Department of the Treasury—
Wireless Programs Office
Strategic Spectrum Plan

November 30, 2007

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I. Introduction

A. Agency Mission
Serve the American people and strengthen national security by managing the U.S. Government's finances effectively, promoting economic growth and stability, and ensuring the safety, soundness, and security of the U.S. and international financial systems.

The Department of the Treasury's mission highlights its role as the steward of U.S. economic and financial systems, and as an influential participant in the global economy.

The Treasury Department is the executive agency responsible for promoting economic prosperity and ensuring the financial security of the United States. The Department is responsible for a wide range of activities such as advising the President on economic and financial issues, encouraging sustainable economic growth, and fostering improved governance in financial institutions. The Department of the Treasury operates and maintains systems that are critical to the nation's financial infrastructure, such as the production of coin and currency, the disbursement of payments to the American public, revenue collection, and the borrowing of funds necessary to run the federal government. The Department works with other federal agencies, foreign governments, and international financial institutions to encourage global economic growth, raise standards of living, and to the extent possible, predict and prevent economic and financial crises. The Treasury Department also performs a critical and far-reaching role in enhancing national security by implementing economic sanctions against foreign threats to the U.S., identifying and targeting the financial support networks of national security threats, and improving the safeguards of our financial systems.

B. Strategic Vision for Spectrum Management
The strategic vision for spectrum management includes reducing operating costs, improving interoperability and promoting collaboration between bureaus and other agencies.

The Department of the Treasury's Strategic Spectrum Plan (SSP) was created in response to the November 2004 Presidential Determination: *Improving Spectrum Management for the 21st Century*.[1] The following report presents an update to the 2005 Department of the Treasury SSP. It will be used by the Department to provide guidance on current and future spectrum management and by the Department of Commerce's National Telecommunications and Information Administration (NTIA) to formulate the national spectrum policy. The mandate for this report is to broadly evaluate the Department of the Treasury's current and future strategic spectrum needs, including:

- Examining developments that have occurred since the 2005 Department of the Treasury SSP
- Analyzing current spectrum performance and usage requirements
- Determining future spectrum needs and features (including bandwidth, frequency location, and future technologies)

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[1] *Presidential Determination:* Improving Spectrum Management for the 21st Century, November 30, 2004.
http://www.whitehouse.gov/news/releases/2004/11/20041130-8.html

This SSP incorporates survey responses from the following bureaus and offices:

Treasury Bureaus/ Offices	
• Alcohol and Tobacco Tax and Trade Bureau (TTB) • Bureau of Engraving and Printing (BEP) • Bureau of the Public Debt (BPD) • Community Development Financial Institution (CDFI) Fund • Departmental Offices (DO) • Financial Crimes Enforcement Network (FinCEN) • Financial Management Service (FMS)	• Internal Revenue Service–Criminal Investigations (IRS-CI) • Treasury Office of the Inspector General (OIG) • Office of the Comptroller of the Currency (OCC) • Office of Thrift Supervision (OTS) • Treasury Inspector General for Tax Administration (TIGTA) • United States Mint (Mint)

The report examines the operational missions and mandates of the Treasury Department bureaus and evaluates how to better allocate spectral assets to meet future requirements. Considerations such as maximizing federal and commercial spectrum assignments to better assist technological advances were incorporated to present the challenges impacting the continuing evolution of the Department's wireless and land mobile radio (LMR) needs. The SSP presents a framework to more effectively and efficiently manage current spectral assets while optimizing future investments and needs.

II. Executive Summary

Department of the Treasury bureaus use wireless technologies to support both law enforcement/criminal investigation (tactical) and non-law enforcement/criminal investigation (non-tactical) missions. Approximately 1,300 frequency assignments for wireless technologies (e.g., land mobile radio, video surveillance) are in use to support tactical missions with approximately 80 percent of these frequency assignments belonging to two bureaus: the Internal Revenue Service and the Treasury Inspector General for Tax Administration (TIGTA). Almost 85 percent of the Treasury Department's assignments are located in the very high-frequency (VHF) band. In addition, the Department employs commercial services and wireless technologies that operate on unlicensed spectrum to conduct non-tactical missions, including administrative functions.

A. The goals for the Key Spectrum Requirements include meeting the current narrowbanding mandate of 12.5 kHz, increasing interoperability and compatibility, reducing the amount of required frequency allocations, reducing the amount of required hardware and associated operating costs.

B. In analyzing the Spectrum Trends & Technology Features it has been noted that there will be increased usage of Mobile Computing Devices (laptops, palmtop computers, wireless broadband, BlackBerries), Land Mobile Radio (LMR's) with Mobile Computing Devices (GPS equipped laptops linked to radios, agent/object tracking), Voice over Internet Protocol (VoIP), 4th generation (4G) cellular phones, satellite phones, Wireless Networking, Mobile work force, Frequency hopping, cognitive radio, digital trunking, Advanced Encryption Standard (AES), and availability of residential broadband services (DSL, FIOS, Cable, Satellite).

C. In reviewing the Key Near, Mid and Long Term Spectrum Strategies it has been determined that the following items are of importance: Comply with current Presidential Spectrum Policy Initiative for narrowbanding of 12.5 kHz, eliminate legacy systems and deploy updated equipment, reduce operating costs (reduce required hardward and frequency allocations), increase interoperability and compatibility with other Government agencies, and actively work towards the projected narrowbanding requirement of 6.25 kHz.

D. Lastly, to meet the Leadership Goals & Objectives, the following issues are of importance: meet the current narrowbanding mandate of 12.5 kHz, reduce associated operating costs and increase interoperability.

Across the Department, multiple types of wireless technologies are used to support bureau missions, which are divided into two categories: law enforcement/criminal investigation (tactical) and non-law enforcement/criminal investigation (non-tactical) missions. For tactical missions, the Department primarily uses land mobile radio (LMR) systems that provide voice communications for agents to carry out law enforcement and related missions such as investigations, facilities security and protection, and other security related activities. In addition to law enforcement missions, LMR systems are used to provide communications for facility maintenance and administrative purposes. These systems require specific spectrum assigned by NTIA for exclusive use by the Department and its bureaus. For non-tactical missions, the Treasury Department generally uses services such as satellite telephones, mobile computing devices (e.g., BlackBerries), cellular telephones, pagers, specialized mobile radios (e.g., Nextel), and wireless local areas networks (LAN) to provide operational support. Typically, these services use either commercially owned spectrum or rely on unlicensed bands.

A number of developments since the 2005 SSP have affected the Department's usage of spectral assets and impacted its technological needs. Most notably, the overall number of frequencies utilized by the Department has decreased by approximately ten percent since the 2005 SSP. This is due to a number of factors. First, the Department has improved its processes for coordination of its resources, which has resulted in a better alignment between the department-wide spectrum needs and bureau-specific missions. Second, policies such as Treasury's narrow-banding mandate were issued to focus the Department efforts on increasing efficiency within particular frequency bands.[2] The two largest users of LMR have met NTIA's VHF narrowband mandate; however, a small number of bureaus and offices (Office of Emergency Preparedness, IRS-Facilities, and BEP) have not met the UHF narrowband mandate. With NTIA's UHF deadline set for January 1, 2008, it is likely that the implementation of this mandate will lead to further spectral efficiency within the bureaus. Implementation of the narrowband requirements continues to be a principal focus of Treasury's Wireless Program Office (WPO) throughout 2007 and 2008.

