

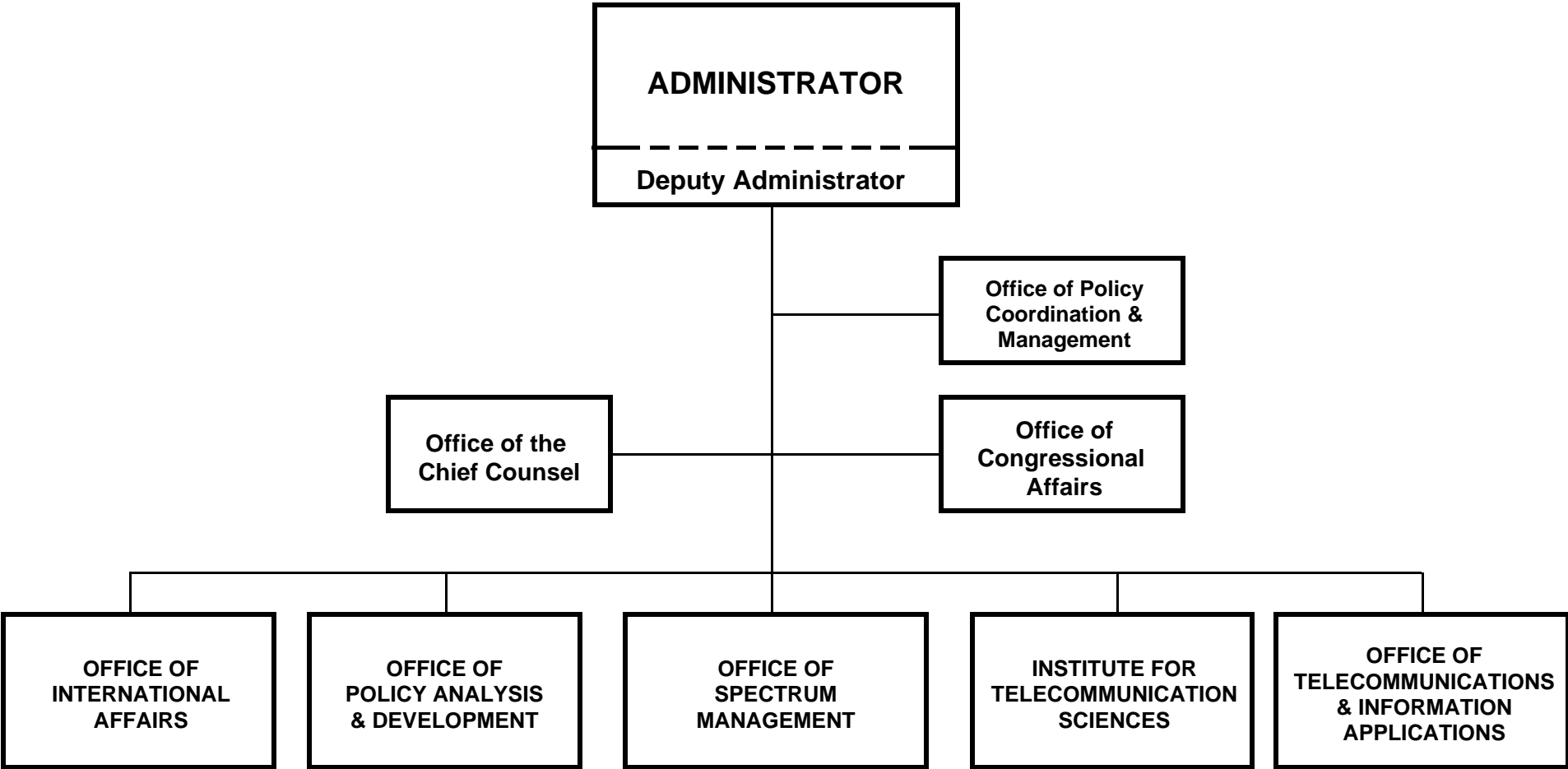
**DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Budget Estimates, Fiscal Year 2009
Budget as Presented to Congress**

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NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION



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Department of Commerce
National Telecommunications and Information Administration
Fiscal Year 2009 Budget
As Presented to Congress

Executive Summary

The National Telecommunications and Information Administration (NTIA) is responsible for the development of domestic and international telecommunications and information policy for the Executive Branch, for ensuring the efficient and effective use of the Federal radio spectrum, and for performing state-of-the-art telecommunications research, engineering, and planning. In addition, Congress has assigned to NTIA a significant role in the transition to digital television, and in the development of public safety interoperable communications. NTIA operates within the structure and context of the following goals.

Department of Commerce Strategic Goal 2

Promote U.S. Innovation and Industrial Competitiveness

General Goal/Objective 2.3

Advance global e-Commerce and enhanced telecommunications and information services

NTIA Goals/Outcomes

Ensure that the allocation of radio spectrum provides the greatest benefit to all people

Promote the availability and support new sources of advanced telecommunications

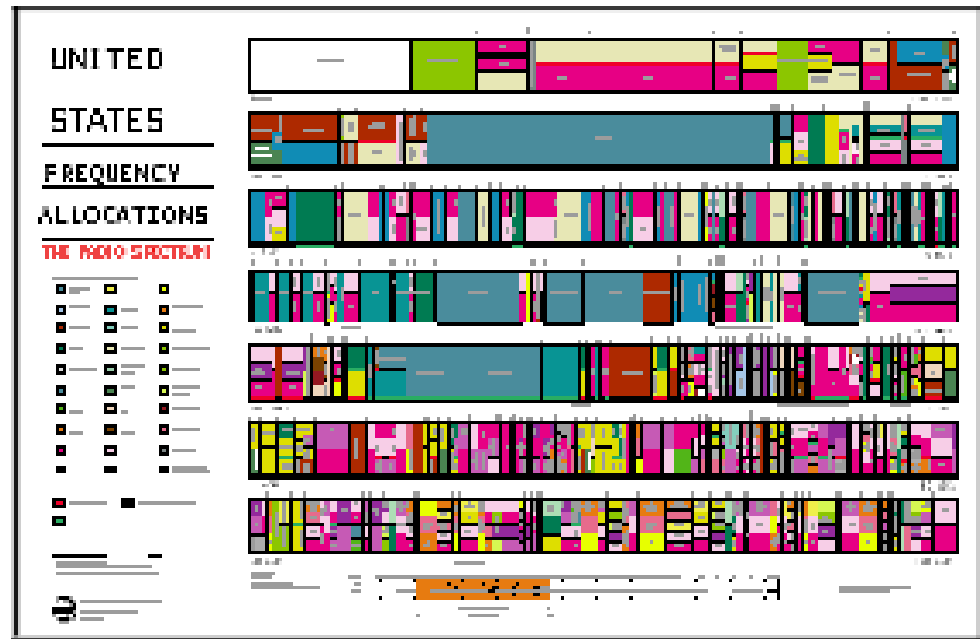
NTIA's policy, spectrum management, and research programs will support emerging technologies and uses of spectrum resources for affordable, alternative communications services. Promising technologies and services have the potential to drive the new economy, if given the opportunity to succeed. The Administration and NTIA support the advancement of information technologies and has moved aggressively to create an economic and regulatory environment in which innovations in information and communications technologies can flourish.

NTIA programs directly support the **American Competitiveness Initiative** by creating a regulatory environment that fosters private sector innovation in telecommunications, a fundamental ingredient in maintaining the Nation's productivity growth. NTIA, in conjunction with the Federal Communications Commission (FCC), the Department of State, and other partners, is a vital component in the President's **Spectrum Policy for the 21st Century** initiative. The goals of this initiative are to: foster economic growth; ensure our national and homeland security; maintain U.S. global leadership in communications technology development and services; and satisfy other vital U.S. needs in areas such as public safety, scientific research, Federal transportation infrastructure, and law enforcement.

The budget for FY 2009 is \$648.7 million (Discretionary: Appropriation – \$19.2 million; Reimbursable – \$37.8 million. Mandatory: \$591.7 million.)

NTIA's budget includes the following:

- The base adjustments for FY 2009 for Salaries and Expenses activities.
- The Public Telecommunications Facilities Program is to be discontinued in FY 2009 and will no longer require appropriations. Open grants will be closed using carryover funds and recoveries.
- Mandatory programs authorized by the Deficit Reduction Act of 2005 (Act), as amended. Programs will be funded by receipts collected from a January 2008 auction of electromagnetic spectrum.



Salaries and Expenses

The **Salaries and Expenses budget (\$19,218,000 and 103 FTE)** focuses on its core programs for domestic and international policy development, Federal spectrum management and related research.

Grant Program

The **Public Telecommunications Facilities Program (no appropriation)** is to be discontinued in FY 2009. In recent years, most PTFP funds have supported public broadcasters' transition to digital broadcasts. This transition is largely complete, so funds are no longer necessary.

Programs Authorized by the Deficit Reduction Act of 2005

The **Digital Television Transition and Public Safety Fund (\$591,667,000 and 22 FTE)**, created by the Deficit Reduction Act of 2005 (Act), and amended by the Call Home and Safe Port Acts of 2006, the Implementing Recommendations of the 9/11 Commission Act of 2007, and the Consolidated Appropriations Act of 2008, receives offsetting receipts from the auction of electromagnetic spectrum recovered from discontinued analog television signals, and provides funding for several one-time programs from these receipts. The Act specifies that the 60 MHz of recovered spectrum not dedicated to public safety use will be auctioned by the Federal Communications Commission in 2008, and identifies the distribution of revenue.

The Act, as amended, also provides borrowing authority to the Department of Commerce to commence specified programs prior to the availability of auction receipts. Amounts borrowed from the Treasury will be returned without interest upon the availability of auction revenue. Auction revenue is to be deposited in this account by the end of FY 2008. During FY 2009, Commerce programs are authorized to use receipts from the fund:

- Digital-to-Analog Converter Box Voucher Program (\$471.9 million, 7 FTE).
- Public Safety Interoperable Communications Grants (\$6.5 million, 3 FTE).
- New York City 9/11 Digital Transition (\$0.3 million, <1 FTE).
- Assistance to Low-Power Television Stations (\$60.2 million, 7 FTE).
- National Alert and Tsunami Warning Programs (\$52.2 million, 4 FTE).
- Enhanced 9-1-1 Service Support (\$0.6 million, 1 FTE).



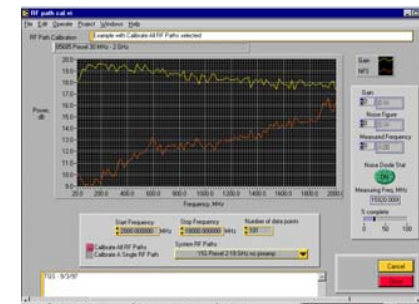
Performance

NTIA's plan for assessing performance is organized under two performance goals that call for the **efficient use of the radio spectrum**, and the **availability of advanced services to the public**. Our activities, a cornerstone in the Department's efforts to provide the infrastructure for innovations in technology, will continue to address impediments to the development of innovative telecommunications services by the private sector. Please reference the Performance section of the budget presentation for additional information on NTIA's program assessment.

Context

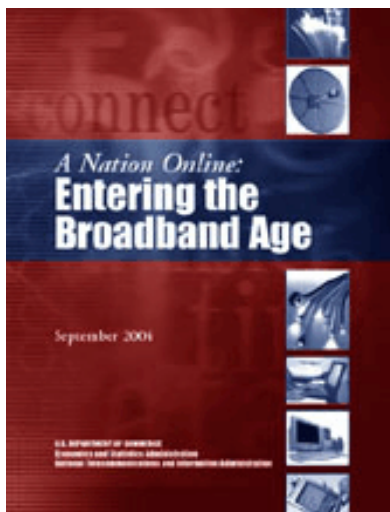
The U.S. telecommunications market – \$923 billion of the \$12 trillion U.S. economy – is critical to our social and economic growth as telecommunications enables all other sectors, including education, healthcare and national security. Representing more than 30 percent of the global market, the U.S. telecommunications sector is a powerful force in leading U.S. innovation and technology development.

The U.S. telecommunications market continues to grow, with total revenues reaching \$923 billion in 2006 – up 9.3 percent for the year – and is projected to grow another 7.6 percent by 2010. [TIA 2007 Telecom Market Review and Forecast]



Calibrating Radio Frequency Paths

Broadband access is driving demand for new technologies and applications, and consumers are benefitting from the new products; such as VoIP, Wi-Fi, WiMax, broadband over power lines (BPL) and advanced wireless services.



President's Broadband Goal

"This country needs a national goal for broadband technology . . . universal, affordable access for broadband technology by 2007."

President George W. Bush,
Albuquerque, NM, March 26, 2004

Broadband deployment is a top priority for the Bush Administration and is critical to America's future as the world's economic leader because of its impact on increasing our productivity and improving American's quality of life – through economic growth, job creation, national security, tele-medicine, distance learning, and tele-work. For that reason, President Bush set a bold vision by establishing a national goal of universal, affordable broadband access by 2007.

Since President Bush took office in 2001, the number of broadband lines has grown by over 700 percent, with the count growing from 9.2 million in June 2001 to 64.6 million in June 2006, according to the FCC. Now, more Americans are accessing the Internet through broadband connections than dial-up.

"The role of government is not to create wealth; the role of our government is to create an environment in which the entrepreneur can flourish, in which minds can expand, in which technologies can reach new frontiers."

President George W. Bush
Technology Agenda, November, 2002.

In support of this goal, the President has enacted economic incentives and created a regulatory environment to encourage innovation and investment in new broadband technologies, such as: an extension of the Internet tax moratorium, an economic security package that allows companies to speed depreciation schedules for capital-intensive broadband equipment, a permanent extension of the research and experimentation tax credit, and an expanded budget for research and development.

Working in partnership with the FCC, the Administration paved the way for 255 MHz of spectrum occupied by defense radars to be used for new unlicensed computer wireless devices – WiFi. Such devices are coming to market to provide improved communication speed in mobile computers while protecting incumbent radar systems. This approach to spectrum sharing greatly increases the use of the spectrum.

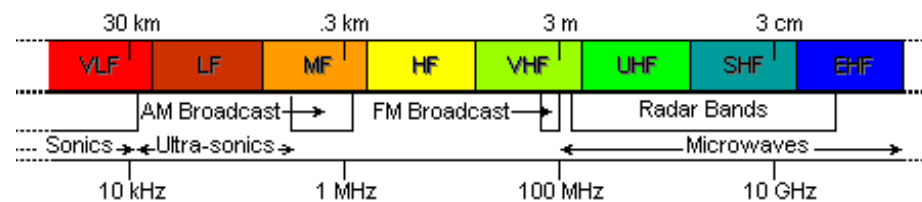
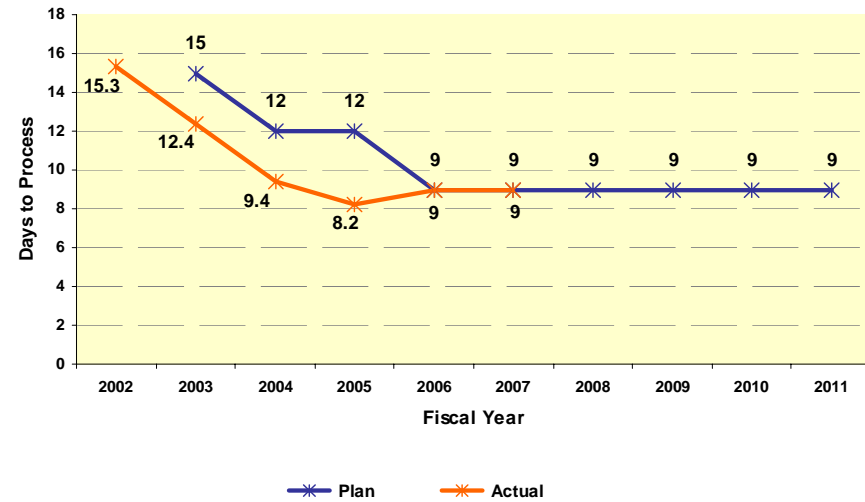
The Administration also progressed with its efforts under the President's comprehensive **Spectrum Policy for the 21st Century** initiative by completing an analysis of issues regarding international spectrum policy and spectrum efficiency and by establishing a Commerce Spectrum Management Advisory Committee to develop recommendations from the private sector.

NTIA continues its automation of all federal spectrum management activities to produce processes that will provide a rapid response to incoming requests for spectrum use by federal and non-federal entities. Further improvements will depend on completion of IT improvements during FY 2008 and beyond.

NTIA oversaw federal departments and agencies in their preparations to relocate systems from the 1710-1755 MHz band under the mechanism established through the Commercial Spectrum Enhancement. This mechanism provides a means to accommodate the next generation of wireless services. This is a win for companies providing advanced wireless services, the consumer who will use them and the federal agencies that need funding for new technology to meet federal missions. NTIA will facilitate the transition through promoting dialog between the federal agencies and the commercial license winners.

