so much of the spectrum dividend that accrued to broadcasters as a result of the DTV transition goes dramatically under-utilized. I am not interested in pushing broadcasters somewhere else or in discouraging their enhanced public interest stewardship of the airwaves. But public interest multi-casting remains, all too often, a concept—not a reality. I speak only for myself in saying that had this spectrum been put to such positive use, I would have little interest in contemplating other uses of it. But here we are, trying to divine how scarce and sometimes under-utilized spectrum can best serve consumers and citizens. Between now and such time as channel sharing and incentive auctions and all the rest come our way, maybe more broadcasters will come to see the wisdom of harvesting greater public benefits from the spectrum they are licensed to use.

One of the greatest challenges facing us, as we work to identify spectrum for wireless broadband and other uses, is to make sure that we have a comprehensive understanding of the current spectrum landscape. Surely our future success will depend not only on an understanding of our current spectrum allocations and assignments, but also on its actual use. That's why I am so glad that we continue to make progress on our Spectrum Dashboard—which will require ongoing commitment and resources to achieve its full potential. I know from my experience during the Digital TV transition that major changes in spectrum use can raise many issues, some unforeseen, and require concerted outreach to, and work with, consumers and industry. Consumers generally don't concern themselves much about the arcane details of spectrum allocation, nor should they have to, but they do rightly care that when they turn on a TV or make a call on a smart-phone, it works. And so we must begin a balancing act, weighing the needs and requirements of today and tomorrow.

I am pleased that we ask some difficult questions in this Notice. We need to understand the regulatory framework under which channel sharing would be allowed, the technical implications for broadcasters and viewers, and how any changes would affect over-the-air broadcasting. We also examine ways to improve TV reception in the VHF spectrum. This latter won't be easy, believe me—we looked everywhere we could during the DTV transition, and real remedies were few and far between. Let's hope the months ahead lead us to some genuine innovation.

We do seem to have a consensus that some considerable new amount of spectrum will be required in the wireless world. Without additional spectrum, wireless consumers could face degraded service and/or higher prices. This concerns me. But it also concerns me that—without other safeguards—auctioning off massive amounts of spectrum to incumbent wireless providers may not necessarily result in more consumer-friendly pricing and service. Additional spectrum is, to be sure, an important part of the wireless solution. The whole solution it isn't. I suppose that's the difference between physical spectrum and spectrum policy.

So, this is a good and necessary item. We are teeing up questions that need to be answered, and if there are questions we don't ask, I hope commenters will answer them anyhow. We'll all pay attention! Thank you to Julie Knapp and the team at the Office of Engineering and Technology for the thorough job they did on a very complicated item. Their work continues to amaze me.

STATEMENT OF
COMMISSIONER ROBERT M. MCDOWELL

Re: ***Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF,*** **ET Docket No. 10-235, Notice of Proposed Rulemaking.**

With this Notice, we launch one key initiative in the Commission's larger, ongoing quest to make the most productive use of our nation's spectrum resources. The issue of future uses within the television broadcast band is only part of our overall policy focus on spectrum issues, but it may be the most prominent one. As we go forward in this proceeding, I will remain mindful of the significant public interest benefits that broadcasters deliver. I also understand the need to ensure that any new rules allowing for more flexible uses within the TV band must leave incumbent broadcast licensees with viable opportunities to experiment with their own mix of wireless services, including but not limited to traditional broadcasting.

At the same time, I am excited about the prospects of exploring options for wireless broadband services within the frequencies currently devoted to over-the-air television. Although the Notice directs much of its attention to the concept of voluntary "channel sharing" among broadcasters, I have not reached any conclusion as to whether that approach is the best possible option for getting the most out of the TV band. I would like commenters to tell us more about the feasibility of alternatives that may be used in lieu of, or in conjunction with, channel sharing.

For example, broadcasters already are empowered under Section 336 of the Communications Act to offer a flexible range of "ancillary or supplemental" wireless services in addition to their "primary" broadcast program stream. I've been a longtime proponent of encouraging broadcasters to lease some of their spectrum for wireless broadband purposes, and now is the time to dig into this concept seriously. How would this approach work in the context of increasing the availability of wireless broadband? What are the technical issues, as well as the business feasibility issues? Would this approach be a faster means of getting more spectrum for broadband into the marketplace than the channel-sharing concept? What are the relative strengths and weaknesses of the plan for channel sharing, eventual spectrum-clearing and repacking versus the concept of allowing broadcasting and broadband uses to be interwoven throughout the existing TV band?

I also will review with great interest the submissions we receive on the topic of potential technical improvements for digital broadcasting on VHF channels. As one of the two remaining veteran commissioners of the digital television transition, I have not forgotten the difficult and unanticipated challenges that we and broadcasters on those channels faced at the time of the analog shut-off. Both industry and FCC engineers scrambled throughout the spring and summer of 2009 to try to overcome interference and other reception problems associated with VHF channels. What had been prime real estate in the days of analog broadcasting sometimes became a rough neighborhood in the new digital era. Before the Commission takes action that might lead to more broadcasters

moving back into those channels, I will want to fully understand the ramifications of such a decision.

I thank the staff members in the Office of Engineering and Technology and the Media Bureau for their work on this Notice.

STATEMENT OF COMMISSIONER MIGNON L. CLYBURN

Re: ***Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF,*** **ET Docket No. 10-235, Notice of Proposed Rulemaking**

I strongly support efforts to encourage more efficient use of all spectrum including broadcast spectrum. So if certain broadcasters are under-utilizing the spectrum we have licensed to them, and for those who are willing to do so on a voluntary basis, I am supportive of any recovery mechanism that would best benefit the public interest. Additionally, I endorse actions that give all of our licensees more flexibility, which will allow for more innovation and competition that will ultimately benefit consumers.

We also have, however, a significant obligation to protect the important public benefits that over-the-air broadcast TV provides for our Nation. As we progress through this, and other proceedings related to the National Broadband Plan's recommendation for reallocating 120 MHz of broadcast spectrum for broadband services, we should carefully study the possible impact that removing broadcast spectrum could have on *all* consumers in local communities.

But I cannot stress enough that we must pay careful attention to those who are most vulnerable to the loss of broadcast television. We learned during the DTV transition that a large number of Americans, such as seniors and the very poor continue to rely on broadcast TV to stay informed. Those communities that heavily depend on broadcast programming should not have to sacrifice those benefits in order for our Nation to attain wireless broadband services. I encourage our staff to work closely with broadcasters and consumer advocates, so that we arrive at a long-term solution that properly balances both of these important interests.

STATEMENT OF COMMISSIONER MEREDITH ATTWELL BAKER

Re: ***In the Matter of Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF,* ET Docket No. 10-235 Notice of Proposed Rulemaking**

This proceeding is the beginning of a process to evaluate the best means to modernize our spectrum rules for the TV bands. This should be a collaborative process, and we should not begin with preconceived end states or assumptions about particular future uses. Over-the-air broadcasters, mobile broadband providers, and other innovators need the opportunity to help craft rules that will serve the public interest and provide for a robust future for broadcasting and broadband. I believe strongly that we cannot lock in today's technology or business plan for any spectrum user whether it be broadcast or broadband. Central to that principle, we should always aim to provide a future path for innovation and investment, and I am hopeful we can achieve that proper balance in this proceeding. A path focused on future opportunity necessarily requires all stakeholders to demonstrate a willingness to question the status quo and work cooperatively.

We should start every discussion of the TV bands with the recognition that it has only been a year and five months since the full power broadcasters completed their transition to digital. Any successful transition of an additional portion of the TV bands to mobile broadband use should be a consensus-driven process. To facilitate it, we should encourage new technology and innovation in—and more broadly new thinking about—how broadcasters and broadband providers can co-exist.

This Notice takes a number of steps to optimize spectrum usage in the TV bands and provide broadcasters with greater flexibility in how spectrum is used, a hallmark of our modern spectrum policy across bands. To that end, I support the Commission's efforts to add allocations for fixed and mobile services in the UHF and VHF bands. Our overall flexible approach is also evident in the fact that the item does not specify a future band plan for recovered spectrum. I also support proposals to improve operating conditions in the VHF band. As we all know, there were real consequences for reception of VHF signals as a result of the DTV transition.

I accept that this item represents an initial step in updating our TV band rules. Significant and fundamental issues are deferred. In the future, there needs to be a fulsome discussion on additional innovative proposals to address sharing of broadband and broadcast in the TV bands, including the possibility of a broadcast transition from MPEG-2 to MPEG-4, the adoption of a more cellularized broadcast system, or a transition from ATSC to OFDM technologies. These are by no means the only potential approaches and may have their own weaknesses and strengths. And in all fairness, we also should ask additional questions about the future applicability of public interest obligations on broadcast licensees. If the TV bands are to shift towards a more flexible spectrum model, it is only right to ask whether those use restrictions should also be revisited.

We should also acknowledge we need to partner with—and have a good working relationship with—Congress to give us the tools potentially necessary to effectuate our policy decisions. In particular, I am hopeful Congress will soon provide the Commission with authority to conduct incentive auctions as well as other tools to manage spectrum more effectively. These tools can help the Commission offer win-win situations to incumbent and new users of spectrum. Importantly, these are not tools—nor an approach—that should be limited to the TV bands. Indeed, it is critical that we stress that this proceeding is part of a much broader overarching cross-government spectrum reform effort to ensure our nation's long-term competitiveness and a bright future for spectrum-hungry mobile broadband services.

As we fully consider the future of the TV bands, we should also work to avoid the mistakes of the past where the practical impact of allocations in one band had a ripple effect across other users or

inhibited future efforts. In the TV bands, the challenges caused by wireless microphones are the most widely discussed, but the issues surrounding TV channel 51 warrant greater focus. Channel 51 is adjacent to the lower A block in 700 MHz. The presence of high-power broadcast operations in many communities may foreclose the opportunity to build out a broadband offering in 700 MHz. I appreciate that we seek comment on how best to avoid such situations, particularly as it relates to channel 37 and the uppermost channel dedicated to over-the-air broadcasting. If we view the TV bands and our spectrum policy more comprehensively, we can avoid some of these pitfalls going forward. We also cannot ignore the unintended consequences of our prior actions; we need to address existing impediments to investment like the channel 51 issue in an equitable and expedited manner.

I look forward to addressing all of these challenges with my fellow Commissioners. Many thanks to all the Staff who worked on this item.

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

APPROVE RECOMMENDATION OF TECHNICAL AND LEGISLATIVE COMMITTEES TO FILE COMMENTS IN RESPONSE TO THE FEDERAL COMMUNICATIONS COMMISSION'S ("FCC") FOURTH FURTHER NOTICE OF PROPOSAL RULEMAKING ("FNPRM")

SUBJECT

It is recommended that the Authority authorize the Task Force Leader to engage retained legal counsel to file comments to the FCC's FNPRM prior to the April 11, 2011 deadline.

BACKGROUND

On January 26, 2011, the FCC adopted a Third Report and Order (Order) and Fourth Further Notice of Proposed Rulemaking (FNPRM) that will significantly advance communications interoperability for our Nation's first responders. The rules adopted and proposed in the Order and FNPRM support the build out of robust, dedicated and secure mobile broadband networks that will enable public safety broadband users to share information, videos, photos and emails across departments and jurisdictions nationwide for day-to-day operations and during large-scale emergencies.

The Order and FNPRM requires all 700 MHz public safety mobile broadband networks to use a common air interface, specifically Long Term Evolution (LTE), to support roaming and interoperable communications and seeks comment on additional rules to enable nationwide interoperability. The FCC's actions build on the technical requirements that state and local 700 MHz broadband waiver recipients are already subject to in the early build out of their regional public safety broadband networks.

The FNPRM seeks public comment on, among other things:

- The architectural vision of the network;
- The effectiveness of open standards;
- Interconnectivity between networks;
- Network robustness and resiliency;
- Security and encryption;
- Coverage and coverage reliability requirements;
- Roaming and priority access between public safety broadband networks; and
- Interference coordination and protection.

AGENDA ITEM 9

The FCC seeks comments to the FNPRM. The deadlines for public comments and reply comments on the FNPRM are 45 days and 75 days, respectively, after publication in the Federal Registry. The FNPRM was published in the Federal Registry on February 24, 2011.

PURPOSE/ JUSTIFICATION OF RECOMMENDED ACTION

Immediately following the publication of the FNPRM, LA-RICS staff met to fully review the document and assess any potential impacts to LA-RICS. After careful review, the LA-RICS staff presented to the Technical Committee and the Legislative Committee a list of topics that they believe LA-RICS should submit comments to, which include:

- Support for broader interpretation of Section 337 of the Communications Act to permit use of the public safety spectrum by utilities and critical infrastructure entities
- Support the FCC's tentative conclusion that networks should have the ability to support both home-routed and local breakout roaming configurations
- Support the FCC's efforts to better engage public safety agencies to enter voluntary roaming agreements with commercial operators

Both the Technical Committee and Legislative Committee approved recommendations made by the LA-RICS staff.

FISCAL IMPACT/FINANCING

Legal fees from retained counsel will be charged to the LA-RICS fund. These costs are not reimbursable under the grants.

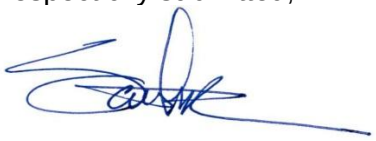
FACTS AND PROVISIONS/ LEGAL REQUIREMENT

The Authority's counsel and procurement officer have reviewed the recommended action.

AGREEMENTS/ CONTRACTING

On behalf of the Authority, the Task Force Leader, or his designee, will have full authority to engage legal counsel to file comments in response to the FNPRM by the April 11, 2011 deadline and pay all invoices associated with the filing.

Respectfully submitted,



Scott L. Poster
Task Force Leader
SLP:sjh

cc: Counsel to the Authority

Attachment : A) Comments To NPRM PS Docket No. 06-229
B) Technical Committee Comments on the NPRM PS Docket No. 06-229
C) FCC 11-6, 3rd Report & Order (R&O) and 4th Further Notice of Proposed RuleMaking (FNPRM) – PS Docket No. 06-229

Comments To NPRM PS Docket No. 06-229

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV Par.16/page 8	We propose to amend the Commission's definition of interoperability in Part 90 to harmonize it with DHS's because we believe that the broader definition is the true definition of interoperability we seek to achieve (i.e. ensuring that the public safety community, whoever and wherever they are, is able to communicate with one another.	LA-RICS strongly agrees with the broader definition of interoperability.
Section IV Par.16/page 8	We also seek comment on whether this definition should apply only to broadband communications, or should be extended to cover narrowband communications as well.	The Public safety community will be better served if the same definition is applied to narrowband communications.
Section IV A.2 Par.25/page 10	1. We seek comment on whether we should establish guiding principles for public safety broadband network architecture and, if so, whether the principles summarized above are the principles that should serve as the basis for this vision. Are there are other principles we should consider? For example, should we be looking at how to best maximize network efficiencies by sharing network resources such as core networks? Should shared infrastructure also be encouraged through such a vision in order to reduce costs of network deployment?	LA-RICS supports the FCC's position to allow resource sharing at the network of networks level.

AGENDA ITEM 9 – ATTACHMENT A

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV A.2 Par.26/page 10	1. We tentatively conclude that we should adopt such a framework for the architectural vision. We seek comment on this tentative conclusion. We also seek comment on how we can ensure that this architectural framework evolves to reflect the continued evolution of the network and its underlying technology. Is this a framework the Commission should adopt and manage, or is another entity better suited for this role? For example, should the Commission review these requirements on a regular basis, such as every two years? Is there another entity that would be better suited to address these principles? Could this be a role for the Emergency Response Interoperability Center Public Safety Advisory Committee (PSAC)? What should such a review process include and how can we ensure it will take into account technological advances on a timely basis? Are there third parties that might be better suited and how do we ensure that they have the technical capability to keep up with the pace of technology to ensure the framework evolves?	LA-RICS supports the FCC's tentative conclusion, with the placement of the technical and managerial decisions in the hands of the licensees and users. The PSBL should take the lead in assuring the technology advances are implemented at the network of networks level

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV A.3 *Par. 28/page 11*	1. In our *Third Report and Order* we require all 700 MHz public safety broadband networks to adopt LTE, a 3GPP standards-based technology, as a common technology platform.[1] We seek comment on whether we should take additional measures to encourage public safety broadband network operators to adopt technologies that employ open standards and if so, what should these be? What are the potential dangers to interoperability associated with the use of devices and equipment that employ proprietary technologies? How do we ensure that any such use does not negatively impact nationwide interoperability?	LA-RICS agrees with FCC's position to enforce open standards. If proprietary technology is required it must be licensed to all vendors or it should not be allowed to erode the open standard.

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV A.6 Par. 33/page 12	In comments responding to the Technical Public Notice, Alcatel-Lucent, Motorola and DC propose a hybrid scheme in which one separate PLMN ID would be assigned to each regional or tribal network and a single PLMN ID would be assigned for the overall nationwide network.2 The PSCR has also expressed support for such a scheme.3 These parties assert that assignment of a separate ID for each network is compliant with the 3GPP standards, and the assignment of a single ID for the whole nationwide network facilitates roaming to other regional or tribal public safety networks and to commercial networks. We seek comment on this proposed hybrid scheme for the assignment of PLMN ID numbers. What are the benefits and disadvantages of such an approach? Were we not to adopt this approach, would the use of a single nationwide PLMN ID be adequate to support the envisioned network-of-networks architecture?	LA-RICS supports a hybrid addressing scheme.

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV A.6 Par. 35/page 13	The 3GPP LTE standards set two categories of roaming: home-routed and local breakout. In home-routed roaming, the roamer's traffic is routed back to the home network to enable the use of home resources, while in local breakout roaming, the roamer utilizes the resources of the host network for desired services. The Waiver Order required the waiver recipients to support both methods.4 We tentatively conclude that all public safety broadband networks should have the ability to support both categories of roaming. We seek comment on this tentative conclusion	LA- RICS supports the FCC tentative conclusion to incorporate in the regulations that models currently used by Industry in their commercial systems including home routing and local breakout shall be allowed
Section IV A.6 Par. 36/page 13	1. In the Plan, a recommendation was also made to require certain broadband commercial carriers to accommodate roaming by public safety broadband users. If, in a separate proceeding outside the scope of this item, we pursued such a requirement for commercial operators, are there any requirements that we should then impose on public safety broadband operators in this proceeding to ensure that their networks can interoperate with commercial broadband operators? Should the Commission take efforts in this proceeding to better enable public safety agencies to enter voluntary roaming agreements with commercial operators? If so, what should these incentives be?	LA-RICS agrees with the FCC's tentative conclusion. The FCC should strongly enforce equal partnerships with current Commercial Carriers.

REFERENCE SECTION Par./Page	*FCC Statement*	*Comment*
Section IV F Par. 134 to135 page 37, 38	Paragraph 134 of FNPRM states "as a general matter, the Commission tentatively concluded that utility and critical infrastructure (CI) entities are not eligible for use of the public safety, in that they fail to meet the "sole or primary use" requirement of 337 (f) (I) (A)." However, on paragraph 135 FNPRM, the FCC: recognizes "the strong desire of many in the public safety community to include secondary users such as utilities, public works and others on their network as a mechanism to coordinate common activities and respond jointly to emergencies, as well as a method to spread costs and capitalize on infrastructure sharing opportunities. This policy goal is worth of pursuit in light of the otherwise uncertain nature of the funding need to ensure nationwide build out of the public safety broadband network."	With the proper nexus between mission critical and utility/critical infrastructure identified, and established, the FCC should be more willing to accept this quasi-public safety partnership and change the 337 statute. Such utilities-public safety partnership must include language placing utilities in a secondary, pre-emptible status.
Section IV F Par. 137 page 38	1. FCC should allow Non-Government organizations (NGO) to participate based on pre-determined lower priority levels; e.g. Red Cross, etc.	Similar argument discussed above, related to statute 337. Provided that such non-government organizations perform a mission critical role, such as private ambulance service, Red Cross Disaster Response, for example, and in the spirit of the argument to include Utilities to aid First Responders. Their inclusion must include language placing utilities in a secondary, pre-emptible status.

Comments on the

FCC's Third REPORT & ORDER (R&O) and Fourth FURTHER NOTICE OF PROPOSED RULE MAKING (FNPRM)

PS Docket No. 06-229

- Critical Infrastructure (CI) should be allowed on the Broadband System (BB)
- Government Utilities should be part of the BB as a secondary user on the CI; e.g. City of L.A. DWP
- FCC should maintain its traditional role as a regulatory body and not take the lead on the technical and operational aspects of interoperability
- Public Safety should take the lead via the appropriate organizations; i.e. PSST/PSBL and NPSTC
- FCC should establish the rules for the operational and interoperability standards based on input from the PSST/PSBL and NPSTC
- Public Safety should have a partnership with the Commercial Carriers and accepting their models for roaming
- FCC should allow Non-Governmental Organizations (NGO) to participate based on a pre-determined lower priority level; e.g. Red Cross, etc.

AGENDA ITEM 9 – ATTACHMENT B

Comments on the

FCC's Third REPORT & ORDER (R&O) and Fourth FURTHER NOTICE OF PROPOSED RULE MAKING (FNPRM)

PS Docket No. 06-229

- Critical Infrastructure (CI) should be allowed on the Broadband System (BB)
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- FCC should allow Non-Governmental Organizations (NGO) to participate based on a pre-determined lower priority level; e.g. Red Cross, etc.