Another avenue for increasing spectrum efficiency has been through pooling spectral assets within interagency frameworks. One such initiative, the Department of Justice (DOJ) 25 Cities Program, seeks to create interoperability solutions in the nation's 25 major metropolitan areas that could be used by a variety of agencies. Another is the Integrated Wireless Network (IWN) program, which operates as an interagency partnership between DOJ, the Department of Homeland Security (DHS) and the Department of Treasury. IWN was initially intended as a nationwide interagency VHF LMR partnership between DOJ, DHS and Treasury, but IWN has undergone a number of changes since the 2005 SSP and is currently focused on a more limited implementation pending acceptance of a new Memorandum of Understanding (MOU).

3.1 Overview of Missions and Programs Using Federal Spectrum

Currently, the Department of Treasury uses approximately 1,300 NTIA-designated frequencies for critical communication needs, including operational and investigative assistance, facilities support, and basic user interface. The IRS-CI and the TIGTA comprise the majority of these frequency assignments (approximately 85 percent). Both bureaus utilize spectrum primarily to support operational and investigative functions across the United States. In all, ten* bureaus use NTIA-designated frequencies, as illustrated in Table 3-1 and Figure 3-1.

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[2] The narrow-band mandate requires Treasury to migrate from technology that operates on 25 kilohertz (kHz) channel bandwidths to technology that supports 12.5 kHz channel bandwidths.

Table 3-1: Frequency Assignments by Bureau

2007 National Telecommunications and Information Administration (NTIA) Spectrum Frequency Assignments		
Bureau (GMF Code)	**# of Frequency Assignments**	**% of Frequency Assignments**
Bureau of Engraving and Printing (BEP)	30	2.30
Bureau of Public Debt (BPD)	13	1.00
Departmental Offices (DO)	16	1.23
Financial Management Service (FMS)	7	0.53
Internal Revenue Service - Criminal Investigations (IRS-CI)	617	47.44
Internal Revenue Service - Facilities (IRS-F)	58	4.46
Office of the Secretary (O)*	57	4.38
Treasury Office of Inspector General (TIG)	6	0.46
Treasury Inspector General for Tax Administration (TIGTA)	475	36.51
US Mint (M)	22	1.69
TOTAL	**1301**	**100.00**

* Office of the Secretary: It is not a bureau but is being included here as it is has frequencies assigned to it.
** Treasury does not distinguish IRS-CI and IRS-F as "bureaus" apart from IRS, but are listed as such in NTIA's Frequency Assignments.

The majority of current spectrum assignments are used for LMR systems, with approximately 83 percent of assignments falling in very high frequency band (VHF) and approximately 14 percent falling in the ultra high frequency band (UHF). The remaining 3 percent of assignments are used for other wireless technologies, such as video surveillance and emergency communications, requiring high frequency (HF) or 3 gigahertz (GHz) spectrum assignments.

Figure 3-1: Frequency Assignments by Bureau
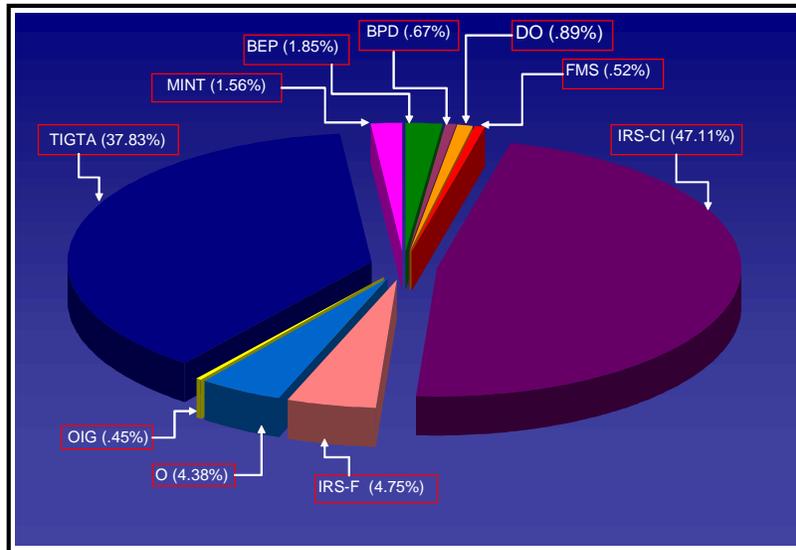
Current NTIA-regulated spectrum usage presents an approximately 10% decrease in spectrum assignments from the 2005 SSP. Increased efficiency and prioritization of spectral assets has allowed the Department to reduce the costs associated with spectrum usage, streamlining bureau operations to better meet user requirements and policy needs.

The following section will specifically address NTIA-regulated Federal spectrum usage by the tactical bureaus. It includes an overview of missions and programs supported by each bureau, type of users supported, geographical coverage of spectrum assets, technical parameters of the

system, spectrum management challenges, feasibility of increased spectrum efficiency, new technologies under consideration, and Continuity of Operations/Continuity of Government (COOP/COG) implications for individual bureau's current spectrum usage. The following table delineates Treasury bureaus/offices by tactical vs. non-tactical missions:

Table 3-2: Tactical vs. Non-tactical Treasury Bureaus/Offices

Treasury Bureaus/ Offices	
Tactical	Non-Tactical
• Bureau of Engraving and Printing (BEP) • Departmental Offices (DO) • Bureau of the Public Debt (BPD) • Internal Revenue Service–Criminal Investigations (IRS-CI) * • Treasury Office of the Inspector General (OIG) • Treasury Inspector General for Tax Administration (TIGTA) • United States Mint (Mint)	• Office of the Comptroller of the Currency (OCC) • Office of Thrift Supervision (OTS) • Alcohol and Tobacco Tax and Trade Bureau (TTB) • Community Development Financial Institution Fund (CDFI) • Financial Crimes Enforcement Network (FinCEN) • Financial Management Service (FMS)

* Treasury does not distinguish IRS-CI and IRS-F as "bureaus" apart from IRS, but are listed as such in NTIA's Frequency Assignments.

3.2 Bureau of Engraving and Printing

A. Mission
The BEP mission is to design and manufacture high-quality security documents that meet customer's requirements for quantity, quality, and performance and deter counterfeiting.[3]

B. Type of User(s) and Function
BEP's LMR system and associated wireless devices are used for activities including Physical Security, Emergency Response, Investigations, Surveillance, Tour Operations, Shop Maintenance, Securities Destruction and COOP.

C. Geographical Coverage
BEP's LMR system is located in two conventional UHF campus systems located in Fort Worth, Texas and Washington, DC.

D. Technical Parameters
To realize its goal of securing its personnel, facilities, and products, BEP uses two Government-owned LMR conventional UHF campus systems located in Fort Worth, Texas, and Washington, DC. The majority of its operations are within buildings that have unusual structural characteristics (e.g., heavy concrete and rebar). Consequently, for in-building coverage, the UHF LMR system provides better penetration into buildings than a VHF LMR system. Details of the systems, including associated frequencies, system size, and number of subscriber units, are shown in Table 3-3.

Table 3-3: BEP LMR System Details by Location

Location	Frequency Band	Number of Sites	Number of Subscriber Units
Fort Worth, Texas	UHF	2	287
Washington, DC	UHF	2	250

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[3] Bureau of Engraving and Printing Strategic Plan 2003–2008

E. Spectrum Management Challenges

By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:

1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

F. Feasibility Analysis and Improvements in Spectrum Efficiency

BEP has been examining ways to improve spectrum efficiency in a number of areas. Since the 2005 SSP, BEP has installed HF radio base stations and portable man-pack radios in order to better meet user and mission needs as well as emergency response requirements. Additionally, BEP is considering upgrading its systems from simplex operations to repeater operations.

