



United States Department of the Interior

OFFICE OF THE SECRETARY
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To: John M. R. Kneuer, Assistant Secretary for Communications and Information
U.S. Department of Commerce

From: *for* Timothy Quinn, Chief, Enterprise Infrastructure Division
Office of the Chief Information Officer
U.S. Department of the Interior

Subject: The Department of the Interior's Third Annual Progress Report on the President's Spectrum Policy Initiative

The Department of the Interior is pleased to present its progress report on meeting the requirements of the President's Spectrum Policy Initiative. The Department has made substantial progress on refocusing its National Radio Program and Spectrum Management operations in ways that have increased the Department's effectiveness in fulfilling the President's Initiative as well as proposing and implementing innovative Spectrum Management techniques and agreements that provide for Spectral efficiency while yielding high dividends in on the ground Interoperability.

As required the Department submitted in December 2005, a Radio Spectrum Strategic Plan for 2005-2010. The overall goals of this plan are as follows:

- Goal 1: Maximize Radio Spectrum Efficiency in radio systems throughout the Department
- Goal 2: Establish forward looking policies enabling new uses and efficiencies
- Goal 3: Prepare for the Worst and Delivering the Best interoperable radio communications systems and services in support of the Department's public safety mission

Progress in each of these goal areas will be highlighted in response to the focus areas as outlined in your memorandum, dated September 6, 2007.

-Key Question: What has your agency done to carry out the goals of the President's Spectrum Policy Initiative this past year?

Specifically, the President's Spectrum Initiative mandates that the Department of the Interior's Strategic Spectrum Plan will include: "(1) spectrum requirements, including bandwidth and frequency location for future technologies or services; (2) the planned uses of new technologies or expanded services requiring spectrum over a period of time

agreed to by the selected agencies; and (3) suggested spectrum efficient approaches to meeting identified spectrum requirements.”¹

Interior has published a Strategic Spectrum Plan in accordance with the guidance issued by the President however has taken a far more proactive stance to revamp and refocus its overall Radio and Spectrum Management program in order to execute its duties in an efficient and spectrally conservative approach. This includes the following activities:

- Established of an Executive Radio Advisory Council of Departmental program managers and Bureau representatives to oversee the Implementation of the program management improvements (including Spectrum pre and post processing).
- Established several two field-personnel-based focus groups for radio technology and for infrastructure, health and safety to gain end-user input.
- Finalization of the Department’s Land Mobile Radio Strategic Plan and Concepts of Operations (Radio Architecture) based upon review currently underway by the Bureaus. Copies of the final versions will be available upon request.
- Completion of one additional Memoranda of Understanding for DOI and State partnerships in statewide radio networks in Nebraska as well as increasing DOI efforts in other States including Arizona, Wisconsin, Minnesota, Oregon, South Dakota, Washington, and Idaho.
- Initiation of an internal control review to identify a selected sample of radio site conditions, facilities management and safety management controls (including identifying RF transmissions per site).
- Developed and approved by OMB to establish a Department level radio and infrastructure program management office.
- Holding interagency meetings with the U.S. Department of Agriculture, U.S. Forest Service, and the Department of Homeland Security to explore opportunities for collaboration and sharing.
- Working in partnership with the Department of Homeland Security, submitted a Joint request for Spectrum Planning Subcommittee Certification for all federal agency use of the Wyoming Statewide Public Safety Land Mobile Radio Network “WyoLink”. Building upon the initial SPS certification for DOI use of the Montana “Interoperability Montana” Statewide Public Safety LMR system in 2007, this certification, when approved, will authorize access to federal spectrum resources for augmentation of the WyoLink radio system to support federal users.
- Renewed the Department’s enterprise radio purchasing contract.

¹ Presidential Determination: MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES
SUBJECT: Improving Spectrum Management for the 21st Century, November 30, 2004

When executed, this improvement plan will result in:

- Better management oversight of all of Interior's radio program activities that will result in improved coordination, efficiency and effectiveness;
- Well designed shared and integrated radio infrastructure improving operability, reliability, and interoperability, and reduce physical and spectral redundancy in existing systems;
- Adoption and Implementation of modern open radio technology standards positioning us well to meet future needs;
- Improved assessment of radio facility conditions, detection and remediation of radio facility health and safety risks, and improved maintenance of radio facilities on an ongoing basis;
- Increased sharing of radio systems and leveraging our radio investments with our partners;
- Users receiving equipment, training, and support needed to safely and reliably use their radios;
- Improved planning and budgeting processes to enhance execution of the plan and the performance of our radio investments.