AGENDA ITEM 9 – ATTACHMENT B

LOS ANGELES
REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM (LA-RICS) AUTHORITY

THIRD REPORT AND ORDER AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING

FCC 11-6

AGENDA ITEM 9 – ATTACHMENT C

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	WT Docket No. 06-150
	)	
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
	)	
Amendment of Part 90 of the Commission's Rules	)	WP Docket No. 07-100

THIRD REPORT AND ORDER AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING

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By the Commission: Chairman Genachowski and Commissioners Copps, McDowell, Clyburn, and Baker issuing separate statements.

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I. INTRODUCTION

1. In this *Third Report and Order* and *Fourth Further Notice of Proposed Rulemaking (Third R&O and Fourth Further Notice)*, we adopt rules and propose further rules to create an effective technical framework for ensuring the deployment and operation of a nationwide interoperable public safety broadband network. It has been almost ten years since the tragic events of September 11, 2001, and more than five years since Hurricane Katrina devastated the Gulf Coast. During those horrific events, and others, it became clear that the lack of a nationwide interoperable public safety network hampered rescue efforts and the overall effectiveness of public safety operations. Our action today takes an important step towards remedying the lack of such a network by establishing initial rules for a nationwide technical interoperable framework for the first nationwide broadband network for public safety.

II. BACKGROUND

2. The public safety spectrum band at issue in this proceeding is designated for public safety

broadband communications (763-768 MHz and 793-798 MHz).[1] This band is licensed on a nationwide basis to the Public Safety Broadband Licensee.[2] In 2007, the Commission recognizing the difficulties in funding and the need for an interoperable nationwide public safety broadband network, created a mandatory public-private partnership to facilitate these goals.[3] The Commission's plans did not come to fruition because Auction 73 failed to produce a winning bidder to participate in the partnership.[4]

3. The Commission subsequently issued both a *Second*[5] and *Third Further Notice of Proposed Rulemaking*[6] seeking comment on options to achieve the goal of an interoperable nationwide public safety network in light of this failure.

4. After the *Third Further Notice* was issued, a number of public safety jurisdictions filed petitions for waiver of the Commission's rules to allow them to deploy broadband networks in the public safety broadband spectrum.[7] The *Waiver Order* granted twenty-one public safety entities conditional waivers to pursue early deployment of statewide or regional broadband networks within their jurisdictions.[8] The *Waiver Order* imposed on the waiver recipients an initial set of technical requirements, which were subsequently supplemented by Order of the Bureau, in consultation with the Emergency Response Interoperability Center (ERIC).[9] The *Interoperability Waiver Order* sets forth the requirements to ensure that a 700 MHz broadband network deployed by the waiver recipients, and integrated into the national network, is interoperable on a nationwide basis.

III. THIRD REPORT AND ORDER

5. In its report on the events of September 11, 2001, the bipartisan 9/11 Commission cited the events of that day as "strong evidence that compatible and adequate communications among public safety organizations at the local, state and federal levels remains an important problem."[10] In this order,

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[1] *See* Service Rules for the 698-746, 747-762 and 777-792 Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, WT Docket No. 06-150, PS Docket No. 06-229, *Second Report and Order*, 22 FCC Rcd 15289, 15406 ¶ 322 (*Second Report and Order*).

[2] *See id.*

[3] *Id.* at 15428 ¶ 386.

[4] *See id.*; *see also* Auction of 700 MHz Band Licenses Closes, *Public Notice*, DA 08-595 (rel. Mar. 20, 2008) (*700 MHz Auction Closing Public Notice*). http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=73; Auction of the D Block License in the 758-763 and 788-793 Bands, AU Docket No. 07-157, *Order*, 23 FCC Rcd 5421, ¶ 5 (2008) (*D Block Post-Auction Order*).

[5] *See* Service Rules for the 698-746, 747-762 and 777-792 Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, WT Docket No. 06-150, PS Docket No. 06-229, *Second Further Notice of Proposed Rulemaking*, 23 FCC Rcd 8047 (2008) (*Second Further Notice*).

[6] Service Rules for the 698-746, 747-762 and 777-792 Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, WT Docket No. 06-150, PS Docket No. 06-229, *Third Further Notice of Proposed Rulemaking*, 23 FCC Rcd 14301 (2008) (*Third Further Notice*).

[7] *See* Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, DA 09-1819 (rel. Aug. 14, 2009) (*700 MHz Waiver Public Notice).*

[8] *See* Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order*, 25 FCC Rcd 5145, 5147 ¶ 7 (2010) (*Waiver Order).*

[9] *See* Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order,* DA 10-2342 (rel. Dec. 10, 2010) (*Interoperability Waiver Order*).

[10] NATIONAL COMMISSION ON TERRORIST ATTACKS UPON THE UNITED STATES, FINAL REPORT OF THE NATIONAL COMMISSION ON TERRORIST ATTACKS UPON THE UNITED STATES 397 (2004) (9/11 Commission Report). *See also* Statement of Former 9/11 Commission Chair Thomas H. Kean and Former 9/11 Commission Vice Chair Lee H. Hamilton on the Federal Communication Commission's Approach to Interoperable Communications Capabilities for Public Safety, Mar. 18, 2010, *available at* http://blog.broadband.gov/?entryId=297238 (Kean and Hamilton Statement); Statement of Former 9/11 Commissioners Jamie (continued....)

we take significant steps to address this problem by adopting rules to guide development of a nationwide interoperable public safety broadband network. First, to ensure nationwide interoperability, we mandate that all public safety broadband networks adopt LTE as a common technology platform. Second, in light of significantly changed circumstances since the unsuccessful attempt to implement a mandatory public/private partnership in 2008, we stay certain of our existing mandatory partnership rules in order to provide certainty during the pendency of this proceeding.

6. The approach adopted here is consistent with the Plan's public safety recommendations, which Chairman Thomas Kean and Vice-Chairman Lee Hamilton of the 9/11 Commission have described as offering "a clear roadmap" for achieving interoperable public safety communications.[11] The approach we embrace in this order, and develop further in our *Fourth Further Notice* below, will "provide public safety users throughout the country with access to wireless broadband capabilities that will enable them to communicate effectively across departments and jurisdictions, while encouraging public safety to partner with commercial providers and leverage the investments they already have made."[12]

A. A Common Technology Platform for the Nationwide Public Safety Broadband Network

7. In the *Second Report and Order*, we mandated that the shared network incorporate, among other technical specifications, "a broadband technology platform that provides mobile voice, video and data capability that is seamlessly interoperable across agencies, jurisdictions and geographic areas" and that also includes "current and evolving state-of-the-art technologies reasonably made available in the commercial marketplace with features beneficial to the public safety community (*e.g.*, increased bandwidth)."[13] We reiterated this baseline requirement in the *Third Further Notice*, where we tentatively concluded that "the shared wireless broadband network must provide for fixed and mobile voice, video and data capability"[14] and that the network "must use a common air interface."[15] Although we further concluded that "there [did] not appear to be a basis for a determination regarding the viability of any particular technology for shared network at [that] time," we clarified that "the record support[ed] a conclusion that two next generation technologies in particular, WiMAX and LTE, provide the most likely options to provide the necessary broadband level of wireless service to public safety entities."[16]

8. There is substantial support for our proposal to require use of a common air interface on the public safety broadband network. U.S. Cellular, for example, states that "an interoperable network of networks providing advanced public safety applications requires a common air interface,"[17] while NPSTC contends that "[v]arying technology platforms [would] present challenges to efficient and effective interoperability."[18] Moreover, Motorola argues that, "[b]y requiring a common technology from the start, the Commission would avoid migrations that are costly, time consuming, and ultimately unnecessary."[19] We agree with these commenters and therefore adopt our tentative conclusion to mandate adoption of a

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Gorelick and Slade Gorton on the Federal Communication Commission's Approach to Interoperable Communications Capabilities for Public Safety, Mar. 15, 2010, *available at* http://4.21.126.217/?entryId=268708.

[11] *See* Kean and Hamilton Statement.

[12] *See id.*

[13] *Third Further Notice* at 14336-37 ¶ 95.

[14] *Id.* at 14340 ¶ 106.

[15] *Id.* at 14342 ¶ 110.

[16] *Id.* at 14341 ¶ 108.

[17] U.S. Cellular Reply Comments on *Third Further Notice* at 15 (Nov. 12, 2008).

[18] NPSTC Reply Comments on *Third Further Notice* at 5 (Nov. 12, 2008).

[19] Motorola Reply Comments on *Third Further Notice* at 6 (Nov. 12, 2008).

common air interface for the nationwide public safety broadband network. Adoption of a common air interface will provide the first building block to ensure nationwide interoperability of the public safety broadband network. While this is only a small step in achieving the critical goal of interoperability, it is an important, widely supported first step.

9. Recently, a strong consensus has emerged in support of a particular technology platform, namely Long Term Evolution (LTE), as a common technology platform for the public safety broadband network.[20] APCO, for example, states that "public safety entities have been unanimous in their support of LTE."[21] The adoption of LTE for the public safety broadband network has also drawn support from wireless carriers and other stakeholders, such as AT&T, which urges the Commission to establish "technological standards and minimum system requirements" for public safety broadband networks "and ensure that all networks adopt the LTE radio technology and infrastructure."[22] Citing "broad support in the record for specifying LTE," we required in the *Waiver Order* that waiver recipients adopt the LTE air interface—specifically "at least 3GPP Standard, Evolved Universal Terrestrial Radio Access ('E-UTRA'), Release 8 ('LTE'), and associated Evolved Packet Core ('EPC')"—for their early deployments.[23] In setting this condition, we emphasized that we "[did] not impose a technical standard in the present case lightly,"[24] but that such condition was necessary "to provide a clear path for initial deployment and evolution" and to ensure "interoperability and roaming among these systems."[25]

10. Given the overwhelming record support for LTE among public safety organizations and other stakeholders, and the importance of ensuring that all public safety broadband networks adopt a common air interface in order to establish an important building block for interoperability, we will require that all networks deployed in the 700 MHz public safety broadband spectrum adopt LTE, specifically at least 3GPP Standard E-UTRA Release 8 and associated EPC.[26] We recognize that this requirement departs from the Commission's traditional posture of technological neutrality, which we believe has served the public interest well—including in the mobile wireless sector, where the flexibility for providers to choose their technology path has led to robust competition and innovation to the benefit of consumers. While we continue to believe in the importance of technological neutrality as a policy, we believe that, in the instant case, establishing a common air interface for 700 MHz public safety networks is necessary to achieve our critical goal of a nationwide interoperable public safety wireless broadband network. We reiterate our observation from the *Waiver Order* that "our overriding consideration here is to provide a reasonable and clearly defined path towards public safety interoperability, a goal that has proven previously to be elusive in the public safety narrowband context."[27] Our requirement simply

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[20] *See, e.g.*, APCO Comments on *National Broadband Plan Public Notice* #8 at 11 (Nov. 12, 2009); AT&T Comments on *National Broadband Plan Public Notice* #8 at 2 (Nov. 12, 2009); Verizon and Verizon Wireless Comments on NBP PN #8 at 6 (Nov. 12, 2009); Public Safety Spectrum Trust Comments on *700 MHz Public Safety Broadband Networks Waiver PN* at 11 (Aug. 4, 2009).

[21] APCO Comments on *National Broadband Plan Public Notice* #8 at 11; *see also* PSST Comments on *700 MHz Waiver Public Notice* at 11.

[22] AT&T Comments on *National Broadband Plan Public Notice* #8 at 2; *see also* Verizon and Verizon Wireless Comments on *National Broadband Plan Public Notice* #8 at 6. In recognition of this gathering consensus, the NBP recommends that the Commission consider designating LTE as the technology standard for the network. *See* National Broadband Plan at 316.

[23] *Waiver Order* at 5157-58 ¶ 38.

[24] *Id.*

[25] *Id.*

[26] The uniform deployment of Release 8 (or subsequent releases) is necessary to ensure backwards-compatibility. *See* UMTS Forum, *Mobility Broadband Evolution: the roadmap from HSPA to LTE*, Feb. 2009; 3G Americas, *3GPP Release 8 and Beyond, HSPA+, SAE/LTE and LTE-Advanced*, Feb. 2009.

[27] *Waiver Order* at 5158 ¶ 40.

acknowledges the fact that, at this stage, "LTE has become the technology of choice for the 700 MHz band."[28] This is not a decision we make lightly, but one that we believe is appropriate to provide the first building block to ensure nationwide interoperability of the public safety broadband network. In the *Fourth Further Notice* below, we seek comment on how to address the use of future technolgy platforms that may arise to ensure that they are interoperable and backward compatible with the LTE requirements designated in this *Third Report and Order* or in subsequent orders.[29]

11. We will require that any releases after Release 8 ensure backward compatibility between all subsequent releases from Release 8 and onwards. By imposing this requirement on the network operator, we will ensure that the technical baseline for interoperability is preserved.

12. Further, we also determine, consistent with this decision, and based on the record and our technical analysis of LTE reference architecture[30] that certain Release 8 (LTE) interfaces must be supported.[31] The required interfaces include:

- Uu- LTE air interface
- S6a – Visited MME to Home HSS
- S8 – Visited SGW to Home PGW
- S9 – Visited PCRF to Home PCRF for dynamic policy arbitration
- S10 – MME to MME support for Category 1 handover support
- X2 – eNodeB to eNodeB
- S1-u – beween eNodeB and SGW
- S1-MME – between eNodeB and MME
- S5 – between SGW and PGW
- S6a – between MME and HSS
- S11 – between MME and SGW
- SGi – between PGW and external PDN
- Gx – between PGW and PCRF (for QoS policy, filter policy and charging rules)
- Rx – between PCRF and AF located in a PDN
- Gy/Gz – offline/online charging interfaces

The first four of these interfaces are important for achieving interoperability when roaming across networks while the rest are necessary to ensure multi-vendor interoperability for equipment and devices operated on the same network. In order to promote both multivendor interoperability and interoperability

[28] Moreover, given the breadth of support for LTE—both in the public safety community and in the commercial wireless sector—we disagree with the comments of Clearwire and Sprint Nextel that "a mandated single air interface would preclude public safety from seeking bids from many service providers." *See* Joint Comments of Sprint Nextel and Clearwire Corp. on *National Broadband Plan Public Notice #8* at 14.

[29] *See infra* Section IV.A.4.

[30] *See* 3rd Generation Partnership Project, "General Packet Radio Service (GPRS) Enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Access," 3GPP TS.23.401 (2007).

[31] *See, e.g.*, Alcatel-Lucent Ex Parte Filing, PS Docket 06-229 at 3 (filed Aug. 18, 2010) ("Public Safety Broadband Interoperability Recommendations: FCC Interoperability Vendor Meeting").

when roaming, we will require that all public safety broadband networks be capable of supporting each of the aforementioned LTE Release 8 interfaces from day one of service operation. We also believe it is critical that the support of these interfaces be demonstrated. Accordingly, we will require each public safety broadband network operator to submit to the Bureau before deployment a certification that it is instituting the required interfaces in compliance with Release 8 or higher of 3GPP standards prior to the date it achieves service availability.[32]

B. Enabling Public Safety Interoperability

13. As outlined in the background above, we note that some of the rules for deployment of the public safety broadband spectrum are premised on the existence of a mandatory partnership with a D Block licensee. Since the D block auction produced no winning bid, the rules have never become operative. Moreover, we find that these rules no longer serve their intended purpose and may in fact constrain the optimal public safety use of this spectrum.[33] Further, in order to enable full consideration of rules that will most effectively lead to the nationwide interoperability of the public safety broadband network, and to ensure that any actions that might otherwise be taken under the existing regulatory framework do not undermine the implementation of a more effective regime, we find it in the public interest to stay certain of the partnership rules during the pendency of this proceeding.[34]

14. We also note that while we are staying these partnership rules, public safety entities seeking early deployment authorization during the pendency of this proceeding will still need to file a waiver petition with the Commission.[35] For those entities currently undertaking deployment pursuant to our previously granted waivers, their activities remain subject to existing technical rules, the requirements of the *Waiver Order* and *Interoperability Waiver Order*, and the new requirements adopted in this *Third Report and Order*, and future rules that may be adopted in this proceeding.[36]

IV. FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING

15. In the *Third Report and Order* above, we adopted LTE as the common technology platform for a nationwide public safety broadband network. In this *Fourth Further Notice*, we consider and propose additional requirements to further promote and enable nationwide interoperability among public safety broadband networks operating in the 700 MHz band. This *Fourth Further Notice* addresses interoperability from a technological perspective. It considers interoperability at various communication

[32] For purposes of this *Third Report and Order* and *Fourth Further Notice*, "service availability" is achieved when the system is being used on a day-to-day basis for operational functions by at least fifty users.

[33] In May, the Commission granted twenty-one requests from public safety jurisdictions seeking waivers to proceed with early deployment of public safety broadband networks. *See Waiver Order*. Approximately twenty-five additional such requests have since been submitted, and the Bureau has solicited comment on these in a series of public notices. *See* Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, PS Docket No. 06-229, *Public Notice*, DA 10-1748 (PSHSB 2010) (*Second Round Waiver Public Notice*); *See* Public Safety and Homeland Security Bureau Seeks Comment on Additional Petition for Waiver to Deploy 700 MHz Public Safety Broadband Networks, PS Docket No. 06-229, *Public Notice*, DA 10-1796 (PSHSB 2010) (*Texas Waiver Public Notice*); *See* Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, PS Docket No. 06-229, *Public Notice*, DA 10-2278 (PSHSB 2010) (*Third Round Waiver Public Notice*).

[34] For purposes of this order, we stay the following rules: 47 C.F.R. § 90.1403(b)(1), (2), (3), (5), (8); 90.1405-90.1430; and 90.1435.

[35] In this respect, we note that regardless of our decision to stay certain rules, there remains no mechanism, absent a waiver, for regional or Tribal public safety entities to obtain access to the spectrum, *e.g.*, through a lease or other permitted mechanism with the PSBL.

[36] *See id.*

layers, namely the physical layer, network layer and application layer.[37]

16. As an initial matter, we seek comment on the definition of "interoperability" for purposes of the public safety broadband network in the 700 MHz band. Part 90 of Commission rules defines interoperability as "an essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.[38] The Department of Homeland Security (DHS) Office of Interoperability and Compatibility (OIC), however, defines interoperability as "the ability of public safety agencies to talk to one another via radio communications systems – to exchange voice and/or data with one another on demand, in real time, when needed and when authorized."[39] We propose to amend the Commission's definition of interoperability in Part 90 to harmonize it with DHS's because we believe that the broader definition is the true definition of interoperability we seek to achieve (i.e., ensuring that the public safety community, whoever and wherever they are, is able to communicate with one another). We seek comment on our proposal. Interoperability should allow any user while at home or while roaming to be able to access any regional or tribal public safety network in order to reach any other users and any services at home network or at visited network. Interoperability can only be achieved by defining common sets of features and parameters at various communication layers,[40] on every device or node in all networks. Interoperability between devices and network nodes is achieved when all communication layers function with the same corresponding protocols, or simply speak the same language. We also seek comment on whether this definition should apply only to broadband communications, or should be extended to cover narrowband communications as well. If not, we seek comment on the correct definition for narrowband and broadband communications.

A. Technical Rules for the Public Safety Broadband Network

1. Architectural Framework

17. As an initial matter, we consider the architecture of the public safety broadband network which is critical to ensure nationwide interoperability. We believe that the development of a uniform, nationwide architectural framework will promote a comprehensive understanding of interoperability and the steps that must be taken to achieve that objective. Below, we propose a set of high-level principles to guide development of the network in a manner that ensures interoperability. We seek comment on each of these principles. Do these principles capture all of the services and capabilities that the network must be capable of supporting to ensure interoperability? Do they reflect a realistic understanding of how the network will evolve over time? Should the Commission endorse these principles, or others, as a guide for development of the network? Should the Commission adopt these principles through the rulemaking process and codify them as enforceable rules? Are there entities other than the Commission that are better situated to establish an architectural framework for the network and keep the framework current? If so, who are these other entities and how would they achieve this? Do they adequately represent public safety interests?

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[37] The concept of layering that first introduced by ISO provides OSI layers consisting of seven layers of functional capabilities within each device or network node. The follow up developments in the industry produced lower number of layers, and in fact, based on needed requirements, various organizations introduced various number of layers based on their needs. We selected 3 layers for practical reasons. Layer 2 of OSI is collapsed into Layer 1 and dubbed as the Physical layer, Layer 3 stays intact as being the Network layer, and Layers 4, 5 and 6 all merge into layer 7, the Application layer.

[38] 47 C.F.R. § 90.7.

[39] *See* SAFECOM, http://www.safecomprogram.gov/SAFECOM/about/default.htm.

[40] For the purpose of this *Third Report and Order* and *Fourth Further Notice* the term "communication layers" includes the Physical Layer, Network Layer, and Application Layer.

2. Architectural Guiding Principles

18. *Components of the Nationwide Network.* The nationwide interoperable broadband network will comprise a set of interoperable, regional or tribal all-IP LTE networks operating in the public safety broadband spectrum; a nationwide IP backbone network; and additional network and service platforms at the national level.

19. *Regional or Tribal Network Characteristics.*[41] The regional networks need to support and maintain certain common characteristics in order to ensure interoperability among them. There are certain other characteristics that pertain to individual networks and serve only the local needs. The common characteristics are:

- Support of all-IP LTE technology platform, particularly 3GPP standard, Universal Terrestrial Radio Access (E-UTRA), Release 8 (LTE), and associated Evolved Packet Core (EPC) as adopted in this order.
- Support of Network Identification schemes, specifically the use of Public Land Mobile Network Identifiers (PLMN IDs), as proposed in this notice.
- Support of certain LTE interfaces to ensure interoperability.
- Support of baseline applications such as those proposed in this FNPRM.
- Support of roaming capabilities such as Home-Routed and Local-Breakout.
- Support of a nationwide framework for Quality of Service and Priority Access.
- Support of security schemes such as those proposed in this FNPRM.
- Support of a minimum level of spectrum efficiency.
- Support of a minimum level of coverage reliability (95%).
- Support for interference mitigation schemes.
- Support for device capabilities as proposed in this FNPRM.
- Test verifications for interoperability (i.e., conformance and interoperability testing).