BEP utilizes a range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support its activities. However, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

G. Evaluation of New Technologies

In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications

BEP's COOP and COG strategy is centered on maintaining critical mission needs and priorities in emergency situations. The bureau's COOP and COG policy is heavily dependent on the functionality of radio and satellite telephone systems as well as commercially obtained BlackBerry devices and cellular phones. BEP's emergency response and mitigation plan is designed to maintain the viability of both LMR and wireless services within twelve hours of system impact. This is to ensure physical protection of BEP facilities and to maintain the bureau's critical and investigative missions. Using both commercial and NTIA-designated spectrum, it is imperative that the bureau maintains access to available and dedicated government spectrum as well as adequate levels of funding to facilitate commercial technology needs.

BEP has established service level agreements with its major providers, ensuring access to necessary equipment and support in emergency situations. This is further aided by the development of a comprehensive telecommunications recovery and inventory policy, which supports the bureau's day-to-day activities and mitigates potential service disruptions. Backups are stored on site and require immediate user/technical response in case of disaster or disruption.

A. Mission
The BPD mission is to borrow the money needed to operate the Federal Government and to account for the resulting debt.[4]

B. Type of User(s) and Function
The BPD employs LMRs to provide voice communications to BPD security, emergency response and COOP personnel during the performance of their assigned duties.

C. Geographical Coverage
BPD LMRs operate at one centralized site located in Parkersburg, West Virginia.

D. Technical Parameters
BPD operates an LMR system at its Parkersburg, West Virginia, facility to support its physical campus security, to direct and dispatch its maintenance personnel, and to direct emergency personnel or first responders. Details of BPD's LMR system are shown in Table 3-4.

Table 3-4: Details of BPD LMR System

Function	Frequency Band	Number of Sites	Number of Subscriber Units	Mode
Physical Security, Maintenance & Safety	UHF	3	115	Repeater

E. Spectrum Management Challenges
By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:
1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

F. Feasibility Analysis and Improvements in Spectrum Efficiency
The bureau's overall number of subscriber units has increased by approximately fifteen percent since the 2005 SSP, while the total number of sites has decreased. The increased efficiency indicated by increased user base and decreased infrastructure requirements has allowed the BPD to become more cost effective at managing spectral assets. Additionally, BPD is examining the possibility of spectrum sharing with other Federal agencies and non-Federal entities, which could further alleviate budgetary and operational burdens. Other developments include a bureau-wide transition to Advanced Encryption Standard (AES) compliant radios, enhancing current encryption and security measures and better protecting BPD's critical mission needs.

BPD uses commercial cellular phones and BlackBerries to augment its LMR operations. However, these devices cannot function as a replacement for the LMR system. Commercial services are primarily utilized for administrative duties and management support.

G. Evaluation of New Technologies
In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies

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[4] Bureau of Public Debt Strategic Plan Fiscal Years 1997–2001.

for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications
In addition to its day-to-day communications system, BPD relies on a local shared COOP system, GEMNET. The GEMNET is a community-based network that allows communications between hospitals and emergency services during a crisis.

The bureau's COOP and COG policy is dependent on the functionality of the current LMR radio system as well as some commercial devices. BPD's critical missions (security & operations) could continue for more than five days after system impact, as determined by the Recovery Time Objectives (RTO). The RTO is determined by workload, with recovery time contingent on the amount of work handled at the time of emergency. There are no alternate means for recovering business unit processes that rely on the LMR system. Currently, there are no scheduled changes to the LMR system.

3.4 Internal Revenue Service

Within the IRS, two branches operate on Federal Government assigned spectrum—

- Internal Revenue Service – Criminal Investigation (IRS-CI)
- Internal Revenue Service – Facilities (IRS-F)

This section will analyze the NTIA-regulated spectrum usage for IRS-F as a subcomponent of IRS-CI's technical parameters.

Internal Revenue Service—CI

A. Mission
IRS-CI is the law enforcement branch of the IRS that investigates financial misconduct related to taxes, money laundering, and Bank Secrecy Act violations. The bureau supports the following mission-related activities:

- Preventing, deterring, and enforcing financial misconduct regarding taxes, money laundering, and Bank Secrecy Act violations

- Enforcing Internal Revenue Code

- Identifying and documenting the movement of money during the course of a crime

- Participating in money laundering and narcotics investigations to provide state and federal agencies with financial investigative expertise.

B. Type of User(s) and Function

The bureau's LMR network supports approximately 2,700 special agents conducting investigations, surveillance, physical security and emergency response missions throughout the United States.

C. Geographical Coverage
The geographical coverage is a nation-wide, campus-based system with 200 repeater & base station sites to support its mission-related activities.

D. Technical Parameters
IRS-CI operates a digital VHF narrow-band system with 200 repeater & base station sites. The system is largely Motorola supported and has 2,700 users. IRS-F operates UHF LMR systems at its IRS facilities nationwide to conduct mission-related activities including building security and law enforcement operations. To support its communications requirements, IRS-F has 58 assigned frequencies—55 UHF, 2 VHF, and 1 HF. The UHF frequencies are used to support the LMR system. The VHF frequency is used to support the wireless Global Positioning System (GPS) clock system. The HF frequency is used to support emergency communications in case of vehicle malfunction.

Table 3-5: Details of IRS-CI LMR System

Function	Frequency Band	Number of Sites	Number of Subscriber Units	Mode
Physical Security, Maintenance & Safety	VHF	200	3229	Repeater

E. Spectrum Management Challenges
By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:
1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

F. Feasibility Analysis and Improvements in Spectrum Efficiency
Since the 2005 SSP, IRS-CI has reduced its total number of sites by twenty percent, significantly decreasing overall costs and spectrum usage while continuing to meet user demands and mission needs. Additionally, IRS-CI is considering participating in the Federal IWN program, which would share spectral assets between DOJ, DHS and Treasury and further alleviate existing cost burdens on the Department. Other developments since the 2005 SSP include the introduction of narrow-band operations, which has improved spectrum efficiency within the bureau and ensured its compliance with NTIA's narrow-banding mandate. IRS-CI uses a variety of commercial devices, such as cellular and satellite phones, pagers, PDAs, and BlackBerries to augment its LMR operations. However, these devices cannot function as a replacement for the LMR system. Commercial services are primarily utilized to support law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations.

G. Evaluation of New Technologies
In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working

towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications
IRS-CI has a number of critical business operations that would be substantially effected by emergency situations. Should the bureau's LMR system fail to operate normally, a number of core missions and processes would be impacted. These include physical security, emergency response, investigations, and surveillance.

The RTO for all IRS-CI processes is dependent on the work load and investigative activities underway at the time of emergency. The LMR system is used by special agents to conduct a number of tactical operations. Recovery time for these resources vary depending on use. There are no alternate means for recovering business unit processes that rely on the LMR system. Currently, there are no scheduled changes to the LMR system.

3.5 Treasury Inspector General for Tax Administration

A. Mission
TIGTA's mission is to provide audit and investigative services that promote economy, efficiency and integrity in the administration of the internal revenue laws.[5]

B. Type of User(s) and Function
TIGTA employs LMRs to provide voice communications to approximately 320 TIGTA Special Agents/personnel for investigative purposes. The LMRs and associated wireless devices are used for activities including Physical Security, Emergency Response, Investigations, Surveillance, Law Enforcement, Administrative and COOP operations.