NTIA will continue to explore opportunities for efficiencies and sharing that will enable spectrum to meet future demand; we will continue to pursue foreign policies that allow U.S. companies to supply broadband services and equipment in competitive markets around the world; and we will continue to partner with industry in cooperative research and development agreements and other fora to combine our talents for the advancement of new technologies.

**Timeliness of Spectrum Actions
(Frequency Assignments)**



Office of Spectrum Management

Appropriations Bill Language

The appropriations bill language that supports NTIA's appropriation includes provisions that are crucial to the execution of NTIA's programs. The following language will be necessary to support the Salaries and Expenses budget as provided in this submission:

*For necessary expenses, as provided for by law, of the National Telecommunications and Information Administration (NTIA), [\$17,466,000], **\$19,218,000**, to remain available until September 30, [2009] **2010: Provided, That, notwithstanding 31 U.S.C. 1535(d), the Secretary of Commerce shall charge Federal agencies for costs incurred in spectrum management, analysis, and operations, and related services and such fees shall be retained and used as offsetting collections for costs of such spectrum services, to remain available until expended: Provided further, That the Secretary of Commerce is authorized to retain and use as offsetting collections all funds transferred, or previously transferred, from other Government agencies for all costs incurred in telecommunications research, engineering, and related activities by the Institute for Telecommunication Sciences of NTIA, in furtherance of its assigned functions under this paragraph, and such funds received from other Government agencies shall remain available until expended.***

The Radio Spectrum Measurement System



Telecommunications research far afield



NTIA Summary of Resources – FY 2009
(Dollar amounts in thousands)

	Salaries and Expenses		Public Telecommunications, Facilities, Planning, and Construction		[MANDATORY] Digital Television Transition and Public Safety Fund		Total, All Accounts	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
FY 2008 estimate	103	\$17,466	13	\$18,800	16	\$616,828	132	\$653,094
Adjustments to the base	0	1,752	0	0	0	0	0	1,752
Program changes	0	0	(13)	(18,800)	6	(25,161)	(7)	(43,961)
FY 2009 appropriation	103	19,218	0	0	NA	NA	103	19,218
Mandatory programs	NA	NA	NA	NA	22	591,667	22	591,667
Reimbursable work	155	37,776	0	0	NA	NA	155	37,776
FY 2009 budget, all resources	258	56,994	0	0	22	591,667	280	648,661

Legislative Proposals for the Radio Frequency Spectrum Included in the President's Budget

The Administration proposes several reforms to improve the efficiency and effectiveness of spectrum management, as follows:

Spectrum license fee authority. To continue to promote efficient spectrum use, the Administration proposes legislation to provide the Federal Communications Commission with new authority to use other economic mechanisms, such as fees, as a spectrum management tool. The Commission would be authorized to set user fees on unauctioned spectrum licenses based on spectrum-management principles. Fees would be phased in over time as part of an ongoing rulemaking process to determine the appropriate application and level for fees. Fee collections are estimated to begin in 2008, and total \$4.1 billion through 2018.

Prospective ancillary terrestrial component spectrum license fee authority. The Administration proposes legislation to improve the management of hybrid terrestrial - satellite mobile communications spectrum licenses by setting a fee on the terrestrial authority of these integrated networks. Under current policy, these licenses are granted free of charge, though providers will compete with terrestrial wireless carriers that have purchased licenses at auction. Setting a fee on the Ancillary Terrestrial Component of Mobile Satellite Service licenses will help to ensure that the radio spectrum is put to its most highly valued use by promoting consideration of the economic value of the spectrum, provide incentive for timely and robust network development, and improve equity relative to service providers that purchase their spectrum licenses in auctions. Receipts associated with this policy are estimated to begin in 2008, and total \$1.16 billion through 2018.

Extend spectrum auction authority. The Administration proposes legislation to extend indefinitely the authority of the FCC to auction spectrum licenses, which expires on September 30, 2011. The additional receipts associated with this permanent extension are estimated to total \$1.4 billion through 2018.

Domestic satellite spectrum auctions. The Administration proposes legislation to ensure that spectrum licenses for predominantly domestic satellite services are assigned efficiently and effectively through competitive bidding. Services such as Direct Broadcast Satellite and Satellite Digital Audio Radio Services were assigned by auction prior to a 2005 court decision that questioned this practice on technical grounds. By clarifying through legislation that auctions of licenses for these domestic satellite services are authorized, prior policy of the Federal Communications Commission will be restored. Auction receipts associated with this clarification are estimated to begin in 2008, and total \$593 million through 2018.

Telecommunications Development Fund elimination. The Telecommunications Development Fund (TDF) was created in 1996 by Public Law 104-104 with the objective of promoting access to capital for small businesses, enhancing competition in the telecommunications industry, and improving the delivery of telecommunication services to rural areas. TDF receives interest earnings from deposits on spectrum auctions. Through 2009, TDF will have collected approximately \$110 million in interest that would have otherwise been deposited in the Treasury and benefited taxpayers. The Budget proposes termination of TDF as the organization has had no material impact in meeting its statutory goals.

FY 2009 Annual Performance Plan

National Telecommunications and Information Administration

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Section 1.

Mission, Goals, and Objectives

Mission Statement

The National Telecommunications and Information Administration (NTIA) serves as the President's principal adviser on telecommunications and information policy matters and develops forward looking spectrum policies that ensure efficient and effective spectrum access and use.

NTIA manages all spectrum use by Federal government departments and agencies and examines how the radio frequency spectrum is used and managed in the United States. A large part of NTIA's policy activities is devoted to making spectrum use more efficient and identifying opportunities to make encumbered spectrum available to new uses. Both domestically and internationally, NTIA will foster competition and universal service in telecommunications, will promote broadband deployment, will continue to oversee the transition of the Internet domain name system to the private sector, and will continue to advance the Administration's positions on VOIP, ENUM, IPv6, and cyber security. NTIA's research laboratory, the Institute for Telecommunication Sciences (ITS), will perform telecommunications research, conduct cooperative research and development with U.S. industry and academia, and provide technical engineering support to NTIA and to other Federal agencies. NTIA's policy, spectrum management, and research programs will support emerging technologies and uses of spectrum resources for affordable, alternative communications services.

Section 2

Corresponding DOC Strategic Goal

Strategic Goal 2: Promote U.S. innovation and industrial competitiveness

Performance Goal/Objective 2.3: Advance global e-Commerce and enhanced telecommunications and information services

Rationale: NTIA's functions promote science and technological leadership through basic research in telecommunications technologies, support for U.S. positions in international standard-setting bodies, promotion of advanced telecommunications and information infrastructure development in the United States, enhancement of domestic competitiveness, improvement of foreign trade opportunities for U.S. telecommunications firms, and facilitation of more efficient and effective use of the radio spectrum. NTIA functions ensure that Federal departments and agencies have sufficient spectrum to conduct radio activities in support of their missions. These activities directly benefit the American public through the universal, affordable availability of advanced telecommunications, such as broadband and wireless services, and Internet-related technologies, and by facilitating national and homeland security, public safety, scientific research, federal transportation, and law enforcement performed by the Federal government.

Telecommunications and information technologies support productivity, growth and job creation in most industrial sectors. NTIA's activities will therefore promote U.S. economic success and lead to economic acceleration and job expansion.

In a "Memorandum for the Heads of Executive Departments and Agencies" dated November 30, 2004, the President directed that an Implementation Plan be developed in FY 2005 for the recommendations contained in a two-part series of reports released by the Secretary of Commerce in June 2004, under the title *Spectrum Policy for the 21st Century - The President's Spectrum Policy Initiative Reports*. The President also directed among other things that the Secretary of Commerce shall develop a Federal Strategic Spectrum Plan and shall assist in the formulation of a National Strategic Spectrum Plan. The purpose of the Initiative is to promote the development and implementation of a U.S. spectrum policy that will foster economic growth; ensure our national and homeland security; maintain U.S. global leadership in communications technology development and services; and satisfy other vital U.S. needs in areas such as public safety, scientific research, federal transportation infrastructure, and law enforcement. The bulk of NTIA's resources will be directed toward achieving the President's goal of spectrum management reform. NTIA's spectrum management activities are intertwined with its policy activities in that existing uses of spectrum by both the private and federal sectors must be examined to determine how spectrum management changes will affect new and innovative spectrum-using services that provide benefits to all consumers. NTIA also will continue to examine an array of spectrum management policy issues dealing with innovative approaches to spectrum management and the effectiveness of current processes.

Another of NTIA's primary missions is to serve as the President's principal policy advisor on domestic and international telecommunications and information issues and to be the Administration's primary voice on them. NTIA will fulfill this policy-setting role in a number of ways: by advocating globally for foreign regulatory and policy regimes that encourage competition and innovation; by preparing and issuing special reports on topics of broad interest; providing the Administration's views on actions proposed by the Federal Communications Commission (FCC); issuing requests for public comment on specific issues; and encouraging dialogue with the private sector through sponsorship and participation in conferences, workshops, and other forums.

NTIA also will participate on behalf of the Administration in FCC and Congressional proceedings on telecommunications policies, including the development of appropriate regulatory treatment for broadband services deployment. A number of Internet related policy issues will require NTIA action, including ICANN reform and continuing Internet privatization, domain name management both domestically and internationally, proposals to regulate Internet services and content, and the combination of Internet and telecommunications addressing (ENUM). NTIA will pursue policies promoting international trade in telecommunications products and services, promoting consistent international approaches to telecommunications

policies, and improving relations with countries with rapidly expanding markets. All of these activities will require substantial coordination among NTIA's program offices, as well as interagency coordination to develop the Administration's positions.

In addition to its policy-related activities, the NTIA supports innovative telecommunications and information technologies through basic research performed at its laboratory, the Institute for Telecommunication Sciences (ITS). ITS performs extensive basic research on quality of digital speech, audio and video compression, and transmission characteristics. This research has the potential to improve both the performance of telecommunications networks and the availability of digital content on the Internet. Basic research at ITS also supports U.S. positions in international standard-setting bodies and NTIA's development of Administration policies related to the introduction of new technologies, such as ultra wideband (UWB) and third generation (3G) wireless services.

Section 3. PART Summary

Program: NTIA	Year	Score	2007 Funding (Actual)	2008 Funding Estimate	2009 Funding Request
	FY2005	62 - Adequate	\$18.3 million	\$19.4 million	\$19.2 million
<p>Open recommendations:</p> <p>Improve FCC-NTIA coordination – Quarterly spectrum coordination meetings are held with the FCC. This recommendation is due to be completed by the end of FY2009.</p>					

Section 4. Priorities/Management Challenges

NTIA management reviewed and assessed policy and program priorities in the development of FY 2008 and 2009 budgets. In addition, in a "Memorandum for the Heads of Executive Departments and Agencies" dated November 30, 2004, the President directed that an Implementation Plan be developed in FY 2005 for the recommendations contained in a two-part series of reports released by the Secretary of Commerce in June 2004, under the title *Spectrum Policy for the 21st Century - The President's Spectrum Policy Initiative Reports*. The President also directed among other things that the Secretary of Commerce shall develop a Federal Strategic Spectrum Plan and shall assist in the formulation of a National Strategic Spectrum Plan. The bulk of NTIA's resources will be directed toward achieving the President's goal of spectrum management reform. These efforts will result in improved policies for use of the spectrum by Federal, State and local governments and the private sector, as well as improvements in the spectrum management process as a whole. In FY 2007 and continuing through FY 2008, NTIA will develop action plans for FY 2009 and beyond to implement the remaining set of recommendations presented in the overall program of spectrum management reform.

Section 5.

Target and Performance Summary

Performance Goal 1: Ensure that the allocation of radio spectrum provides the greatest benefit to all people						
Measure	2004 Actual	2005 Actual	2006 Actual	2007 Actual	2008 Target	2009 Target
1a. Frequency Assignment Processing Time	<12 days	10 days	9 days	9 days	<9 days	<9 days
<p>NTIA authorizes the federal agency use of the frequency spectrum in a timely manner for operation of radiocommunications systems. NTIA ensures that each assignment approved does not cause interference to other spectrum users nor will it receive harmful interference from other spectrum users and that each assignment complies with the rules, regulations and standards within NTIA's Manual. The measure contains the planned average time it took to for all the federal agencies, including NTIA, to review and respond to requests for frequency assignment and the average time it took to provide those responses. Improvements in the time allowed for review and response represent achievements of both administrative process improvements and IT investments, which will permit flexibility in adopting any changes in spectrum management regimes resulting from the President's Spectrum Policy Initiative. Further improvements will depend on completion of IT improvements from 2008 and beyond.</p>						
1b. Certification Request Processing Time	<6 mos.	<6 mos.	4 mos.	3 mos.	<2 mos.	<2 mos.
<p>NTIA certifies in a timely manner as per OMB Circular A-11, that spectrum will be available in the future for Federal agency planned radiocommunications. NTIA's approval prevents an agency from developing communications in the wrong frequency band and could cause or receive interference from other spectrum users that could result in being unable to implement the system and the loss of all the funding that was necessary to develop the communication system. The performance measure contains the planned average time it took to for NTIA to complete the necessary analysis upon which to base the certification.</p>						
1c. Space System Coord. Request Processing Time	80<21	80<21	95<14	90<18	90<14	90<14
<p>NTIA provides approval and coordination domestically and internationally in a timely manner for an agency to operate its planned satellite communications. Coordination with other satellite spectrum users is essential to prevent interference to each other in light of the high costs of developing and implementing satellite communication systems. The performance measure contains the planned average target time to obtain approval for coordination actions within the Space Systems Subcommittee process.</p>						
1d Spectrum Plans and Policies Processing Time	<15	<15	13	11	<15	<15
<p>Most frequency spectrum is shared between the private sector and the Federal government. As such, there are constant changes in the spectrum allocations, rules and regulations developed and maintained by the FCC and NTIA to address access by new telecommunication technologies and services to ensure interference free operation between all spectrum users and a level playing field to promote competition. NTIA and the FCC have agreed in a memorandum of understanding that they would mutually perform the necessary coordination on rulemakings within 15 days or less. This performance measure contains the planned average target time to obtain NTIA coordination, and the average time it took to provide coordination.</p>						

Measure	2004 Actual	2005 Actual	2006 Actual	2007 Actual	2008 Target	2009 Target
1e. Spectrum Management Improvements	N/A	5	18 of 22	23 of 29	22	14
<p>NTIA has been directed by the President in November 30, 2004, to implement his Spectrum Policy Initiative by implementing 24 recommendations contained in two reports submitted by the Secretary of Commerce and coordinated with Federal agencies in the OMB coordination process. The performance measure contains the planned target of the number of milestones required by the goals in the President's spectrum policy initiative.</p>						
<p>Performance Goal 2: Promote the availability and support new sources of advanced telecommunications</p>						
2a. Support new telecom and info technology by advocating Administration views in FCC docket filings and Congressional proceedings	New	5 dockets and proceedings	12 dockets and proceedings	8 dockets and proceedings	5 dockets and proceedings	5 dockets and proceedings
<p>NTIA fulfills its policy-setting role in a number of ways: by preparing and issuing special reports on topics that emerge over time; testifying before Congress and other organizations that are concerned with telecommunications policy; providing the Administration's views on actions proposed by the Federal Communications Commission; issuing requests for public comment on specific issues; and encouraging dialogue with the private sector through sponsorship and participation in conferences, workshops, and other forums.</p>						
2b. Number of website views for research publications	New	New	94K/Mo	105K/Mo	75K/Mo	80K/Mo
<p>NTIA will measure the number of website "hits" on its on-line research publications. This measure indicates the reception and utility of research results within the spectrum research and engineering community. Many government agencies and private sector organizations use these research publications to improve effectiveness in the planning, procurement and configuration of systems.</p>						

Section 6.

FY 2009 Program Changes

The Digital Television Transition and Public Safety Fund, created by the Deficit Reduction Act of 2005 (Act), receives offsetting receipts from the auction of electromagnetic spectrum recovered from discontinued analog television signals, and provides funding for several one-time programs from these receipts. The Act specifies that recovered spectrum not dedicated to public safety use will be auctioned by the Federal Communications Commission in 2008, and identifies the distribution of revenue. The Act also provides borrowing authority to the Department of Commerce to commence specified programs prior to the availability of auction receipts. Amounts borrowed from the Treasury will be returned without interest upon the availability of auction revenue. The Act authorizes NTIA to administer several programs, including:

- Digital-to-Analog Converter Box Coupon Program
- Public Safety Interoperable Communications Grants
- New York City 9/11 Digital Transition
- Assistance to Low Power Television Stations
- National and Remote Alert Programs
- National Tsunami Warning Program
- Enhanced 9-1-1 Service Support
- Essential Air Service (Department of Transportation)

(Dollars in Thousands)

	Base		Increase/Decrease		(Exhibit 13 Page for detailed discussion)
	FTE	Amount	FTE	Amount	
Program Decrease	16	\$616,828	6	(\$25,161)	This is a mandatory program rather than an initiative. As such an Ex 13 is not required. The programs do not have performance measures.

The Public Telecommunications Facilities, Planning and Construction Program (PTFP) is being discontinued in FY 2009. Since 2000, the majority of PTFP grants have been used to support public broadcasting's transition to digital formats. Most public television stations have completed their transition to digital broadcasts, in order to comply with the rules of the FCC. Funding for any remaining digital transition and other activities is available elsewhere.