20. *Supporting Voice and Data Communications.* As the LTE standard progresses, the network must become capable of supporting both mission-critical voice and data communications. Support for both is necessary to ensure a baseline level of operability and interoperability across the country.

21. *Roaming Authentication and Internetworking Functions – Clearing House.* Roamers will need to be authenticated in the visited network as they would be in their own networks. Additionally, user traffic needs to flow between these networks to enable roaming. Roaming between public safety broadband networks requires certain technical and operational arrangements to include interconnectivity among many interfaces, security arrangements and many other roaming arrangement and agreements. As the number of regional or tribal networks grows, the number of such arrangements grows rapidly.[42] The NPSTC BBTF Report recommends the establishment of a common clearing house for the purpose of roaming. The third party clearing houses would provide internetworking functions as well as additional functions, such as roaming authentication and clearing functions.

22. *Nationwide Backbone Network.* Regional or tribal public safety broadband networks will

[41] "Regional or tribal networks" refer to the subset of networks in the network of networks model.

[42] For "n" regional or tribal networks, the number of such agreements and arrangements is "(n(n-1))/2".

need to be securely interconnected utilizing sufficient capacity in order to form a nationwide network. Such interconnectivity is needed for instance, to support the end-to-end interoperable connections traversing multiple regional or tribal networks and to support roaming connections. We believe a number of possible solutions for interconnectivity of regional broadband networks exist, as we discuss at Section 8 *infra.* While these solutions should have sufficient capacity (being fast and able to carry sufficient data) they should also be timely (low delay), reliable, secure and cost-effective. One such alternative is to use the third party network operators to provide high-performance, reliable and secure interconnectivity links. The establishment of a clearing house, as mentioned earlier, could also provide interconnectivity among all public safety regional or tribal networks on a nationwide basis through secure and private networks using Internetwork Packet Exchange (IPX) protocol.

23. *Nationwide Services and Capabilities.* For the network to be truly interoperable on a nationwide basis, certain services, applications and capabilities must be available through each network and to each user to support nationwide interoperability. The implementation of these services may be accomplished either nationally through a set of national core capabilities or locally through capabilities offered by regional or tribal networks. Some instances of these services are authentication services and directory services to mention a few. We envision that the operation of these services, if opted to be implemented nationally, could be accomplished by clearing houses.

24. *Evolution.* It is imperative that the public safety broadband network evolve as new technologies become available. While the current baseline for LTE technology is Release 8, new releases of this standard will offer capabilities that further enhance public safety communications. The evolution of technology and standards should provide support for voice and mission critical voice and ensure that the public safety network and its operation evolve and keep pace with the competitive commercial marketplace. Further, backwards compatibility is essential if the network is to be fully interoperable across the nation.

25. We seek comment on whether we should establish guiding principles for public safety broadband network architecture and, if so, whether the principles summarized above are the principles that should serve as the basis for this vision. Are there are other principles we should consider? For example, should we be looking at how to best maximize network efficiencies by sharing network resources such as core networks? Should shared infrastructure also be encouraged through such a vision in order to reduce costs of network deployment?

26. We tentatively conclude that we should adopt such a framework for the architectural vision. We seek comment on this tentative conclusion. We also seek comment on how we can ensure that this architectural framework evolves to reflect the continued evolution of the network and its underlying technology. Is this a framework the Commission should adopt and manage, or is another entity better suited for this role? For example, should the Commission review these requirements on a regular basis, such as every two years? Is there another entity that would be better suited to address these principles? Could this be a role for the Emergency Response Interoperability Center Public Safety Advisory Committee (PSAC)? What should such a review process include and how can we ensure it will take into account technological advances on a timely basis? Are there third parties that might be better suited and how do we ensure that they have the technical capability to keep up with the pace of technology to ensure the framework evolves?

3. Open Standards

27. Open standards enable vendors to build to common parameters. In the *Competition Public Notice*, the Bureau asked whether the implementation of open standards for public safety broadband and narrowband equipment could increase competition in these markets and hence, increase

interoperability.[43] Commenters were generally supportive of this proposition. ARINC, for example, stated that "[o]pen standards will increase competition,"[44] while the Arlington County Information Technology Advisory Commission argued that "[o]pen standards could offer a more competitive landscape, reduced costs, would foster a better chance for reduction of any interoperability problems and ensure a broader dissemination of equipment to a far larger number of responders."[45] The APCO Project 25 Steering Committee cautioned, however, that any implementation of "open standards" must accommodate the use of patented technologies that may be "the best technologies to support particular applications."[46]

28. In our *Third Report and Order* we require all 700 MHz public safety broadband networks to adopt LTE, a 3GPP standards-based technology, as a common technology platform.[47] We seek comment on whether we should take additional measures to encourage public safety broadband network operators to adopt technologies that employ open standards and if so, what should these be? What are the potential dangers to interoperability associated with the use of devices and equipment that employ proprietary technologies? How do we ensure that any such use does not negatively impact nationwide interoperability?

4. Technology Platform and System Interfaces

29. In the *Third Report and Order*, we require that public safety broadband networks adopt the LTE technology platform, particularly 3GPP standard, E-UTRA, LTE, associated EPC, and that they support specified interfaces.[48] Are there any additional capabilities within the LTE technology platform that we should require public safety broadband networks to support in order to ensure interoperability? We note that, as LTE technology evolves, the 3GPP standard will develop new releases of the technology that exceed the capabilities of Release 8. Should we adopt rules to ensure that public safety agencies upgrade their networks to incorporate newer releases of LTE on a timely basis? We seek comment on the future evolution of the LTE technology platform and how it will support forward and backward compatibility and interoperability with Release 8. Further, we seek comments on the features of Release 9 and Release 10 that are necessary for applications such as real-time voice/video communications, location-based services, multicasting/broadcasting voice/video services, and other emergency preparedness related services. Could interoperability be maintained if we permitted use of multiple 3GPP releases within different networks? How do we ensure that all communications available over any network (*i.e.*, voice and data) are available across the nation? Is it necessary to mandate that as voice communications are supported, networks must be upgraded within an appropriate time frame? If voice is not required, what does this do for nationwide interoperability across the network? What are the costs of such an approach and do the benefits from having a truly interoperable network outweigh these costs? We further seek comment on how to address the use of future technology platforms that arise to ensure that they are interoperable and backward compatible with the LTE requirements designated herein? How can the Commission best accommodate these technologies to ensure continued innovation for the public safety broadband network?

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[43] *See* Public Safety and Homeland Security Bureau Seeks Comment on Increasing Public Safety Interoperability by Promoting Competition for Public Safety Communications Technologies, PS Docket 10-168, *Public Notice*, DA 10-1556 (rel. Aug. 19, 2010) (*Competition Public Notice*).

[44] ARINC Comments on *Competition Public Notice* at 6 (Sept. 20, 2010).

[45] Arlington County Information Technology Advisory Commission Comments on *Competition Public Notice* at 1 (Sept. 13, 2010).

[46] APCO Project 25 Steering Committee Comments on *Competition Public Notice* at 10-11 (Sept. 20, 2010).

[47] *See supra* Section III.A.

[48] *See id.*

30. We also recognize that LTE currently allows the use of both IP version 4 (IPv4) and version 6 (IPv6). Would the use of both versions in various components of the nationwide network create obstacles to achieving interoperability, either now or in the future? Should the entire network be based on IPv6 from day one? What are the benefits and challenges of launching an all IPv6 network? What are the key advantages and disadvantages of having certain core network elements with IPv4 (capable of upgrading to IPv6 in future) while the rest of the network is based on IPv6? Would there be any time at which we should require all public safety broadband networks to migrate to IPv6? What would be the impact to application interoperability, particularly for real-time voice/video applications, should both versions coexist as networks transition to IPv6? We also seek comments on dual stack in order to support both IPv4 and IPv6. Should devices be required to support dual stack? Should any network element be required to support dual stack? Would such a requirement create any significant cost increase or added complexity? What are the costs of such requirements and how should they be borne?

31. We also note that, although the prevalent tunneling protocol in LTE is GTP-based, a PMIP-based tunneling protocol has also been specified in 3GPP Release 8. This protocol is necessary in order to implement certain LTE interfaces. Supporting this protocol would require the adoption of an additional interface, namely Gxc (interface between SGW and PCRF when PMIP is used on S5 or S8). Should we require that public safety broadband networks adopt, in addition to the interfaces specified in the *Third Report and Order*, PMIP and the corresponding additional interface, Gxc? What are the potential costs and benefits of implementing such a requirement?

5. System Identifiers

32. Compliance with 3GPP standards requires that public safety broadband networks be assigned network identification numbers.[49] As we noted in the *Technical Public Notice*,[50] the NPSTC BBTF Report identifies two alternatives for assigning network identification numbers to the regional or tribal networks: (1) use of a single PLMN ID for the entire public safety network, or (2) use of a different PLMN ID for each regional or tribal network.[51] We also noted the NPSTC BBTF Report's claim that, because of the limited availability of network numbers, only one-hundred or fewer network identification numbers may be assigned.[52] We sought comment on whether this proposed limitation could hamper implementation of the second approach.[53]

33. In comments responding to the *Technical Public Notice*, Alcatel-Lucent, Motorola and DC propose a hybrid scheme in which one separate PLMN ID would be assigned to each regional or tribal network and a single PLMN ID would be assigned for the overall nationwide network.[54] The PSCR has also expressed support for such a scheme.[55] These parties assert that assignment of a separate ID for each network is compliant with the 3GPP standards, and the assignment of a single ID for the whole

[49] *See, e.g.*, 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Network Sharing; Architecture and functional description (Release 9), 3GPP TS 23.251 at 4.2.1 (2009).

[50] *See* Public Safety and Homeland Security Bureau Seeks Comment on Interoperability, Out of Band Emissions and Equipment Certification for 700 MHz Public Safety Broadband Networks, PS Docket 06-229, *Public Notice*, 25 FCC Rcd 5486 (PSHSB 2010) (*Technical Public Notice*).

[51] *See* NPSTC BBTF Report at 6.3.1.

[52] *See id.*

[53] *See Technical Public Notice* at 5487-88.

[54] For example, if there are 55 regional and tribal networks operational, there should be 56 PLMN IDs, one for each region, and one virtual one for the overall network. *See* Alcatel-Lucent Comments on *Technical Public Notice* at 7-8 (July 19, 2010); District of Columbia Comments on *Technical Public Notice* at 7 (July 16, 2010); Motorola Comments on *Technical Public Notice* at 19 (July 19, 2010).

[55] *See* Public Safety Communications Research Program, NAWG Meeting #2 Slide Presentation at 10, http://www.pscr.gov/projects/broadband/700mhz_demo_net/NAWG-meeting2-v2.pdf (last visited Dec. 13, 2010).

nationwide network facilitates roaming to other regional or tribal public safety networks and to commercial networks. We seek comment on this proposed hybrid scheme for the assignment of PLMN ID numbers. What are the benefits and disadvantages of such an approach? Were we not to adopt this approach, would the use of a single nationwide PLMN ID be adequate to support the envisioned network-of-networks architecture?

34. We also seek comment on the mechanism by which PLMN IDs for the public safety broadband network should be acquired and assigned. Commercial mobile network operators obtain PLMN IDs through a process, managed by the IMSI Oversight Council (IOC), which requires them to be members of the GSM association.[56] We seek comment on how we can enable public safety network operators to acquire these IDs without incurring the burdens associated with the IOC process. Is this a role that the PSBL could support? Would this be an appropriate role for NIST? Are there other entities that could apply for these IDs on behalf of all the regional or tribal network operators and, if so, how would they be enabled? How should the costs of obtaining these IDs be allocated and who should be responsible for payment?

6. Roaming Configurations

35. The 3GPP LTE standards set two categories of roaming: home-routed and local breakout. In home-routed roaming, the roamer's traffic is routed back to the home network to enable the use of home resources, while in local breakout roaming, the roamer utilizes the resources of the host network for desired services. The *Waiver Order* required the waiver recipients to support both methods.[57] We tentatively conclude that all public safety broadband networks should have the ability to support both categories of roaming. We seek comment on this tentative conclusion.

36. In the Plan, a recommendation was also made to require certain broadband commercial carriers to accommodate roaming by public safety broadband users. If, in a separate proceeding outside the scope of this item, we pursued such a requirement for commercial operators, are there any requirements that we should then impose on public safety broadband operators in this proceeding to ensure that their networks can interoperate with commercial broadband operators? Should the Commission take efforts in this proceeding to better enable public safety agencies to enter voluntary roaming agreements with commercial operators? If so, what should these incentives be?

7. Roaming Authentication and Internetworking Functions

37. As previously described, roamers will need to be authenticated in the visited network as they would be in their own networks. In the absence of a clearing house, these authentication functions and any additional clearing functions between regional or tribal public safety networks could impose significant technical, administrative, and cost burdens on each network operator. Therefore, we tentatively conclude that within the context of public safety broadband networks, there would be significant efficiency gains if such functions were performed by third party clearing houses rather than by each network operator. We seek comment on this tentative conclusion. To what extent such clearing houses can perform the functions stated here? Do they provide the performance, reliability and security that are required for public safety networks? Is this solution cost effective? Should there be a single third party clearing house or multiple of them? If multiple, what is the right number? Who should select the clearing houses and what should be the selection criteria? How should these clearing houses be compensated?

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[56] "The IOC is an open industry committee of telecommunications companies and other organizations with a direct interest in the management of IMSI codes. An IMSI is a 15-digit number used within mobile phones that allows service operators to identify mobile terminals, for purposes of international roaming. The IOC is responsible for overseeing the management of IMSI codes that have been assigned to the United States and its possessions as authorized by the U.S. Department of State since 1996." IMSI Oversight Council, http://www.atis.org/ioc/index.asp.

[57] *See Waiver Order* at 5160 ¶ 45.

8. Interconnectivity of Regional or Tribal Broadband Networks

38. The anticipated set of regional or tribal broadband networks will not serve as a nationwide interoperable broadband network unless they are interconnected with adequate capacity to support the end-to-end interoperable connections traversing multiple networks and to support roaming connections. A number of alternative solutions for interconnectivity of regional or tribal broadband networks exist. While each of these solutions should have sufficient capacity, it is also important that any interconnectivity solution be timely (low delay), reliable, secure, and cost-effective. Three alternatives are outlined here for consideration, and we seek comment on each.

39. Direct interconnectivity provides direct dedicated connectivity between any two regional or tribal networks. This alternative can provide a high-performance, reliable, and secure solution; however, it cannot scale for a large number of networks, since a large number of interconnectivity links would be needed.[58] While this solution can be implemented in certain situations where high volume of traffic between two regional broadband networks warrants the associated cost of dedicated links, we tentatively conclude that this solution is not scalable and hence, not cost-effective. We seek comment on this tentative conclusion.

40. The public Internet can serve as an interconnection hub if all regional broadband networks are connected to it. We seek comment on this alternative. Does this solution meet the performance requirements of interconnectivity links? Is it reliable and secure for public safety needs? Is it cost effective? Can it be part of the solution complementing some other alternative? What would be that alternative?

41. Third party network operators can provide high performance, reliable and secure interconnectivity links with adequate capacity. The NPSTC BBTF Report recommends the establishment of a common clearing house for the purpose of roaming. While the topic of roaming and associated functions is addressed elsewhere in this notice, we seek comment here on the establishment of clearing house(s) for interconnectivity links. Such clearing house(s) can provide interconnectivity among all public safety regional networks on a nationwide basis through secure and private networks using IPX protocol. We seek comment on these matters. To what extent can such clearing houses perform the function stated here? Do they provide the performance, reliability and security that are required for public safety networks? Is this solution cost effective? For the purpose of interconnectivity, should there be a single third-party provider or multiple providers? If multiple, what is the right number? Should the PSBL or the network operators select the providers? What should be the selection criteria?

42. In addition to these three alternatives for interconnectivity of the regional broadband networks, we seek comment on whether there are any other alternatives that would meet public safety's performance, reliability, and security requirements in a cost-effective manner? How much will these approaches cost and how should these approaches be paid for? How should responsibility for such interconnection be handled?

9. Prioritization and Quality of Service

43. We seek comment on how public safety broadband networks should support both prioritization and quality of service among connections as well as applications over these connections. Prioritization is the network's ability to determine which connections have priority over others in connecting to the network at times of emergency and network congestion. Quality of service (QoS) is the network's ability to assign classes to different applications based on certain performance attributes and objectives, and maintain the network performance for the application (i.e., QoS) within the acceptable range. Thus, prioritization deals with the connection to the network while QoS deals with the treatment

[58] The number of interconnectivity links grows exponentially with the number of interconnected networks. If the number of networks is "n", the number of links connecting them would be "(n-1)n/2".

of traffic after the connection is established.

44. In a broadband network when users attempt to establish a connection, certain administrative actions take place. In addition to authentication, authorization and some other administrative procedures, the network through a Connection Admission Control (CAC) function will also determine whether it has sufficient resources to accept a new connection. These resources include bandwidth, processing power, codes and other operational elements within the system. During an emergency, networks may be unavailable for a number of reasons. This is when the Priority Access mechanism plays a role.

45. Prioritization within a public safety broadband network ensures users of high priority can establish connections with higher level of certainty relative to users of low priority. In general, priority levels for connections can be defined and assigned based on various criteria including user's role (or user priority), user application types, incident type, etc. As a matter of principle, for a given application type, connections initiated by users with higher user priority take priority over the connections initiated by users with lower user priority. However, such priority may not hold if the application types are different. For example, a priority scheme may choose not to provide a connection priority to a higher priority user with video application rather than to a lower priority user with voice application. The determination of connection priority levels and its mapping to user priority, application type and other attributes is a matter that hinges upon both the public safety needs and the technology supporting it.

46. LTE provides priority mechanisms through capabilities such as Allocation Retention Priority (ARP), which assigns fifteen levels of priority with two bits to flag preemption capability and vulnerability for a connection, QoS Class Identifier (QCI), which assumes nine levels of prioritization for various application types, and Access Class barring, which would allow any fourteen levels of the access classes to be barred from the network at times of congestion. We seek comments on these capabilities. Which features specific to QOS and Priority Access in the December 2009 freeze of 3GPP LTE Release 8 are currently being developed for implementation in LTE equipment? Are these adequate to support a solid framework for public safety needs relating to priority access and interoperability? Are they all to be used for such framework or should we look at different approaches?

10. Mobility and Handover

47. As users move within a network operator's coverage area, their communication sessions need to continue without any interruption. In other words, when a user moves from one cell coverage area with an eNodeB that serves that user to another cell coverage area with a different serving eNodeB, its connecting link need to be handed off from the old eNodeB to the new eNodeB in a smooth and seamless manner. LTE supports this feature, and hence, we tentatively conclude that each operator's network must support seamless handover within its coverage region. We seek comment on this tentative conclusion.

48. LTE supports two methods of handover, one is through direct links between source eNodeB and target eNodeB, called X2 based handover, and the other one through indirect links between eNodeBs through the core, called S1 based handover. We seek comment on viability and availability of each option. What are advantages and disadvantages of each one? Should we require one method and not the other one, or should we require both, or should we require neither? Is there any impact on interoperability depending on the solution we select?

49. Additionally we seek comment, and raise the same questions as above, for the case where handover occurs between two eNodeBs from two different neighboring networks. This would be considered roaming. How is seamless handover possible in this situation?

50. LTE supports mobility across the cellular network while maintaining a minimum level of performance, and supporting seamless handover. Do we need to set up support for a minimum speed (in mph) for mobility and seamless handover while within a regional or tribal network? Similarly, do we need to set up support for a minimum speed for mobility and seamless handover while crossing

neighboring networks (roaming)?

11. Out-of-Band Emissions and Related Requirements

51. It is imperative that the networks that comprise the public safety broadband network are protected from interference from adjacent and near operations or nationwide interoperability could be harmed. Accordingly, in the *Waiver Order*, we noted that "[a] number of measures can be considered to reduce the impact of interference to mobile wireless systems" and that "[a]gencies should use mutually agreed upon practical solutions for eliminating Out-of-Band Emissions (OOBE) or other interference, such as software parameter changes, site configuration modifications, ensuring a reasonable distance of site equipment beyond the border or the reduction of transmitter power levels towards the border."[59] As a waiver condition, we required that, for operations in the 763-768 MHz band and the 793-798 MHz band, the power of any emission outside the lessee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- On any frequency outside the 763-768 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB; and
- On any frequency outside the 793-798 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.[60]

52. We further noted that "[c]ompliance with the provisions of paragraphs above in this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater."[61] We clarified, however, that "in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed."[62] In addition, we observed that "OOBE standards are already in place with respect to the public safety narrowband spectrum" and that "the 700 MHz public safety spectrum allocation already includes a guard band between the public safety broadband and narrowband allocations."[63] Our analysis demonstrates that compliance with these interference requirements will protect against interference into adjacent or near operations for the public safety broadband network.

53. In the *Technical Public Notice,* we sought comment on "the benefits of [the OOBE limit adopted in the *Waiver Order*], or of any proposed alternative specification, for the public safety broadband network in protecting and promoting the use of both the Public Safety Broadband (PSBB) Block and the D Block and minimizing interference."[64] We also inquired whether, "[i]f more stringent OOBE limits were applied to the PSBB Block, [it would] be possible to attenuate signals outside the band without a guard band between D Block and the PSBB Block."[65]

54. Most of the parties that commented on the OOBE limit specified in the *Waiver Order* expressed support for it.[66] We therefore tentatively conclude to adopt this limit for the nationwide public

[59] *Waiver Order* at 5159 ¶ 43.