C. Geographical Coverage
TIGTA uses a nation-wide LMR system comprised of 77 sites supporting 320 Special Agents.

D. Technical Parameters
To achieve its goals of detecting and deterring fraud and abuse in the IRS programs and operations and protecting IRS against external attempts to corrupt or threaten its employees, TIGTA operates a nationwide digital VHF narrow-band system. The system is largely supported by Motorola components. It allows for Over-The-Air-Rekeying (OTAR), is P25 compliant and features AES encryption.

Table 3-6: Details of TIGTA LMR System

Function	Frequency Band	Number of Sites	Number of Subscriber Units	Mode
Law Enforcement	VHF	78	342	Repeater

E. Spectrum Management Challenges

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[5] Treasury Inspector General for Tax Administration Strategic Plan Fiscal Years 2003–2008.

By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:
1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

F. Feasibility Analysis and Improvements in Spectrum Efficiency
Since the 2005 SSP, TIGTA has increased the total number of sites by approximately forty percent, reflecting increased needs and user demands. Additionally, TIGTA is examining the possibility of spectrum sharing with other Federal agencies through the IWN program, which could alleviate budgetary and operational burdens as well as increasing spectrum efficiency. TIGTA is also moving to narrow-banding operations which will aid in improving the bureau's spectrum efficiency and enable it to meet the NTIA narrow-banding mandate.

TIGTA uses a variety of commercial devices, such as cellular and satellite phones, pagers, PDAs, and BlackBerries to augment its LMR operations. However, these devices cannot function as a replacement for the LMR system. Commercial services are primarily utilized to support law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations.

G. Evaluation of New Technologies
In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications
TIGTA has a number of critical business operations that would be substantially effected by emergency situations. Should the bureau's LMR system fail to operate normally, a number of core missions and processes would be impacted. These include physical security, emergency response, investigations, law enforcement, and surveillance. Should system failure occur, the safety for the agents or investigators would be compromised.

The RTO for all TIGTA processes is dependent on the work load and investigative activities underway at the time of emergency. The LMR system is used by special agents to conduct a number of tactical operations. Although recovery time for these resources varies depending on use, most system components must be recovered within 36 hours to avoid significant impact on system operations.

3.6   U.S. Mint

A. Mission
The U.S. Mint's mission is to apply world-class business practices in making, selling, and protecting our Nation's coinage and assets.[6]

B. Type of User(s) and Function
Mint's LMR system is used to support physical security, emergency response and law enforcement activities at each Mint facility. The system supports approximately 300 users.

C. Geographical Coverage
Mint operates six conventional campus systems—three UHF and three VHF— to support law enforcement and security operations as well as maintenance functions at its facilities in San Francisco, California; Denver, Colorado; Washington, DC; Fort Knox, Kentucky; Philadelphia, Pennsylvania; and West Point, New York.

D. Technical Parameters
Mint's LMR network is a combination UHF/VHF system that is primarily Motorola supported. With the exception of the Mint facility in Fort Knox, the subscriber units connected through the LMR network are not P25 compliant. The system cannot support OTAR and features Data Encryption Standard (DES) encryption at its West Point, Washington, DC, and Fort Knox locations.

Details of the systems, including system location, associated frequencies, number of sites, and number of subscriber units are shown in Table 3-6.

Table 3-7: **U.S. Mint LMR System Details by Location**

Location	Frequency Band	Number of Sites	Number of Subscriber Units
Washington, DC	UHF	1	92
Philadelphia, Pennsylvania	UHF	2	97
West Point, New York	UHF	1	74
Fort Knox, Kentucky	VHF	1	73
Denver, Colorado	VHF	1	60
San Francisco, California	VHF/UHF	2	84

E. Spectrum Management Challenges
By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:
1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

*Additionally, the Mint has identified the obtainment of suitable frequency assignments as a current and anticipated future challenge in operating its LMR system.

F. Feasibility Analysis and Improvements in Spectrum Efficiency
Since the 2005 SSP, the Mint has increased the number of users in the system and added two new sites. This has been done to match user demands and better meet mission needs.

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[6] United States Mint Strategic Plan Fiscal Years 2002–2007

G. Evaluation of New Technologies

In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications

Mint has a number of critical business operations that would be substantially effected by emergency situations. Should the bureau's LMR system fail to operate normally, a number of core missions and processes would be impacted. These principally include physical security and emergency response. Estimated recovery time for most system components is immediate. Most system components must be recovered within 36 hours to avoid significant impact on system operations.

3.7 Treasury Office of the Inspector General

A. Mission

The OIG conducts independent audits, investigations and reviews to assist the Treasury Department accomplish its mission; improve its programs and operations; promote economy, efficiency and effectiveness; and prevent and detect fraud and abuse.

B. Type of User(s) and Function

The OIG employs LMRs to provide voice communications to approximately 30 OIG Special Agents/personnel for investigative purposes. The LMRs and associated wireless devices are used for activities including Physical Security, Emergency Response, Investigations, Surveillance, Law Enforcement, Administrative and COOP operations.

C. Geographical Coverage

Currently the special agents utilize Motorola mobile and portable radios to provide nation-wide coverage, i.e., no repeater sites, between approximately 30 Special Agents.

D. Technical Parameters

To achieve its goals of detecting and deterring fraud and abuse in Treasury programs and operations and protecting Treasury against external attempts to corrupt or threaten its employees, OIG utilizes commercial services and mobile and portable radios. The system is largely supported by Motorola components. It allows for OTAR through systems operated by other Federal agencies under memoranda of understanding, is P25 compliant and features DES encryption.

Table 3-8: Details of TIG LMR System

Function	Frequency Band	Number of Sites	Number of Subscriber Units	Mode
Law Enforcement	VHF	1	25	Repeater

E. Spectrum Management Challenges

By implementing the Presidential Spectrum Policy Initiative, each bureau has been tasked with developing more efficient and cost effective spectrum management. Implementation of these objectives has presented the following challenges:

1. Commercial service usage is centered on procurement and budgetary constraints.
2. Long-term viability of individual commercial systems is a concern given that certain systems are scheduled to be replaced with newer technologies in the coming decade.
3. Interoperability with existing and developing technologies has caused some bureaus to rethink current and future deployment of systems.

F. Feasibility Analysis and Improvements in Spectrum Efficiency

Since the 2005 SSP, OIG is examining the possibility of spectrum sharing with other Federal agencies through the IWN program, which could alleviate budgetary and operational burdens as well as increasing spectrum efficiency. OIG radios are completely narrow-banded which should aid in further improving spectrum efficiency and meeting the NTIA narrow-banding mandate.

OIG uses a variety of commercial devices, such as cellular and satellite phones, pagers, PDAs, and BlackBerries to augment its LMR operations. However, these devices cannot function as a replacement for the LMR system. Commercial services are primarily utilized to support law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations.

G. Evaluation of New Technologies

In order to enhance each bureau's radio requirements (e.g., user, mission and emergency response requirements), the WPO continually evaluates established and emerging technologies for compatibility, integration and ease of use into existing and proposed systems. By following both the current and forecasted narrow-banding requirements, the Treasury's WPO is working towards modernizing and streamlining Federal radio spectrum use. This will provide improvements for interoperability as well as a reduction in associated operating costs.

These new technologies include a broad range of commercial services and devices, such as satellite and cellular telephones as well as BlackBerries, to support the activities of the bureaus. However, as previously noted, these devices cannot function as a replacement for the LMR system, and are primarily used to support administrative duties and to provide emergency communication backup.

H. COOP/COG Implications

Treasury OIG has a number of critical business operations that would be substantially effected by emergency situations. Should the bureau's LMR system fail to operate normally, a number of core missions and processes would be impacted. These include physical security, emergency response, investigations, law enforcement, and surveillance. Should system failure occur, the safety for the agents or investigators would be compromised.