(Dollars in Thousands)

	Base		Increase/Decrease		(Exhibit 13 Page for detailed discussion)
	FTE	Amount	FTE	Amount	
Program Decrease	13	\$18,800	(13)	(\$18,800)	The PTFP is being discontinued in FY 2009. As such an Ex 13 is not required. The program does not have performance measures.

Section 7.

Resource Requirements Summary

	FY 2004 Actual	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Base	Increase/ Decrease	FY 2009 Request
Performance Goal 1: Ensure that the allocation of radio spectrum provides the greatest benefit to all people.								
Salaries and Expenses								
Domestic and international policies	125	206	325	336	358	335	0	335
Spectrum management	24,082	27,123	31,813	33,724	44,211	37,395	0	37,395
Telecommunication sciences research	4,329	3,072	4,667	4,887	4,567	5,068	0	5,068

	FY 2004 Actual	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Base	Increase/ Decrease	FY 2009 Request
Performance Goal 2: Promote the availability and support new sources of advanced telecommunications and information services.								
Salaries & expenses								
Domestic and international policies	4,426	3,948	3,755	3,934	5,325	4,581	0	4,581
Telecommunication sciences research	6,819	10,041	7,818	8,381	22,771	9,615	0	9,615
Digital Television Transition and Public Safety Fund	0	0	0	1,070,272	630,719	616,828	(25,161)	591,667
Public Telecommunications Facilities, Planning, and Construction								
Grants	24,550	21,565	19,952	22,450	19,456	16,800	(16,800)	0
Program management	2,303	1,852	2,000	1,698	2,647	2,000	(2,000)	0
Information Infrastructure Grants								
Grants	14,449	104	0	0	0	0	0	0
Program management	3,361	1,945	600	397	1,820	0	0	0
Grand Total								
Total funding	84,444	69,856	70,930	1,146,079	731,874	692,622	(43,961)	648,661
Direct	61,187	42,389	39,723	1,113,132	674,017	654,846	(43,961)	610,885
Reimbursable	23,257	27,467	31,207	32,947	57,857	37,776	0	37,776
IT funding	5,400	5,400	5,400	5,400	5,400	5,400	0	5,400
FTE	269	259	248	254	287	287	(7)	280

Section 8.

Data Validation and Verification Table / Internal Control information

NTIA reviews performance data to ensure that it is complete and accurate. There were no significant deviations from projected targets. The actual validation process is conducted following audit principles including sampling and verification of data. Unclassified spectrum management data is published and distributed on CD-ROM and has been examined for accuracy by the Department's Inspector General and the Government Accountability Office (GAO). Additionally, documentation is reviewed and a determination is made on its adequacy and sufficiency to support claims that outcomes and outputs have been achieved.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be taken
Timeliness of Processing	Interdepartment Radio Advisory Committee (IRAC) Support Branch, Office of Spectrum Management (OSM)	Monthly, Annually	Office of Spectrum Management, Computer Services Division	Automated Data Processing (ADP) routines	Classified information is not included in public data	Collection of data
Certification Request Processing Time	Interdepartment Radio Advisory Committee (IRAC) Support Branch, Office of Spectrum Management (OSM)	Monthly, Annually	Office of Spectrum Management, Computer Services Division	Automated Data Processing (ADP) routines	Classified information is not included in public data	Collection of data
Space System Coordination Request Processing Time	Interdepartment Radio Advisory Committee (IRAC) Support Branch, Office of Spectrum Management (OSM)	Monthly, Annually	Office of Spectrum Management, Computer Services Division	Automated Data Processing (ADP) routines	Classified information is not included in public data	Collection of data
Spectrum Management Improvements	Office of Spectrum Management (OSM)	Monthly, Annually	Office of Spectrum Management, Associate Administrator	NTIA document clearance process, OMB/Interagency clearance process	None	None
Support new telecom and info technology by advocating Administration views in FCC docket filings and Congressional proceedings	Activities are reflected on NTIA website; weekly reports to the Secretary of Commerce; annual report to Congress	Annual	Office of Policy Coordination and Management	Inspection	Data is not quantitative but rather a qualitative assessment of current policy directions and plans.	None
Number of website views for research publications	ITS	Monthly	ITS, webserver	Inspection	None	Collection of data

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Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

		Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Appropriation		103	103	\$17,466	\$19,374
less: Obligations from prior years		0	0	0	(1,908)
plus: 2009 adjustments to base		0	0	1,752	1,752
2009 Base		103	103	19,218	19,218
plus: 2009 program changes		0	0	0	0
2009 Estimate		103	103	19,218	19,218

Comparison by activity/subactivity	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Domestic and international policies	Pos/BA	26	\$4,614	26	\$4,474	26	\$4,916	26	\$4,916	0	\$0
	FTE/Obl.	20	4,270	26	5,682	26	4,916	26	4,916	0	
Spectrum management.....	Pos/BA	32	6,899	32	6,688	32	7,419	32	7,419	0	0
	FTE/Obl.	30	7,343	32	7,310	32	7,419	32	7,419	0	
Telecommunication sciences research.....	Pos/BA	45	6,549	45	6,304	45	6,883	45	6,883	0	0
	FTE/Obl.	43	6,702	45	6,382	45	6,883	45	6,883	0	
TOTALS.....	Pos/BA	103	18,062	103	17,466	103	19,218	103	19,218	0	0
	FTE/Obl.	93	18,315	103	19,374	103	19,218	103	19,218	0	
Adjustments to Obligations:											
Recoveries/Refunds.....			(550)		0		0		0		0
Unobligated Balance, start of year.....			(1,611)		(1,908)		0		0		0
Unobligated Balance, end of year.....			1,908		0		0		0		0
Unobligated Balance expiring.....			0		0		0		0		0
Financing from transfers:											
Transfer from other accounts (-).....			0		0		0		0		0
Transfer to other accounts (+).....			0		0		0		0		0
Appropriation.....			18,062		17,466		19,218		19,218		0

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Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 SUMMARY OF REIMBURSABLE OBLIGATIONS
 (Dollar amounts in thousands)

Comparison by activity			2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
			Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
<u>Reimbursable projects</u>												
Telecommunication Sciences Research.....	Pos/BA		45	\$0	45	\$0	45	\$0	45	\$0	0	0
	FTE/Obl.		32	6,566	45	20,956	45	7,800	45	7,800	0	0
Other.....	Pos/BA		1	0	1	0	1	0	1	0	0	0
	FTE/Obl.		0	12	1	300	1	300	1	300	0	0
Total, Reimbursable projects.....	Pos/BA		46	0	46	0	46	0	46	0	0	0
	FTE/Obl.		32	6,578	46	21,256	46	8,100	46	8,100	0	0
<u>Spectrum fees</u>												
Spectrum Management.....	Pos/BA		109	0	109	0	109	0	109	0	0	0
	FTE/Obl.		107	26,369	109	36,601	109	29,676	109	29,676	0	0
Total, Spectrum fees.....	Pos/BA		109	0	109	0	109	0	109	0	0	0
	FTE/Obl.		107	26,369	109	36,601	109	29,676	109	29,676	0	0
Total, Reimbursable Obligations.....	Pos/BA		155	0	155	0	155	0	155	0	0	0
	FTE/Obl.		139	32,947	155	57,857	155	37,776	155	37,776	0	0

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 SUMMARY OF FINANCING
 (Dollar amounts in thousands)

Comparison by activity	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
Total Obligations.....	\$51,262	\$77,231	\$56,994	\$56,994	\$0
Offsetting collections from:					
Federal funds.....	(32,447)	(57,357)	(37,276)	(37,276)	0
Non-Federal sources.....	(500)	(500)	(500)	(500)	0
Recoveries/Refunds.....	(550)	0	0	0	0
Unobligated balance, start of year.....	(1,611)	(1,908)	0	0	0
Unobligated balance, end of year.....	1,908	0	0	0	0
Unobligated balance expiring.....	0	0	0	0	0
Budget Authority.....	18,062	17,466	19,218	19,218	0
Financing:					
Transferred from other accounts (-).....	0	0	0	0	0
Transferred to other accounts (+).....	0	0	0	0	0
Appropriation.....	18,062	17,466	19,218	19,218	0

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
ADJUSTMENTS TO BASE

Exhibit 8

Adjustments to Base	Positions	FTE	Amount (\$000)
Restoration of Base Reduction.....	0	0	\$ 979
<u>COST CHANGES:</u>			
Full-year cost of FY 2008 pay increase and related costs.....	0	0	\$ 280
FY 2009 pay raise.....	0	0	317
Civil Service Retirement System (CSRS).....	0	0	(18)
Change in compensable days.....	0	0	(48)
Federal Employees Retirement System (FERS).....	0	0	28
Federal Insurance Contribution Act (FICA) - OASDI.....	0	0	15
Thrift Savings Plan.....	0	0	5
Health Insurance.....	0	0	7
Employees Compensation Fund.....	0	0	4
Travel.....	0	0	1
Per Diem.....	0	0	4
Rental payments to GSA.....	0	0	31
Postage.....	0	0	1
Working Capital Fund.....	0	0	116
GPO Printing.....	0	0	1
NARA storage and maintenance	0	0	0
General Pricing Level Adjustment:			
Communications, utilities and miscellaneous charges.....	0	0	1
Other services.....	0	0	20
Rental to others.....	0	0	0
Supplies and materials.....	0	0	2
Equipment.....	0	0	6
Subtotal, Cost Changes.....	0	0	773
Total, Adjustments to Base.....	0	0	\$ 1,752

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 JUSTIFICATION OF ADJUSTMENTS TO BASE

Adjustments to Base	Positions	FTE	Amount (\$000)
ADJUSTMENTS:			
To restore base reduction from prior years.....			\$ 979
COST CHANGES:			
Pay Raises			
<u>Full-year cost of FY 2008 pay increase and related costs</u>	0	0	597
The FY 2008 President's budget assumes a pay raise of 3.5 percent to be effective January 1, 2008.			
Total cost in FY 2009 of FY 2008 pay increase.....			420,000
Less amount funded in FY 2008.....			315,000
Total Amount requested in FY 2009 to provide cost of FY 2008 pay raise.....			105,000
Additional funds required to cover actual pay raise in FY 2008 of 3.5 percent.....			175,000
Total, FY 2008 pay raise increase.....			280,000
 <u>FY 2009 pay increase and related costs</u>			
A general pay raise of 3.0 percent is assumed to be effective January 1, 2009.			
Total cost of FY 2009 pay raise.....			284,000
Payment to Working Capital Fund.....			33,000
Total adjustment for FY 2009 pay increase.....			317,000
 Civil Service Retirement System (CSRS)	0	0	(18)
The number of employees covered by CSRS continues to drop as positions become vacant and are filled by employees who are covered by the Federal Employees' Retirement System (FERS). The estimated percentage of payroll for employees covered by CSRS will drop from 17.7 percent in FY 2008 to 15.4 percent in FY 2009. The contribution rate will remain 7.0 percent.			
FY 2009 (\$11,030,000 x .154 x .0700).....			118,903
FY 2008 (\$11,030,000 x .177 x .0700).....			136,662
Total adjustment to base.....			(17,759)
 Federal Employees Retirement System (FERS)	0	0	28
The number of employees covered by FERS continues to rise as employees covered by CSRS leave and are replaced by employees covered by FERS. The estimated percentage of payroll for employees covered by FERS will rise from 82.3 percent in FY 2008 to 84.6 percent in FY 2009. The contribution rate will remain 11.2 percent.			
FY 2009 (\$11,030,000 x .846 x .112).....			1,045,115
FY 2008 (\$11,030,000 x .823 x .112).....			1,016,701
Total adjustment to base.....			28,414
 Federal Insurance Contribution Act (FICA)	0	0	15
As the percentage of payroll covered by FERS rises, the cost of OASDI contributions will increase. In addition, the maximum salary subject to OASDI tax will rise from \$102,300 in FY 2008 to \$106,425 in FY 2009. The OASDI tax rate will remain 6.2 percent.			
Regular Employees			
FY 2009 (\$11,030,000 x .846 x .924 x .062).....			534,576
FY 2008 (\$11,030,000 x .823 x .923 x .062).....			519,480
Total Adjustment to Base.....			15,096

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
JUSTIFICATION OF ADJUSTMENTS TO BASE

Adjustments to Base	Positions	FTE	Amount (\$000)
<u>Thrift Savings Plan (TSP)</u>			
The cost of NTIA's contributions to the Thrift Savings Plan will also rise as FERS participation increases. The contribution rate is expected to remain 2 percent.	0	0	\$ 5
FY 2009 (\$11,030,000 x .846 x .02).....	186,628		
FY 2008 (\$11,030,000 x .823 x .02).....	181,554		
Total Adjustment to Base.....	5,074		
<u>One Less Compensable Day</u>			
The reduced cost of one additional compensable day in FY 2009 compared to FY 2008 is calculated by dividing the 2008 estimated personnel compensation (\$11,030,000) and applicable benefits (\$1,666,000) by 262 compensable days. The reduced cost resulting from one less compensable day is (\$48,458).	0	0	(48)
<u>Health Insurance</u>			
Effective January 2007, NTIA's contribution to Federal employees' health insurance premiums increased by 1.1 percent. Applied against the 2008 estimate of \$623,000, the additional amount required is \$6,853.	0	0	7
<u>Employee Compensation Fund</u>			
The Employees Compensation Fund bill for the year ending June 30, 2007, is \$3,623.51 higher than the bill for the year ending June 30, 2006. The Employee Compensation fund is based on an actual billing from the Department of Labor.	0	0	4
<u>Mileage Rate Increase</u>			
Effective February 2007, the General Services Administration raised the mileage rate from 44.5 cents to 48.5 cents per mile, a 9.0% rate increase. This percentage was applied to the 2008 estimate of \$13,000 to arrive at an increase of \$1,170.	0	0	1
<u>Per Diem</u>			
Per diem rates are projected to increase 2.9 percent in FY 2009. This percentage was applied to the FY 2008 estimate of \$123,000 to arrive at an increase of \$3,567.	0	0	4
<u>Postage</u>			
Effective May 14, 2007, the Governors of the Postal Service implemented a rate increase for first-class mail from 39 cents to 41 cents. The increase of 5.1 percent was applied to the 2008 estimate of \$11,000 to arrive at an increase of \$561.	0	0	1
<u>Rental payments to GSA</u>			
GSA rates are projected to increase 2.4 percent in FY 2009. This percentage was applied to the FY 2008 estimate of \$1,308,000 to arrive at an increase of \$31,392.	0	0	31
<u>Working Capital Fund</u>			
An additional amount of \$116,000 is required to fund the cost increases in the Department Working Capital Fund.	0	0	116
<u>GPO Printing</u>			
GPO has provided an estimated rate increase of 1.9 percent. This percentage was applied to the FY 2008 estimate of \$35,000 to arrive at an increase of \$665.	0	0	1

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 JUSTIFICATION OF ADJUSTMENTS TO BASE

Adjustments to Base	Positions	FTE	Amount (\$000)
General Pricing Level Adjustment	0	0	29
This request applies 1.9 percent based on OMB economic assumptions for FY 2009 to object classes where the prices that the Government pays are established through the market system. Factors are applied to: Other services (\$20,420), supplies and materials (\$2,421), equipment (\$5,866), and communications, utilities and misc. charges (\$1,000).			
Subtotal, Cost Changes	0	0	773
Total, Adjustments to Base	0	0	\$ 1,752

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Salaries and expenses
 Subactivity: Domestic and international policies

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Domestic and international policies.....	Pos/BA	26	\$4,614	26	\$4,474	26	\$4,916	26	\$4,916	0	\$0
	FTE/Obl.	20	4,270	26	5,682	26	4,916	26	4,916	0	0
Direct Obligations.....	Pos/BA	26	4,614	26	4,474	26	4,916	26	4,916	0	0
	FTE/Obl.	20	4,270	26	5,682	26	4,916	26	4,916	0	0

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
Domestic and International Policies
Justification of Program and Performance

Goal Statement

NTIA serves as the principal adviser to the President on telecommunications and information policy issues. In this role, NTIA formulates, advocates and participates in the implementation of policies that further domestic and foreign policy goals and enhance the international competitiveness of U.S. telecommunications and information technology, equipment, and services companies. These policies further the United States' strategic goals of opening markets and encouraging competition, innovation, and entrepreneurship, in the United States and globally; advancing the public interest in telecommunications, mass media, and information services; ensuring that spectrum provides the greatest benefit to all people; and promoting the availability of advanced services to all peoples around the globe. Policy objectives are based on the identification and interdisciplinary analysis of economic, technological, regulatory, legal, social, and foreign policy issues. These activities fall within the Department of Commerce Strategic Goal 2 - Promote U.S. innovation and industrial competitiveness, Performance Goal/Objective 2.3: Advance global e-Commerce and enhanced telecommunications and information services. NTIA's activities working with the White House and other federal agencies on Administration-wide telecommunications policy statements, and on obtaining private sector views on a broad range of telecommunications and information policy issues, are described in the "Crosscutting Programs" section of the Department of Commerce Strategic Plan for FY 2004 – FY 2009.