[60] *Id.* at 5159 ¶ 44. The *Waiver Order* also noted that 47 C.F.R. § 90.543(e) remains in effect. *See id.*

[61] *See id.*

[62] *See id.*

[63] *See* id. (*citing* 47 C.F.R. § 90.543(e)).

[64] *See Technical Public Notice* at 5489.

[65] *See id.*

[66] *See* Alcatel Lucent Comments on *Technical Public Notice* at 12 (July 19, 2010); AT&T Comments on *Technical Public Notice* at 18-19 (July 19, 2010); Bay Area Comments on *Technical Public Notice* at 6 (July 19, 2010); Ericsson Comments on (continued....)

safety broadband network. Our analysis demonstrates that these parameters provide protection against harmful interference for the public safety broadband network and will further advance interoperability across the network. We seek comment on this tentative conclusion.

12. Applications

55. One means of facilitating roaming across public safety broadband networks is to ensure that users of each network have access to a common set of applications. In the *Waiver Order* we required, as a waiver condition, that each early deployed network support five applications recommended in the NPSTC BBTF Report: (1) Internet access; (2) Virtual Private Network (VPN) access to any authorized site and to home networks;[67] (3) a status or information "homepage;"[68] (4) provision of network access for users under the Incident Command System;[69] and (5) field-based server applications.[70] We sought comment on this list in the *Technical Public Notice*, and the comments received in response were generally supportive of the list.[71] We therefore tentatively conclude that we should adopt these as a common set of applications that must be fully supported by each public safety broadband network and that this is appropriate to advance interoperability. To further our ability to specify interoperability requirements, we here delve deeper into the technical characteristics of these five applications. Should Internet access enable fully transparent use of any Internet-based application (e.g., using different transport and application protocols) or just a restricted subset? Does VPN access imply client-based VPNs and if, so, is any network support required? If the network does not allow all protocols, what kinds of VPN protocols should be allowed, such as IPSec, PPTP or L2TP? Does this application imply a requirement for the network to operate such a server and how should it be identified? Does the support for field-based server applications imply support for specific protocols or simply the ability to reach a web server via HTTP and HTTPS? In general, should users of the public safety broadband network expect that the network allows all applications or restricts the user to certain protocols, ports and applications, either in their home network or while roaming?

(Continued from previous page)
Technical Public Notice at 5 (July 19, 2010); IP Wireless Comments on *Technical Public Notice* at 5 (July 20, 2010); Motorola Comments on *Technical Public Notice* at 30 (July 19, 2010); Sprint Comments on *Technical Public Notice* at 8 (July 19, 2010); T-Mobile Comments on *Technical Public Notice* at 7 (July 19, 2010); TIA Comments on *Technical Public Notice* at 2 (July 19, 2010).

[67] "The regional operator and commercial networks operating in conjunction with the PSBL shall be required to allow establishment and use of VPN connections by roaming users on their networks to other networks." NPSTC BBTF Report at Section 6.2.2.

[68] "Public safety or public/private partnership network operators shall provide a universal method to obtain a "home page" for visitors to the system. This "home page" will facilitate access to and distribution of available applications, alerts, incident-specific information, system status information, and information that the operator deems important to share with visitors to the system." NPSTC BBTF Report at Section 6.2.3.

[69] "First responders, emergency response support, and all other mutual aid responders managed under ICS structure of a requesting agency served by a public safety broadband network shall be provided access to that network to carry out incident objectives and communicate with their home networks." NPSTC BBTF Report at Section 6.2.5. For purposes of our proposed rules, *see infra* app. B, we tentatively adopt a definition of "Incident Command System" used by the Federal Emergency Management Agency (FEMA). *See* FEMA, http://www.fema.gov/emergency/nims/IncidentCommandSystem.shtm.

[70] "The regional systems shall support the use of field-deployed server applications. This requirement includes the need for client devices to consistently and continuously reach each server-based system from any other location on the Internet. The capability is not required for every subscriber device on the broadband network but is limited to a subset of the users that actually require such a feature." NPSTC BBTF Report at Section 6.2.7.

[71] *See* Bay Area Comments on *Technical Public Notice* at 1 (July 19, 2010); District of Columbia Comments on *Technical Public Notice* at 2-3 (July 16, 2010); Harris Comments on *Technical Public Notice* at 3 (July 19, 2010); Motorola Comments on *Technical Public Notice* at 7 (July 19, 2010). Because we believe that interoperability must be achieved at all layers of communications, including at the applications layer, we disagree with the claim that mandating a minimum set of applications would "add costs and complexity" without providing "any concomitant benefits." *See* AT&T Comments on *Technical Public Notice* at 6 (July 19, 2010).

56. We also seek comment on whether other applications should be added to our proposed list of required applications. We seek comment on how to best ensure this list of required applications is current. The NPSTC BBTF Report recommends that in addition to the five applications specified in the *Waiver Order*, two other applications should be required to be supported by public safety broadband networks: the remaining two are (1) Status/Information "SMS-MMS Messaging" and (2) Land Mobile Radio (LMR) Gateway Devices. We seek comment on whether to require public safety networks to support these applications as well. In addition, we note that the NPSTC BBTF Report also identifies four "desired" applications: (1) Location Based Data Capability; (2) One-to-Many Communications across all Media; (3) LMR Voice; and (4) Public Switched Telephone Network (PSTN) Voice. We seek comment on whether we should also require, or encourage, public safety broadband systems to be capable of supporting any or all of these "desired" applications. What is the potential for each of these additional applications to contribute to nationwide interoperability? Are these applications capable of being supported at the present stage of technology and standards development? If not, when would they be ready? Are there any other applications whose adoption should be mandatory or that the Commission should consider mandating or encouraging for adoption in the future? What would be the costs associated with any such mandate?

57. The Commission anticipates that an all-IP wireless broadband LTE network will enable public safety agencies to select from a diverse array of evolving applications and services to support their communications needs, including real-time voice and video communications. We seek comment on how we can promote the interoperability of key applications that are not included among the set of common applications that all public safety networks will be required to support. What interfaces impact application interoperability? Should we require that public safety networks support additional interfaces essential to maintaining application interoperability?

13. Interconnection With Legacy Public Safety Networks

58. Capabilities exist for the support of public safety communication services across both narrowband and broadband networks. The interconnection of broadband networks with co-existing narrowband networks will enable public safety agencies to better integrate their communications and avoid the unnecessary stranding of assets. We seek comment on how to address the interconnection of existing narrowband public safety networks (both voice and data) in multiple bands (Legacy Networks) with the public safety broadband network in the absence of the Public/Private Partnership called for in the *Second Report and Order*. What are the advantages and disadvantages of using the gateways between Legacy Networks and public safety broadband networks? What are the current and future capabilities and availabilities of gateways between Legacy Networks and public safety broadband networks? Can these gateways between Legacy and public safety broadband networks offer both voice and data services? What are the costs of imposing such requirements and how are these costs best allocated? How can the public safety community cover such costs? What is the appropriate time frame for achieving such interoperability?

14. Performance

59. We recognize the importance of ensuring that public safety broadband networks have adequate capacity, spectral efficiency, QoS and overall performance to achieve nationwide interoperability. Spectrum is a valuable public resource and the Commission is committed to ensuring that this resource is used efficiently. Moreover, we believe that imposing baseline operability requirements on public safety broadband networks ensures that disparate networks are capable of interoperating. We tentatively conclude that in order to ensure baseline operability and to ensure the efficient use of the radio frequency resource, it is appropriate to adopt performance requirements for public safety broadband networks. We seek comment on this tentative conclusion.

60. The radio access network is essential in providing public safety with wireless communications between user devices and the network operator antennas on the other end. Radio

network planning and baseline operability requirements are key to achieving high spectral efficiency and coverage in order to deliver broadband services to a largest possible number of users. If public safety networks are not built with baseline operability requirements and high spectral efficiency, both operability and interoperability may fail in an emergency when the demand for communications is greatest. This baseline set of operability requirements needs to start at the Radio Access part of the LTE network. The basic requirements for any advanced cellular network are to meet coverage and quality targets. These requirements are also related to how the end user experiences the network. Coverage first targets the mean of the population or geographic area the network is covering with agreed upon location availability, *i.e.* the availability to get service. The requirements furthermore specify the signal strength values that need to be met inside the different area types. The quality targets are related to factors such as QoS and the success of call completion. Therefore it is imperative that a minimum set amount of requirements to ensure access to applications and other communications tools will enable interoperable public safety broadband networks nationwide, something that has never materialized to date for public safety.

61. Accordingly, we tentatively conclude that we should require public safety broadband networks to provide outdoor coverage at minimum data rates[72] of 256 Kbps uplink (UL) and 768 Kbps downlink (DL) for all types of devices, for a single user at the cell edge.[73] We further tentatively conclude that as part of its initial design, each network must provide the minimum data rates base on a sector loading of seventy percent throughout the entire network.[74] Finally, we tentatively conclude to require each public safety network operator to certify, within thirty days of its date of service availability, that its network is capable of achieving these data rates. Such certification will need to be based on a representation of the actual "as-built" network and accompanied by UL and DL data rate plots that map specific performance levels. This approach would ensure a minimum level of performance across the network. We seek comment on these tentative conclusions. We also seek comment on the potential costs for such a requirement? We also seek comment on the appropriate geographic areas for making these measurements and the time frames for compliance. We tentatively conclude that these requirements should be met prior to the date that a network achieves service availability.[75] Finally, to the extent that commenters recommend that we not impose such a requirement, how will this impact interoperability? If there is not a baseline level of service available on a network wherever public safety users have access to the broadband network, how is interoperability achieved?

62. Furthermore, we seek additional comments on these technical specifications. Are there additional requirements that should be included to ensure access to applications and other communications tools, which will enable interoperable public safety broadband networks nationwide? Should the minimum cell edge Spectral Efficiency be required on the UL or DL or both? Should an average, instead of a minimum, cell edge data rate be used, and if so, what should that requirement be? To generate average spectral efficiency and cell edge spectral efficiency levels, should we assume a mix of applications and usage scenarios, with users evenly distributed throughout the coverage area? Should we define the certification (UL and DL data plots) more specifically, *i.e.*, define all the specific map performance levels required on the plots? Should the plots be computer simulation or based on actual drive test data of the actual "as-built" network? Should coverage maps be accompanied with information giving site locations? Should coverage maps be provided for each Phase of network build? Is it

[72] The data rate in this context is measured and defined as the physical layer provided rate with less than or equal to a 10% block error rate. A 5+5 MHz system typically uses twenty percent overhead on the DL and about twelve percent overhead on the UL.

[73] In 3GPP TR 36.913, the metric used for the cell edge assessment is the 5-percentile user throughput, which is obtained from the cumulative distribution function (CDF) of the user throughput. *See* 3rd Generation Partnership Project, "Requirements for Further Advancements for E-UTRA (LTE Advanced) (Release 8)," 3GPP TR 36.913 (2008), *available at* http://www.3gpp.org/ftp/Specs/html-info/36913.htm.

[74] Seventy-percent loading per sector indicates that the sector is loaded to this level of traffic.

[75] *See supra* note 32.

acceptable to use seventy percent loading per sector (both UL and DL)? Should we use Section 3.2 of the NPSTC Statement of Requirements document as a reference for assumed traffic loading for various applications?[76] Should it be possible for one user, at the cell edge, to achieve 768 kb/s DL or multiple users and 256 kb/s UL? Should the Commission require periodic reports and updates on coverage maps, actual usage and traffic data, in order to access and/or modify the spectral efficiency requirements? Finally, we seek comment on the costs and benefits for the additional requirements.

15. Network Capacity

63. As commercial technologies become increasingly efficient, it is important to ensure that public safety broadband networks are able to capture these efficiency gains. The network capacity of a cellular system in terms of supporting user traffic is the "maximum achievable aggregate data rate" in bits per second.[77] This capacity largely depends on the locations where potential users would receive service (distance from the cell tower, and being indoor / outdoor), available bandwidth, technology/communications protocols, transmitter, both user equipment and base stations, powers and noise, among other environmental factors.[78]

64. The capacity of a system within a cell site is initially set to provide a minimum level of service quality for the coverage area. As the number of users grows, the capacity is added or alternatively, resources are added, to maintain the service quality. Among these resources are eNodeB backhaul capacity and core capacity. We seek comment on the adequacy of these resources and whether we should ensure they are adequate to support public safety requirements. Should we set a minimum level of capacity for backhaul and core? For instance, for a three sector cell site or eNodeB with an average of 1.8 bits/Hz spectrum efficiency throughout the site, the total capacity is twenty-seven Mbps. Should we consider rules for backhaul links that can handle this amount of traffic? Should we consider any other suggestions for backhaul capacity? Should we consider similar assessments for the capacity of the core, or should this type of assessment be left to local design considerations? To what extent, if at all, could interoperability be impaired if we leave capacity considerations to localities? What are the cost implications of such requirements being imposed?

16. Security and Encryption

65. Secure communications are of vital importance to public safety and are needed to encourage increased usage and reliance on the network. It is crucial to maintain a reliable communication and to protect public safety user traffic from intentional and unintentional intrusion attacks. Security schemes are implemented at various levels and segments of the network to achieve an end to end reliable and secure communications. According to LTE specifications, "five security feature groups are defined. Each of these feature groups meets certain threats and accomplishes certain security objectives.

- Network access security (I): the set of security features that provide users with secure access to 3G services and which, in particular, protect against attacks on the (radio) access link;
- Support all of IP-LTE technology platform, particularly the 3GPP standard, Universal Terrestrial Radio Access (E-UTRA), Release 8 (LTE), and associated Evolved Packet Core (EPC) as required by the *Third Report and Order* above.

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[76] *See* National Public Safety Telecommunications Council, Public Safety 700 MHz Broadband Statement of Requirements at Section 3.2 (2007).

[77] When user service profiles are known, and all users have the same service profile and environmentally bear the same condition, the capacity can also be measured as the "maximum number of users" that the system can support. A user service profile is a set of applications with the frequency of use.

[78] These factors along with a fair scheduling scheme at the cell tower (dividing bandwidth among users) will determine the data rate for each user. Capacity is then the aggregate data rate of all users that are scattered within an area transmitting and receiving (over forward and reverse link) at their maximum available data rate.

- User domain security (III): the set of security features that secure access to mobile stations;
- Application domain security (IV): the set of security features that enable applications in the user and in the provider domain to securely exchange messages;
- Visibility and configurability of security (V): the set of features that enables the user to inform himself whether a security feature is in operation or not and whether the use and provision of services should depend on the security feature."[79]

66. Each aspect of security as defined above is specified in various standards. For example, network access security is specified in 3GPP TS 33.401, and network domain security is specified in 3GPP TS 33.210. The NPSTC BBTF Report required the optional security layer features specified in 3GPP TS 33.401. The *Waiver Order* adopted these features to be technologically supported with additional specifics to follow in the future. More specifically, the NPSTC BBTF report required security features for three protocol layers as specified in 3GPP TS 33.401. They are LTE signaling layer security features over the Radio Resource Control (RRC) protocol layer (UE and eNodeB), EPC signaling layer security features over the Non Access Stratum (NAS) protocol layer (UE and MME) and user data/control layer security features over the Packet Data Convergence Sublayer (PDCP) protocol layer (UE and eNodeB). We tentatively conclude that all three security features for the network access security, as specified in 3GPP TS 33.401, should be fully required.[80] Are these appropriate security features to ensure the security of the public safety broadband network? We seek comment on this tentative conclusion. Is this sufficient to ensure network access security? Does the public safety community require additional security? If so, what is this and what are the costs incurred to achieve this?

67. We recognize that 3GPP TS 33.210 provides specifications for network domain security. Should we adopt rules for network domain security? If so, what should they be? Do the optional features specified in 3GPP TS 33.210 fully serve the purpose of network domain security? Are they sufficient? Which optional features should be selected? Would there be any interoperability issues should the commission choose not to require network domain security features, or not to select them?[81]

68. Application domain security as stated above and as specified in 3GPP TS 33.102 and TS 31.111 is an optional feature. Application domain security overall enhances network security. Should the Commission adopt rules for application domain security? Do the optional features specified in these standard specifications fully serve the purpose of application domain security? Are they sufficient? Which optional features should be selected? Would there be any interoperability issues should the Commission choose not to require application domain security features, or not to select them?

69. Visibility and configurability of security as stated above and as specified in 3GPP TS 33.102 and TS 22.101 is an optional feature. Should the Commission adopt rules for visibility and configurability of security? Are these necessary to ensure the operability and interoperability of the public safety broadband network? Do the optional features specified in these standard specifications fully serve the purpose of visibility and configurability of security? Are they sufficient? Which optional features should be selected? Would there be any interoperability issues should the Commission choose not to require visibility and configurability of security features, or not to select them? What are the cost implications of such requirements?

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[79] 3rd Generation Partnership Project, "3GPP System Architecture Evolution (SAE); Security Architecture", 3GPP TS 33.401 (2008), *available at* http://ftp.3gpp.org/specs/html-info/33401.htm.

[80] Two aspects of security features namely, "integrity protection and verification of data" and "cyphering/decyphering of data" should be supported for signaling. In addition "cyphering/decyphering of data" should be supported for user traffic.

[81] User domain security as stated above is a mandatory feature according to 3GPP TS 33.102 for the operation of the LTE network. *See* 3rd Generation Partnership Project, "3G Security; Security architecture (Release 8)," 3GPP TS 33.102 (2009). Therefore, the public safety broadband network must support it and it is not the subject of this notice.

17. Robustness and Hardening

70. As many public safety entities and organizations have stated in their comments, it is critical that public safety have available to it a resilient and reliable public safety broadband network.[82] Many of the comments acknowledge public safety's need for sites equipped with generator and battery backup power.[83] Accordingly, we seek comment on whether we should require more or less than eight hours of back-up power to each eNodeB site within a public safety broadband network? Should the Commission require more or less than eight hours of back-up power to specific eNodeB sites within a pre-defined area of the public safety broadband network, such as high traffic areas or urban areas? Should the Commission require less than eight hours of back-up power to each eNodeB site located on building rooftops, apartments or similar structures? Besides the use of batteries for back-up power at each eNodeB site, are there other alternatives such as solar power?[84] Should the requirement include at least eight hours for all of the network equipment located at the RAN site location? How would compliance with backup power requirement be determined? Should there be a requirement to file something with the Commission for verification (*e.g.*, self-certification, etc.)? Should the Commission propose to require each public safety network operator to certify, within thirty days of its date of service availability, that its eNodeB sites are capable of achieving the backup power requirement? What are the costs of such requirements and how should they be borne? Are there other ways to achieve the same results?

18. Coverage Requirements

71. Coverage is an important consideration in ensuring that the public safety broadband network is interoperable on a nationwide basis. Accordingly, we tentatively conclude that we should impose coverage and performance requirements on the networks that will comprise the nationwide public safety broadband network. We seek comment on this tentative conclusion. Additionally, we seek comment on whether the Commission should impose either a population- or geographic-based build-out requirement and whether such a requirement should also include interim benchmarks for the percentage of population or geographic area covered. We seek comment on the advantages and disadvantages of adopting either method as well as on how to structure the percentage requirements to maximize coverage while preserving the economic viability of a nationwide network. Also, we seek comment on whether the Commission should require each public safety network operator to certify, within thirty days of achieving service availability, its compliance with any coverage requirements we adopt, and whether there should there be ongoing certification requirements.

72. One approach we can take is to require that the public safety broadband networks cover a certain population or geographic benchmark. Such requirements could impose costs on public safety but could ensure that an increased percentage of the nation benefits from the public safety broadband network and hence, is interoperable. Is this an appropriate requirement to impose on public safety? If so, what percentage of population-based or geographic coverage benchmark should we adopt for the public safety broadband network? Should coverage requirements be implemented over a fifteen-year period? If a fifteen-year period were implemented, should the Commission require that the network achieve 40 percent coverage within four years, 75 percent within ten years and 99 percent within fifteen years?[85]

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[82] *See, e.g.*, APCO Comments on *Third Further Notice* at 15 (Nov. 3, 2008); Joint Public Safety Commenters Comments on *Third Further Notice* at 13 (Nov. 3, 2008); NATOA Comments on *Third Further Notice* at 15-16 (Nov. 3, 2008); NPSTC Comments on *Third Further Notice* at 17-18 (Nov. 3, 2008).

[83] *See id; see also* New York City Comments on *Third Further Notice* at 11 Nov. 3, 2008; PSST Comments on *Third Further Notice* at 20-21 (Nov. 3, 2008); RPC 20 Comments on *Third Further Notice* at 7-8 (Nov. 3, 2008); TIA Comments on *Third Further Notice* at 11 (Oct. 31, 2008).

[84] *See* Emergency Response Interoperability Center Technical Advisory Committee Filing, PS Docket 06-229, at 6-7 (Oct. 31, 2010) (ERIC TAC Filing).

[85] In evaluating public safety broadband networks' compliance with such requirements, we would refer to the most recently available U.S. Census Data.

Would significant population, as required for the waiver recipients, be more appropriate? Also, are their other coverage benchmarks that might be reasonable and ensure nationwide interoperability? If we do not impose such requirements, how do we ensure that coverage of the network is extensive enough to meet the needs of public safety? What would be the costs of such approaches?