The RTO for all Treasury OIG processes is dependant on the work load and investigative activities underway at the time of emergency. The LMR system is used by special agents to conduct a number of tactical operations. Though recovery time for these resources varies depending on use, most system components must be recovered within 36 hours to avoid significant impact on system operations.

3.8 General COOP/COG Considerations

Continuity of Operations (COOP) and Continuity of Government (COG) is a strategic effort within the Federal Government to ensure stability of its minimum essential functions under a broad range of circumstances including catastrophic emergencies. Essential functions are a

Department's and mission-critical responsibilities that must continue with no or minimal disruption. Treasury's minimum essential functions include securing the stability of the United States economy, and as part of that responsibility ensuring the availability of communications capabilities for the Department and its bureaus.

To ensure continued communications Department-wide and with external entities, Treasury has and continues to identify back up systems or commercial services that are intended to be reliable during a catastrophic event, especially when traditional methods of communications (e.g., landlines) are not operational. Back-up systems typically consist of wireless systems including LMR systems, high-frequency (HF) communications, and satellite communications. Commercial services include cellular telephones, specialized mobile radios (e.g., Nextel), and mobile computing devices (e.g., BlackBerries).

The Office of Emergency Preparedness (OEP) serves as the backbone communications support for the Department. OEP uses commercial services and devices, a NTIA-regulated LMR system and, an HF radio system. The LMR system is used for emergency preparedness and COOP/COG functions and currently supports six sites. The system is currently being expanded to meet increasing demands and mission needs. In addition to the LMR system, OEP uses a number of commercial services and devices, such as cellular and satellite telephones, to provide additional support for its emergency preparedness and communication functions. The office's use of commercial services and devices has increased since the 2005 SSP and is projected to increase in the future.

IV. Future Spectrum Requirements

Future spectrum needs will be dependent upon mission, geographical coverage, new technologies, COOP/COG guidelines as well as business impact and feasibility studies. As new and expanding policy requirements like the Presidential Spectrum Policy Initiative for narrow-banding are established, the bureaus will need to reevaluate what services they can continue to provide to their customers while reducing operating costs. This section will address future spectrum requirements on a bureau-by-bureau basis (where applicable).

4.1 Overview of Anticipated Spectrum Requirements & Bureaus Effected

Committing to the requirements detailed in the Presidential Spectrum Policy Initiative will allow each bureau to continue providing existing services while increasing the feasibility of adding services that were previously technically unavailable or cost prohibitive. The commitment to implementing the Presidential Spectrum Policy and initiatives such as IWN will serve to strengthen each bureau's core services and assist in strengthening relationships with other governmental agencies.

4.2 International Issues

Through the combined efforts of the subcommittees from the Interdepartment Radio Advisory Committee (IRAC), domestic and international cooperation is achieved on issues concerning frequency spectrum matters. These include Frequency Assignment Subcommittee (FAS), Spectrum Planning Subcommittee (SPS), Radio Conference Subcommittee (RCS), Ad Hoc Group 170 (AH-170) for U.S./Mexico, Ad Hoc Group 181 (AH-181) for U.S./Canada. Other groups include the Spectrum Policy Initiative Working Level Groups (WLG) B (International Spectrum Policy) and WLG G (Spectrum Planning and Reform). These groups work with the International Telecommunications Union (ITU) on spectrum policy and management.

4.3 Projected Usage

Spectrum usage is expected to both increase and decrease. The increase will be caused by narrow-banding which will allow more users per frequency. The decrease can be seen in reducing needed spectrum through more efficient use of devices (radios, mobile computing devices, BlackBerries, etc.).

4.4 Impact to Mission If Spectrum Is Unavailable

Depending on the mission type (tactical or non-tactical), unavailable spectrum can have little to dramatic effect. For tactical missions, loss of spectrum can endanger agent safety, cause interruptions in law enforcement activities and failure of COOP/COG plans. Regarding non-tactical missions, loss of spectrum could impede administrative duties.

V. Current and Future Use of Non-Federal, Commercial Spectrum Offered by Commercial Service Providers

The Department of the Treasury supports a range of commercial services. This section will evaluate current and future use of non-Federal, commercial spectrum by bureau/office. It will conclude with a brief summation of major trends and lessons learned.

5.1 Tactical Bureaus

Treasury's tactical bureaus, covered in Section II, rely less on commercial services and devices than the non-tactical bureaus. Reliant on their individual LMR systems for critical, secure communication, tactical bureaus use commercial services to augment their existing communications infrastructure. For security, continuity and accessibility reasons, it is not feasible to transfer core communication functions from a private LMR network to commercial spectrum. However, commercial services and devices serve an important function in providing backup communication during emergency situations, and providing administrative and management support during day-to-day operations. The following section will briefly examine individual tactical bureau's commercial spectrum usage.

5.1.1 Bureau of Engraving and Printing
BEP's usage of commercial services has increased since the 2005 SSP and is projected to continue increasing in the next five years. BEP uses a variety of commercial services, such as cellular and satellite phones as well as BlackBerries, to reinforce its operations. The two largest commercial service providers are Verizon and Cingular AT&T, and services are utilized for a range of mission objectives including law enforcement, surveillance, investigations, physical security, administrative duties and management support. Main challenges that have surfaced as a result of commercial service usage are centered on procurement and budgetary constraints. A secondary issue is centered on the long-term viability of individual commercial systems – with certain systems scheduled to be replaced with newer technologies in the coming decade.

5.1.2 Bureau of Public Debt
BPD's usage of commercial services has increased since the 2005 SSP. BPD uses commercial cellular phones and BlackBerries to augment its LMR operations. Commercial services are primarily utilized for administrative duties and management support. Main challenges that have surfaced as a result of commercial service usage are centered on procurement and budgetary constraints. BPD does not use any unlicensed systems or devices.

5.1.3 Internal Revenue Service—Criminal Investigations
IRS-CI's usage of commercial services has increased since the 2005 SSP. This is primarily due to the expansion of the agency's telecommuting program combined with a highly mobile workforce, where employees perform duties at a variety of government and contractor facilities. The bureau's use of commercial systems is projected to continue increasing over the next five years. IRS-CI uses a variety of commercial devices, such as cellular and satellite phones, pagers, PDAs, and BlackBerries to augment its LMR operations. Commercial services are primarily utilized to support law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations.

Main challenges that have surfaced as a result of commercial service usage are centered on procurement, administrative and budgetary constraints. Secondary concerns are uncertainty regarding future availability of commercial systems and concerns regarding redundancies in existing communication tools. IRS-CI does not use any unlicensed systems or devices.

5.1.4 Treasury Inspector General for Tax Administration

TIGTA's usage of commercial services has increased since the 2005 SSP. This is primarily due to the expansion of the agency's telecommuting program combined with a highly mobile workforce, where employees perform duties at a variety of government and contractor facilities. The bureau's use of commercial systems is projected to continue increasing over the next five years. TIGTA uses a variety of commercial devices, such as cellular and satellite phones, pagers, PDAs, and BlackBerries to augment its LMR operations. Commercial services are primarily utilized to support law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations.

Main challenges that have surfaced as a result of commercial service usage are centered on procurement, administrative and budgetary constraints. Secondary concerns are uncertainty regarding future availability of commercial systems and concerns regarding redundancies in existing communication tools.

5.1.5 U.S. Mint

Mint's usage of commercial services includes microwave, satellite phones, wireless local area networks, and commercial services. Commercial services include mobile computing devices (e.g., BlackBerries), specialized mobile devices (e.g., Nextel units), cellular phones and pagers.