Statement of Operating Objectives

Domestic Policies – NTIA formulates and promotes national policies for consideration by the President and other Executive Branch Agencies and by the independent Federal Communications Commission (FCC), and for presentation to other government and non-government organizations. NTIA's domestic policy objectives are to:

- promote economic growth;
- deregulate telecommunications and information markets wherever possible;
- identify and introduce market mechanisms into radio spectrum management and other areas
- open telecommunications markets to greater competition;
- promote the deployment of broadband services;

- encourage the development of new communications technologies and services for the American public;
- improve spectrum management;
- facilitate the transition to digital television;
- promote minority ownership in the telecommunications industry.

NTIA possesses the necessary expertise, skill, and understanding in legal, economic, and technical issues: in telecommunications and information technology innovations, products, and services; in telecommunications and information technology policy; and in regulatory structures and processes to accomplish these objectives.

International Policies - NTIA formulates and promotes national policies for presentation in multilateral, bilateral and international organization settings. The objective of these policies is to enhance liberalization, deregulation and privatization in pursuit of both improved market access for U.S. service and equipment providers, and to achieve foreign policy goals such as economic development, democratization, and promotion of U.S. national security ICT interests in geographically strategic areas. Current operational objectives include:

- continuing support for private sector management of the Internet's domain name and addressing system;
- coordinating new international ICT policies and technologies with domestic ICT policies (such as ENUM, IDN, IdM, IPv6, NGN, RFID, WiMAX);
- negotiating open, competitive markets abroad for telecommunications and IP-enabled services;
- working multilaterally and bilaterally to ensure policy and regulatory approaches pertaining to converged communications services are fair, open, transparent, not-overly burdensome and in line with U.S. domestic policies; and encouraging other governments to adopt sound policies and regulations to stimulate telecommunications and Internet development;
- encouraging other governments to adopt sound policies, laws, and regulations to stimulate telecommunications and Internet development.

NTIA possesses expertise in the following areas: an understanding of international telecommunications and information policies and the resultant regulatory structure and processes; an appreciation of U.S. economic, foreign, and trade policies and objectives, in particular as they relate to foreign telecommunications regulatory policies; and an understanding of U.S. and foreign-developed telecommunications and information products and services.

Base Program

Domestic Policies –The U.S. has the world's leading telecommunications and information markets, and leads the world in the number of broadband connections. This translates to jobs for Americans, innumerable benefits to the public, and strong public safety and national defense capabilities. Much of the U.S. success in these sectors is based on market-driven, deregulatory, and competitive policies, many of which have been emulated throughout the world. In radio spectrum management in particular, market based spectrum management reforms, advocated by NTIA and adopted by the FCC, have led to more efficient and innovative use of spectrum for commercial services. These principles may similarly improve the use of spectrum by Federal Government agencies.

The Communications Act of 1934, as amended, provides a basis for policymaking with respect to many telecommunications and information services and products. Other U.S., state, and Federal laws also affect the telecommunications and information sectors. Existing laws, regulations, and administrative procedures are subject to enormous pressures created by rapid changes in technology and increased demand for advanced services and equipment. NTIA is the only Executive Branch agency dedicated exclusively to telecommunications and information policy making. NTIA also serves as the manager of the Federal government's use of the electromagnetic spectrum. NTIA's responsibilities are set forth by statute. NTIA's domestic policy activities require it to identify important current telecommunications and information policy issues, to evaluate and articulate those policies, and to respond to specific requests.

NTIA's policy activities support the Department's strategic themes of providing the information and the framework to enable the economy to operate efficiently and equitably, on a global scale; providing infrastructure for innovation and entrepreneurship to enhance American competitiveness; and strengthening management at all levels. NTIA promotes these policies within the Administration and before the Congress, the FCC, the Federal Trade Commission (FTC), U.S. state governments, governments of other nations, and ultimately, to the public at large. NTIA's domestic policy activities require it to maintain expertise over all current telecommunications and information policy issues and to identify the most important for Executive Branch attention. NTIA performs research and analysis, and prepares written recommendations for future courses of action that affect these sectors. In coordination with other parts of the Administration, NTIA makes recommendations and works with the Congress on new or revised laws affecting these sectors; it also files written comments to the FCC on specific regulatory proposals. The President's Spectrum Policy Initiative provides a framework for NTIA to propose legislative and regulatory changes to improve the management of radio spectrum.

NTIA engages in public discussions and meetings with government (Federal, state and foreign) officials and private sector representatives to formulate and advocate its policies. NTIA obtains information and advice both informally, on an *ad hoc* basis, and through the Commerce Spectrum Management Advisory Committee. Consistent with the Federal Advisory Committee Act, this committee provides advice to the Assistant Secretary of Commerce for Communications and Information on needed reforms to domestic spectrum policies and management to enable the introduction of new spectrum-dependent technologies and services, including policy reforms for expediting the American public's access to broadband services, public safety, digital television, and long-range spectrum planning. In addition, NTIA facilitates business ownership and participation, particularly small business and minority participation, in these important sectors.

NTIA has a number of domestic programmatic responsibilities as well, most notably serving as the Point of Contact for the Department's contract with Neustar, Inc. for the management of the DOT-US (".us") Internet top level domain, and educating parents/guardians by promoting

awareness of the KIDS-DOT-US (“kids.us”) Internet domain. NTIA also serves as the Federal Program Officer for the Department’s Cooperative Agreement with EDUCAUSE to manage the DOT-EDU (“.edu”) domain space for use by educational institutions. This cooperative agreement facilitates the policy development and technical operations of the .edu domain and provides a framework for the administration of the .edu domain.

International Policies - If U.S.-invested companies are to continue to innovate and maintain their global leadership in these sectors, they must depend on economic policy and regulatory environments at home and abroad that encourage build out access to and uptake of information and communications technologies (ICTs). At the same time, NTIA advocates for universal access to ICTs in developing markets overseas, to stimulate democratization, economic development, entrepreneurship, disaster relief, and promotion of U.S. national security ICT interests in war-torn areas. NTIA is uniquely positioned to serve as or advise U.S. negotiators by participating as delegates or in leadership posts in a variety of fora on international, regional and bilateral policies and regulations. Delegations draw upon NTIA’s wide-ranging expertise on ICT policy issues, particularly those related to the Internet’s critical underlying infrastructure, to support these goals of innovation, market entry, and universal ICT access. For example, NTIA advocates adoption abroad of open and transparent processes that take into account the input of all relevant stakeholders and that avoid overly prescriptive or burdensome regulation.

NTIA’s International Office implements its policy objectives through a variety of representational and management responsibilities in inter-governmental ICT fora such as the International Telecommunication Union (ITU), the Inter-American Telecommunications Commission (CITEL), the Asia Pacific Economic Cooperation forum (APEC), and the Organization for Cooperation and Economic Development (OECD), as well as in bilateral discussions. The International Office also works with other Federal agencies to prepare for and participate in other related international telecommunications and information activities, such as trade negotiations involving the ICT sector. For example, NTIA staff possess the most extensive technical knowledge and policy expertise in the U.S. Government regarding management of a critical Internet infrastructure asset: the Internet’s domain name and addressing system (DNS). As such, NTIA staff administers the Department’s Internet Assigned Numbers Authority (IANA) functions contract with the private-sector Internet Corporation for Assigned Names and Numbers (ICANN), through which all changes to the Internet’s authoritative root zone file – or “address book” are approved. NTIA also oversees the administration of the Department’s Memorandum of Understanding (MOU) with ICANN and represents the U.S. Government in the ICANN’s Governmental Advisory Committee, which advises ICANN on policy issues related to the Internet DNS. NTIA also coordinates with the Department of Homeland Security, the National Security Council and others to safeguard the security and stability of the Internet DNS.

Explanation and Justification

Domestic Policies - The NTIA Organization Act, as amended, (47 U.S.C. 901, *et. seq.*) requires the Secretary of Commerce to assign the Assistant Secretary for Communication and Information various functions, including the authority to serve as the President’s principal adviser on telecommunications policies pertaining to the Nation’s economic and technological advancement and to the regulation of the telecommunications industry; the authority to provide for the coordination of the telecommunications activities of the Executive Branch and assist in the formulation of policies and standards for those activities, including (but not limited to) consideration of spectrum use, privacy, security, and emergency readiness; the authority to develop and set forth telecommunications policies pertaining to the Nation’s economic and technological advancement and to the regulation of the telecommunications industry; and the responsibility to ensure that the views of the

Executive branch on telecommunications matters are effectively presented to the FCC and, in coordination with the Office of Management and Budget, to the Congress. The range of domestic telecommunications policy issues is broad and increasingly complex, reflecting the rapid changes in telecommunications technology and its application to the marketplace. Issues concern radio spectrum management; broadband deployment; competition in telephony and video markets; Internet growth; and content-oriented issues, such as privacy, free speech, indecency and political broadcasting. Also the convergence of technologies challenges old regulatory constructs and institutions. Current and future issues require NTIA to provide expertise and leadership to address existing and unexpected developments in the rapidly changing environment of telecommunications and information.

The President, through his Spectrum Policy Initiative, called on NTIA to develop a plan for identifying and implementing incentives that promote more efficient and effective use of the spectrum while protecting national and homeland security, critical infrastructure, and government services. NTIA's domestic policy program completed that plan and in FY 2008 will carry out specific projects on spectrum valuation, fees, sharing, and on user rights, as set out in that plan. NTIA will continue its management of certain contracts for the technical management of the Dot-US top level domain. NTIA will remain at the forefront of other new technologies and the policy changes they will require, such as advanced wireless radios that may sense their environment and adjust their operation to avoid interference with other devices. NTIA will continue to examine policies that affect the ability of U.S. broadcasting, cable and satellite video services and newer services to provide diverse and affordable media services to American consumers; to promote minority ownership opportunities in telecommunications; to provide staff support and expertise to the White House and the Department of Commerce; to respond to requests for technical and policy advice from the Congress, other Federal Government officials and from the private sector; and to provide staff support to the Commerce Spectrum Management Advisory Committee.

International Policies – The Secretary of Commerce is charged by the NTIA Organization Act as amended (47 U.S.C. 901, et seq.) to develop and set forth plans, policies and programs that relate to international telecommunications issues, conferences and negotiations. The Secretary is also responsible for coordinating economic, technical, operational and related preparations for U.S. participation in international, inter-governmental ICT organizations and negotiations. The Act requires NTIA to formulate telecommunications and information policy for participation and activities in international organizations such as the ITU, the OECD, APEC, CITES, the International Mobile Satellite Organization (IMSO), the International Telecommunications Satellite Organization (ITSO), and others. A July 1997 Presidential directive requires the Department of Commerce (DoC) to transition management of the Internet domain name and addressing system to the private sector, which is currently underway through a Joint Project Agreement between the DoC and ICANN. In June 2006, NTIA released U.S. Principles on the Internet's Domain Name and Addressing System that explain the continued importance of the U.S. Government's role and objectives.

The Telecommunications Trade Act of 1988 sets forth policy goals for international telecommunications trade. NTIA assists in implementation of the Act through policy coordination with the International Trade Administration (ITA), USTR and other U.S. agencies by preparing for and participating in telecommunications talks with selected countries and with such organizations as the World Trade Organization (WTO) and through bilateral and regional Free Trade Agreements (FTAs) where telecommunications regulatory policies are involved.

In FY 2009, NTIA will continue its wide-ranging activities to enhance the global strength of U.S. telecommunications and information interests.

We will encourage bilateral, regional and multilateral adoption of policies that encourage open and liberalized foreign markets, while stimulating, democratization, economic development, and promotion of U.S. national security ICT interests overseas. We will advance these objectives by advocating, monitoring and participating in the structural reform of international institutions such as the ITU, the OECD, APEC, IMSO and ITSO.

We will assist other parts of the Administration in development of specific trade negotiation language, for instance in the continuation of the Doha Round of Services negotiations, and the annual telecommunications trade act reviews under Section 1377 of the Telecommunications Trade Act of 1988. We will assist the ITA, Treasury, State, Justice, and the FCC to review potential acquisitions of strategic, critical U.S. telecommunications assets under FCC regulations and the Exon-Florio review mechanism for Foreign Direct Investment (FDI) in the United States (CFIUS process). NTIA will work through bilateral, regional and international fora to promote the rollout and uptake of broadband infrastructure, services, and equipment, through such fora as the ITU, OECD, APEC, and CITELE. We will work with USTR, other Commerce agencies (ITA, NIST, FCS), and State on policy approaches to ICT standards developments worldwide, especially in key emerging markets such as India and China and our North American partners (Canada and Mexico) under the Security and Prosperity Partnership (SPP) program. These standards are emerging in influential new technologies in developing economies, such as Next-Generation Networks (NGN), Advanced Wireless systems such as third Generation Wireless (3G), Radio Frequency Identification (RFID), and WiMAX (Worldwide Interoperability for Microwave Access). NTIA will continue to work with other agencies to develop implementation strategies for improved and continuous ICT development in key countries and regions (e.g., Africa, Central and Latin America, the Middle East), through the President's Digital Freedom Initiative, the Telecommunications Leadership Program, and the U.S. Telecommunications Training Institute. NTIA will also provide policy and technical guidance to the State Department in the IMSO and ITSO oversight processes, to ensure fair and competitive provisioning of fixed and mobile satellite services on a global basis, to protect lifeline telecommunications connectivity for over 60 countries, to protect Safety of Life at Sea (under the SOLAS treaty), and to implement provisions of the U.S. Maritime Transport Security Act of 2002.

NTIA will work to preserve key U.S. foreign policy goals in the ICT sector, in particular on the policy approaches to Internet Governance. We will continue to promote market driven approaches to ICT pricing issues, such as international settlement rates and proposals for Internet cost-sharing arrangements. We will work collaboratively with other countries and institutions to ensure the benefits of new technologies that bring increased connectivity, such as electronic numbering (ENUM) and unlicensed usage of advanced wireless technologies. We will continue to support the transition of management of the domain name and addressing system (DNS) to the private sector through the ICANN and to advance public and private sector policies that promote the security and stability of the Internet and the DNS.

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Salaries and expenses
 Subactivity: Spectrum management

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Spectrum management.....	Pos/BA	32	\$6,899	32	\$6,688	32	\$7,419	32	\$7,419	0	\$0
	FTE/Obl.	30	7,343	32	7,310	32	7,419	32	7,419	0	
Direct Obligations.....	Pos/BA	32	6,899	32	6,688	32	7,419	32	7,419	0	0
	FTE/Obl.	30	7,343	32	7,310	32	7,419	32	7,419	0	

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
PROGRAM AND PERFORMANCE: REIMBURSABLE OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Salaries and Expenses
 Subactivity: Spectrum management

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Reimbursable projects - other.....	Pos/BA	1	\$0	1	\$0	1	\$0	1	\$0	0	\$0
	FTE/Obl.	0	12	1	300	1	300	1	300	0	0
Spectrum fees.....	Pos/BA	109	0	109	0	109	0	109	0	0	0
	FTE/Obl.	107	26,369	109	36,601	109	29,676	109	29,676	0	0
Total Reimbursable Obligations.....	Pos/BA	110	0	110	0	110	0	110	0	0	0
	FTE/Obl.	107	26,381	110	36,901	110	29,976	110	29,976	0	0

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
Spectrum Management
Justification of Program and Performance

Goal Statement

The goals of this activity are to formulate, establish, and implement plans, and policies to ensure that the United States' domestic and international requirements for using the radio frequency spectrum are satisfied effectively, efficiently, equitably, and in a timely manner; to execute the spectrum management functions and activities assigned to NTIA under 47 U.S.C. 902 and 903; to overhaul and rebuild, as necessary, the international and domestic radio frequency spectrum management processes to be more responsive, effective, and efficient; to establish a United States Spectrum Policy for the 21st Century in accordance with the President's Executive Memoranda of June 2003 and November 2004; to work cooperatively with the Federal agencies in developing long range spectrum planning processes and Federal Spectrum Plans that define future Federal Government spectrum requirements; to develop plans for managing radiocommunications during emergencies; to work cooperatively with the FCC in developing a National Spectrum Plan that defines future United States spectrum requirements; to coordinate and register internationally planned Federal Government satellite networks and selected assignments for terrestrial systems; to assist the Federal agencies in satisfying their requirements for spectrum use; to work cooperatively with the FCC and the Federal agencies in coordinating the orderly implementation of innovative radiocommunications technologies and services; to provide spectrum certification for planned Federal agency radiocommunication systems; to develop the tools needed and conduct the analyses of existing Federal uses required for determining the adequacy of current spectrum allocations and the spectral efficiencies achieved by currently operating spectrum dependent systems; characterizing evolving radiocommunications technologies including their potential for causing unacceptable interference to incumbent radiocommunication systems; to review existing domestic and international spectrum management policies with the view of identifying and removing barriers to the timely global implementation of United States' innovations in radiocommunications technologies and services; and to provide the automated information technology capabilities necessary for performing these activities.