73. We recognize that commercial providers often have economic incentives to concentrate their network deployments in high population areas but that public safety broadband users will require coverage availability even in highly rural areas. In order to promote better coverage in rural areas, should the Commission require that the coverage area of the network reach major highways and interstates? In lieu of a population or geographic benchmark in rural areas, should the Commission propose a different benchmark, such as vehicular traffic counts on major highways and interstates? Finally, we seek comment on whether other requirements should be imposed to ensure that public safety broadband networks achieve a sufficient baseline of operability, even in rural areas, to enable the development of an interoperable nationwide network.

19. Coverage Reliability

74. While geographic coverage of a network is important, network availability is another critical factor. An unreliable network is inoperable, and therefore not interoperable. Areas of poor performance and inadequate coverage must be identified as well as assessed to adequately maintain the operability and interoperability of the nationwide network.

75. We seek comment on whether to impose coverage reliability requirements on public safety network operators. In particular, we tentatively conclude that the network should provide outdoor coverage reliability at a probability of coverage of 95 percent for all services and applications throughout the network that is a standard commonly used today by the Land Mobile Radio and cellular industries. We seek comment on this tentative proposal. Is this a stringent enough approach? What are the costs of such an approach? Should the broadband network be designed to meet 95 percent coverage reliability on all named streets within the service area (not including in-building coverage)? If not 95 percent probability, what percentage of outdoor reliability should be used? Should the service area be defined geographically, by the county boundaries, if not by what boundary? What should the time frame be for meeting this requirement? Are there methods to increase the probability of coverage with less or more spectrum, without adding eNodeB sites, repeaters, distributed antennas systems (DAS) or In-Building systems? Should the proposed 95% Probability of Coverage requirement apply only to outdoor environments? Is a different percentage requirement appropriate for indoor environments?

20. Interference Coordination

76. In the *Waiver Order* we noted the importance of providing "a solid mechanism for ensuring efficient, interference-free implementation and evolution of regional or tribal, statewide or local early-deployed networks."[86] Accordingly, we required as a condition of deployment, that prior to deployment each waiver recipient "coordinate and address interference mitigation needs with any adjacent or bordering jurisdictions that also plan deployment." We further required waiver recipients to memorialize these agreements in writing and submit them to ERIC within 30 days of their completion. In addition, we required "that parties provide ERIC with notice of any changes or updates within 30 days" and provided that, "[s]hould the parties be unable to reach an agreement within 90 days after coordination begins, they may submit the dispute to the Bureau for resolution."

77. It is critical as we move forward that networks are coordinated with one another to protect against harmful interference and ensure interoperability. Accordingly, we tentatively conclude that we should require that, ninety days prior to deployment, a public safety broadband network operator must notify any adjacent or bordering jurisdiction of its plans for deployment. Each notified jurisdiction

[86] *See Waiver Order* at 5159 ¶ 42.

would then have the opportunity to request that the parties negotiate a written coordination agreement. We would require that any such agreement be submitted to the Bureau within thirty days of its execution. Parties unable to reach an agreement within ninety days could refer their dispute to the Bureau for resolution. We seek comment on this tentative conclusion.

78. We also observe that public safety broadband networks should employ interference mitigation techniques that will avoid signal/spectral efficiency degradation issues within a region and between overlapping with adjacent regions. Should the Commission impose such requirements and what are the costs and benefits of such an approach? Should the Commission require eNodeB features such as Static Inter-cell Interference Coordination (ICIC) for interference mitigation?[87] Are there eNodeB or other features, either currently available or being studied within 3GPP, that are superior or better suited for interference coordination and mitigation? Should the Commission require the eNodeB feature Semi-static ICIC?[88] What benefit would Semi-static ICIC offer compared to Static ICIC? Should the Commission require the eNodeB feature Semi-static ICIC? How would compliance with these eNodeB feature requirements be determined? Should there be a requirement to file something with the Commission for verification (*e.g.*, self-certification, etc.)? What other techniques or features are currently available for the eNodeB, that can be implemented immediately using the existing functionality for interference mitigation or coordination, besides typical network planning techniques?[89]

79. In addition, as both commercial and public safety 700 MHz networks add eNodeB sites in subsequent phases to address coverage, capacity, and spectral efficiency issues that may arise once more bandwidth intensive applications are added to the system, the possibility exists that performance of one network could be negatively impacted by another network operating in adjacent spectrum. This possibility is increased if networks are built according to different site topologies and densities. Given this possibility, we seek comment on whether we should require public safety broadband networks to coordinate with operators in adjacent spectrum, as commercial operators do, and take any steps necessary to ensure that the performance of the public safety network is not degraded below the required levels due to interference from spectrally adjacent networks.

21. Incumbent Narrowband Operations

80. In the *Second Report and Order*, the Commission recognized that in realigning the 700 MHz public safety spectrum to create a consolidated broadband allocation, certain incumbent public safety narrowband operations in the lower portion of the public safety band (TV Channels 63 and 68, and the upper 1 megahertz of TV Channels 64 and 69) would need to be relocated to the new consolidated public safety narrowband allocation.[90] The Commission adopted a plan that would require the D Block auction winner to fund that relocation at a capped amount, with the PSBL administering the process.[91] Due to the auction failure, this relocation funding mechanism was never put into effect, and these

[87] Within the 3GPP, several techniques have been proposed for inter-cell interference coordination (ICIC). The Static ICIC feature is intended to minimize inter-cell interference by providing a fixed, static method of allocating resource blocks between cells within the system. Static ICIC method relies exclusively on information contained in each eNodeB, and as such does not require the use of messaging across the X2 interference between eNodeBs nor does it require any kind of dynamic coordination between eNodeB scheduler processes.

[88] Semi-static ICIC is another feature proposed within the 3GPP. This feature is intended to minimize intercell interference by making use of 3GPP standardized messaging across the X2 interference between eNodeBs. Measurement reports exchanged between eNodeBs over the X2 interface can be used to support interference coordination in both the downlink and uplink. Semi-static ICIC relies on three types of measurement reports between eNodeBs.

[89] Typical network planning techniques include: selecting appropriate antenna patterns, adjusting the individual sector antenna tilts or power levels, and selecting optimal site locations and site separation distances.

[90] *Second Report and Order* 22 FCC Rcd at 15409, 15410 ¶¶ 329, 332.

[91] *Id.* at 15411-14 ¶¶ 336-344.

incumbent narrowband operations continue to operate in the public safety broadband spectrum.

81. In the *Waiver Order*, we accounted for these incumbent narrowband operations, by requiring waiver recipients either to protect the incumbents through appropriate engineering measures or geographic exclusion, or to relocate them at their own expense.[92] For waiver recipients proposing to protect an incumbent by engineering measures, we required the waiver recipient to obtain the consent of the narrowband system operator to its proposed method of protection[93]. Further, we required waiver recipients to protect public safety narrowband deployments on the former narrowband channels present in adjacent regions.[94] We took these actions subject to further consideration of relocation issues in this proceeding, but declined at that time to address the costs for such relocation or any potential reimbursement. [95]

82. We remain committed to providing for the relocation of narrowband incumbents from the public safety broadband spectrum in order to ensure that the public safety broadband spectrum can be fully utilized to support nationwide broadband interoperability. We seek comment on how best to facilitate such relocation. For example, should prospective broadband operators be required to include plans for narrowband relocation as part of their deployment proposals? If broadband operators incur relocation expenses, should they be entitled to reimbursement in the event that the Commission adopts a relocation funding mechanism?

83. In the interim, we seek to ensure that narrowband incumbents who continue to operate temporarily in the broadband spectrum will be protected from potential harmful interference until they are relocated. Therefore, we tentatively conclude that as an interim rule, pending future disposition of relocation and reimbursement issues, we will require all public safety broadband operators to abide by the same conditions relating to narrowband incumbents that were imposed in the *Waiver Order*, *i.e.*, each broadband operator must protect any potentially affected narrowband incumbent by technical measures or geographic separation, or must relocate the incumbent at its own expense. We seek comment on this tentative conclusion. Are other technical rules needed to protect these incumbent narrowband operations from harmful interference? If so, what should be the basis of these technical rules (e.g., distance separation, contour overlap etc.)? If a broadband operator relies on geographic separation, should we adopt signal strength, antenna height, or other technical restrictions for the "borders" between these operations?

84. We also tentatively conclude that, as in the *Waiver Order*, each public safety broadband operator should be required to notify and obtain the consent of the potentially affected narrowband incumbent as to its proposed method of protection. We seek comment on this tentative conclusion. Should we adopt procedural rules to govern the notification process, *e.g.*, by requiring notification to the incumbent narrowband operator within a specified time period? What should the notification include? If we require consent from the incumbent narrowband operator, should we adopt a time period for such consent (*e.g.*, 60 days), and if consent is not received within that time period, should we there be a path for elevating the issue to the Bureau or Commission? If so, what should that path be and what should the time requirements be?

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[92] *Waiver Order*, 25 FCC Rcd at 5168, ¶¶ 72-73.

[93] *Id.*

[94] *Id.*

[95] *Id.*

B. Public Safety Roaming on Public Safety Broadband Networks

85. In an effort to enhance the utility of the public safety broadband networks recently authorized by early build out waivers[96] and to foster the continued evolution towards a national public safety broadband network in the 700 MHz band, we now seek to establish technical requirements and a regulatory framework to govern public safety roaming on 700 MHz public safety broadband networks (intra-system roaming).[97] We expect that this framework will enhance interoperability in both day-to-day and emergency situations.

86. As an initial matter, we note that this *Fourth Further Notice* deals exclusively with roaming by public safety users on broadband networks operating in the existing 700 MHz public safety broadband spectrum, *i.e.*, where a 700 MHz public safety broadband user travels to another region and logs into another public safety network using the 700 MHz public safety broadband spectrum. We do not here address issues related to public safety roaming on commercial spectrum. These issues will be addressed separately.[98]

87. *Nomenclature*. We propose to define a 700 MHz public safety roamer in our Part 90 rules as "A mobile station receiving service from a station or system in the public safety broadband network other than one to which it is a subscriber." We seek comment on this tentative definition. In addition, as a way to develop a common nomenclature to guide this and future discussions we broadly divide intra-system public safety roamers into three categories based on the nature of their mission:

- "Itinerant roamers"—those on a network while in transit through an area or while in the execution of a small scale tasks (such as an extradition or conference attendance).
- "Interoperability roamers"—those who are on the network as part of a long-standing arrangement.
- "Response roamers"—those who are on the network as part of a coordinated response to a large scale emergency incident.

We seek comment on this categorization. Would such categorization facilitate technical and operational aspects of the roaming? Are there any other categorization schemes that render better results? What are these schemes and have they been used in other places?

88. In order to ensure interoperability it is critical that public safety users can gain access through roaming to other public safety networks across geographies. Accordingly, we tentatively conclude that all 700 MHz public safety broadband users should be able to roam on all other 700 MHz regional public safety broadband networks. Under this tentative conclusion, a public safety broadband provider (*i.e.*, any operator of a public safety broadband network) will have an obligation to enter into roaming arrangements with other public safety broadband providers on reasonable terms and conditions,

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[96] *See Waiver Order*.

[97] Roaming for 700 MHz public safety users can occur in two circumstances: (1) when a public safety user travels to another region and logs into another public safety network using the same public safety band in 700 MHz spectrum, or (2) when a public safety user either travelling to another region or within his or her own region faces a situation in which either there is no coverage for public safety band or there is not sufficient capacity at the time, and hence, the user roams on to a commercial band. We adopt the nomenclature used in the NPSTC BBTF Report, which terms the first circumstance "intra-system roaming"—where public safety roams into another public safety network within the same band. The second circumstance is termed "inter-system roaming"—where public safety roams into commercial networks in another band. The scope of this *Fourth Further Notice* is limited to the issues concerning the intra-system roaming, and the issues concerning the inter-system roaming are to be addressed separately.

[98] Separately, we will also address the argument that the Commission should clarify whether E911 and the requirements of Section 255 of the Communications Act apply to public safety devices that are capable of roaming onto commercial networks. *See, e.g.*, AT&T Comments on *Technical Public Notice* at 8-9.

when requested. We tentatively conclude that the obligation to provide public safety roaming extends to all 700 MHz public safety broadband providers in order to ensure nationwide interoperability among public safety broadband networks. Additionally, we tentatively conclude that this roaming obligation should extend to all three categories of public safety roamers described above. We propose, however, that public safety broadband providers can admit different categories of public safety roamers onto the host network on different priority bases if needed. We seek comment on this tentative conclusion.

89. We believe that enabling public safety users to roam on multiple public safety broadband networks is an important step on the path to a nationwide interoperable public safety network. We believe that establishing an obligation for technologically compatible networks to allow for intra-system roaming will provide public safety with increased interoperability. We seek comment on our proposals and analysis, as well as on the issues discussed below.

1. Prioritization and Quality of Service to Support Roaming

90. We seek comment on public safety needs and standards for prioritization in the context of public safety intra-system roaming. Should there be a standard nationally-applicable prioritization scheme for all regional public safety broadband networks? Who should determine this prioritization scheme? Does this have any impact on interoperability of these networks? Alternatively, should we establish a prioritization framework within which regional networks could define and set their own priority schemes? Would such an approach still achieve our goal of nationwide interoperability? What criteria would need to be specified in the framework to ensure a baseline level of nationwide capability for interoperability purposes, while still providing flexibility for regional control? How would roamers be treated in such a framework? Is there any standardized configuration for various categories of roamers to acquire and maintain an appropriate prioritization within a visited network?

91. Similarly, we seek comment on when a prioritization scheme should be triggered. Should there be a standard nationally-applicable prioritization trigger mechanism for all regional public safety broadband networks? Who should determine the timing of this trigger mechanism? Independent of the trigger mechanism, we seek comment as to who should be able to initiate prioritization generally within networks or portions thereof. Should there be a sliding scale of authority based upon the extent of the network being put under a prioritization scheme (*e.g.*, should it require less authority to initiate prioritization on a single cell than a larger area such as an entire city)?

92. Similarly as related to QoS, we seek comment on the adoption of a standardized QoS scheme for all regional networks. Should such scheme be required for nationwide interoperability and roaming? Would a simple QoS framework be adequate for all regional networks with sufficient flexibility embedded for individual regional control over the QoS? How should various roamers acquire and maintain a minimum level of QoS capability?

2. Applications to Be Supported for Roamers

93. Broadband technologies can advance public safety and homeland security by improving the operability, interoperability, and usability of public safety communications. In particular, public safety applications could seamlessly be available to all users at home and while roaming during day to day tasks as well as in times of emergency. Recognizing these benefits of broadband technologies to public safety, we have tentatively concluded in Section A.16 above to adopt five common applications that must be fully supported by each public safety broadband network. In order to further advance interoperability across networks, we extend this tentative conclusion here by proposing that all networks support this same set of applications for the purpose of roaming. Therefore, we tentatively conclude that public safety broadband networks must support the following five applications to intra-system roamers: (1) Internet access; (2) VPN access to any authorized site and to home networks; (3) a status or information "homepage;" (4) access to responders under the Incident Command System; (5) and field-based server applications. We seek comment on this tentative conclusion. Are there additional applications that should be supported for roaming purposes?

3. Public Safety-to-Public Safety Roaming Rates

94. We recognize that providing intra-system roaming support may add some costs to the operations of any network that is subject to roaming requirements. We seek comment on the nature of these potential costs and how significant they might be. We note that public safety entities currently absorb interoperability costs for their existing systems. Thus, as a threshold issue we ask whether public safety broadband network operators anticipate absorbing intra-system roaming costs generated by other public safety users as an operational cost or whether they expect to use roaming rates or charges to recover these costs. Is there a threshold level of roaming above which costs should no longer be absorbed but need to be recovered? Should public safety intra-system roaming cost recovery functions be based on any existing commercial roaming models, or are there cost and cost recovery elements that are unique to public safety? Parties should also address how roaming costs associated with shared resources such as clearinghouses or databases should be apportioned or recovered.

95. Parties supporting the establishment of intra-system roaming charges or rates should comment on whether there are steps we should take to ensure or facilitate reasonable charges or rates for public safety intra-system roaming. In this regard, we seek to provide, within the scope of our authority, sufficient incentives for public safety to make use of negotiated roaming arrangements. Since intra-system roaming would involve reciprocity and the same set of public safety entities providing roaming to one another, we seek comment on whether adjudicating disputes on intra-system roaming charges or rates on a case-by-case basis though a complaint process is likely to be the best approach or whether some other approach would better serve the public interest in this context.[99] Are there unique factors related to facilitating public safety intra-system roaming that warrant the Commission taking steps to facilitate reasonable intra-system roaming rates for public safety? Does the goal of nationwide interoperability in the public safety context necessitate and justify significantly increased Commission oversight? We seek comment on other factors that may impact the need for Commission action to facilitate reasonable rates in this context.

96. To the extent that action is necessary, we seek comment on what steps the Commission could take to facilitate reasonable rates for intra-system roaming. If we decide not to determine rates on a case-by-case basis, but instead adopt a nationwide intra-system roaming rate, we seek comment on the appropriate methods to determine such a rate. For example, in the *Third Further Notice,* the Commission proposed a service charge of $48.50 per user per month as a benchmark rate for 700 MHz public safety broadband users.[100] The Commission based this amount on a survey of contracts presently offered to governments and public safety authorities for wireless voice and data services.[101] We seek comment as to whether using this method and this amount would be reasonable in the intra-system roaming context. What other methods are available to determine a nationwide intra-system roaming rate for public safety? We seek comment as to whether a sunset strategy would be appropriate here if we adopted an initial nationwide intra-system roaming rate.

4. Volume of Roaming Traffic

97. We make no assumptions about the amount of intra-system roaming that will occur. Rather, we seek comment on what the anticipated demand for intra-system roaming is likely to be. We also seek comment on how roaming traffic will be distributed amongst the three categories of roamers

[99] *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, WT Docket 05-265, *Report and Order and Further Notice of Proposed Rulemaking*, 22 FCC Rcd 15817, 15832-33 ¶¶ 37-40. *See also* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, WT Docket 05-265, *Order on Reconsideration and Further Notice of Proposed Rulemaking*, 25 FCC Rcd 4181, 4223-24 ¶ 91.

[100] *Third Further Notice,* 23 FCC Rcd at 14427 ¶ 392.

[101] *Id.* at 14425 ¶ 391.

described above, *i.e.*, "itinerant roamers", "interoperability roamers" and "response roamers." To this end, we seek comment on how the anticipated volume of public safety-to-public safety roaming traffic will impact interoperability and the cost and design of each public safety broadband network.

5. Proposed Model Agreement

98. In the *Waiver Order*, we provided a "Standard Lease" to govern the spectrum leasing arrangement between the PSST and waiver recipients.[102] We required use of this lease because of the nascent nature of deployment in the public safety broadband spectrum, the novel nature of the relationship between the PSST and the waiver recipients, and the unique licensing scheme adopted by the Commission in the *Second Report and Order* in which we provided for a single nationwide public safety broadband licensee.[103]

99. We seek comment on whether we should similarly provide a "Standard Roaming Agreement" for public safety intra-system roaming. Would such a standardized agreement help facilitate roaming on public safety broadband spectrum during initial and subsequent phases of deployment, help facilitate nationwide interoperability, and reduce the administrative burden on public safety network operators? We seek comment on whether such an agreement would be useful, and if so, what terms this agreement should contain. Are there minimum provisions that should be standardized on a nationwide basis? Should we allow for some local or regional variation in roaming agreements? Would such variation enhance emergency response or hinder it? Who should develop the standardized agreement? Should the PSBL or other national entity serve as a clearing house for facilitating local or regional agreements?

C. Federal Use

1. Section 2.103

100. In the *Second Report and Order,* the Commission determined that Section 337 of the Act does not bar Federal government public safety entities from using the 700 MHz band under certain conditions.[104] Specifically, the Commission determined that, while Section 337 of the Act does not expressly indicate that Federal government entities should be eligible, such "omission simply reflects the fact that the Commission does not license Federal stations."[105] In the *Waiver Order*, we determined to retain the existing rule that allows Federal use of this spectrum for the purpose of the waivers granted by the order.[106]

101. We believe it is worthwhile to re-examine this rule to ensure that it is consistent with the current approach to ensuring nationwide interoperability. We also note that the current rule could arguably be construed to allow direct leasing of spectrum for Federal use (*e.g.*, "Federal stations may be authorized…"), as opposed to merely allowing Federal users access to the network as subscribers.

102. Accordingly, we seek comment on whether the existing rule remains the appropriate vehicle for Federal access in light of the revised network-of-networks approach. If the PSBL is to retain a central role in determining access by Federal entities, should it be obligated to consult with the regional and tribal public safety network operators to ensure that capacity is not adversely impacted? Should there be other safeguards to ensure that regional and tribal networks needs are not harmed? Alternatively, should Federal access be granted at the regional or tribal level with a national clearing house to address a

[102] *See Waiver Order* at 5153-54 ¶¶ 25-27.

[103] *Id.*

[104] *See Second Report and Order,* 22 FCC Rcd at 15427 n.822; *see also* 47 C.F.R. § 2.103(b)).

[105] *Second Report and Order*, 22 FCC Rcd at 15427 n.822; *see also Waiver Order* at 5155-56 ¶ 34; 47 C.F.R. § 2.103

[106] *See Waiver Order* at 5155-56 ¶ 34; 47 C.F.R. § 2.103.

standard or common access agreement, allowing for local schedules? If so, who should fill the role as a clearing house?

103. We also seek comment on whether a capacity "leasing" option for Federal users is an appropriate approach in light of our determination to require the use of LTE for the public safety broadband network, and the bandwidth that this standard requires. Alternatively, would a subscriber access model be preferable to a leasing or capacity sharing model? In either scenario, should there be constraints on fees paid by Federal users, to whom such fees are paid, or the apportionment of such revenues? Should there be constraints on how such revenues are spent, *e.g.*, in support of the public safety broadband network? How would this be monitored or enforced? How would either model impact the costs of Federal use? If a subscribership model is more appropriate, does this impact whether a centralized or state/local access model is preferred for Federal users?