-Agency accomplishments toward implementing the June 2004 Spectrum Reports

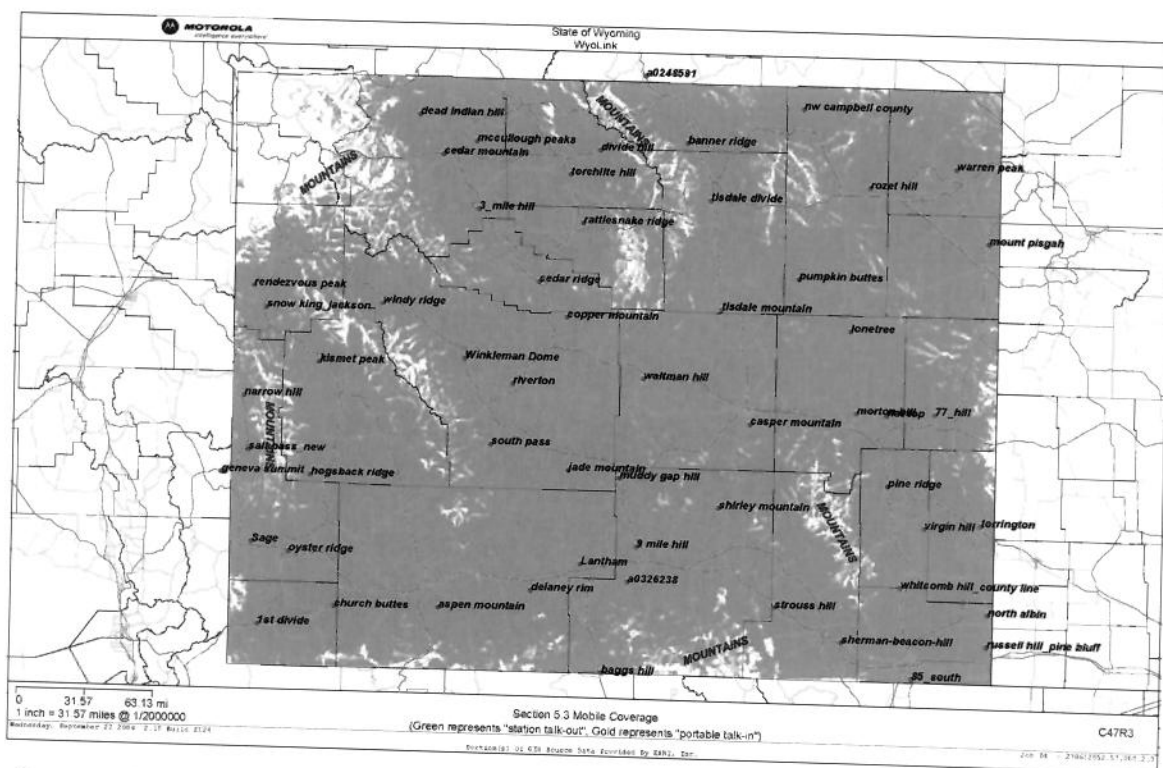
Interior has been proactive in implementing recommendations of the Spectrum Reports in many ways. Aside from participating in the various working groups, the Interagency Radio Advisory Council, the Frequency Action Subcommittee and their subgroups, Interior has been represented at the Federal Partnership for Interoperability Communications, presented at various State Interoperability Executive Councils nationwide and participated as a reviewer in the DHS and Department of Commerce's Statewide Communications Interoperability Plan (SCIP) program and resultant Investment Justification (IJ) Review .