These activities fall within the Department of Commerce Strategic Goal 2 - Promote U.S. innovation and industrial competitiveness, Performance Goal/Objective 2.3: Advance global e-Commerce and enhanced telecommunications and information services. The subsequent paragraphs define the objective areas in which plans and necessary activities are defined to execute the NTIA's statutory responsibilities under 47 U.S.C 902 and 903, to implement the planned spectrum policy reforms defined in the President's FY 03 Budget submitted to the Congress, and to respond to the President's direction to the Secretary of Commerce as stated in the President's Executive Memoranda released in June 2003 and November 2004 regarding the establishment of a United States' Spectrum Policy for the 21st Century.

Domestic Spectrum Policy & Interdepartment Radio Advisory Committee (IRAC) Support

NTIA will continue to: (1) direct and support the IRAC and its representative subcommittees and ad hoc groups, both administratively and technically; (2) provide spectrum management training activities including support for the U.S. Telecommunications Training Institute (USTTI); (3) formulate policies, issue and revise allocations and regulations concerning Federal spectrum use; (4) provide public access to the IRAC and to releasable spectrum management information; (5) issue changes to regulations and allocations; and (6) continue to improve and upgrade the electronic archives of the IRAC and distribute it periodically to the NTIA staff and Federal agencies.

- Provide the necessary administrative support for the IRAC, its subcommittees, and ad hoc groups. The IRAC and its subcommittees provide advice to NTIA on spectrum issues and problems, including coordination of spectrum use, review of spectrum plans, development of federal technical standards, emergency planning, satellite registration and coordination, international conference preparations, and development of coordination arrangements with Canada and Mexico;
- With the advice of the IRAC, coordinate with the FCC views on all technical and policy decisions under consideration by the FCC which may impact federal operations, and decisions under consideration by NTIA which may impact non-federal operations;
- Provide support for the Policy and Plans Steering Group, an interagency advisory committee whose membership includes representatives from those Federal agencies whose missions require significant use of the radio frequency spectrum resource. The representation of the Federal agencies on this committee will be limited to individuals holding the rank equivalent to Assistant Secretary in their respective agencies; the role of this committee will be advisory and this committee will report to the Assistant Secretary of Commerce for Communications and Information. This forum will serve as a significant mechanism for resolving spectrum policy issues within the Executive Branch.
- Plan and conduct spectrum training courses and seminars for U.S. and foreign spectrum managers;
- Respond to queries from the private sector relative to the use of spectrum by the Federal Government;
- Facilitate opportunities for non-federal entities to provide information to the IRAC; and
- Develop and update the Federal Government rules and regulations necessary to manage the Federal Government's use of the spectrum including those governing the relationships between the FCC and the NTIA.

International Spectrum Plans and Policies

NTIA will continue to: (1) negotiate with personnel in foreign administrations in support of U.S. goals at international conferences, other International Telecommunication Union fora, and other international organizations; (2) prepare for, participate in and provide leadership for the ITU Radiocommunication Sector (ITU-R) Study Groups' activities and other activities of the ITU; and (3) provide consultations with foreign countries on reforming their spectrum management processes to use the spectrum more efficiently and effectively.

- Coordinate, develop, and present the Federal Government's contribution to U.S. proposals and positions for international fora where radio frequency spectrum management issues are addressed such as the ITU World and Regional Radiocommunication Conferences,

- ITU Plenipotentiary Conferences, ITU Council, ITU Standards Conferences, and the ITU Development Conferences;
- Analyze other administration's proposals to determine the impact on U.S. spectrum requirements;
- Develop and implement a plan for ongoing outreach strategies to facilitate gaining international support for U.S. positions;
- Lead or participate in ITU-R study groups and other international telecommunication regulatory fora;
- Chair the IRAC Radio Conference Subcommittee (RCS) and through this forum coordinate Federal Government positions and proposals to be submitted to international fora involved in spectrum management matters;
- Consult with foreign countries on reforming their spectrum management processes to use the spectrum more efficiently and effectively;
- Lead and participate in bilateral and multilateral meetings on spectrum management issues with foreign administrations including bi-lateral frequency coordination agreements with Mexico and Canada;
- Implement the results of international radio treaty conferences by recommending changes to U.S. domestic rules;
- Chair the IRAC ad hoc group on WRC Implementation;
- Provide leadership on spectrum-related issues that come before the ITU Council and Plenipotentiary Conference;
- Review Federal space systems for compliance with national requirements, coordinate with other Federal and non-Federal radiocommunication systems, and participate in satellite coordination meetings with other administrations;
- Chair the Space Systems Subcommittee;
- Coordinate non-Federal space systems with Federal radiocommunication systems;
- Develop spectrum policies relative to satellite operation, national and international coordination, notification, and advanced publication;
- Negotiate satellite coordination agreements with foreign countries relative to either Federal Government satellite operations or foreign government satellite operations;
- Coordinate with the FCC on both domestic satellite systems and Federal Government systems. Provide recommendations on FCC rulemakings on space allocations and rules and regulations;
- Provide comments to the FCC on rulemakings concerning international activities;
- Provide support and technical analysis in cooperation with other Department offices to promote U.S. product sales to other countries;
- Initiate and conduct scientific and technical cooperation in the field of telecommunications and spectrum management with specific foreign countries in accordance with U.S. foreign and international trade policy objectives; and
- Identify regulatory and procedural barriers to the timely and global implementation of United States innovations in radiocommunications technologies and services and recommend methods to remove those barriers.

Strategic Spectrum Planning and Reform

NTIA will continue to: (1) implement the necessary planned spectrum policy reform recommendations and respond to the President's direction, under delegated authority from the Secretary of Commerce, to establish a United States spectrum policy for the 21st century; (2) conduct a comprehensive review and analysis of results or outcomes from this implementation; (3) develop a broader, comprehensive program that takes these results and expands further into a national spectrum strategy to effectively achieve the vision manifested through the President's spectrum policy for the 21st century; (4) assist the Federal agencies in improving their means to identify and analyze their spectrum requirements; (5) maintain and update the Federal and National Spectrum Plans in coordination with the Federal agencies and the

FCC; and (6) continue in providing the monitoring and reporting on the progress achieved by all participants in responding to the President's directive regarding the establishment of a United States' Spectrum Policy for the 21st Century.

- Develop, coordinate, and execute an integrated program that responds to the President's directive defined in the Executive Memoranda released in June 2003 and November 2004 regarding the establishment of a United States Spectrum Policy for the 21st Century;
- Promote and bring awareness to the efforts resulting from the President's directive and respective spectrum policy to include the planned strategic elements identified within the proposed national spectrum policy;
- Develop the proposed Federal Strategic Plan for Spectrum Management that will include the development of the future spectrum architecture and coordinate among affected stakeholders;
- Assist the Federal agencies in maintaining and updating their agency-specific spectrum plans that define current and future spectrum requirements to include the identification of efficient technologies being considered;
- Develop methodology and implement an NTIA capability for electronically compiling, storing, updating, and analyzing the spectrum requirements for all the Federal agencies that will over time include the increase in fidelity on how, where and when it is intended to be used;
- Maintain and update, biennially, the Federal Spectrum Plan, and coordinate the Plan with appropriate Federal agencies;
- Assist the Federal agencies and the Office of Management and Budget in improving spectrum-related requirements influence within the capital planning process;
- In coordination with the FCC, support the development and updating of a National Spectrum Plan to include appropriate coordination with affected Federal agencies and other executive components;
- Assist NTIA's Office of Policy Analysis Division in formulating, improving and advocating plans and policies that provide both market and non-market based incentives for implementing spectrum efficient technologies or capabilities within the Federal agencies' acquisition and procurement of mission-related systems;
- Promote and conduct analyses of the Federal agencies' future spectrum requirements to determine the continued effectiveness of the spectrum allocation framework to include the consideration of newer models to achieve assured spectrum access;
- Investigate and implement within the development of the future spectrum architecture the consideration of advanced technologies for management of the spectrum to improve the effectiveness and efficiency use of spectrum by the Federal agencies thereby increasing the spectrum availability in fulfilling the national interest for national security, public safety and economic opportunities; and
- Provide monitoring and reporting on an annual basis regarding the progress achieved toward the satisfaction of the President's directive of establishing a United States Spectrum Policy for the 21st Century in coordination with the Federal agencies, and other relevant components of the Executive branch.

Emergency Planning and Public Safety

NTIA will continue to: (1) develop and modify spectrum policies and procedures for crisis-related situations; (2) provide emergency readiness planning for the Federal use of the radio frequency spectrum; (3) identify and provide solutions to issues and deficiencies in the national security/emergency preparedness communications planning process in support of the National Communications System (NCS); (4) promote

and address the public safety community spectrum needs in coordination with the FCC; (5) and provide the necessary leadership, technical expertise, applied research, policy guidance, and spectrum management support for the successful coordination of national public safety requirements, goals and objectives both within the Federal Government and the state and local entities in coordination with the FCC.

- Develop Public Safety Telecommunications Policy consistent with Administration goals;
- Provide leadership, liaison, and guidance for the integration of National Public Safety telecommunications systems, ensuring interoperability among Federal, state, and local public safety agencies; provide for the spectrum needs of these integrated systems,
- Provide the necessary leadership, technical expertise, applied research, policy guidance, and spectrum management support for the successful coordination of national public safety requirements, goals and objectives both within the Federal Government and the state and local entities in coordination with the FCC;
- Identify current and future technology which could enhance interoperability;
- Develop security/emergency preparedness and long-range plans for use of the spectrum;
- Develop procedures and incorporate them in the planning process for a timely and orderly transition from normal to emergency modes;
- Participate with other Federal agencies in communications emergency readiness planning and implementation;
- Formulate and advocate plans and policies necessary to the development of strategies to improve and restore U.S. telecommunications resources;
- Engage with the Department of Transportation's National Highway Traffic Safety Administration (NHTSA), operate an E-911 Implementation Coordination Office and facilitate communication of E-911 services among E-911 stakeholders in accordance with P.L. 108-494 and the DTV Transition and Public Safety Act, P.L 109-171; and
- Maintain a viable NTIA continuity of operations (COOP) capability.

Spectrum Services

NTIA will continue to: (1) process and authorize frequency assignment actions to ensure interference-free operations to Federal stations; (2) maintain and update spectrum management data bases; (3) resolve spectrum management problems between the Federal agencies and other domestic and foreign entities; and (4) evaluate proposed Federal radiocommunications systems to determine compliance with applicable regulations and policies, as well as compatibility with other systems, resulting in guidance concerning frequency bands, design parameters, and appropriate operating constraints necessary to mitigate harmful interference and ensure effective use of available spectrum resources.

- Process Federal agencies requests for frequency assignment authorizations and actions;
- Provide Federal agencies with accurate spectrum management data;
- Assist non-IRAC agencies in identifying spectrum to meet their radiocommunications needs;
- Resolve conflicting requirements concerning Federal agencies' use of the spectrum;
- Evaluate proposed Federal radiocommunications systems for certification for spectrum support in accordance with OMB Circular A-11;
- Identify and work with information technology to implement Federal agency requirements for computer automated tools to assist the Federal agencies in preparing frequency authorization and spectrum certification requests, determining compliance with rules and

- regulations, predicting and mitigating interference, and using the spectrum efficiently and effectively; and
- Participate in spectrum coordination negotiations with Mexico and Canada.

Spectrum Engineering and Analysis

NTIA will: (1) assess the present and projected Federal use of the spectrum by conducting in depth studies of spectrum use (concentrating on bands and services, supporting upcoming international conferences, and those areas where significant improvements in utilization appear possible); (2) resolve operational problems concerning interagency conflicts in the use of the radio frequency spectrum that cannot be satisfied within existing policies and procedures by evaluating tradeoffs between technical and operational factors; (3) provide technical support to the IRAC and its subcommittees associated with the preparation and participation in international radio treaty conferences and technical standards groups; (4) undertake a comprehensive examination of adjacent band and man-made interference, including technical and regulatory issues, and make appropriate recommendations; and (5) evaluate a number of technologies, bands, and radio services to determine their potential spectrum efficiency and their usefulness for Government applications.

- Assess the present and projected Federal use of the spectrum by conducting studies of spectrum use, concentrating on bands and services involving: upcoming international radiocommunication conferences, federal and non-federal sharing, and those areas where significant improvements in utilization appear possible;
- Resolve spectrum sharing problems concerning conflicts between Federal agencies or between Federal and non-Federal spectrum users, and identify any changes to existing spectrum policies and procedures that could minimize such problems in the future;
- Provide technical engineering support to the IRAC and its subcommittees, especially in the area of spectrum standards, FCC proposed rulemaking, improved frequency coordination procedures, and resolving reported interference cases;
- Undertake a comprehensive examination of adjacent band interference, including technical and regulatory issues, and make appropriate recommendations;
- Evaluate new technologies, applicable to various radio services and frequency bands, to determine their potential spectrum efficiency and usefulness for Government applications;
- Develop plans for intra-service and inter-service sharing in selected bands;
- Define new or improved automated techniques for the study of spectrum sharing, interference prediction, and frequency coordination;
- Plan and coordinate spectrum measurements in selected frequency bands to support ongoing studies involving spectrum sharing, radio interference, spectrum standards, spectrum policy development, frequency coordination, and/or spectrum efficiency; and
- Provide technical engineering and policy analysis support in preparation for and participation in international radiocommunication conferences and in development of domestic spectrum policy and long-range planning.

Information Technology

NTIA will: (1) continue to maintain and update existing computer software used for processing assignments, databases, and interference calculations; (2) continue to design or implement new software packages to further improve assignment data processing and analytical engineering evaluation; (3) develop new automated systems to improve access to spectrum management information; (4) plan for upgrading

the spectrum management frequency assignment and system review processes; (5) plan, upgrade and improve the computer automated software tools (e.g., Federal Spectrum Management System) provided to the Federal agencies to assist them in: (a) making more efficient and effective use of the spectrum, (b) preparing frequency assignment and spectrum certification applications, and (c) resolving interference problems; (6) prepare and implement plans to improve the efficiency and effectiveness of the Federal Government's spectrum management process using current ADP technology; and (7) plan, upgrade and implement new methods of providing secure and non-secure access to Federal spectrum management data by NTIA staff, Federal spectrum managements, the telecommunications industry, and the general public.

- Provide the information technology systems required for inter-office communications, processing frequency assignment requests, exchanging spectrum management information with Federal agencies using the radio-frequency spectrum, and providing the public with electronic access to spectrum management information;
- Develop and improve engineering and analysis models and tools to support spectrum engineering and analysis and the spectrum authorization processes;
- Develop, modify and implement software that is necessary to operate the spectrum authorization processes, to provide the Federal agencies the computer automated capability to manage their frequency spectrum assets, and to provide the spectrum management community the necessary spectrum information, *i.e.*, the Government Master File, that will enable the Federal agencies to manage their spectrum assets without interference and within the current rules and regulations;
- Develop plans to implement computer automated software tools to assist the Federal agencies in: (1) preparing their requests for frequency authorization and spectrum certification; (2) insuring that requests for spectrum are interference free and comply with NTIA's rules and regulations; (3) coordinating spectrum requests of other agencies; (4) ensuring that their use of the spectrum is efficient and effective; (5) managing their frequency assignment assets; and (6) resolving interference problems;
- Implement the President's FY 2003 Paperless initiative that will: (1) enhance technology development and commercialization by improving the use of spectrum through increased sharing and spectrum efficiency; (2) provide a much more rapid method for the Federal agencies to obtain spectrum to operate their radiocommunications; and (3) provide a method for the radiocommunication manufacturers to ensure that their systems meet Federal spectrum standards and provide the Federal agencies a means to obtain technical information on radiocommunications for planning spectrum use in the future; and
- Develop and implement standardized processes to ensure alignment of spectrum management systems with the Federal IT Enterprise Architecture Models, Capital Planning and Investment Control guidelines, IT security regulations and best practices, and meeting the goals of the President's Management Agenda.

NTIA will: (1) continue to participate in Infrastructure Optimization Initiative by aligning common resources and services within the Department of Commerce; (2) develop and implement standardized processes to ensure alignment of NTIA business processes through centralized IT investment, architectural planning and project management methodologies; (3) support the requirements of National Communications System Directive 3-10 through the implementation of crisis management systems that ensure the business continuity of all NTIA mission areas.