2. Roaming by Federal Users

104. In light of these concerns, we also seek comment on the appropriate regime for allowing Federal users to roam onto state or local public safety broadband systems. We tentatively conclude to extend eligibility for intra-system roaming to all Federal entities whose "sole or principal purpose" is "to protect the safety of life, health or property" and who meet the remaining requirements of Section 337(f). We anticipate that networks would enforce any eligibility requirements via network access. We seek comment as to whether Federal users should be assigned a different priority level than non-federal users.

105. In addition, if Federal government users are allowed to operate on this spectrum under the leasing option discussed above,[107] we propose that Federal agencies would also be eligible to use intra-system roaming. We seek comment on this tentative conclusion. We also seek comment from potential Federal users as to what their anticipated use of these networks would be, and on the anticipated costs (both financial and in terms of network traffic) of Federal roaming on public safety broadband networks. As above, we also seek comment on whether the use of a clearinghouse or other nationwide model roaming agreement would facilitate Federal roaming, and how such a mechanism would function, and whether any revenues generated from any roaming arrangements should be directed towards the construction and maintenance of the network.

D. Testing and Verification to Ensure Interoperability

1. Conformance Testing

106. Interoperability requires that user devices and network equipment comply with relevant standards specifications. Conformance testing, a process generally planned and developed by industry organizations and conducted by certified labs,[108] is a mechanism that could be used to ensure that devices and network equipment that are deployed in the public safety broadband spectrum are compliant with the 3GPP LTE Release 8 and higher standards. We therefore tentatively conclude that we should require that all user devices be subject to conformance testing and seek comment on this tentative conclusion.

107. While ordinarily it would be appropriate to require conformance testing in advance of network deployment, we note that a conformance testing and certification process for user devices operating in LTE Band Class 14—which includes the public safety broadband spectrum—may not be developed as of the release date of this *Fourth Further Notice*. However, the PTCRB[109] is expected soon to complete development of such a process. We propose to require that six months following the

[107] *Id.*; *see also* 47 C.F.R. § 90.175(g).

[108] 3rd Generation Partnership Project, http://www.3gpp.org/conformance-testing-ue; PTCRB, http://www.ptcrb.com/; Global Certification Forum (GCF), http://www.globalcertificationforum.org/WebSite/public/ home_public.aspx.

[109] PTCRB is a global organization created by Mobile Network Operators to provide an independent evaluation process where GSM / UMTS Type Certification can take place. *See* PTCRB, http://www.ptcrb.com/.

Commission's release of a public notice announcing the availability of the PTCRB testing process for Band 14, each public safety broadband network operator must certify to the Commission that the operating devices have gone through and completed this process.[110] We further propose that in its certification to the Commission, each network operator must also commit to any future testing called for within the certification process. We seek comment on this proposed conformance testing requirement. Do the benefits of conformance testing outweigh the costs associated with our proposal?

108. We also seek comment on conformance testing for LTE infrastructure equipment. Is there any known conformance testing with some formal certification process for LTE infrastructure equipment, namely EPC, including eNodeB, MME, SGW, PGW and PCRF? To what extent is such process used by commercial network providers? Would the benefit of such certification outweigh the possible costs associated with creating a certification requirement for public safety broadband network infrastructure equipment? Finally, we seek comment on who should represent public safety at PTRCB? Should it be the PSST, NIST or another entity? Could it be a combination of entities working in partnership? What is the cost of such a requirement?

2. Interoperability Testing (IOT)

109. In the *Waiver Order*, we required waiver recipients to self-certify their performance of IOT on specified LTE interfaces.[111] We sought comment in the *Technical Public Notice* on whether our final rules should require only self-certification, or whether we should establish a more formal mechanism for ensuring compliance with any interoperability testing requirements adopted in our final rules. Motorola recommends "self-certification relying on test suites developed specifically for public safety use of Band Class 14."[112] Meanwhile, Harris argues that "a self-certification process is adequate in the near term, particularly for systems constructed under the waiver process because final network technical specifications are still being finalized."[113] The District of Columbia, however, contends that, "[t]hough self-certification may be sufficient initially, vendors' desire to differentiate themselves in the marketplace can create incentives that run counter to the goal of interoperability" and "[i]n time, demonstrated interoperability on key interfaces will probably be necessary."[114]

110. IOT is an important mechanism for ensuring that public safety broadband networks are technically capable of supporting roaming. We therefore tentatively conclude that we should require that public safety broadband networks perform IOT for the LTE roaming interfaces identified in the *Third Report and Order* above. To this end, we tentatively conclude that we will require that network operators perform IOT, prior to deployment of any RAN equipment, on the following LTE interfaces:[115]

- Uu – LTE air interface
- S6a – Visited MME to Home HSS
- S8 – Visited SGW to Home PGW
- S9 – Visited PCRF to Home PCRF for dynamic policy arbitration

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[110] Device manufacturers have their devices tested and certified through PTCRB certified labs. *See* PTCRB, http://www.ptcrb.com/.

[111] *Waiver Order* at 5161 ¶47. The specified interfaces are S1-MME (interface between eNodeB and MME); S1-u (interface between eNodeB and SGW); and U_u- LTE air interface. *Id.*

[112] Motorola Comments on *Technical Public Notice* at 18 (July 19, 2010).

[113] Harris Comments on *Technical Public Notice* at 6 (July 19, 2010).

[114] District of Columbia Comments on *Technical Public Notice* at 6 (July 19, 2010).

[115] These are the roaming interfaces that our *Third Report and Order* requires public safety broadband networks to support for the purpose of enabling roaming. *See supra* Section III.A.

111. We seek comment on this tentative conclusion. What are the costs and benefits of IOT on roaming interfaces? Have we identified an appropriate list of interfaces on which IOT is necessary to ensure roaming capability among public safety broadband networks? Are there interfaces that should be added to this list, and if so, what would be marginal costs associated with requiring IOT for such interfaces?

112. Commercial network operators rely on IOT to ensure multi-vendor interoperability for devices and equipment that operate on their networks. The LTE interfaces relevant to multi-vendor interoperability include:

- S1-u – between eNodeB and SGW
- S1-MME – between eNodeB and MME
- S5 – between SGW and PGW
- S6a – between MME and HSS
- S10 – between MMEs
- S11 – between MME and SGW
- SGi – between PGW and external PDN
- X2 – between eNodeB and eNodeB (for intra-network handover)
- Gx – between PGW and PCRF (for QoS policy, filter policy and charging rules)
- Rx – between PCRF and AF located in a PDN
- Gy/Gz – offline/online charging interfaces

113. Should the commission adopt IOT rules to ensure multi-vendor interoperability on public safety broadband networks? What are the potential costs and benefits of such a requirement? Does the preceding list include all of the interfaces on which IOT should be required to support multi-vendor interoperability or are there other interfaces that should be included?

114. Although IOT is critical to ensuring that public safety broadband networks are interoperable, it is our understanding that no specific guidelines for conducting IOT between such networks have been developed. Accordingly, we tentatively conclude that, for the interim, each public safety broadband network operator will be required to submit for Bureau review, within six months of its date of service availability,[116] a plan for IOT.[117] The scope of the IOT called for in the network operator's plan would be required to be sufficiently broad to address all LTE capabilities and functions required under the *Waiver Order,* and it should examine all the interfaces needed for roaming to and from other public safety networks. After the Bureau approves its plan, each network provider will be required to certify, within three months, that IOT will be conducted on an ongoing basis with other deployed public safety broadband networks until final IOT testing rules are adopted.

115. We observe that commercial broadband service providers, who perform IOT to ensure interoperability among devices and network infrastructure, generally own or operate laboratories in which they can perform IOT. Because it is similarly important for public safety networks operators to have access to IOT for the purpose of verifying interoperability, we tentatively conclude that certain lab facilities need to be designated for the purpose of IOT. We seek comment on this tentative conclusion. Are there facilities already available for conducting IOT for public safety broadband networks? Are there

[116] *See supra* note 75.

[117] The Bureau may, at its discretion, seek public comment on any network operator's IOT plan.

third party commercial laboratories where public safety broadband network IOT could take place? How about federal lab facilities such as NIST/NTIA (PSCR) facilities, or the Idaho National Laboratory (INL)? How about an arrangement with certain commercial service providers to conduct IOT for public safety in their own lab? How should the lab facility be compensated? Who should pay for the services? Who should set and manage the set of guidelines for IOT? Who should determine the test plans? Is there a role for the PSST in this process? We note that PSCR is developing test plans for its public safety demonstration network.[118] Is it appropriate to use such test plans for IOT? If not, what is an appropriate process for developing test plans for public safety purposes? We seek comment on all of these matters.

3. Interoperability Verification

116. We seek general comment on whether there are other methods, in addition to conformance testing and IOT, of verifying that public safety broadband networks comply with the technology standards adopted for the nationwide network and are technically capable of achieving interoperability. Are any such methods more reliable than IOT and conformance testing for verifying compliance with the technical requirements adopted for the nationwide network? What are the potential costs of implementing any such methods?

E. Other Matters Relevant to Interoperability on Public Safety Broadband Networks

1. Network Operations, Administration and Maintenance

117. The operation of the broadband public safety network involves network management, administration/provisioning, and maintenance. The *Waiver Order* did not address the technological and operational features of network operations, administration and maintenance (OA&M). What operational capability, if any, should be required in order to maintain and enhance interoperability? Are there any specific operational models that would help consistency and interoperability on a local, regional or tribal and nationwide basis?[119] If yes, what are they and what are the cost benefits of the different models? Should ERIC be the entity that standardizes these operational conformance models or is another entity that is better situated to do this?

2. Reporting on Network Deployment

118. In the *Waiver Order*, we noted the importance of ensuring that waiver recipients were diligent in pursuing deployment of their networks. Accordingly, we required them to submit to the Bureau quarterly reports addressing their progress in 3 areas: (1) planning; (2) funding; and (3) deployment. To date, the Waiver Recipients have each filed two quarterly reports, which have provided the Commission with valuable information on the progress of each recipient. We anticipate that as we progress with broader deployment of the nationwide network, it will be useful for the Commission to receive periodic updates on the progress of network deployment. We thus seek comment on whether to impose on public safety network operators a periodic reporting requirement similar to that imposed on waiver recipients. Would it be appropriate to require such reporting on a quarterly basis? Should the reports address matters in addition to those required to be addressed in the quarterly reports filed pursuant to the *Waiver Order*? Should the PSST or another entity serve as the clearing house for these reports?

3. Devices

119. Devices are a critical component of system interoperability, particularly during the early phases of system deployment. In recent months, the Commission has type-approved several LTE devices

[118] The PSCR/DC Demonstration Network will provide an open platform for development and testing of public safety 700 MHz LTE broadband equipment. *See* Press Release, Nat'l Inst. of Standards and Tech., Demonstration Network Planned for Public Safety 700 MHz Broadband (Dec. 15, 2009), *available at* http://www.nist.gov/eeel/oles/network_121509.cfm (last visited Apr. 26, 2010).

[119] *See* ERIC TAC Filing at 9.

that vary in terms of channel bandwidth, frequency bands and 2G/3G technology support.[120] In order to facilitate the development of interoperable public safety LTE networks, we seek comment below on the use of LTE devices on such networks.

120. *Channel Bandwidth Requirement for the Public Safety Broadband Spectrum*: The LTE standard supports operation in 1.4/3/5/10/15/20 MHz of channel bandwidth in Frequency-Division Duplexing (FDD) mode.[121] Given that 5+5 megahertz in the 700 MHz band is presently allocated for public safety broadband communications, we tentatively conclude that we should require public safety LTE devices to support, at minimum, a five megahertz channel bandwidth. We note that certain LTE devices are type-approved for operation in 1.4/3/5 MHz channel bandwidth.[122] We seek comments whether public safety LTE devices should be required to support 1.4/3 MHz channel bandwidth in the public safety broadband spectrum. What would be the advantage/disadvantage of having multiple channel bandwidth support for public safety, such as 1.4/3/5/10 MHz Bandwidth channels? What are the costs for such an approach and do the benefits support the addition of any cost? What would be the potential impacts to device certification and national interoperability? Would there be any operational impacts to the public safety broadband network if 1.4/3 MHz channels were supported by devices but not used? What would be the impact on costs?

121. *Band Class 14 Support*: There are certain LTE devices that are FCC type-approved for 5/10 MHz operation in lower and upper 700 MHz bands.[123] Band Class 14 includes both the 5+5 megahertz D block and the 5+5 megahertz public safety broadband allocation. Should at least one or a subset of public safety LTE devices be required to support five megahertz channel operation in D block or support ten megahertz operation in Band Class 14? What are the potential benefits and costs of such requirements? What are the tradeoffs in terms of cost, complexity and performance in consideration of certification and national interoperability?

122. *Multiple Mode Support*: As LTE networks are built out for public safety and commercial usage, multiple mode devices may provide additional coverage with 2G/3G support.[124] Commercial multiple mode LTE devices are type approved to support either GPRS/EDGE/WCDMA/HSPA platform or CDMA/EVDO platform in various frequency bands. What factors should public safety entities consider when selecting LTE devices? Further, given the coverage limitations of terrestrial wireless networks, what are the possibilities of adding satellite capability to public safety LTE device? Does satellite capability favor any particular 2G/3G/4G technology platform? What, if any, action should the Commission take here?

4. In-Building Communications

123. We recognize that ideally, emergency responder communications should continue to function within a building, maintaining key services and sustaining vital communications support.[125]

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[120] *See* FCC ID BEJAD600 (850/1900 GPRS/EDGE/WCDMA/HSPA and 700/1700 LTE USB Modem) with Test Report Serial No of Y01004190658.BEJ; FCC ID BEJVL600 (Cellular/PCS CDMA/EVDO and 700MHz LTE USB Wireless Modem) with Test Report Serial No of 0Y1004190658.BEJ; FCC ID A3LSCHR900 (Cellular/AWS/PCS CDMA/EVDO and AWS/PCS LTE Phone with Bluetooth and WLAN) with Test Report Serial No of Y01006211075.A3L.

[121] *See* 3rd Generation Partnership Project, "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception (Release 8)," 3GPP TS 36.101 at Section 6.6.1 (2007).

[122] On September 21, 2010, MetroPCS announced the first LTE service in US and introduced Samsung SCHr-900 handset (FCC ID A3LSCHR900) which is FCC type-approved for operation in 1.4/3/5MHz channel bandwidth. *See* Metro PCS, http://www.metropcs.com/presscenter/articles/mpcs-news-20100921.aspx (last visited Dec. 29, 2010).

[123] *See* FCC ID BEJAD600; FCC ID BEJVL600.

[124] *See* ERIC TAC Filing at 14.

[125] *See id.* at 8.

Accordingly, we tentatively conclude that we should adopt a framework to achieve in-building coverage. Traditionally, public safety planning has accounted for this by providing extra margin in RF designs to allow for the building attenuation effects resulting from RF signals having to penetrate walls, floors and other building structures. However, even when such margins are provided, realistic circumstances make them at best, incomplete solutions. It is well known for example, that with practical attenuation margins, very tall buildings present serious challenges to sustainable communications. In addition, deep penetration into the interiors of large buildings may not be achievable. These and other conditions serve to limit the overall effectiveness of in-building penetration margins. Thus, while providing such margins is often a necessary and standard part of a public safety RF network design, such provisions in and of themselves are insufficient for the broad range of circumstances in which the emergency responder may operate.

124. We anticipate that in the future, public safety agencies will come to rely on broadband technologies for mission-critical services including voice services. Should an RF margin therefore be provided as part of a standard design to compensate for building attenuation effects as is presently done for narrowband mission critical voice services? What margin levels should be used? Will the lack of such margins lessen the effectiveness and safety of emergency responders? If building penetration margins are not provided as part of the initial design, will the lack of such margins increase the evolution expense towards mission critical services? Given the fact that even when margins are included, building attenuation effects may limit or block communications in specific circumstances, what other means should be used to support the in-building communication requirements of emergency responders? If increased margins are allowed, what does that do to the cellular architecture of the network and does that impact interference protection criteria between jurisdictions and also between other 700 MHz network operators? We seek comment on the cost of such requirements and the balance between this cost and being able to rely on this network for important in-building requirements.

125. Distributed Antenna Systems are commonly provided within buildings to support commercial wireless services and this will be extended to support the deployment of broadband commercial services. How may public safety best take advantage of Distributed Antenna System approaches? Does the expected evolution of commercial Distributed Antenna Systems represent an opportunity for public safety? Is there anything that the Commission can do to incent the deployment of such systems? What would be the cost of such an approach?

126. Finally, what other approaches may be used to further support the in-building communication needs of public safety users? If in-building requirements are adopted, what certification should the Commission impose to demonstrate that in-building requirements are met if they are required? Should a certification need to be based on a representation of the actual "as-built" network and accompanied by UL and DL data rate plots that map specific performance levels? How would this be achieved? How should new and novel approaches be evaluated? How should criteria be set to determine their overall effectiveness? Given the technical difficulty of comparative evaluations, should specific agencies or governmental organizations be assigned responsibility for testing and evaluation of promising new approaches? Lastly, what technical challenges may be involved in such evaluations? Should we require as part of any future Radio Frequency (RF) engineering assumptions and design objectives a 256 Kbps UL minimum data rate with indoor coverage to the first wall to support mission-critical communications?

5. Deployable Assets

127. The Plan recommends that public safety agencies use deployable equipment, during natural disasters and in other circumstances,[126] to supplement their existing coverage and capacity and to

[126] These deployable assets could also be used for supplementing in-building coverage.

provide a source of redundancy.[127] This equipment may include cells on wheels (COWs) and cells on light trucks (COLTS), which may be configured either as stand-alone base stations[128] or as repeater stations. COWs and COLTs may be deployed during an emergency, for example, to temporarily replace damaged sites or to support surges in traffic.[129] They can also support communications during events that occur at a cell edge, where coverage and capacity may be marginal. In addition to COWs and COLTs, signal repeaters located within public safety vehicles can be used to relay signals from portable user equipment back to a base station.[130]

128. We note that any deployable assets operating in the public safety broadband spectrum would be required to comply with the technical and operational rules established for that spectrum. We seek comment on how to ensure such compliance. Would deployable assets such as COWs and COLTs be capable of operation in conformity with the relevant technical requirements adopted in the *Third and Report Order* and proposed in this *Fourth Further Notice*? Should the Commission require that COWs and COLTs deployed for Public Safety use the 4.9 GHz or Satellite bands for backhaul? Are there additional steps we should take to promote this capability?

6. Operation of Fixed Stations and Complimentary Use of Fixed Broadband Spectrum

129. The 700 MHz public safety broadband spectrum is allocated to mobile use. This allocation was made because of the recognition of the need for discrete spectrum for mobile uses. This band has unique technical characteristics, such as its propagation characteristics that makes it especially well suited for mobile broadband use. In this respect, the Bureau previously determined that, for the Waiver Recipients, achieving operability and interoperability required allowing fixed use on an ancillary basis only.[131] The record indicates requirements for fixed, mobile and nomadic subscriber use cases. However, we tentatively conclude that we should allow public safety to operate fixed services in this band on an ancillary basis. We seek comment on this tentative conclusion. By enabling such ancillary fixed use, we will ensure that the spectrum remains available for its primary purpose, while allowing users appropriate flexibility as long as it does not compromise the primary use of the spectrum for mobile purposes. We note however that mixed use could introduce unacceptable interference, especially at the cell edge, that will impact the network performance. In the event it does, how can a network operator mitigate such interference and is there any specific E-UTRA (LTE) standards that need to be mandated by the Commission?

130. Of course having broadband spectrum available for fixed uses is critical. The Commission recognized this need when it allocated 50 megahertz of spectrum at the 4.9 GHz band to public safety for broadband fixed uses.[132] This spectrum is currently being used by many jurisdictions for many important public safety uses including surveillance and back-haul capacity.

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[127] *See* National Broadband Plan at 318, Exhibit 16-B: National Safety Network and Solutions; *see also* Cost Model Paper at 3.

[128] Under the 3GPP LTE standard, base stations are referred to as "Enhanced NodeBs", or "eNodeBs".

[129] In mobile data networks higher signal levels above noise and interference level are proportional to available data rates. In addition, introducing bandwidth in a given area allows the introduction of the corresponding capacity to users in that area.

[130] *See* Cost Model Paper at app. A.

[131] *Waiver Order* at ¶ 21. The Bureau received two Petitions for Reconsideration of this provision. *See* Petition for Reconsideration filed by City of Charlotte, NC, District of Columbia, Iowa Statewide Interoperability Communications System Board, State of New Jersey, City of Mesa, AZ, State of New Mexico, State of Oregon, and City of Seattle, WA, , PS Docket No. 06-229 (filed Jan. 10, 2011); Petition for Reconsideration filed by Utilities Telecom Council, PS Docket No. 06-229 (filed Jan. 11, 2011).

[132] *See* The 4.9 GHz Band Transferred From Federal Government Use, WT Docket 00-32, *Second Report and Order and Further Notice of Proposed Rulemaking,* 17 FCC Rcd 3955 (2002).

131. We believe that it is critical that public safety community has the broadband tools it requires to keep America safe. Accordingly, we seek comment on what can be done to ensure that the 4.9 GHz band networks can complement the 700 MHz broadband networks. What can be done to increase this compliment? Can channel plans and power limits current employed for the 4.9 GHz band be adjusted or improved? We also seek comment on the use of different directional antennas with different antenna gains as a means of increasing use of the 4.9 GHz band spectrum. Are there other ways to increase throughput in this band? Should licensees in this band be provided more certainty? How should licensing for the 4.9 GHz band and the 700 MHz band match? Should licensing rules be structured for the two bands to encourage use of the 4.9 GHz band? If so, how?