This engagement, especially with State Governments and emergency management programs has led to "proportional sharing" arrangements that are designed to accomplish two specific Interior Radio Strategic Goals: Increase and Implement Interoperability at the local level and increase Interior's level of Spectral efficiency. Currently the following systems are covered by these agreements:

State of South Dakota's State-wide Trunk System
State of Montana's Interoperability Montana Trunk System
State of Wyoming's WyoLink Trunk System

For example, the Wyoming State-Wide Trunk "WyoLink" system will provide State, Local, Tribal and Federal Users with a single robust, resilient and restorable open standard P25 LMR system. DOI has responsibility for approximately 48 percent of the land within Wyoming, while maintaining numerous separate LMR networks to support our bureaus. Integrating our operations with those of our State, Local, Tribal and federal cooperators will allow for seamless integration, better operability, reduced spectrum

requirements, consolidate resource needs and is a prime example of the type of initiative needed to achieve the President's Initiative. The following depicts WyoLink radio coverage for all State, Local, Tribal and Federal users:



-Improvements to capital planning and investment control procedures consistent with OMB guidance.

Interior has completed FY2008 and FY2009 Radio exhibit 300s that have been evolving as the radio program matures. For FY2008, the Ex300 included not only Development, Enhancement and Modernization expenditures for the narrowband conversion but also included planning dollars for the 1710 relocation projects as well as steady state (maintenance) for life cycle management of radio equipment and general operations. For FY2009, the Ex300 was expanded to include 1710 as a DME project, planning dollars for the new program management function as well as integration of Radio site facilities remediation and maintenance.

For FY2010, Interior plans to incorporate spectrum valuation to complement the business case. Interior has performed preliminary analysis of its spectrum costs, both actual and intrinsic, and will incorporate both values to complement the overall business case. Copies of Interior's Spectrum Valuation methodology are available upon request.

-Development of second agency-specific strategic spectrum plan

Interior submitted, as required, an agency specific strategic plan in December 2005. Subsequently, Interior has developed two additional documents currently in final review: the DOI Land Mobile Radio Strategic Plan and the Land Mobile Radio Concept of Operations (Architecture).

The Interior Land Mobile Radio Strategic Plan includes the following Goals and components.

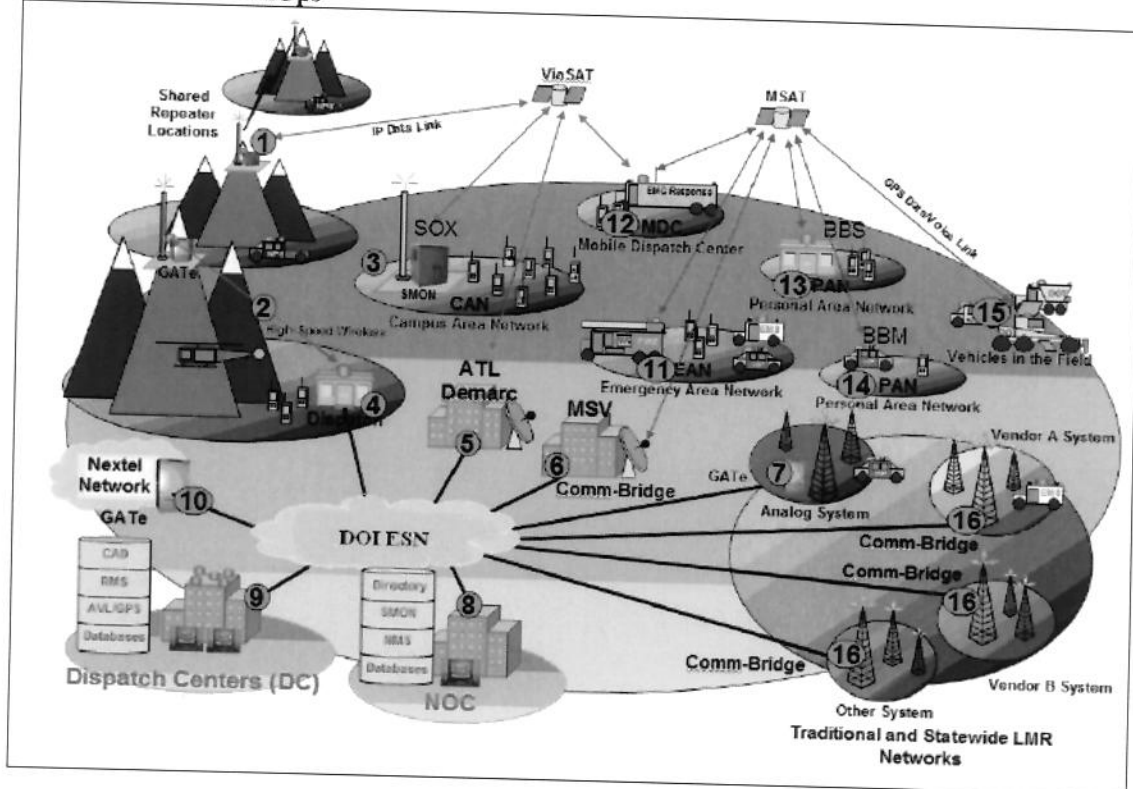
- ▶ **Goal 1 - Safety:** Improve the safety of radio facilities for the public and DOI employees by replacing existing Department of the Interior (DOI) Land Mobile Radio (LMR) installations which are failing due to their age, improper installation, systemic maintenance neglect, and a variety of non-regulatory compliance impact issues
- ▶ **Goal 2 - Conversion:** Convert all required VHF and UHF radio components of the DOI LMR system to the National Telecommunications and Information Administration (NTIA) narrowband mandate
- ▶ **Goal 3 - Convergence:** Upgrade DOI LMR infrastructure nationwide to P25 technology as well as incorporate technologies such as satellite communications and data networking capability across the system, reducing the government's use of spectrum
- ▶ **Goal 4 - Support:** Provide robust end user support for land mobile radio systems.
- ▶ **Goal 5 - Interoperate:** Provide interoperability between all DOI telecommunications networks (Radio, Data and Voice), and LMR interoperability between DOI and State, Tribal, local and federal law enforcement, public safety and emergency management services.