Base Program

Explanation and Justification

The subsequent paragraphs define the objective areas in which plans and necessary activities are defined which are designed to execute the NTIA's statutory responsibilities under 47 U.S.C 902 and 903, and respond to the President's direction to the Secretary of Commerce as stated in the President's Executive Memoranda released in June 2003 and November 2004 regarding the establishment of a United States' Spectrum Policy for the 21st Century. In 2006, NTIA accomplished the following tasks as directed by the President's U.S. Spectrum Policy Initiative: (1) Strategic Spectrum Plan – led the effort to consolidate Federal agency-specific strategic spectrum plans and to develop the Federal strategic spectrum plan; (2) Working Level Groups – Led seven interagency working level groups to obtain advice on implementing 24 Presidential approved recommendations; (3) Incentives for Efficient Use of the Spectrum – provided advice and assistance to the Office of Policy Analysis and Development (OPAD) in implementing its plan to investigate incentives for efficient use of the spectrum. Worked collaboratively with OPAD to conduct a National Academy of Sciences (NAS) workshop in January 2006 on Identifying and Implementing Incentives for Efficient Use of the Spectrum; (4) Annual Report to the President on Progress in Implementing the Recommendations on Improvement to Spectrum Management – prepared outline, drafted report, and organized input from OSM divisions and Federal agencies; (4) Public Safety Demonstration – Completed report on the District of Columbia Office of the Chief Technology Officer (DC OCTO) Wireless Accelerated Responder Network (WARN), the spectrum-sharing approach and on-going demonstration selected to be the demonstration project to comply with Presidential direction; (5) Policy and Plans Steering Group (PPSG) – Initiated a senior political level plans and policy steering group to provide advice to the Assistant Secretary, which met twice during 2006; and (6) Spectrum Sharing Innovation Test-Bed – Issued a Notice of Inquiry inviting parties to file comments on issues related to establishing the Spectrum Sharing Innovation Test-Bed. These issues include identification of technologies and services; establishment of processes, principles and guidelines; identification of candidate frequency band(s); and activation, termination and evaluation of the test bed. The Test-Bed is a key recommendation of President Bush's Spectrum Policy Initiative, and will enable Federal and non-Federal users of spectrum to test ideas on new ways to share the radio frequency spectrum. The Test-Bed will build on the successful sharing arrangements between Federal and non-Federal users at 5 GHz and in the 70, 80, and 90 GHz bands and will drive future innovation and the expansion of sharing to benefit Federal and commercial users.

Domestic Spectrum Policy & Interdepartment Radio Advisory Committee (IRAC) Support

The NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management governing the Federal spectrum will be updated and administrative support will be provided to the IRAC, the Frequency Assignment Subcommittee (FAS), the Space Systems Subcommittee (SSS), the Spectrum Planning Subcommittee (SPS), the Technical Subcommittee (TSC), the Radio Conference Subcommittee (RCS), the Emergency Planning Subcommittee (EPS), and the IRAC ad hoc groups, including the archiving of all documents of record.

As part of its role in establishing Federal spectrum management policy, NTIA allocates and assigns the radio frequency spectrum to Federal users. This responsibility includes chairing the IRAC, its major subcommittees and various specialized ad hoc groups. The IRAC, which is a committee composed of the representatives of 19 Federal agencies and an FCC liaison, is the primary Executive Branch adviser to NTIA on Federal agency spectrum management. Through the Space Systems, Spectrum Planning, Technical, Radiocommunication Conference, Emergency Planning and Frequency Assignment Subcommittees as well as numerous ad hoc groups, the IRAC advises NTIA on spectrum

policy and procedural matters, develops Federal positions on international radio treaty conferences, and provides recommendations for conflict resolution.

NTIA will conduct spectrum training courses and seminars for U.S. and foreign spectrum managers. The Domestic Spectrum Policy & IRAC Support Division coordinates these courses, drawing upon experts from other divisions of OSM as well as various federal agencies and the private sector.

NTIA, in coordination with the DOC Office of Security, maintains a security program that adheres to HSPD –12, which will initiate and process requests for background investigations for applicants and current NTIA personnel; forward up-to-date national security information to supervisors and employees in their organization; assist a senior facility manager in coordinating a physical security risk assessment of his facility; assist the head of the organization in ensuring that all persons with security clearances receive an annual refresher security briefing; request assistance from the office of security in a security matter; or certify NTIA/OSM personnel security clearances for a visit to another agency or facility and validating security clearance notifications to engage in an NTIA/OSM sponsored meeting or event; and make arrangements for providing security training to all OSM personnel.

NTIA will provide support for the PPSG, an interagency advisory committee whose membership includes representatives holding the rank equivalent to Assistant Secretary in those Federal agencies whose missions require significant use of the radio frequency spectrum resource. The PPSG is advisory and reports to the Assistant Secretary of Commerce for Communications and Information. This forum will serve as a significant mechanism for resolving spectrum policy issues within the Executive Branch.

NTIA will provide revisions as needed to the memorandum of understanding and the Code of Federal Regulations governing the relationship between NTIA and the FCC. In 2006, IRAC support was provided, FCC rulemakings were addressed and support was provided to the IRAC subcommittees.

International Spectrum Plans and Policies

NTIA provides leadership and participates with the State Department, FCC, Federal agencies, commercial industry, and private sector interests in preparing for diverse international radio treaty conferences, negotiations and forums on spectrum management, allocations, technical standards and regulation. Specifically, NTIA coordinates and develops the Federal Government's contributions to the U.S. proposals for these treaty conferences and forums and helps prepare the preliminary and final U.S. positions. In many cases, NTIA representatives chair the national preparatory groups for these forums. Also, these representatives are often called upon to chair or organize activities at an international level on behalf of the ITU. NTIA analyzes the known intentions and positions of other nations to determine whether U.S. counter-proposals are necessary. NTIA also participates in bilateral negotiations and provides members for the U.S. delegation to radio treaty conferences and other ITU and regional administrative, policy and technical forums. In addition, NTIA works toward building confidence worldwide in U.S. spectrum planning techniques to win support for U.S. positions in negotiations and forums. In 2006, NTIA completed draft Executive Branch proposals for all agenda items to be addressed at the World Radiocommunication Conference to be held in Geneva, Switzerland by the International Telecommunications Union (ITU) in 2007. NTIA completed the work of Working Level Group Task B1, under the President's Spectrum Initiative (The President's Executive Memoranda of June 2003 and

November 2004), on U.S. preparations for World Radiocommunication Conferences. Working with the Federal agencies, the group completed a list of recommendations for improvements in the U.S. preparatory process for World Radiocommunication Conferences based on NTIA Report 05-427 on the same. NTIA participated in the ITU Plenipotentiary Conference in 2006.

Strategic Spectrum Planning and Reform

The Strategic Spectrum Planning and Reform Program is designed to respond and implement recommendations resulting from the President's directive for establishing a United States spectrum policy for the 21st Century. The program activities include a comprehensive strategy to continue the implementation of the 24 Presidential recommendations, develop a Federal strategic plan identifying high-level goals and objectives, develop a future architecture for spectrum management and an overarching roadmap that will lead to improved means to assuring spectrum access in the most effective and efficient manner across the Federal Government. The purposes of this program are to: (1) foster economic growth, (2) promote our national and homeland security, (3) maintain United States global leadership in communications technology, and (4) satisfy other vital United States needs in areas such as public safety, scientific research, Federal transportation infrastructure, and law enforcement.

These strategic planning activities include: collaborating and coordinating effectively among the various Federal agencies to obtain the necessary results to collectively execute in a unified approach for the future spectrum management model, providing a means to gather, maintain and update accurate information relating to current and future spectrum requirements and the capability to analyze this information to predict future spectrum trends for the Federal government.

The development of the future architecture and roadmap will include plans and policies designed to incrementally improve the Federal spectrum management process, identify required capabilities leveraging advanced technologies and advanced approaches for management of the spectrum that hold potential for increasing the efficiency of spectrum use; and assessments of the continued effectiveness of spectrum allocations in light of changes in planned spectrum usage.

Emergency Preparedness and Public Safety

In recognition of the importance of public safety services to the American public and the importance of spectrum to these activities, NTIA will provide the necessary leadership, technical expertise, applied research, policy guidance, and spectrum management support for the successful coordination of national public safety requirements, goals and objectives both within the Federal Government and the state and local entities in coordination with the Department of Homeland Security and the FCC. NTIA will address and support the needs of: (1) Project SAFECOM; (2) a follow-on program (National Public Safety Telecommunications Council) to the Public Safety Wireless Advisory Committee (PSWAC) to further address PSWAC recommendations including satisfying future spectrum needs; (3) interoperability between Federal, state and local emergency entities; (4) national and international public safety standards; (5) new technology evaluation and testing; and (6) funding assistance for state and local agencies to adopt new technology (as per the DTV Act, P.L. 109-171). Consideration also will be given to shared and joint use plans, use of standard radio systems, and coordination processes with all Federal agencies.

NTIA plays a central role in developing and promoting policy and guidance to improve the Government's emergency communications response posture and the protection of information during electronic transmission or processing.

NTIA will address and implement the new requirements of National Communications System (NCS) Directive 3-10 (when published) to provide the required continuity communications capabilities at both the NTIA primary and alternate operating facilities. NTIA also will maintain a viable COOP capability by: (1) enhancing the capabilities of the NTIA COOP Alternate Operating Facilities, (2) conducting COOP/COG tests, training, and exercises for NTIA and IRAC personnel to include annual national exercises, and (3) supporting the National Response Plan (NRP) Emergency Support Function #2 (ESF #2) with four staff members to respond upon activation of ESF #2 by DHS and deploy (as needed) in support of the Emergency Communications Team-Field (ECT-F) to provide Federal spectrum management services at the Joint Field Office.

In concert with the Department of Transportation's National Highway Traffic Safety Administration (NHTSA), operate an E-911 Implementation Coordination Office (ICO) that will: (1) coordinate ICO activities consistent with existing Administration E-911 programs; (2) work with established public safety and industry organizations that support E-911 implementation on E-911 technical and implementation issues and new technologies; (3) coordinate discussions with Federal agencies, including the Department of Homeland Security and FCC to plan improved Federal coordination of 911-related activities; (4) develop, collect and disseminate information concerning best practice models, procedures and technologies from successful regional, State and local government wireless E-911 implementations; and (5) using available data on the status of E-911 deployment and Public Safety Answering Point readiness, target technical assistance to the appropriate regions, states, and localities.

NTIA will address emergency planning and support by (1) Continuing to staff and make progress in implementing the E-911 Act to include conducting outreach to stakeholders on the forefront of E-911 implementation efforts including state and local public safety experts, experienced emergency personnel, leading equipment manufacturers, Public Safety Answering Points (PSAP) operators, national public safety organizations (such as the National Emergency Number Association, the Association of Public Safety Communications Officials International, Inc, and the National Association of State 9-11 Administrators), and expert Federal agencies (FCC Public Safety & Homeland Security Bureau). NTIA will operate the E-911 Website to educate and disseminate information of importance to PSAPs. In FY 08, both NTIA and NHSTA may begin to award \$43.5 Million (as per the DTV Act) through the ICO to enable PSAPs to become Phase II ready.

In 2006, NTIA addressed emergency planning and support by (1) enhancing the capabilities of the NTIA COOP Alternate Site including the operation of NTIA's frequency assignment process from the Alternate Site, (2) conducting COOP/COG Exercise FORWARD CHALLENGE 2006 for NTIA and IRAC personnel in June, and (3) supporting the National Response Plan (NRP) Emergency Support Function #2 (Communications) by identifying, designating, training and equipping four staff members.

Improvements were made in public safety by working closely with the Conveners of the IRAC Ad Hoc 214 to modify and approve the existing interoperability channels in the NTIA Manual to allow state and local governments easier access to Federal law enforcement and incident response channels.

In the E-911 area, NTIA completed a Memorandum of Understanding (MOU) between NTIA and NHTSA to implement the Management Plan and formally establish the joint NTIA/NHTSA E-911 Implementation Coordination Office (ICO); implemented the initial ICO organizational structure; submitted an Annual Report to Congress on the status of the ICO and developed an ICO E-911 website to disseminate and educate the public.

Spectrum Services

NTIA reviews, processes, and authorizes Federal radio frequency assignments. NTIA also reviews each frequency assignment action to determine the degree of compliance with authorized use and will continue its reviews of Federal frequency assignments to evaluate the validity of current needs. This frequency assignment responsibility involves chairing the IRAC Frequency Assignment Subcommittee (FAS) as well as directing that subcommittee's activities and providing its administrative support. The assignment responsibility also involves ensuring that the spectrum needs of certain Government agencies not represented on the IRAC and the spectrum access requirements of the United Nations and foreign embassies in the United States are satisfied. NTIA maintains and updates files and records for radio spectrum management. The computerized files include: the Government Master File of Frequency Assignments (GMF); portions of the FCC frequency records necessary for use in Federal spectrum management, especially the management of shared Government/non-Government frequency bands; frequency allocation records; terrain elevation data; and Federal systems review data. In 2006, NTIA authorized some 56 Federal agencies, non-federal entities (in coordination with the FCC), and foreign governments (Canada and Mexico) - a total of 434,934 active assignments as of the end of FY 2006. NTIA processed 80,121 frequency assignments and 677 requests for Special Temporary Authority of which 347 were from the FCC on behalf of the private sector. These diverse files and records provide varied information and publications for NTIA's staff as well as the rest of the spectrum management community. They are also used to support activities that involve coordinating spectrum requirements of Federal agencies with Canada and Mexico. The information provided will be used by Federal agencies in proposing frequency assignments and by NTIA personnel in analyzing potential interference and spectrum sharing problems.

NTIA will continue to review proposed Federal radiocommunication systems to determine compliance with applicable Federal regulations and policies and to evaluate such systems for compatibility with other present and planned spectrum-dependent systems. Guidance is developed concerning frequency bands, design parameters, and appropriate operating constraints necessary to mitigate harmful interference and ensure effective use of available spectrum resources. NTIA, in accordance with the advice of the Spectrum Planning Subcommittee (SPS) of the IRAC, approves or withholds certification of spectrum support for the system or, alternatively, indicates what adjustments to the system are needed to enable the certification to be approved. The spectrum certification responsibility involves chairing the SPS and directing the subcommittee's activities. Certification reviews are done at the conceptual, experimental, developmental, and operational stages of a given system's procurement cycle, as required by OMB Circular A-11. In fiscal year 2006, NTIA approved 134 agency requests for spectrum certification and completed 110 preliminary assessments of requests for spectrum support from the Federal agencies.

Spectrum Engineering and Analysis

NTIA conducts in-depth analyses of spectrum use, technically reviews new Federal radiocommunication systems, including space systems; assists Federal agencies in resolving operational problems; provides technical engineering/policy analysis support for international radio treaty conferences; and establishes and improves Federal standards to assure efficient use of the spectrum. The in-depth studies evaluate the effect of existing and planned radiocommunication systems on the radio frequency spectrum and provide technical engineering support for

domestic and international policy development and long range planning. These technical/policy analyses are of two types, the first focusing on the selected portions of the radio frequency spectrum and the second focusing on particular types of uses of the spectrum. Both types of studies will examine present and planned equipment usage to determine if the spectrum is efficiently and effectively used, the potential for compatible sharing of Federal radio services, and the effects of proposed and planned national and international allocation changes on the ability of Federal agencies to complete their mandated missions. NTIA will also investigate the possibility of increased sharing of spectrum resources between Federal and non-Federal radiocommunication systems in order to increase the efficient use of the spectrum within the United States. Results from field and laboratory measurements will aid in the evaluation of frequency utilization, policy compliance, new technologies, and radio frequency interference.

NTIA will resolve operational conflicts that arise between Federal agencies regarding the use of the spectrum and coordinate the process of meeting spectrum requirements that cannot be satisfied within existing policies and procedures. These operational problems are detected through NTIA studies or brought to the attention of NTIA by other agencies. Solving such problems demands analyses of the effects that proposed changes in frequency assignments, operational procedures, or equipment will have on the electromagnetic environment as well as consideration of the various tradeoffs between technical and operational factors. NTIA will provide solutions to operational problems involving incompatibility between systems. In support of international spectrum management, NTIA will continue to provide engineering analyses on technical issues necessary to support U.S. participation in and preparation for international conferences and meetings.

Extensive radio regulations have been developed, both nationally and internationally, to ensure that various radio services can operate compatibly in the same environment without unacceptable levels of radio interference. These regulations are focused primarily on radio systems using the same allocated bands of frequencies. Recent years have seen a dramatic increase in the number of problems and spectrum issues involving adjacent band interference (*i.e.*, interference from a transmitter operating in one band to a receiver operating in an adjacent allocated band). In the national and international marketplace, adjacent band problems are beginning to surface as the search goes on to identify spectrum for an ever-expanding number of new and innovative radio-based telecommunication services continues. Billions of dollars of investment are contingent on the availability of spectrum where in-band and adjacent band interference concerns are resolved either through proper coordination or by effective equipment designs through the use of technologies. Within this environment of increased spectrum requirements and new and innovative radio communication systems, a challenging issue is the question of how to address the adjacent band interference problem and apply the latest technologies. It is particularly challenging because it involves the effects of adjacent band emission from transmitters and the characteristics of the adjacent band receiving equipment and its interference susceptibility to unwanted signals. The issue of adjacent band receiver susceptibility is particularly challenging because receivers by tradition have not been subject to standards and cost factors which have led to interference prone designs. The key to success in reducing receiver susceptibility is to develop a technical and regulatory framework that maintains flexibility, while meeting the overall goal of effective and efficient national and international spectrum management. NTIA has undertaken a comprehensive examination of adjacent band and man-made interference, including technical and regulatory issues. While a number of the above individual issues and questions have been examined in depth by NTIA and others, a more comprehensive examination of the overall issue will be undertaken. NTIA will explore these and other identified issues and will develop appropriate recommendations.