7. Compliance With the Commission's Environmental Regulations

132. All towers constructed by or for FCC licensees must comply with the Commission's environmental regulations, 47 C.F.R. §§ 1.1301-1.1319. These rules implement federal environmental statutes, including the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*), the Endangered Species Act of 1973 (16 U.S.C. § 1531 *et seq.*), and Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f). The Commission's rules require an Environmental Assessment (EA) prior to construction when a facility may have a significant impact on the environment. In order to determine whether an EA is necessary, applicants are required to ascertain whether their facilities may have nine types of effects specified in Section 1.1307(a) and (b) of the rules.

8. Public Safety Broadband and Next-Generation 911 Networks

133. As the broadband public safety network is developed, it expands the potential means for first responders not only to communicate with one another, but also to communicate with and receive data from 911 centers that will assist them in responding to emergencies. This potential will increase even further to the extent that jurisdictions develop Next Generation 911 (NG911) networks that enable the public to transmit broadband data, such as text, photos, and video, to 911 centers.[133] By linking the public safety broadband network with NG911 networks, text and images sent by the public can be processed by 911 centers and retransmitted to first responders in the field, vastly improving their situational awareness and enabling a faster, more focused response. We seek comment on the how best to ensure that the public safety broadband network can interconnect with NG911 networks to support such communication. Are there technical issues that need to be addressed? Are the technical standards that are being developed for NG911 networks compatible with the technical architecture we propose here for the public safety broadband network? How do we ensure continued compatibility as both the public safety network and NG911 networks evolve and acquire new technical capabilities over time?

F. Section 337 Eligible Users

134. Use of the 700 MHz public safety broadband spectrum is governed by Section 337 of the Communications Act. Section (f) defines public safety services.[134] These services are services "the sole or principal purpose of which is to protect the safety of life, health or property."[135] Such services also must be provided by a governmental entity or a non-governmental entity that is authorized by a governmental entity "whose primary mission is the provision of such services," and must not be made commercially available to the public.[136] In the *Second Further Notice* and in the *Third Further Notice*, the Commission sought comment on permissible users of the public safety broadband spectrum.[137] As a

[133] *See* Framework for Next Generation 911 Deployment, PS Docket 10-255, *Notice of Inquiry*, FCC 10-200 (rel. Dec. 21, 2010).

[134] 47 U.S.C. § 337(f).

[135] § 337(f)(1)(A).

[136] § 337(f)(1)(B), (C).

[137] *Second Further Notice* at 8061-63 ¶¶ 30-35; *Third Further Notice* at 14401-07 ¶¶ 312-327.

general matter, the Commission tentatively concluded that utility and critical infrastructure (CI) entities are not eligible for use of the public safety spectrum, in that they fail to meet the "sole or primary use" requirement of 337(f)(1)(A).[138]

135. In further reviewing the statute, we have concerns about the Commission's authority to allow secondary use of the public safety broadband spectrum. However, we recognize the strong desire of many in the public safety community to include secondary users such as utilities, public works and others on their network as a mechanism to coordinate common activities and respond jointly to emergencies, as well as a method to spread costs and capitalize on infrastructure sharing opportunities. This policy goal is worth of pursuit in light of the otherwise uncertain nature of the funding need to ensure nationwide build out of the public safety broadband network.[139]

136. In this respect, we re-examine each of Section 337(f)'s requirements in turn and seek comment. First, we focus on the Section 337(f)(1)(A)'s requirement that public safety services, for which the 700 MHz public safety allocation is designated, must be services "the sole or principal purpose of which is to protect the safety of life, health, or property."[140] Would this requirement be met if the Commission were to adopt a limit on the amount of secondary usage permitted, such that the principal purpose of the network or networks remains for public safety purposes? We previously noted that such an interpretation appears inconsistent with the spirit of the statute.[141] However, in light of the strong interest in permitting such use, we again seek comment on any limits we could place on usage that could satisfy this portion of the statute. If we limit secondary use, how would we measure such usage? Should we address this usage on a nationwide basis, or on some smaller subdivision? Should the secondary usage be required to have some quasi-public safety focus, or some other public safety nexus to qualify? How would this be determined? If secondary users are allowed, should their traffic be afforded a lower priority? Should there be an exception for those communications that qualify for public safety services treatment? Should require such prioritization, or should we limit communications by secondary users to those that protect the safety of life, health or property? How could this be enforced? Are there other methods that could be employed to ensure "principal" use remains for public safety services?

137. With respect to Section 337(f)(1)(B), we recognize that such use would likely be undertaken pursuant to subsection 337(f)(1)(B)(ii) which allow such services to be provided by "nongovernmental organizations that are authorized by a governmental entity whose primary mission is the provision of such services."[142] In the *Second Report and Order*, we addressed this element of the statute with respect to the PSBL by requiring that applicants for the license submit evidence of such authorization in the form of letters from qualifying public safety agencies.[143] How should we ensure that such consent is obtained? Should we require new authority to be obtained by the PSBL? Should we adopt mechanisms for a state or local network or prospective secondary user to obtain evidence of such consent? Should a single agency in a particular geography be responsible for managing such authorization? Are there other means to satisfy this statutory element?

138. Next, we consider Section 337(f)(1)(C), which requires that public safety services "are

[138] *Third Further Notice* at 14405-06 ¶¶ 323-326; *see also* State of Illinois, *Order*, 23 FCC Rcd 437 (PSHSB 2008) (rejecting argument that provider of electric and gas utility service was eligible to hold license for or use 700 MHz public safety spectrum)

[139] *See also* New Mexico Comments on *Second Round Waiver Public Notice* at 7 (citing changed circumstances following the failed D Block auction in calling for a re-examination of the Commission's previous tentative conclusions regarding Section 337 eligibility).

[140] 47 U.S.C. § 337(f)(1)(a).

[141] *Third Further Notice* at 14403 ¶¶ 317-18.

[142] 47 U.S.C. § 337(f)(1)(B)(ii).

[143] *Second Report and Order* at 15421-22 ¶ 373.

not made commercially available to the public."[144] If such secondary users are charged a fee for access to the network, is this provision violated? If such a fee is made through in-kind contributions, such as access to infrastructure, does that make a difference? If any revenue generated by such access is limited in terms of how it can be spent, such that it must be put back into the public safety broadband network, can we find this provision satisfied? Is such a requirement a good idea in any event? How would such restrictions be structured and enforced?

139. We also consider Section 337(a), which sets forth the division of the 700 MHz spectrum between commercial uses and public safety services.[145] If some amount of spectrum in the public safety broadband allocation is employed for non-public safety purposes, even if the "principal use" of the network remains for public safety services, is Section 337 violated? If not, why? If all secondary users are required to accept secondary, preemptible status, is this sufficient? What if some communications are afforded primary status?

140. Finally, we seek comment on any other conditions that should be imposed on secondary users in the event such use is found permissible under Section 337, or other policy considerations that the Commission should address. Are usage limits necessary to preserve capacity for traditional public safety use? Should secondary users be permitted only on a secondary, preemptible basis? Who should facilitate access by such secondary users – the PSBL or the regional or tribal network operator? Should a clearing house model be used, or should a model Memorandum of Understanding (MOU) or user agreement be developed? By whom? How should such use be monitored and enforced? Should there be limits on fees for such usage, or constraints on how revenues generated by such secondary use could be employed? Should there be a requirement that such fees be used for construction and operation of the network? How should such fees be allocated, or to whom would these fees be paid? How would this be monitored or enforced?

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

141. As required by the Regulatory Flexibility Act,[146] the Commission has prepared a Final Regulatory Flexibility Certification (Certification) relating to the *Third Report and Order* and an Initial Regulatory Flexibility Analysis (IRFA) relating to the *Fourth Further Notice of Proposed Rulemaking.* The Certification is set forth in Appendix C, and the IRFA is set forth Appendix D.

B. Paperwork Reduction Act of 1995

142. *Paperwork Reduction Act of 1995.* This document contains new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding.

C. Other Procedural Matters

1. Ex Parte Presentations

143. The rulemaking shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[147] Persons making oral *ex parte* presentations are reminded that

[144] 47 U.S.C. § 337(f)(1)(C).

[145] 47 U.S.C. § 337(a).

[146] *See* 5 U.S.C. § 604.

[147] 47 C.F.R. §§ 1.200 *et. seq.*

memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented generally is required.[148] Other requirements pertaining to oral and written presentations are set forth in Section 1.1206(b) of the Commission's rules.[149]

2. Comment Filing Procedures

144. Pursuant to Sections 1.415 and 1.419 of the Commission's rules,[150] interested parties may file comments on or before the dates indicated on the first page of this document. All filings related to this *Fourth Further Notice* should refer to PS Docket No. 06-229. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies.[151]

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/cgb/ecfs/ or the Federal eRulemaking Portal: http://www.regulations.gov. Filers should follow the instructions provided on the website for submitting comments.

    - ECFS filers must transmit one electronic copy of the comments PS Docket No. 06-229. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and PS Docket No. 06-229. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to ecfs@fcc.gov and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

- Paper Filers: Parties who choose to file by paper must file an original and four copies of each filing. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, DC, 20554.

    1. Effective December 28, 2009, all hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. **Please Note**: The Commission's former filing location at 236 Massachusetts Avenue, NE, Suite 110, Washington, DC 20002 permanently closed on December 24, 2009.

    2. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

    3. U.S. Postal Service first-class, Express, and Priority mail should be addressed to 445 12th Street, S.W., Washington DC 20554.

[148] *See* 47 C.F.R. § 1.1206(b)(2).

[149] 47 C.F.R. § 1.1206(b).

[150] 47 C.F.R. §§ 1.415, 1.419.

[151] *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24121 (1998).

145. Parties should send a copy of their filings to: Jennifer Manner, Public Safety and Homeland Security Bureau, 445 12th Street, S.W., Washington, D.C. 20554, or by e-mail to jennifer.manner@fcc.gov. Parties shall also serve one copy with the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, Room CY-B402, 445 12th Street, S.W., Washington, D.C. 20554, (202) 488-5300, or via e-mail to fcc@bcpiweb.com.

146. Documents in PS Docket No. 06-229 will be available for public inspection and copying during business hours at the FCC Reference Information Center, Portals II, Room CY-A257, 445 12th Street, S.W., Washington, D.C. 20554. The documents may also be purchased from BCPI, telephone (202) 488-5300, facsimile (202) 488-5563, TTY (202) 488-5562, e-mail fcc@bcpiweb.com.

3. Accessible Formats

147. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to FCC504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY). Contact the FCC to request reasonable accommodations for filing comments (accessible format documents, sign language interpreters, CARTS, *etc.*) by e-mail: FCC504@fcc.gov; phone: 202-418-0530 (voice), 202-418-0432 (TTY).

VI. ORDERING CLAUSES

148. Accordingly, IT IS ORDERED pursuant to sections 1, 2, 4(i), 5(c), 7, 10, 201, 202, 208, 214, 301, 302, 303, 307, 308, 309, 310, 311, 314, 316, 319, 324, 332, 333, 336, 337, 614, 615, and 710 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 155(c), 157, 160, 201, 202, 208, 214, 301, 302, 303, 307, 308, 309, 310, 311, 314, 316, 319, 324, 332, 333, 336, and 337, that this *Third Report and Order and Fourth Further Notice of Proposed Rulemaking* in PS Docket No. 06-229 IS ADOPTED. The *Third Report and Order* shall become effective upon publication in the Federal Register.[152]

149. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of the *Third Report and Order* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

150. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of the *Third Report and Order*, including the Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

151. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of the *Fourth Further Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[152] Because the *Third Report and Order* imposes no immediate obligations on any party, we find that good cause exists for making the *Third Report and Order* effective upon publication in the Federal Register. The information collection contained in the *Third Report and Order* will become effective upon approval of the Office of Management and Budget.

APPENDIX A

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 27 and 90 as follows:

PART 27 – MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

1. The authority citation for part 27 continues to read as follows:
   Authority: 47 U.S.C. 154, 301, 302, 303, 307, 309, 332, 336, and 337 unless otherwise noted.

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

2. The authority citation for part 90 continues to read as follows:

   Authority: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7) unless otherwise noted.

3. Section 90.7 is amended by adding the following definitions in alphabetical order to read as follows:

   §90.7 Definitions.

* * * * *

Public Safety Broadband Network Operator. A Public Safety Network Operator is a public safety entity that is authorized by lease or other permitted mechanism under the Public Safety Broadband License to operate a public safety broadband network in the 763-768 MHz and 793-798 MHz bands.

Service Availability. The use of a public safety broadband network on a day-to-day basis for operational purposes by at least fifty users.

Upper 700 MHz D Block license. The Upper 700 MHz D Block license authorizes services in the 758-763 MHz and 788-793 MHz bands.

* * * * *

4. Section 90.203 is amended by adding paragraph (p) to read as follows:

   §90.203 Certification Required

* * * * *

(p) *Equipment certification for transmitters in the 763-769 and 793-799 MHz Bands.* Applications for all transmitters must show support for at least 3GPP Standard E-UTRA Release 8 and associated Evolved Packet Core, which is incorporated by reference. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554 or National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741– 6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. Copies of the 3GPP Standard E-UTRA

Release 8 can be obtained from 3GPP, http://www.3gpp.org.

* * * * *

5. Section 90.1407 is amended by adding paragraphs (d)-(f) to read as follows:

§90.1407 Spectrum Use in the Network

* * * * *

(d) Public Safety Broadband Network Operators must use at least 3GPP Standard E-UTRA Release 8 and associated EPC Evolved Packet Core (incorporated by reference). The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554 or National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741– 6030, or go to: http://www.archives.gov/ federal_register/code_of_federal_regulations/ibr_locations.html. Copies of the 3GPP Standard E-UTRA Release 8 can be obtained from 3GPP, http://www.3gpp.org. Later versions of this standard may be employed by Public Safety Broadband Network Operators provided they are backwards-compatible with this version.

(e) Systems in the network must support the following interfaces: Uu- LTE air interface; S6a – Visited MME to Home HSS; S8 – Visited SGW to Home PGW; S9 – Visited PCRF to Home PCRF for dynamic policy arbitration; S10 – MME to MME support for Category 1 handover support; X2 – eNodeB to eNodeB; S1-u – between eNodeB and SGW; S1-MME – between eNodeB and MME; S5 – between SGW and PGW; S6a – between MME and HSS; S11 – between MME and SGW; SGi – between PGW and external PDN; Gx – between PGW and PCRF (for QoS policy, filter policy and charging rules); Rx – between PCRF and AF located in a PDN; Gy/Gz – offline/online charging interfaces.

(f) A Public Safety Broadband Network Operators must submit to the Chief of the Public Safety and Homeland Security Bureau prior to deployment of any Radio Access Network equipment a certification that it will be in compliance with paragraph (e) of this Section prior to the date its network achieves service availability.

* * * * *

APPENDIX B

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 90 as follows:

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

1. The authority citation for part 90 continues to read as follows:

   Authority: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7) unless otherwise noted.

2. Section 90.7 is amended by amending the following definitions in alphabetical order to read as follows:

   §90.7 Definitions.

* * * * *

Field-based Server Applications. Applications that require client devices to consistently and continuously reach server-based systems from any other location (*i.e.*, field locations) on the Internet.

Incident Command System. A standardized, on-scene, all-hazards incident management approach that allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure; enables a coordinated response among various jurisdictions and functional agencies, both public and private; and establishes common processes for planning and managing resources.

Internet Access. Access to the global internet.

Interoperability. The ability of public safety agencies to communicate with one another via radio communications systems – to exchange voice and/or data with one another on demand, in real time, when needed and when authorized.

Interoperability Testing. Testing to ensure interoperability between or among public safety broadband networks.

Public Safety Narrowband Operator. A Public Safety Narrowband Operator is a public safety entity that is authorized to operate and has deployed narrowband operations within the 763-769 MHz and 793-799 MHz bands.

Roamer. A mobile station receiving service from a station or system in the public safety broadband network other than one to which it is a subscriber.

Status or Information Homepage. A method by which the operator of a host network provides roamers access to and distribution of available applications, alerts, incident-specific information, system status information, and information that the operator deems important to share with roamers on its system.

Virtual Private Network Access. Access to a network, such as a roamer's home network, through use of a

Virtual Private Network connection.

* * * * *

* * * * *

3. Section 90.1407 is amended by revising paragraph (f) and adding paragraphs (g)-(j) to read as follows:

§90.1407 Spectrum Use in the Network

* * * * *

(f) Public Safety Broadband Network Operators must submit to the Chief of the Public Safety and Homeland Security Bureau the following certifications

(1) Prior to deployment of any Radio Access Network equipment, a certification that it will be in compliance with paragraph (e) of this Section as of the date its network achieves service availability.

(2) Prior to deployment of any Radio Access Network equipment, a certification that his has performed interoperability testing on the following 3GPP LTE interfaces: Uu – LTE air interface, S6a – Visited MME to Home HSS, S8 – Visited SGW to Home PGW and S9 – Visited PCRF to Home PCRF for dynamic policy arbitration

(3) Within thirty days of the date its network achieves service availability, a certification that its network can provide a minimum outdoor data rate of 256 Kbps uplink and 768 Kbps downlink for all types of devices, per single user at the cell edge.

(4) Six months following the release of a Public Notice announcing the availability of the PTCRB testing process for 3GPP LTE Band Class 14, a certification that the devices in use on its network have gone through and completed this process.

(g) *Out of Band Emissions:* Public Safety Broadband Network Operators must adhere to the following limitations on out of band emissions.

(1) On any frequency outside the 763-768 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

(2) On any frequency outside the 793-798 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

(h) Public Safety Broadband Network Operators must support the following applications: Internet access; Virtual Private Network access; a status or information "homepage;" access for users to the Incident Command System; and field-based server applications.

(i) Public Safety Broadband Network Operators must support LTE signaling layer security features over the Radio Resource Control (RRC) protocol layer (UE and eNodeB); EPC signaling layer security features over the Non Access Stratum (NAS) protocol layer (UE and MME); and user data/control layer security features over the Packet Data Convergence Sublayer (PDCP) protocol layer (UE and eNodeB).

(j) *Interference Mitigation.* Ninety days prior to the deployment of any Radio Access Network equipment, a Public Safety Broadband Network Operator must provide notice to all adjacent or bordering jurisdictions of its plans for deployment. Any notified jurisdiction may then request, in writing, the

opportunity to enter a written frequency coordination agreement with the operator.

(1) Any such agreement, or modification to such agreement, must be submitted to the Public Safety and Homeland Security Bureau within 30 days of its execution.

(2) If parties are unable to execute an agreement within ninety days of the date a request is made, the parties may submit the dispute to the Bureau for resolution.

* * * * *

4. New Section 90.1409 is added to read as follows:

§90.1409 Protection of Incumbent Narrowband Operations

(a) Ninety days prior to the deployment of any Radio Access Network equipment, a Public Safety Broadband Network Operator must provide notice to any incumbent Public Safety Narrowband Operator in within its proposed area of operation or in any adjacent or bordering jurisdictions of its plans for deployment. Such notice shall identify:

(1) the geographic borders within which the Public Safety Broadband Network Operator intends to operate;

(2) any geographic overlap; and

(3) the proposed method of interference mitigation or notice of their intent to relocate the incumbent Public Safety Narrowband Operator.

(b) Any notified jurisdiction shall respond to a notification under subsection (a) within 60 days. Such response shall identify:

(1) the jurisdictions consent to any proposed interference mitigation or relocation proposal, and any counterproposals; and/or

(2) specific objections to any element of the notification.

(c) The Public Safety Broadband Network Operator and Public Safety Narrowband Operator shall memorialize such agreements in writing. These agreements, or modification to such agreement, must be submitted to the Public Safety and Homeland Security Bureau within 30 days of its execution.

(d) Any jurisdictions failing to resolve any disputes within 90 days following a response under subsection (b) may submit the dispute to the Bureau for resolution

APPENDIX C

Final Regulatory Flexibility Certification

Final Regulatory Flexibility Certification. The Regulatory Flexibility Act of 1980, as amended (RFA)[153] requires that a regulatory flexibility analysis be prepared for rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."[154] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[155] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[156] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[157]

In the *Third Further Notice* the Commission concluded that no Initial Regulatory Flexibility Analysis was required in light of the statutory exemption provided in Section 213 of the Consolidated Appropriations Act of 2000, which provides that the Regulatory Flexibility Act shall not apply to the rules and competitive bidding procedures governing certain frequencies in the 700 MHz band.[158] However, in this *Third Report and Order*, we proceed with rules for the public safety broadband spectrum, but not for those frequencies covered by Section 213. Accordingly, and as described below, we provide this certification.

In this *Third Report and Order*, the Commission requires that all public safety broadband networks that will be deployed in the 700 MHz spectrum allocated for public safety broadband services will deploy the LTE broadband standard, specifically at least 3GPP Standard E-UTRA Release 8 and associated EPC. This requirement reflects a strong consensus, both within the public safety community and within the commercial wireless sector, that LTE is the most suitable technology platform for 700 MHz public safety broadband deployments. The adoption of a requirement that public safety broadband networks deploy this particular broadband standard is necessary to provide a clear path for the deployment and evolution of public safety broadband networks and to ensure that these networks are interoperable and can support public safety roaming on a nationwide basis.

We do not anticipate that a "substantial number" of small entities will become operators of public safety broadband networks.[159] We note further that the requirement that public safety networks adopt the

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[153] The RFA, *see* § 5 U.S.C. S 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[154] 5 U.S.C. § 605(b).