Satellite phone services are used to maintain nationwide communications as needed.

A main challenge that has surfaced is obtaining suitable frequency assignments.

5.1.6 Treasury Office of the Inspector General

OIG's usage of commercial services has not significantly increased since the 2005 SSP. This is primarily due to the core of the agency's highly mobile workforce, where employees perform duties at a variety of government and contractor facilities.

Main challenges that have surfaced as a result of commercial service usage are centered on procurement, administrative, and budgetary constraints. Secondary concerns are uncertainty regarding future availability of commercial systems and concerns regarding redundancies in existing communication tools. OIG does not use any unlicensed systems or devices.

5.2 Non-Tactical Bureaus & Offices

In contrast to the tactical bureaus, which rely primarily on LMR radio communication, non-tactical bureaus are principally supported by commercial services and unlicensed spectrum wireless technologies. These wireless technologies (e.g., pagers, cellular telephones, mobile computing devices, wireless LANs) are sufficient for providing the capabilities necessary for the bureaus/offices to support operational and administrative functions.

The information provided in Table 5-1 shows the wireless technologies requirements for relevant non-tactical bureaus/offices:

Table 5-1: **Wireless Technologies Supporting Non-Tactical Missions**

Bureau/Office	Wireless Technology	Number of Units	Number of Access Points
Office of Thrift Supervision (OTS)	Cellular Telephones	93	Not Available
	Mobile Computing Devices	170	Not Available
Departmental Offices (DO)/ Office of Emergency Preparedness	Cellular Telephones	9	Not Available
	Mobile Computing Devices	Not Available	Not Available
Financial Management Service (FMS)	Cellular Telephones	156 Cell Phones 668 BlackBerries	Not Available
	Mobile Computing Devices	779 Laptops 4 Wireless PC Cards	Not Available
Financial Crimes Enforcement Network (FinCEN)	Cellular Telephones	183 BlackBerries 25 Cell Phones	Not Available
	Mobile Computing Devices	65 Wi-Fi Cards 269 Laptops	Not Available
Alcohol and Tobacco Tax and Trade Bureau (TTB)	Cellular Telephones	Not Available	Not Available
	Mobile Computing Devices	53	1
Community Development Financial Institution Fund (CDFI)	Cellular Telephones	20 Cell Enabled BlackBerries	1
	Mobile Computing Devices	Not Available	Not Available
Office of the Comptroller of the Currency (OCC)	Cellular Telephones	Not Available	Not Available
	Mobile Computing Devices	Not Available	Not Available

The following section will briefly discuss current and anticipated future spectrum usage by non-tactical bureaus, including mission and program support, as well as services and devices used.

5.2.1 Office of Thrift Supervision
OTS uses cellular and satellite telephones to support its physical security, administrative and COOP functions. OTS uses Cingular, Verizon and Globalstar to support its COOP and COG emergency response activities.

5.2.2 Financial Crimes Enforcement Network
FinCEN uses cellular and satellite telephones, as well as mobile computing units, to support its administrative functions. Main challenges that have arisen include procurement and budgetary constraints as well as administrative limitations. Since the 2005 SSP, FinCEN has seen increased usage of commercial system services and devices.

5.2.3 Office of the Comptroller of the Currency
OCC uses cellular telephones and wireless computer cards to support its administrative functions, using satellite telephones to provide communication during emergency situations. While the office's usage of commercial services and devices has increased since the 2005 SSP as a result of increased work load, there have been no more challenges reported,

5.2.4 Alcohol and Tobacco Tax and Trade Bureau
TTB uses a variety of commercial services and devices to support its investigative and physical security functions. Obstacles are primarily due to budgetary constraints that limit the capacity of the bureau to procure and support new devices and services. Usage of commercial services

and devices has increased since the 2005 SSP, with cellular and satellite telephones providing COOP and COG emergency response communications for the bureau.

5.2.5 Community Development Financial Institution Fund
CDFI uses BlackBerry devices to support its administrative functions. Usage of commercial services and devices has increased since the 2005 SSP.

5.2.6 Financial Management Service
FMS has seven frequency assignments; however, FMS has transitioned most of its Government-owned LMR system, with allocated spectrum, to commercial services for its wireless communications needs. Nonetheless, FMS still uses a frequency assignment for simplex communications during inspections of Federal Reserve banks nationwide. Currently, FMS uses approximately 371 specialized mobile radios (e.g., Nextel units) and approximately 308 mobile computing devices (e.g., BlackBerries) to support its operations. In addition, FMS has five satellite telephones for executive use in Hyattsville, Maryland, and Washington, DC. In addition, FMS also uses the CDMA2000 wireless broadband network to support remote access and disaster recovery.

5.3 Anticipated Trends and Lessons Learned

Across all tactical and non-tactical bureaus, usage of commercial services and devices has remained steady or increased since the 2005 SSP. Part of this reflects increased user and missions demands. Many bureaus noted that commercial communication provides a cost-effective and efficient method of augmenting existing LMR operations at critical locations and in critical tasks. Particularly for the non-tactical bureaus/offices, Wireless technologies have enabled senior-level and field personnel to better address administrative functions that support the bureaus'/offices' ability to realize their missions, including the capability to make decisions in a timely manner and to remain connected to enterprise resources (e.g., e-mail, databases, colleagues). In short, a mobile workforce provides a gateway to a more efficient and effective means of conducting bureau operations.

It is anticipated that commercial service usage will continue to increase in the next five years, especially as bureaus/offices add new users and expand their current scope of operations. While aggregate usage of commercial spectrum is likely to increase, it is anticipated that the overall cost to the Department will be offset as wireless technologies become more cost-effective and efficient. Concerns voiced across the bureaus and offices centered on procurement and budgetary constraints, as well as anxiety over the long-term viability of particular commercial technologies.

VI. Agency Current and Future Use of 'Non-Licensed' Devices

This section will address current and future use of non-licensed devices on a bureau-by-bureau basis (where applicable).

Bureau	Non-Licensed Devices Used	Usage
Tactical Bureaus		
Bureau of Engraving and Printing (BEP)	Cellular Phones, Satellite Phones, BlackBerries	Law enforcement, surveillance, investigations, physical security, administrative duties and management support
Bureau of Public Debt (BPD)	Cellular Phones, BlackBerries	Administrative duties and management support
Internal Revenue Service-Criminal Investigation (IRS-CI) *	Cellular Phones, Satellite Phones, BlackBerries, Pagers	Law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations
Treasury Inspector General for Tax Administration (TIGTA)	Cellular Phones, Satellite Phones, BlackBerries, Pagers	Law enforcement, administrative and other non-sensitive communications. Commercial services are also used to maintain administrative communications during COOP/COG situations
U.S. Mint (Mint)	Cellular Phones, Satellite Phones, Wireless Local Area Networks, BlackBerries, Nextel units, Pagers	Satellite phone services are used to maintain nationwide communications as needed
Treasury Office of the Inspector General (OIG)	OIG does not use any unlicensed systems or devices	OIG does not use any unlicensed systems or devices
Non-Tactical Bureaus		
Office of Thrift Supervision (OTS)	Cellular Phones, Satellite Phones	Physical security, administrative and COOP functions
Departmental Offices (DO) & Office of Emergency Preparedness (OEP)	Cellular Phones	Administrative functions
Financial Management Service (FMS)	Cellular Phones, Satellite Phones, BlackBerries, Nextel units	Administrative and COOP functions
Financial Crimes Enforcement Network (FinCEN)	Cellular Phones, Satellite Phones, BlackBerries	Administrative functions
Alcohol and Tobacco Tax and Trade Bureau (TTB)	Cellular Phones, Satellite Phones	Investigative and physical security functions
Community Development Financial Institution Fund (CDFI)	BlackBerries	Administrative functions
Office of the Comptroller of the Currency (OCC)	Cellular Phones, Satellite Phones, Wireless Computer Cards	Administrative functions

* Treasury does not distinguish IRS-CI and IRS-F as "bureaus" apart from IRS, but are listed as such in NTIA's Frequency Assignments.