A database of the allocated frequency bands will be produced once the projected energy levels in the adjacent bands and other man-made noise are estimated. Based on these estimates, bands would be prioritized as to urgency and magnitude of the problem and

recommendations made as to setting transmitter or receiver spectrum standards among other possible solutions. In addition, algorithms will be developed that use these adjacent band levels and will be included in NTIA's spectrum management system (Spectrum Management System). Short term and longer range solutions at both the national and international level will be pursued.

New technologies can be used to increase the efficiency with which the Government and private sector use the radio spectrum, making more spectrum available, in effect, for other applications. The potential increases in spectrum efficiency will be evaluated for a number of technologies, including sectorized and adaptive antennas, spectrum sharing etiquettes, software driven radios, and other means of spectrum sharing.

In 2006, the following engineering studies were completed:

(1) 5 GHz Compliance Measurement Procedures – Completed the measurement procedures and pass/fail criteria for Unlicensed National Information Infrastructure devices employing Dynamic Frequency Selection (DFS). The compliance measurement procedures are necessary to show compliance with the FCCDFS rules. By using DFS, unlicensed devices may detect and avoid transmitting on channels being used by military radars vital to national defense. The completion of the compliance measurement procedures makes 255 MHz of additional spectrum available for unlicensed devices on a non-interference basis. Using the compliance measurement procedures, the FCC began certifying commercial devices. The use of adaptive techniques such as DFS is an example of innovative spectrum sharing between Federal and non-federal users, and meets a key goal of the President's initiative on using the nation's airwaves more efficiently.

(2) 70/80/90 GHz Web-Based Coordination - The NTIA web-based coordination capability in the 71-76 GHz, 81-86 GHz, 92-94 GHz, and 94.1-95 GHz bands has been operational for over one year. As part of the President's initiative to streamline U.S. spectrum policy, fiber-speed wireless communications links in these frequency bands are coordinated and approved for non-federal use in a matter of minutes. Since the inception of the web-based capability, over one hundred and eighty non-federal frequency assignments have been successfully coordinated. This automated coordination capability is an example of how the combination of Information Technology and engineering analysis capabilities can enable non-federal users to gain faster and easier access to the radio frequency spectrum.

(3) Broadband over Power Line – Worked with the FCC Office of Engineering and Technology staff to finalize the service rules for Access BPL systems.

(4) High Powered Ultrawideband Device Rules – Developed rules to permit the operation of Federal fixed ultrawideband (UWB) devices with power levels that exceed the FCC unlicensed device rules. An example of the type of UWB devices that are permitted to operate under the new NTIA rules are surveillance systems used to augment security and defense systems, providing an advanced warning of potential intruders to sites that have strategic, military or significant commercial interests, such as public utilities, nuclear power plants, public water supplies, petroleum sites, industrial sites, and national landmarks. The rules developed by NTIA are being used by the FCC to permit operation of non-federal systems.

(5) Ultrawideband Transmission Systems – NTIA continued to work with the FCC Office of Engineering and Technology staff to evaluate various request for waivers of the Part 15 UWB rules necessary to accommodate applications that were not addressed during the original rulemaking proceeding.

(6) Global Positioning System Spectrum Protection Plan – Developed a plan to address the Department of Commerce (DOC) responsibilities in the management and protection of the frequency bands used for current and evolving space-based positioning, navigation, and timing (PNT) services. The DOC plan will be performed as a phased plan that is comprised of a series of tasks with output documentation at the completion of each phase.

(7) Land Mobile Efficiency – Published NTIA Report 06-440 Federal Land Mobile Operations in the 162-174 MHz Band in the Washington D.C. Area which is part of a multi-phase analysis effort assessing spectrum efficiency in the federal land mobile radio frequency bands.

(8) Radar Receiver Performance – Published NTIA Report TR-06-444 Effects of RF Interference on Radar Receiver Performance to be used in the development of the Best Practices in Spectrum Management Handbook.

(9) Mobile Satellite Service Ancillary Terrestrial Component – NTIA continued to work with FCC's International Bureau, the federal agencies, and satellite industry representatives to develop service rules for the licensing and operation of mobile satellite service (MSS) ancillary terrestrial component (ATC) systems. MSS/ATC systems will allow more efficient use of the spectrum and extend the coverage of MSS handsets. NTIA performed technical analysis that were used in the development of the MSS/ATC service rules to protect Global Positioning Systems receivers, as well as critical satellite systems used by the Federal Aviation Administration and the Coast Guard.

Also in 2006, the 1710-1755 MHz band was identified by NTIA as spectrum that could be allocated for new commercial services without disrupting communications systems critical to national security. The new services to be deployed in this spectrum are expected to benefit approximately 195 million U.S. wireless subscribers. On December 23, 2004, President Bush signed into law the Commercial Spectrum Enhancement Act, which provided a funding mechanism through which Federal agencies can recover the costs associated with relocating their radiocommunications systems from the 1710-1755 MHz band to be auctioned for commercial purposes. The NTIA working with the Federal agencies completed a report on the costs to move incumbent Federal users. This report showed that the cost to move the Federal users was far less than previous estimates. A total of 1,990 frequency assignments will be relocated by twelve Federal agencies and the cost of relocating Federal operations is estimated to be \$1,008,552,502. The relocation cost estimates and timelines were provided to the FCC on time, paving the way for the auction of some of the nation's most valuable airwaves.

Information Technology

NTIA will continue its activities relative to Systems Development, Network & Technical Services, Systems Support, Enterprise Architecture, Information Assurance and Project Management as further described below.

Systems Development in which NTIA will design, develop, and implement software and services that are necessary to optimize the spectrum authorization processes; optimize the Federal agencies' computer automated capabilities to manage their frequency spectrum assets; and provide the spectrum management community the optimal spectrum information (e.g., Federal Spectrum Management System) that will enable the Federal agencies to manage their spectrum assets without interference and within the current rules and regulations. The goal is to ensure that Federal agencies have access to accurate spectrum management data, that Federal agencies have the information technology tools necessary to use that data to develop new assignment application requests or changes to existing authorizations that comply

with Federal regulations and procedures for using the radio frequency spectrum, and that NTIA has the information technology required to effectively process agency requests for frequency assignment authorizations in a timely manner. NTIA will also develop and improve engineering and analysis models and tools to support spectrum engineering and analysis and the spectrum authorization processes; review its automated analytical capability to ensure the methods of problem solving are appropriate for new communications systems and for state-of-the-art changes in telecommunications technology; develop and enhance analytical computer programs that permit rapid computation of potential interference between existing and proposed communications systems. NTIA also supports design, development, and implementation of administrative/back office systems that support NTIA mission-specific functions including domestic and international telecommunications policy, financial management, human resources, and grants administration.

Network & Technical Services in which NTIA will provide the information technology systems and services required for inter-office communications, processing frequency assignment requests, exchanging spectrum management information with Federal agencies using the radio-frequency spectrum, telecommunications grants administration, and providing the public with electronic access to spectrum management and telecommunications policy information. It will also maintain and enhance local area networks and use the Internet to support spectrum management activities (NTIA's unclassified local area network supports traditional office automation activities, such as e-mail and word processing. A classified local area network provides the NTIA staff with access to the computers that process frequency assignment actions and provides secure access to Federal spectrum managers via remote access servers and through the SIPRNet. Internet servers provide spectrum management information on NTIA's World Wide Web pages. List-servers provide a means for electronic conferences); and provide the necessary coordination with and support of NTIA's Chief Information Officer (CIO) to implement guidance provided by the Department of Commerce CIO relative to information technology (IT). NTIA also serves as the Department of Commerce SIPRNet and Information Sharing Environment program office, providing a centralized, managed interconnection to the multiple systems at varying security levels.

Systems Support in which NTIA will modify and maintain the production software and databases necessary to operate the spectrum authorization process; provide the Federal agencies the computer automated capability to manage their frequency spectrum assets; and provide the spectrum management community the necessary spectrum information, *i.e.*, the Government Master File, which will enable the Federal agencies to manage their spectrum assets without interference and within the current rules and regulations. Additionally, as the new Federal Spectrum Management System is placed into production, provide the application, database, and end-user support necessary to ensure a smooth transition from the legacy system to the new system.

Enterprise Architecture in which NTIA will provide the business strategy and operational transformation to support the information technology required for NTIA to manage the Federal Government's use of the radio frequency spectrum, formulate international information and communications policy, goals, and strategies; enhance the public interest by generating, articulating, and advocating creative and influential policies and programs in the telecommunications and information sectors; and to assist public and non-profit entities in effectively using telecommunications and information technologies to better provide public services and advance other national goals.

This will ensure that the business of NTIA supports the Government's goals for providing value to the public through citizen-centered, results-oriented, and market-based approaches. This is accomplished by providing a common framework for improvement in the following areas:

- Budget Allocation
- Information Sharing
- Performance Measurement
- Budget/Performance Integration
- Cross-Agency Collaboration
- E-Government
- Component-Based Architectures

These methodologies will be used for all Information Technology projects, including a project to implement the President's FY 2003 budget paperless initiative by modifying present spectrum management processes that include frequency authorization, spectrum certification of future radiocommunication systems, satellite coordination, and spectrum allocation and use, to increase effectiveness and efficiency, especially through the application of information technology (IT). The improvements are expected to reduce the time it takes to obtain Frequency Assignments and Spectrum Certifications.

Enterprise Architecture (EA) will assure alignment of NTIA business processes with NTIA objectives by conducting a maturity assessment of NTIA's EA using as a guideline OMB's EA Assessment framework. A plan for improvement will be developed, if necessary.

EA assists with Capital Planning and purchasing by aligning the NTIA EA model with the following documents and processes:

- OMB Federal Enterprise Architecture (FEA) Model;
- Exhibit 300 Capital Asset Plans and Business Cases;
- NTIA IT Strategic Plan and OSM Acquisition Plan and budget planning process;
- Conducting a maturity assessment using the Commerce IT Capital Planning and Investment Control Maturity Model; and
- Processing IT related purchase requests ensuring all requests meet established guidelines, procedures, and architectural compliance.

Information Assurance in which NTIA will provide compliance with applicable information technology laws and regulations regarding the security of information systems and communications security. In support of future system requirements, Information Assurance will design, develop, and implement the policies and procedures that will allow implementation of cross-domain security systems that protect national security information while simultaneously providing greater access to Federal spectrum managers and the public to spectrum management data. Information Assurance includes certification and accreditation of system; active monitoring of systems, networks, and applications to ensure compliance with security related parameters; maintenance of a computer incident response capability; and Federal Information Security Management Act (FISMA) reporting.

Project Management in which NTIA will plan, charter, and establish a Program Management Office (PMO) in order to standardize and more effectively manage NTIA IT projects, maximize returns on investment, provide better reporting to NTIA and DOC management, and ensure compliance with all OMB and GAO mandates and regulations regarding project planning and execution. The PMO will provide the leadership that will enable the Administration to manage its IT portfolio, programs, and projects utilizing sound project management methodologies based on industry best practices as presented in the Project Management Institute's Project Management Body of Knowledge Guide and The Standard for Program Management. In FY08, NTIA will draft a PMO charter, scope statement, and management team; develop the PMO implementation plan; partner with an industry expert to install and configure the MS Project Serve and SharePoint project management tools; and partner with an industry expert to establish the NTIA PMO organizational and mission constructs. Effective portfolio management is essential to achieving the mission and objectives of NTIA. The NTIA PMO will develop and implement portfolio management tools and processes to ensure that IT Project Managers conduct projects in a disciplined, well-managed, and consistent manner so that quality products are completed on time and within budget. The systematic process for portfolio management will ensure that project needs are prioritized and governed by importance to the Administration's mission rather than by urgency. NTIA will conduct impact analyses for projects within the portfolio, including project impacts resulting for schedule, manpower and resource changes. The NTIA PMO will partner with the NTIA Enterprise Architecture office in working with DOC procurement organizations to establish and subsequently assist in the management of IT procurements that are in response to NTIA's business needs. The NTIA PMO will develop and implement contract management processes and procedures in order to ensure that new IT procurements are planned and executed in a timely manner.

Information technology ensures compliance with applicable information technology laws and regulations regarding the operation, information assurance, including continuity of operations, communications security, emergency operations, and procurement of IT products and services. NTIA has established an Enterprises Architecture Council to ensure IT capital investments are made wisely and in coordination with all business processes. Information Technology also maintains an active Emergency Relocation Site to meet the National Security/Emergency Preparedness functions of the NTIA.

In 2006, NTIA accomplished the following in the information technology area: (1) Implemented the following classified on-line systems via the SIPRNet and/or dial-up remote access: Spectrum XXI, FREQNet, IRAC Documents Database, Retrieve, EL-CID, and Data Capture and Forwarding System; (2) developed technical computer hardware requirements and specifications for planned spectrum management processes; (3) developed technical requirements and specifications for installation, electrical power and environmental air-handling to support expanded computer hardware requirements; (4) developed a high-level transition plan from the current spectrum management computer system to the proposed new system; (5) developed and demonstrated a cross-security domain prototype system; (6) provided electronic access to the daily Frequency Assignment Subcommittee agenda and action files resulting in the discontinuation of paper and CD-ROM distributions; (7) procured enterprise content management system pursuant to the President's "paperless initiative" and implemented a pilot project for the electronic processing of IRAC policy documents; (8) established formal working partnership with the FCC for implementation of an automated frequency coordination system; (9) continued support of the DOD in development of a common data standard for use within the NATO community; (10) developed a system to stabilize the existing DataWare CD-ROM product used for monthly Government Master File distributions resulting in a cost-avoidance of \$500K to develop a replacement system; (11) established an Information Security Operations Center that allows for automated monitoring of the security and performance of NTIA networks, workstations, and systems; (12) continued detailed use case analysis for the spectrum management business

processes, identifying fourteen (13) “use cases” or types of activities that OSM performs, over sixty (60) business work flows, and 1,500 specific system requirements, which have been captured in the newly implemented requirements management repository; (14) evaluated and procured OSM's enterprise portal, service oriented architecture framework, Business Process Management and monitoring software; (15) further refined the OSM data dictionary for increased accuracy and efficiency of OSM systems and processes; (15) established SIPRNet access points in the Bureau of Industry and Security, Office of Security, Office of the Executive Secretary, and International Trade Administration. SIPRNet system now consists of over 160 Departmental users and 40 OSM users; and (17) developed technical design for implementation of segregated development, quality assurance, and production enclaves to enhance system development activities and provide a dedicated testing environment.

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Salaries and expenses
 Subactivity: Telecommunication sciences research

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Telecommunication sciences research.....	Pos/BA	45	\$6,549	45	\$6,304	45	\$6,883	45	\$6,883	0	\$0
	FTE/Obl.	43	6,702	45	6,382	45	6,883	45	6,883	0	0
Direct Obligations.....	Pos/BA	45	6,549	45	6,304	45	6,883	45	6,883	0	0
	FTE/Obl.	43	6,702	45	6,382	45	6,883	45	6,883	0	0

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
PROGRAM AND PERFORMANCE: REIMBURSABLE OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Salaries and expenses
 Subactivity: Telecommunication sciences research

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Reimbursable projects.....	Pos/BA	45	\$0	45	\$0	45	\$0	45	\$0	0	\$0
	FTE/Obl.	32	6,566	45	20,956	45	7,800	45	7,800	0	
Total Reimbursable Obligations.....	Pos/BA	45	0	45	0	45	0	45	0	0	0
	FTE/Obl.	32	6,566	45	20,956	45	7,800	45	7,800	0	

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
Telecommunication Sciences Research
Justification of Program and Performance

Goal Statement

Through core telecommunications research and engineering, NTIA supports Administration telecommunications goals, such as enhanced domestic competition, advanced services and new technology deployment, improved foreign trade opportunities for U.S. telecommunication firms, and more efficient use of the radio frequency spectrum. These activities fall within the Department of Commerce Strategic Goal 2 - Promote U.S. innovation and industrial competitiveness, Performance Goal/Objective 2.3: Advance global e-Commerce and enhanced telecommunications and information services. Specifically, the objectives of the Telecommunication Sciences Research activity are to:

- Continue applied engineering and measurement work that is essential to effective NTIA and FCC management of the radio frequency spectrum, the efficient implementation of advanced wireless, public safety, broadcasting, and satellite communications technologies, and the development and effective use of emerging technologies, such as ultrawideband, dynamic frequency selection, broadband over power lines, digital television, land mobile radio communications, RFID, WiMAX, and software-defined radio systems.
- Provide timely technical advice to support the mandate of NTIA to develop and promulgate Executive Branch policies addressing domestic and international telecommunications and information issues.
- Promote timely, effective application of NTIA's research and engineering results to U.S. industry through technology transfer and commercialization activities.
- Accomplish research and engineering to promote technology advancement and the efficient delivery of public services, enabling private industry, other Federal agencies, and state and local governments to meet their specific telecommunications needs in the areas of radio frequency, public safety communications, e-Government, and next-generation networks (NGN) networks.
- Organize and coordinate preparations for U.S. participation in international telecommunications conferences and negotiations in cooperation with other interested agencies and industry groups.
- Develop and present public interest and user-oriented technical contributions to national and international standards organizations addressing quality of service (QOS), communications systems utilization, and other topics critical to the development and implementation of advanced IP-based networks, optical signal propagation, NGNs, and supporting broadband infrastructures.