[155] 5 U.S.C. § 601(6).

[156] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in Small Business Act, 15 U.S.C. S § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[157] Small Business Act, § 15 U.S.C. S 632.

[158] *Third Further Notice* at 14450 ¶ 461.

[159] In this regard, we note that currently only a single entity holds the license for this spectrum on a nationwide basis. Moreover, we note that none of the jurisdictions granted conditional waivers for early public safety broadband network deployment, except one, would appear to qualify as "small governmental jurisdictions" for purposes of the RFA. *See* 5 U.S.C. § 601(5); *see also* (continued....)

LTE standard, as opposed to an alternative broadband standard, will not significantly increase the costs of network deployment. There is no reason to suppose that deployment of an LTE network would be significantly more expensive than deployment of a network using an alternative technology platform that also satisfies the minimum requirements of the *Second Report and Order*, namely that the chosen broadband platform "include current and evolving state-of-the-art technologies reasonably made available in the commercial marketplace with features beneficial to the public safety community."[160] In fact, we observe that major commercial wireless carriers have begun deploying commercial 700 MHz networks that use LTE technology; the adoption of LTE for public safety broadband networks will create opportunities to leverage these commercial deployments and achieve cost savings that would not be possible with any alternative technology. Therefore, we certify that the requirements of this *Third Report and Order* will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the *Third Report and Order,* including a copy of this final certification, in a report to Congress and the Government Accountability Office pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996.[161] In addition, the *Third Report and Order* and this certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the Federal Register.[162]

(Continued from previous page)
Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order*, 25 FCC Rcd 5145, 5147 (2010) (*Waiver Order).*

[160] *See Second Report and Order*, 22 FCC Rcd at 15434 ¶ 405.

[161] *See* 5 U.S.C. § 801(a)(1)(A)

[162] *See* 5 U.S.C. § 605(b).

APPENDIX D

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA),[163] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this *Fourth Further Notice of Proposed Rule Making* (*Fourth Further Notice*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments provided in paragraph [xx] of this *Fourth Further Notice*. The Commission will send a copy of this *Fourth Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[164] In addition, the *Fourth Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[165]

A. Need for, and Objectives of, the Proposed Rules

The rules proposed in the *Fourth Further Notice* are necessary to ensure the interoperability of 700 MHz public safety broadband networks that are expected to be deployed in the near term. The proposed rules create technical requirements designed to ensure that public safety broadband networks are technically and operationally compatible, so that public safety personnel from various jurisdictions and departments are able to communicate effectively over these networks.

The *Fourth Further Notice* proposes changes to Part 90 of the rules. Specifically, it proposes to:

1) Develop a regulatory and operational framework for roaming from one public safety broadband network to another.

2) Require that public safety broadband networks meet certain technical requirements designed to ensure that networks are technically interoperable or compatible.

3) Require that public safety broadband networks meet additional requirements designed to ensure that networks achieve a baseline of operability necessary to support interoperable communications.

4) Require public safety broadband network operators to complete testing for equipment and user devices operated on their networks to ensure conformance with relevant technical standards and ensure interoperability between networks.

5) Make additional minor edits to Part 90.

B. Legal Basis

The proposed action is authorized under sections 1, 2, 4(i), 5(c), 7, 10, 201, 202, 208, 214, 301, 302, 303, 307, 308, 309, 310, 311, 314, 316, 319, 324, 332, 333, 336, 337, 614, 615, and 710 of the

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[163] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[164] *See* 5 U.S.C. § 603(a).

[165] *See id.*

Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 155(c), 157, 160, 201, 202, 208, 214, 301, 302, 303, 307, 308, 309, 310, 311, 314, 316, 319, 324, 332, 333, 336, 337, 614, 615 and 710.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[166] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[167] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[168] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[169]

The proposed requirements of the *Fourth Further Notice* would apply to public safety entities granted authority from the Commission to pursue deployment of public safety broadband networks within their jurisdictions.

The term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[170] Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.[171] We estimate that, of this total, 84,377 entities were "small governmental jurisdictions."[172] Thus, we estimate that most governmental jurisdictions are small.

We anticipate, however, that the vast majority of small governmental jurisdictions will not be directly authorized to serve as operators of their own 700 MHz public safety broadband networks. Rather, we anticipate that such entities will operate primarily under authority granted to larger regional, tribal or national entities to serve as public safety broadband network operators.[173] Accordingly, we anticipate that the proposed requirements that apply directly to public safety network operators are unlikely to directly affect a substantial number of small entities.

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[166] 5 U.S.C. § 603(b)(3).

[167] 5 U.S.C. § 601(6).

[168] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[169] Small Business Act, 15 U.S.C. § 632 (1996).

[170] 5 U.S.C. § 601(5).

[171] U.S. Census Bureau, Statistical Abstract of the United States: 2006, Section 8, p. 272, Table 415.

[172] We assume that the villages, school districts, and special districts are small, and total 48,558. *See* U.S. Census Bureau, Statistical Abstract of the United States: 2006, section 8, p. 273, Table 417. For 2002, Census Bureau data indicate that the total number of county, municipal, and township governments nationwide was 38,967, of which 35,819 were small. *Id.*

[173] We note that none of the twenty-one jurisdictions that applied for and were granted conditional waivers for early public safety broadband network deployment, except one, would qualify as "small governmental jurisdictions." *See* 5 U.S.C. § 601(5); *see also* Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket 06-229, *Order*, 25 FCC Rcd 5145, 5147 (2010) (*Waiver Order).*

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

The *Fourth Further Notice* proposes rule changes that will affect reporting, recordkeeping and other compliance requirements. Each of these changes is described below.

The *Fourth Further Notice* proposes to require public safety broadband networks to support roaming from users of other public safety broadband networks. This would require network operators to provide technical roaming capability within their networks and to support of minimum set of user applications.

The *Fourth Further Notice* proposes to require public safety broadband networks to support seamless handover within the network's coverage region. This would require network operators to implement the technical capability to support this feature within their networks.

The *Fourth Further Notice* proposes to require public safety broadband networks to adhere to a specified out-of-band-emissions requirement. This would require to public safety network operators to incorporate the proposed out-of-band-emissions requirement into the planning and design of their networks.

The *Fourth Further Notice* proposes to require public safety broadband networks to support a minimum set of applications, namely (1) Internet access; (2) Virtual Private Network (VPN) access to any authorized site and to home networks; (3) a status or information "homepage;" (4) provision of network access for users under the Incident Command System; and (5) field-based server applications. This would require public safety network operators to implement the technical capability to support these applications on their networks.

The *Fourth Further Notice* proposes to require public safety broadband network to meet performance requirements, namely that they provide outdoor coverage at minimum data rates 768 kbps downlink and 256 kbps uplink, for all types of devices, for a single user at the cell edge. Public safety network operators would need to incorporate these requirements into the planning and design of their networks. Public safety network operators would also be required to certify to the Public Safety and Homeland Security Bureau their compliance with these performance requirements. These certifications would need to be based on a representation of the actual "as-built" network and be accompanied by uplink and downlink data rate plots that map specific performance levels.

The *Fourth Further Notice* proposes to require public safety broadband networks to support specified security features, namely (1) the LTE signaling layer security features over the Radio Resource Control (RRC) protocol layer (UE and eNodeB); (2) EPC signaling layer security features over the Non Access Stratum (NAS) protocol layer (UE and MME); (3) and user data/control layer security features over the Packet Data Convergence Sublayer (PDCP) protocol layer (UE and eNodeB).

The *Fourth Further Notice* proposes to require public safety broadband networks to meet coverage and coverage reliability requirements. Specifically, it proposes to require public safety broadband networks to provide outdoor coverage reliability at a probability of coverage of 95 percent for all services and applications throughout the network. Public safety network operators would need to incorporate this requirement into the planning and design of their networks.

The *Fourth Further Notice* proposes to require each public safety broadband network operator to notify adjacent or bordering jurisdictions prior to deployment, and to allow adjacent or bordering jurisdictions the opportunity to negotiate a formal coordination agreement with the deploying jurisdiction. Any formal written agreements would be required to be submitted to the Bureau.

The *Fourth Further Notice* proposes to require public safety broadband network operators to

complete conformance testing for the devices used on their network after a testing process for LTE devices operating in the public safety broadband spectrum becomes available. Public safety network operators would also be required to certify to the Commission their completion of conformance testing.

The *Fourth Further Notice* proposes to require public safety broadband network operators to submit plans for completing interoperability testing with other public safety broadband networks. The scope of the testing called for in a network operator's plan would be required to be sufficiently broad to address all LTE capabilities and functions required for public safety broadband waiver recipients. Public safety network operators would also be required to certify their performance of such testing in accordance with their approved plans.

The *Fourth Further Notice* proposes to require that public safety LTE devices support, at minimum, a five megahertz channel bandwidth. This requirement would need to be taken into account when designing or purchasing devices for use on public safety broadband networks.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[174]

The proposed requirements of the *Fourth Further Notice* are designed to ensure that public safety broadband networks achieve a baseline of operability and nationwide interoperability. In developing these proposed requirements, the Commission has made significant efforts to ensure that the requirements imposed are the minimum necessary to ensure that public safety broadband networks are truly interoperable. As an alternative to its proposed approach, the Commission could have proposed more detailed and burdensome conditions on the design and implementation of these networks. The proposed rules seek to balance the need for flexibility in network design, cost, and implementation with the demands of nationwide interoperability.

The establishment of differing compliance or reporting requirements for small entities would frustrate the goal of achieving nationwide interoperability. Given the importance of ensuring that public safety broadband networks are technically and operationally compatible, it is important that each network is subject to a comparable set of rules and requirements.

F. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rule

None.

[174] *See* 5 U.S.C. § 603(c).

STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI

Re: *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150, *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229, *Amendment of Part 90 of the Commission's Rules*, WP Docket No. 07-100, *Third Report and Order* and *Fourth Further Notice of Proposed Rulemaking.*

It has been almost ten years since the horrific acts of September 11, 2001. Almost seven years since members of the bipartisan 9/11 Commission urged action to ensure that first responders have the ability to communicate with each other over interoperable networks.

But nationwide interoperability for our first responders has remained elusive.

As we noted in the National Broadband Plan, we now have a real opportunity to ensure nationwide interoperability -- using spectrum cleared by the digital television transition and state of the art mobile broadband technologies.

An interoperable mobile broadband public safety network would not only allow first responders to communicate effectively with each other. It would provide first responders with real-time information on emergency incidents through photographs, video and other data.

First responders would be able to send critical information back to hospitals, including on-site scans and diagnostic information, improving success rates by taking advantage of every second.

And all these communications would be interoperable. They could be shared by first responders across agencies and jurisdictions, a critical communications element not possible today.

In addition to interoperability, a mobile broadband public safety network will also advance our Next Generation 911 goals. It will allow emergency responders to receive pictures, video or information that is sent via text to NG911 systems.

There are many challenges to making this vision a reality, including the funding and deployment of nationwide mobile broadband public safety network. One vital piece of the puzzle is a nationwide framework for interoperability. Without it, we won't achieve our goals.

That's why we created the Emergency Response Interoperability Center (ERIC), which is charged with the development of a technical and operational framework that will support and foster nationwide operability and interoperability in wireless broadband communications for America's first responders.

It's also why today we adopt a common air interface for a mobile broadband public safety network. While selecting a common technology platform is the exception and not the rule at the FCC, in order to ensure nationwide interoperability for public safety communications there's widespread agreement that a common air interface is desirable and necessary to enable nationwide interoperability

I thank the public safety community for working with us as we developed this proposal and for providing us with input in response to the Notice we are adopting today. And I look forward to continuing to work with the public safety community and our federal partners to create a framework that will enable the deployment of a nationwide interoperable broadband network for first responders.

I thank the staff for their tireless work on this and other critical public safety issues, and I'm looking forward to real progress.

That's why I'm pleased to announce today that we are moving forward with the ERIC Public Safety Advisory Committee (PSAC). The ERIC PSAC will be charged with providing recommendations to assist the Commission in the development of a technical framework and requirements for interoperability. The ERIC PSAC will be a key part of our effort to ensure that the public safety wireless broadband network is interoperable on a nationwide basis.

I am particularly pleased to announce that this important advisory Committee will be chaired by Chief Jeff Johnson, Past President of the International Association of Fire Chiefs and CEO of the Western Fire Chiefs Association and Deputy Chief Eddie Reyes of the City of Alexandria Police Department. These are two highly respected members of the public safety community, and I'm grateful that they have agreed to take on these roles. Thank you to Chief Johnson, Deputy Chief Reyes, and all of the members of the Committee for volunteering their time for this critical advisory role.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

Re: *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150, *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229, *Amendment of Part 90 of the Commission's Rules*, WP Docket No. 07-100, *Third Report and Order* and *Fourth Further Notice of Proposed Rulemaking.*

The Commission has a long list of challenges it needs to tackle, but the safety of the American people must always be at the top of that list. We are fast approaching the ten-year anniversary of 9/11. *The 9/11Commission Report*—which I encourage everyone to read and read again—lays out in chilling detail a lack of communications readiness that seriously hampered our country's ability to respond on that terrible day. More should have been done immediately after 9/11 to address the needs of public safety. I called for it then, but little action was taken. Quite frankly, it is inexcusable that we still do not have a nationwide interoperable public safety network.

Every public safety organization should have access to a reliable system that they can use *anywhere*, to talk to *any* other first responder, in *any* emergency. Today's action gets us closer to that goal. We provide a clear framework to guide the development and deployment of a nationwide public safety broadband network in the 700 MHz public safety spectrum. When we granted waivers last year to allow a number of jurisdictions to move forward with deployment of public safety networks, we imposed an initial set of technical requirements aimed at ensuring that any network deployed could be integrated into and be interoperable with a nationwide network. We must avoid the balkanization of new public safety broadband networks, and ensure that all public safety organizations—those in jurisdictions with the money to start deployment today and those that cannot yet make such an investment—will be able to communicate with themselves and each other.

By adopting today a common technology platform, Long Term Evolution (LTE), we are hopeful that public safety organizations will be able to reap the benefits of the economies of scale and the continuing innovation in standards development resulting from ongoing private sector investment in the 700 MHz band. Better promoting the safety and protection of the American people today means, in large measure, realizing the potential of new and evolving technologies. We also propose further technical rules to support interoperability, public safety-to-public safety roaming, and use of the 700 MHz band by Federal government public safety entities.

Title I of our enabling statute gives us clear responsibility to ensure the safety of the American people through communications networks. Today we take just such an action—moving us closer to creating a much needed, nationally connected, interoperable broadband network for public safety. I commend Admiral Barnett and the amazing team in the Public Safety and Homeland Security Bureau for the hard work they did on this item and for the work they do each day to ensure first responders have access to the communications tools they need to protect American lives and property.

STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL

RE: *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150; Implementing a Nationwide Broadband, Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-229; Amendment of Part 90 of the Commission's Rules, WP Docket No. 07-100; Third Report and Order* and *Fourth Further Notice of Proposed Rulemaking.*

I am voting to approve today's order and notice of proposed rulemaking, which discusses discrete matters pertaining to broadband interoperability within 10 megahertz of the full 24 megahertz of spectrum reserved for public safety use by Congress in 1997. It is important that the Commission continue to take any and all actions to provide the certainty necessary for the 20 jurisdictions that are building this spectrum pursuant to waiver, not to mention the numerous additional jurisdictions seeking to do so.

While I support our decision to require use of the Long Term Evolution (LTE) standard given the presence of a unique set of circumstances, I appreciate that we are seeking further comment on how future technology platforms would fit into this paradigm. In addition, I am pleased that the Commission remains committed to relocating those narrowband voice incumbents presently operating in the broadband public safety allocation. Down the road, I hope that we will examine and analyze ideas for ensuring that the full 24 megahertz block may be used more flexibly to support a complement of broadband uses and accommodate the ongoing rapid innovation in the mobile broadband sector. After all, the Commission undertook the design of this spectrum band more than a decade ago. Much has changed since then. I hope, therefore, that interested parties will continue to educate us on this important "big picture" issue.

In a perfect world, we would have already finalized an order setting forth auction and service rules for the D Block spectrum. Perhaps we would have already concluded an auction of this spectrum, and public safety entities would be in a position to elect to partner with these auction winners. I am eager to move to this step, which I urge that we undertake sooner rather than later.

Thank you to the Public Safety and Homeland Security Bureau for your ongoing work.

STATEMENT OF COMMISSIONER MIGNON L. CLYBURN

Re: *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands,* WT Docket No. 06-150; *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band,* PS Docket No. 06-229; *Amendment of Part 90 of the Commission's Rules,* WP Docket No. 07-100.

Communications difficulties, during September 11th and Hurricane Katrina, made it clear that we should do everything in our power to develop an advanced communications system that meets our Nation's public safety needs. While Congress is actively reconsidering how best to address spectrum in the D Block, I am glad that our Commission is moving forward and taking important steps to develop the framework for the first, nationwide, interoperable broadband network for public safety.

The Further Notice takes a comprehensive approach, to identify issues that should be addressed, in order to develop a nationwide public safety broadband network that will not only be truly interoperable, but also reliable, secure, and advanced. I am especially pleased to see, that the Further Notice focuses on issues, which if not properly addressed, could result in interoperability gaps in the nationwide network. Those issues include ensuring interconnection with narrowband operations in legacy networks, and promoting greater coverage, performance, and quality of service requirements. I understand that staff carefully considered the input of public safety in our discussion of the coverage requirements. I am confident that the public safety jurisdictions, proudly represented here today, will continue to stay engaged, throughout these proceedings.

I am also glad that the Further Notice seeks comment on how best to interconnect with Next Generation 9-1-1 networks. These 21st Century 9-1-1 networks will permit the transmission of emergency messages, through various media types such as text, photos, and video, to 9-1-1 centers. If we want to develop the most advanced public safety system, then we should ensure that it can leverage the vast technological benefits the new NG-9-1-1 networks will offer.

I strongly support this Order and Further Notice, and applaud Admiral Barnett for his leadership and Jennifer Manner for her resiliency. I also wish to thank the other members of the Public Safety and Homeland Security Bureau, who worked on the Further Notice, for presenting such a thorough item.

STATEMENT OF COMMISSIONER MEREDITH ATTWELL BAKER

Re: *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150; *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229; and *Amendment of Part 90 of the Commission's Rules*, WP Docket No. 07-100.

I am pleased today to support an Order and Notice of Proposed Rulemaking that takes us closer to our goal of establishing a nationwide, interoperable, wireless public safety broadband network. By requiring a common air interface—LTE—and specifying elements of the LTE standard for inclusion in each network deployment, this Order provides much needed guidance to members of the public safety community deploying or planning to deploy broadband networks. Our action today will help public safety officials select with certainty technology options that not only address their needs but also provide and support interoperability across the country. As such, it is truly an important step forward.

The accompanying Notice asks significant additional questions about further technical and operational considerations for public safety broadband networks. The Bureau's thoughtful and comprehensive analysis of the next set of critical deployment issues to be addressed reflects the complexity of the task before us, and before public safety.

State-of-the-art wireless broadband networks, which include a significant backhaul component, are complex undertakings. We should never forget their ability to interoperate is fundamentally a technological rather than a political question. Due deference must be paid to technical experts, and to the guidelines they establish.

I would like to thank everyone in the Bureau for all their hard, unfaltering dedication to what has often been difficult work. I am glad for the comments and participation of so many interested parties. In addition to the experts from industry and the public safety community, I would also like to acknowledge the work of the Departments of Justice and Homeland Security and NTIA. Interoperability is critical but we cannot get there without interagency cooperation. I would also like to recognize the input from my friends at the Public Safety Communications Research program in Boulder, Colorado at the Department of Commerce Labs. I am glad we are able to leverage all of your considerable expertise. It is hard to overestimate how important this is.

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 200
Monterey Park, California
(323) 881-8291

SCOTT L. POSTER
TASK FORCE LEADER

March 3, 2011

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

MOTION TO RELEASE CERTAIN NON-PUBLIC INFORMATION IN CONNECTION WITH THE VOICE/DATA SOLICITATION

SUBJECT:

Motion to release certain non-public information (see the attached) in connection with the voice/data solicitation to the Board of Directors.

Respectfully submitted,

Scott L. Poster
Task Force Leader
SLP:dmm

cc: Counsel to the Authority

Attachment : A) Information Request by Board Member LeRoy Jackson

AGENDA ITEM 10

CITY OF
TORRANCE
OFFICE OF THE CITY MANAGER

LeRoy J. Jackson
City Manager

February 23, 2001

Scott Poster, Deputy Chief
LA-RICS Project Team
c/o Los Angeles County Fire Department
1320 North Eastern Avenue
Los Angeles, CA 90063

Dear Mr. Poster:

I would ask as a member of the Board to have an item added to the March agenda of LA-RICS. The item I'm requesting is a reevaluation of the RFP process with the intent to propose a modification of that procedure to allow a sharing with the Board:

- was the RFP posted or was it sent to a designated list of vendors and, if sent, it would seem that the list should be provided to the Board;
- the number of proposals that were submitted by vendors regarding the RFP;
- a list of any proposals that were rejected and the reason for the rejection;
- if the number of proposals has been reduced to a list for the current process of further negotiation – the criterion used to make that decision;
- finally a copy of the RFP addendum which addressed the broad band grant.

I would ask that this be added to the March 4th agenda because of the timeliness of the RFP review process and the deadlines faced by LA-RICS to move the decision-making process forward to completion.

Sincerely,

LeRoy J. Jackson
City Manager/LA-RICS Board Member

LJJ/dle
cc Mr. William T. Fujioka
500 West Temple Street
Los Angeles, CA 90012

AGENDA ITEM 10 – ATTACHMENT A