A. Description of potential application(s)
The Department use of the associated wireless devices is for activities including Physical Security, Emergency Response, Investigations, Surveillance, Law Enforcement, Administrative and COOP operations.

B. Mission(s) and program(s) potentially supported
Both tactical and non-tactical missions and programs can be supported.

C. Potential geographical coverage
U.S. and its Possessions.

D. Technical parameters
Ensure that all bureaus meet current and forecasted business requirements, compatibility and interoperability challenges. Department and bureaus need to emphasize customer education and compliance on use of new and emerging technologies that are being deployed.

E. Special challenges
Ensure that all bureaus meet current and forecasted business requirements, compatibility and interoperability challenges. Department and bureaus need to emphasize customer education and compliance on use of new and emerging technologies that are being deployed.

F. COOP/COG considerations
Ensure that all bureaus meet current and forecasted COOP/COG requirements.

G. Anticipated Trends in use of these new technologies
Current and future use of devices and services are expected to increase from near-term through mid-term. This is due in part to the advancements in technology and availability of devices. The trend in technology is to integrate and make devices as multi-functioned as possible, which will lead to having one device that is capable of performing tasks previously performed by several devices. Increasing the usage of multi-functioned devices has the potential to reduce costs.

H. Lessons learned/best practices in using unlicensed systems and devices
Through past experiences, the Department and bureaus have learned the importance of interoperability and compatibility along with using COOP/COG guidelines to provide as reliable as possible business continuity.

This section will address anticipated new technologies that will impact bureau/office spectrum usage and operations. The following categories need to be addressed:

Current and future use of devices and services are expected to increase in the next 5 years. This is due in part to the advancements in technology and availability of devices. The devices and services expected to see increased usage include, but are not limited to, the following:

A. New technologies requiring spectrum under study and evaluation for expanded or future use
Frequency and Spectrum: Narrow-banding, Digital Trunking, AES, Frequency Hopping, Cognitive Radio.
Telephones: 3G/4G Cellular, Satellite, VoIP
Computing Devices: PDAs, Bluetooth, Mobile Broadband, Mobile Computing.
Wireless Networking: 802.11 (A/B/G/N), WAPs, WLANs, WMANs, WWANs.
Security: Hardware- and Software-based.
Smart Home Technology/Home Integration: VoIP, Home Broadband Connectivity, Home Control Components, Home Entertainment Components.

B. Description of potential application(s)
The Department use of the associated wireless devices are used for activities including Physical Security, Emergency Response, Investigations, Surveillance, Law Enforcement, Administrative and COOP operations.

C. Mission(s) and program(s) potentially supported
Both tactical and non-tactical missions and programs can be supported.

D. Potential geographical coverage
U.S. and its Possessions.

E. Technical parameters
Ensure that all bureaus meet current and forecasted business requirements, compatibility and interoperability challenges. Department and bureaus need to emphasize customer education and compliance on use of new and emerging technologies that are being deployed.

F. Special challenges
Ensure that all bureaus meet current and forecasted business requirements, compatibility and interoperability challenges. Department and bureaus need to emphasize customer education and compliance on use of new and emerging technologies that are being deployed.

G. COOP/COG considerations
Ensure that all bureaus meet current and forecasted COOP/COG requirements.

H. Anticipated Trends in use of these new technologies
Current and future use of devices and services are expected to increase from near-term through mid-term. This is due in part to the advancements in technology and availability of devices. The trend in technology is to integrate and make devices as multi-functioned as possible which will lead to having one device that is capable of performing tasks previously performed by several devices. Increasing the usage of multi-functioned devices has the potential to reduce costs.

I. Impact of new technologies on spectrum management concerns

Bureaus supporting non-tactical missions will continue to conduct voice and data communications using commercial services and wireless technologies that operate on private and/or unlicensed spectrum. As the advancement of wireless technologies continues, the demand for wireless capabilities may also increase to support operational activities (e.g., administrative functions). In addition to increased wireless technologies, bureaus may realize the benefits of a mobile workforce, including the ability to promptly make decisions, to enable real-time collaboration, and to easily access enterprise resources. This may dramatically increase the use of commercial services (e.g., cellular telephones, mobile computing devices) and use of unlicensed spectrum for wireless technologies (e.g., wireless LANs) to efficiently and effectively perform administrative functions that support Treasury and Bureau missions.

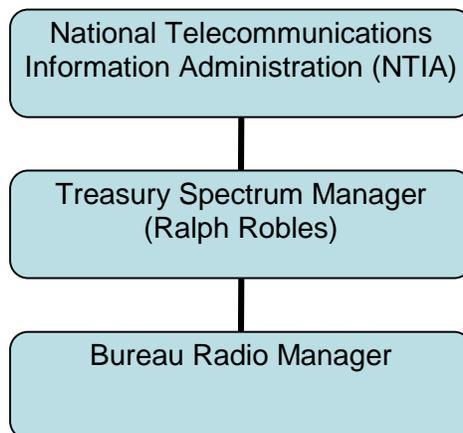The following section will outline the Department's organization of spectrum management, budgetary and fiscal considerations, strategic spectrum plan implementation and changes in spectrum operations since 2003.

A. Organization of Department Spectrum Management

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                              │     NTIA     │
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                          │   Spectrum Manager    │
                          │     Ralph Robles      │
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│ Tactical Bureaus    │   │      DO/OEP         │   │ Non-Tactical Bureaus│
│                     │   │    Alvin Bissett    │   │                     │
└─────────┬──────────┘   └────────────────────┘   └─────────┬──────────┘
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BEP – Richard P. Wilcox	CDFI – Joshua Speights
BPD – John Kowalczyk	FinCEN – Denise Wofford
IRS-CI – Jacque Riordon	FMS – John Kopec
OIG -- Patrick Blake	OCC – Patricia Shaw
TIGTA – Travis Anderson	OTS – David Sequeira
US MINT – Louis A. Hoagland	TTB – Mike Hegarty
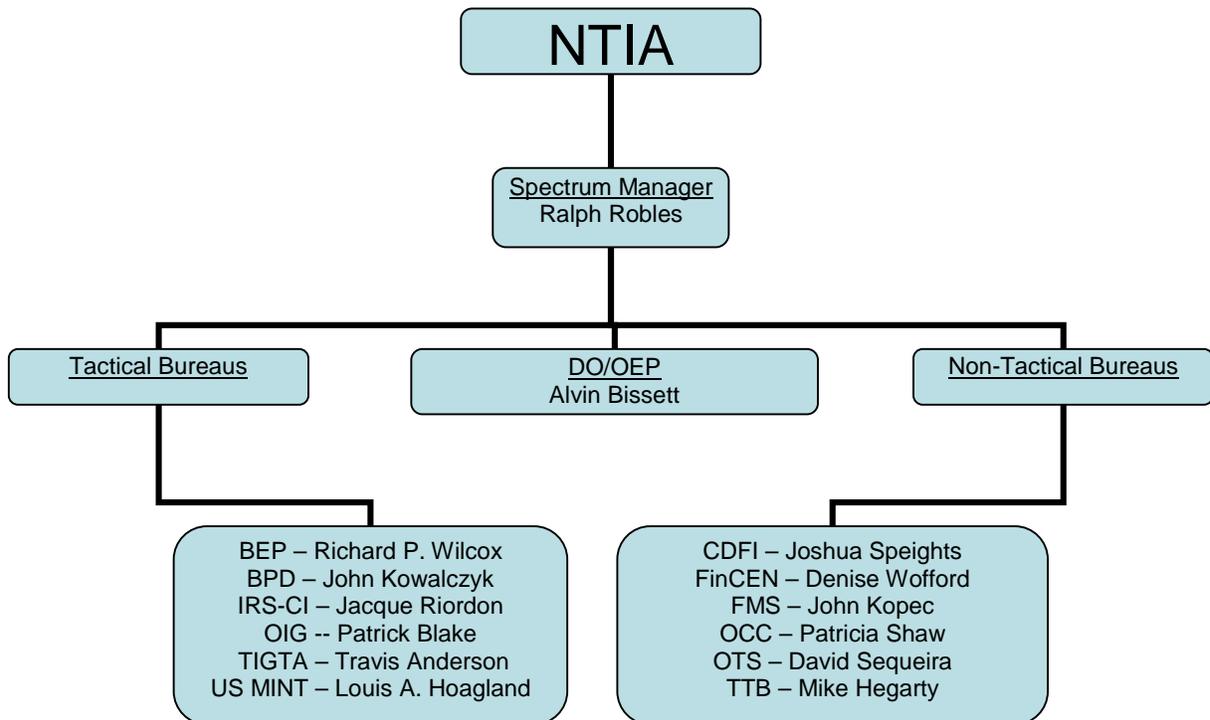
B. Flowchart showing how spectrum plans are finalized (ascending order)