The Land Mobile Radio Concept of Operations (Architecture), has been designed to converge various technologies including P25, Satellite, and Radio over IP in a hybrid architecture. The following graphics illustrate this approach's benefits and conceptual architecture:

Figure 1 - DOI Hybrid Architecture Benefits

| Benefit | P25 LMR | Satellite Comm. | Radio over IP | Integrated System |
|---|---------|-----------------|---------------|-------------------|
| Low Initial Investment | | | Y | Y |
| Reduced Management Costs | | Y | Y | Y |
| Overall Cost Savings | | Y | Y | Y |
| Increased System Capacity | Y | | Y | Y |
| Fast System Access Times | Y | | | Y |
| Enhanced Functionality | Y | Y | Y | Y |
| Improved Productivity | Y | Y | Y | Y |
| Coverage Throughout NA | | Y | | Y |
| Coverage Flexibility | | Y | | Y |
| Geographic Transparency | | Y | Y | Y |
| Simplified Networks, Common Equipment | | | Y | Y |
| Virtual Networks, Shared Infrastructure | | | Y | Y |
| Integrated Voice and Data | Y | Y | Y | Y |
| Secure Communications | Y | Y | Y | Y |
| Network Reliability | Y | Y | Y | Y |
| Interoperability | Y | Y | Y | Y |
| Flexibility and Scalability | | Y | Y | Y |
| Upgradeability | Y | Y | Y | Y |
| Rapidly Deployable | | Y | Y | Y |

Figure 2 - DOI LMR ConOps



Interior will revise its Strategic Spectrum Plan of December 2005 over the next year to incorporate all three plans (LMR Strategic, LMR ConOps, and Strategic Spectrum), into a comprehensive agency package.

-Process to evaluate proposed needs for spectrum, including an analysis and assessment of the most spectrum-efficient options and effective alternatives, to be reviewed by NTIA in connection with spectrum certification.

Interior has fully engaged NTIA in the spectrum certification process and has most recently submitted to the NTIA a proposal to be considered for certification on providing access to Interior assignments in a collaborative effort with the State of Wyoming to support their State-Wide Trunk System. Interior will submit similar requests to NTIA as other State-Wide Trunk Systems become available for use under Interior/State Agreements.

Conclusion

Interior's Strategic Spectrum initiative has been influenced by many factors as described above. It is important to note that Spectrum efficiency is impacted on many levels so to address spectrum individually would not achieved desired results. Interior believes that increasing agreements with our State Partners coupled with implementing a hybrid wireless communications architecture will achieve the President's call for action and provide for the best, spectrally efficient wireless communications Interior's programs deserve.