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┌─────────────────────────────────┐
│  National Telecommunications     │
│ Information Administration (NTIA) │
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│   Treasury Spectrum Manager      │
│        (Ralph Robles)            │
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│      Bureau Radio Manager        │
│                                  │
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C. Fiscal and Budgetary Considerations

Fiscal and budgetary concerns range from increased costs for equipment and maintenance to spectrum use licensing. However, by consolidating spectrum use and providing more efficient and interoperable equipment, it is anticipated that costs will be reduced Department-wide.

D. Spectrum Integration with System Certification and Frequency Requests

Spectrum integration is progressing at a positive rate. Throughout the process, spectrum requirements are being reduced through programs like 25 Cities, IWN and the Presidential Spectrum Policy Initiative for narrow-banding.

The Department of Treasury does not normally submit requests for spectrum certifications because the vast majority of equipment used is FCC-type approved Commercial Off The Shelf (COTS) equipment and is not specifically developed for Treasury.

Frequency requests are normally coordinated between the bureau radio managers and the Department's spectrum manager. The bureau radio managers coordinate their requirements with the spectrum manager who negotiates their use with other Federal agencies through the NTIA.

E. Change in Department Spectrum Operations Since 2005

A number of developments since the 2005 SSP have affected the Department's current usage of spectral assets and impacted its technological needs. Most significant of these is the overall number of frequencies utilized by the Department has decreased by approximately ten percent since the 2005 SSP. This is due to a number of factors, such as increased efficiency and more effective coordination, which have facilitated better alignment between the Department-wide spectrum needs and bureau-specific missions.

Other policies, such as Treasury's narrow-banding mandate, are focused on increasing efficiency within particular frequency bands. With the NTIA UHF narrow-band mandate set for January 1, 2008, it is likely that the implementation of this mandate will lead to further spectral efficiency within the bureaus. Implementation of the narrowband requirements continues to be a principal focus of Treasury's WPO throughout 2007 and 2008.

One avenue for increasing spectrum efficiency has been through pooling spectral assets within interagency frameworks. One such initiative, the DOJ 25 Cities Program, seeks to create an interoperability solution for the 25 metropolitan areas that could be used by a variety of agencies.

Another is the Integrated Wireless Network (IWN) program, which operates as an interagency partnership between DOJ, DHS, and Treasury. Initially intended as a nationwide interagency VHF LMR partnership, IWN has undergone a number of changes since the 2005 SSP and is currently focused on a more limited implementation pending acceptance of a new Memorandum of Understanding (MOU).

F. Strategic Spectrum Plan Implementation Obstacles and Challenges

Committing to the requirements detailed in the Presidential Spectrum Policy Initiative for narrow-banding, each bureau has concerns regarding compatibility, integration, standardization, interoperability, loss of spectrum, system longevity and consolidation of hardware into both existing and proposed systems, as well as reducing the associated operating costs. To date, a number of bureaus and offices (OEP, IRS-F, and BEP) have not met the narrow-banding but they are expected to be compliant in the near future.

G. Contact Information

Tactical Bureaus	
Travis Anderson (TIGTA) 1739H Brightseat Road Landover, MD, 20785 301-436-3444 travis.anderson@tigta.treas.gov	Richard P. Wilcox (BEP) 301 14th Street SW Washington D.C. 20228 202-927-3599 richard.wilcox@bep.treas.gov
Louis A. Hoagland (U.S. Mint) PO Box 965 Fort Knox, KY 40121 502-799-1536 lhoagland@usmint.treas.gov	John Kowalczyk (BPD) 200 Third Street Parkersburg, WV 26101 304-480-6456 jkowalczyk@bpd.treas.gov
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Non-Tactical Bureaus	
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Miscellaneous
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IX. Appendix A: Acronym List

3G	Third Generation
4G	Fourth Generation
AES	Advanced Encryption Standard
BEP	Bureau of Engraving and Printing
BPD	Bureau of the Public Debt
CDFI	Community Development Financial Institution Fund
COG	Continuity of Government
COOP	Continuity of Operations
COTS	Commercial Off The Shelf
CPIC	Capital Planning and Investment Control
DES	Data Encryption Standard
DHS	Department of Homeland Security
DO	Departmental Offices
DOJ	Department of Justice
FAS	Frequency Assignment Subcommittee
FCC	Federal Communications Commission
FinCEN	Financial Crimes Enforcement Network
FMS	Financial Management Services
GAO	Government Accountability Office
GHz	Gigahertz
GMF	Government Master File
HF	High Frequency
IRAC	Interdepartment Radio Advisory Committee
IRS	Internal Revenue Service
IRS-CI	Internal Revenue Service–Criminal Investigation
IRS-F	Internal Revenue Service–Facilities
IT	Information Technology
ITU	International Telecommunications Union
IWN	Integrated Wireless Network
kHz	Kilohertz
LAN	Local Area Network
LMR	Land Mobile Radio
MHz	Megahertz
NTIA	National Telecommunications and Information Administration
OCC	Office of the Comptroller of the Currency
OCIO	Office of the Chief Information Officer
OEP	Office of Emergency Preparedness
OIG	Office of Inspector General
OMB	Office of Management and Budget
OTS	Office of Thrift Supervision
RCS	Radio Conference Subcommittee
SPS	Spectrum Planning Subcommittee
SSP	Strategic Spectrum Plan
Task Force	Federal Government Spectrum Task Force
TIGTA	Treasury Inspector General for Tax Administration
TTB	Alcohol and Tobacco Tax and Trade Bureau
UHF	Ultra High Frequency
Mint	United States Mint
VHF	Very High Frequency
WAP	Wireless Access Point
WLAN	Wireless Local Area Network

WLG	Working Level Groups
WMAN	Wireless Metropolitan Area Network
WPO	Wireless Programs Office
WWAN	Wireless Wide Area Network