Statement of Operating Objectives

FY 2009 operating objectives for the Telecommunication Sciences Research activity are summarized by program area below.

Spectrum Environment: Provide measurements and analysis of spectrum occupancy, interference and noise effects.

Radio Spectrum Measurement and Analysis: Provide measurements of environmental radio signals assessing levels and types of spectrum occupancy, and resolving selected spectrum management problems. Perform engineering analyses and apply radio/wireless propagation models to maximize performance of systems and to ensure interference-free sharing of bands.

Commercial Mobile Radio Services: Conduct requirements analysis; identify technological capabilities to determine best selection of services and capabilities for Government applications; characterize the interference environment.

Broadband Radio: Study and characterize the broadband transmission channel for within-building and campus-wide wireless local area networks and ultrawideband communications. Develop models and radio link simulators.

Characterization of the Radio Environment: Identify the current state of knowledge, including the impact of noise and interference on radio systems. Develop analysis techniques that may be used to describe the radio environment.

Interoperability of Public Safety and Justice Wireless and Information Technology Systems: Develop test methods to ensure interoperability of land mobile radio systems used by public safety and justice communities. Develop information technology standards that public safety and justice communities could adopt to ensure interoperability for information sharing.

Land Mobile Radio Service Analysis: Provide analysis methods to evaluate new wireless communication systems and to ensure compatible operation between systems to be used by public safety, public service, and land transportation agencies.

Domestic and International Standards: In cooperation with the U.S. ITU National Committees, continue leadership of committees in ITU-T and ITU-R Study Groups developing technical standards of importance to U.S. industry and Government (e.g., NGNs, switched optical networks, IMS and other advanced signaling systems, integrated broadband cable networks, and radar systems). Submit ITU Recommendations on emerging mobile radio technologies, broadband network performance (e.g., NGN QOS, Ethernet OAM, SIP-based call processing), radio propagation prediction, multimedia quality of service, and radar systems, and coordinate their formal review and approval.

Performance Assessment: Demonstrate NTIA-developed, perception-based audio and video performance assessment tools for critical new areas including Internet multimedia conferencing, advanced television, and wireless services. Document the advances associated with these tools in open-literature publications. Encourage technology transfer to Government, industrial, academic, and individual users via NTIA-developed, easy-to-use, portable software toolkit.

Wireless Networks: Perform interoperability and quality assessments of representative wireless network technologies. Spearhead standards

committee activities and provide engineering analysis and simulation results defining quantitative limits for adjacent and co-frequency block interference within and among advanced wireless communications technologies.

Base Program

Explanation and Justification

Through the Telecommunication Sciences Research activity, NTIA performs state-of-the-art telecommunications research and engineering to further the knowledge of the radio frequency spectrum and to improve wireless telecommunications system planning, design, and evaluation. These efforts strengthen coordination with the FCC on the use of the non-Federal portion of the spectrum. This technical research also improves fundamental understanding of radio-wave transmission, wireless communications technologies, and networking systems, thereby enhancing spectrum utilization and the performance of advanced wireless systems. These efforts directly support industry and Government needs, and directly respond to the requirements of NTIA to manage Federal use of the radio spectrum. Important results of this research include spectrum use and interference concepts, models, and measurements that lead to more efficient industry and Government use of the radio frequency spectrum, improved radio-wave propagation and wireless communication techniques to enhance spectrum efficiency, and better methods to describe the performance of both conventional radio and emerging wireless systems. This knowledge base is essential to support the Government's spectrum management responsibilities and for technical support to other Federal agencies and industry. These research and engineering efforts will result in an improved U.S. telecommunications technology base and a strong technical foundation for telecommunication standards development in national and international arenas.

As a result of these activities, NTIA has established a core telecommunications research expertise that is accessible to both the public and private sectors. Through cooperative research and development agreements (CRADAs) with industry and reimbursable agreements with other Federal agencies, NTIA applies its expertise to some of the most important practical problems in telecommunications today. For example, both the private sector and other government agencies have direct access, at cost, to an on-line NTIA service that applies advanced radio-wave propagation models in determining the capabilities of specific wireless communications media. Direct-funded NTIA programs and other agency-sponsored research activities interact in a synergistic manner, leading to greater contributions to national goals and the spectrum management role of the Government.

In support of NTIA's mandate to oversee the usage of the radio spectrum by Federal agencies, NTIA maintains a comprehensive capability to measure the use of the spectrum. NTIA utilizes a Radio Spectrum Measurement System (RSMS), comprised of a van and other transportable equipment to measure and record signals between 10 kHz and 26 GHz. NTIA utilizes this system to perform measurements in the land and marine mobile and radar bands at selected sites, and to make other specialized measurements necessary to ensure compliance with frequency assignment rules and regulations. NTIA conducts definitive measurements of spectrum usage/efficiency/assessment and channel occupancy in selected bands and summarizes the results in support of specific Inter-department Radio Advisory Committee (IRAC) concerns. The RSMS is also used to analyze and resolve difficult or unusual interference problems where a Government system is thought to be involved. This activity often saves costs to Federal agencies and the private sector that far exceed the funding for this effort. The RSMS is available for other agency applications on a reimbursable basis. NTIA also assists various Department of Defense agencies and Department of Commerce agencies in

efficiently operating their own radio spectrum measurement programs through technical consultations, and modification, design, and construction of new radio spectrum and propagation measurement systems. This reimbursable work draws on expertise developed for the RSMS, but also provides an opportunity to investigate advanced measurement methods for use in the RSMS itself.

As new wireless technologies emerge, NTIA must strengthen its efforts to develop improved software and measurement techniques to support increasingly sophisticated uses of the spectrum, including spread-spectrum, ultrawideband, and frequency-agile systems. NTIA performs spectrum engineering analyses as required to assess current and future Federal use of the spectrum and determine where significant improvements in utilization appear possible. NTIA is currently assessing emerging spectrum requirements for public safety and law enforcement in coordination with the Public Safety Wireless Communications Program, and a number of different Federal departments and programs that have a keen interest in public safety interoperability. NTIA is also evaluating the Federal Government's use of its spectrum to promote more efficient and economic spectrum use. In FY 2009, NTIA will continue to support essential spectrum utilization analyses, including the impact of new ultrawideband, frequency-agile, and software radio technologies. NTIA develops the measurement procedures needed to characterize these new signals and perform the increasingly complex system compatibility analyses to assess, for example, the effects ultrawideband may have on other systems. Technical support will be continued for major frequency management concerns through representation at technical subcommittee (IRAC) meetings with principal emphasis on improving Federal spectrum use efficiency.

Global trends are moving toward providing diverse services, such as audio, video, data, broadcasting, and common carrier services through a converged system of wire line and wireless networks. Radio has an important role in portable and mobile communications, and will play an increasingly important role in connecting the end user to the information infrastructure and in providing personal communication services. Another trend becoming evident as technology advances is that of radio systems utilizing higher frequencies. Many radio systems are already moving into the millimeter-wave band, located at the upper end of the allocated radio spectrum (30-300 GHz). Reallocating existing users of lower bands to these higher frequency ranges will reduce spectrum congestion and provide additional frequency availability. NTIA is a key source of information for characterizing radio propagation in support of spectrum policy and management as well as the development and deployment of new technologies, such as wireless local loop, ultrawideband, IMT-2000, and millimeter-wave systems. NTIA is also involved in efforts to allow different types of users to share spectrum. NTIA recently tested a spectrum-sharing idea called dynamic frequency selection (DFS), which may enable radio local area networks (RLANs) to operate in bands normally reserved for radars.

NTIA continues to provide support to the development and deployment of various wireless technologies such as multiple input, multiple output (MIMO), IMT-2000, and ultrawideband communications. Knowledge from measurements and modeling of advanced antenna technologies (e.g., adaptive antennas), and the propagation of radio waves on short paths in man-made environments are crucial in the planning, development, and deployment of commercially viable systems. NTIA is developing the means to predict the performance of radio systems operating over short paths using detailed geographic databases. NTIA is also operating an advanced antenna test bed for evaluation and comparison of the performance and spectral efficiency of adaptive antennas. Adaptive antennas have the capability to dynamically increase the number of users in a limited bandwidth, such as in Commercial Mobile Radio Services (CMRS) applications. NTIA supports private industry in their wireless technology development efforts through technology transfer under CRADA's.

Under other agency agreements, NTIA is providing telecommunications engineering assistance to a variety of Federal agencies, most notably in the area of wireless telecommunications interoperability and information sharing for, and among, local, state, and Federal users in the

justice/public safety/homeland security community. NTIA is also assisting the National Security Agency and other DOD agencies to address the increasing threat to information security.

NTIA provides telecommunications engineering support to improve public safety interoperability communications on behalf of a multiagency effort that includes: NIST's Office of Law Enforcement Standards (OLES), DHS' Office of Interoperability and Compatibility (OIC) SAFECOM Program, the National Public Safety Telecommunications Council, and DOJ's Office of Community Oriented Policing Services (COPS). In addition, effort is being undertaken on behalf of the Federal Partnership for Interoperable Communications (FPIC). In general, the broad based interoperability effort can be seen as addressing five areas: development of qualitative and quantitative public safety requirements that are accepted nationally by the public safety community and industry alike, architecture framework development consistent with Federal enterprise architecture guidelines, and including an associated data model tool to apply to local, state, and regional telecommunications integration projects; identification and development of interface standards (that satisfy defined user requirements) through leadership and direct technical contribution to national and international standards bodies focused on public safety applications; test and evaluation of concepts, products, and services for the long-term interoperability solution as well as interim improvements; and research and development to accommodate technical gaps that emerge during the entire process. All elements of the NTIA Public Safety activity involve close and constant coordination with public safety practitioners.

The demand for new and enhanced telecommunication services, such as digital television (DTV), wireless voice and data, and radio navigation, has placed increased burdens on spectrum planners and policy makers. To address this situation, NTIA develops fundamental data and more accurate modeling of radio propagation that will lead to improved methods for planning spectrum sharing among the various users. Future systems will employ wide frequency bandwidths to provide greater transmission capacity. New systems will use more advanced digital modulation techniques that enhance system performance and provide better spectral efficiency. Adaptive antennas will also be used to increase capacity. Predicting how these systems can share the same spectrum space requires a better understanding of broadband radio propagation and the use of multi-dimensional modeling techniques – both areas in which NTIA has unique expertise. The theme of the 2007 International Symposium on Advanced Radio Technologies, sponsored by NTIA, was “Propagation Modeling for Efficient Spectrum Management.” NTIA has provided analysis tools and techniques used in the allocation of channels for digital television systems, and a technical analysis of DTV broadcasting options. NTIA and FCC engineering personnel have jointly developed the signal coverage and interference analysis programs to evaluate the DTV Allotment Table for over 1,600 broadcast TV stations. NTIA has provided spectrum management tools to assist the private sector in planning and deploying DTV systems. In FY 2009, NTIA will focus on technical issues associated with the grant programs for digital to analog conversion and public safety interoperable communications.

In cooperation with U.S. industry, NTIA prepares and coordinates proposed domestic and international telecommunications standards, develops and demonstrates technologies for assessing the performance and optimizing the utilization of public and private telecommunication networks from a user perspective, and evaluates emerging technologies for application to future needs. These activities promote international trade opportunities for U.S. telecommunication firms, enhance competition in the U.S. telecommunications industry, and improve the cost effectiveness of Government telecommunications use. In its international standards activity, NTIA is working to expand trade opportunities for U.S. telecommunications and information providers by leading and supporting U.S. participation in key technical negotiations of the International Telecommunication Union's Telecommunication Standardization Sector (ITU-T) and Radiocommunication Sector (ITU-R). ITU telecommunication standards and radiocommunication Recommendations serve as blueprints for future technology development involving billions of dollars in telecommunications industry investment worldwide. NTIA activities strengthen U.S. participation in ITU negotiations and provide the technical

content for international standards and recommendations.

In FY 2009, NTIA will continue to provide leadership in two key ITU-T groups: Study Group 13 Working Party 4 (QOS and OAM), and Study Group 9's Working Group on Quality Assessment. Study Group 13 develops international standards (Recommendations) addressing Optical Transport Networks (OTNs), Multi-Protocol Label Switching (MPLS), Carrier Class Ethernet, and IP-based technologies, all of which are expected to play an important role in the realization of multi-service Next-Generation Networks (NGNs). SG 13/WP 4 develops international standards on QOS, network performance, Operation, Administration, and Maintenance (OAM), and resource management for all of the NGN core technologies. SG 9's Working Group on Quality Assessment defines quality objectives for integrated broadband cable networks and television and sound transmission. Within that group NTIA chairs Question 14/9, "Objective and Subjective Methods for Evaluating Audiovisual Quality in Multimedia Services." NTIA also leads and contributes to the ITU-affiliated Video Quality Experts Group (VQEG) and provides strong technical leadership in the Alliance for Telecommunications Industry Solutions (ATIS) Network Performance, Reliability and Quality of Service Committee (PRQC), which develops national standards and contributes strongly to ITU-T standardization in all of these technology areas. VQEG works in conjunction with ITU-T SG 9 and ITU to develop performance and signal processing (e.g., coding) standards for U.S. public digital networks. NTIA contributions to these national standards committees provide technical solutions to some of the most compelling issues facing U.S. telecommunications planners, and thereby help to more rapidly evolve our national information infrastructures. Examples include the inter-operation of multi-vendor systems employing various transmission media (cable, microwave, fiber, satellite) in a competitive environment, and key IP/optical network planning issues including traffic management and economical resource sharing among integrated multimedia services. NTIA promotes industry competition and innovation in the provision of integrated broadband digital services and facilitates efficient matching of such services with user needs. NTIA will continue to lead and coordinate standards development in key U.S. telecommunications industry forums to ensure that emerging U.S. broadband network standards are consistent with market competition, Internet evolution and the Administration's broadband network deployment objectives, and applicable Government (e.g., OMB, FCC) policy guidelines.

NTIA provides important, ongoing technical support for the U.S. Administration in ITU-R Study Group 3 (Radiowave Propagation) and Study Group 8 (Mobile, Radiodetermination, Amateur and Related Satellite Services); Working Party 8B; the Radar Correspondence Group (RCG), and the Joint Rapporteurs Group (JRG) 1A-1C-8B. Current areas of interest include (but are not limited to): potential reallocation of radar spectrum; effects on radars of interference from communication systems; dynamic frequency selection technology proposed for 5 GHz spectrum sharing between communication systems and radars; development of radar emission spectrum measurement techniques; development of more efficient radar spectrum emission criteria; and, in Study Group 3, development and evaluation of site-specific radio propagation models for Working Party 3K. An NTIA engineer serves as the U.S. Chair of Study Group 3. It is devoted to making improvements in propagation models and studies with the goal of improved efficiency in radio spectrum usage domestically and internationally. In Study Group 8, Working Party 8B, ITS staff provide critical support to the U.S. Administration on radar systems, preserving the spectrum that critically important radar systems need for their continued operation in areas of safety and defense.

NTIA's international and U.S. standards committee leadership is supported by telecommunications research and engineering activities directed toward the development, implementation, and promulgation of user-oriented performance measures for integrated data, audio (including voice), video, and multimedia communication equipment and services. NTIA will continue to apply its unique expertise and state-of-the-art voice and video measurement laboratories to validate and optimize telecommunication performance standards. This research is leading U.S. industry and the world in the development of user-oriented, technology-independent performance parameters and measurement methods for high-speed data

communication services. In FY 2009, NTIA will continue its groundbreaking work in perception-based audio and video quality assessment and associated digital compression and transmission issues. NTIA will focus its development work toward important new technology areas including Internet multimedia conferencing and advanced television (e.g., IPTV) services. Both of these fundamentally new areas pose significant and novel coding, transmission, and quality assessment challenges. NTIA will also conduct research addressing specific coding and transmission quality issues associated with wireless and broadband access services. NTIA will continue to pursue in-service quality assessment techniques, since these allow for the most relevant assessments and do not require the interruption of services. NTIA will continue to enhance its laboratory facilities to support fully-automated, all-digital subjective audio-visual testing, and will demonstrate the enhanced audio/video test capabilities to industry and Government users. To encourage technology transfer and widespread adoption of NTIA-developed audio and video quality assessment technologies, NTIA will enhance and make available an easy-to-use, highly portable audio-video assessment software toolkit.

NTIA is also involved in the development of Federal and industry standards under other agency Reimbursable Agreements. This work includes development of Federal telecommunications specifications and standards, proof of concept and demonstration measurements, interoperability analyses, and technical and economic impact assessments. FY 2009 reimbursable programs are expected to address Public Safety interoperability, wideband land mobile radio standards development, network reliability and restoration, and priority access capabilities for public wireless and IP-based networks. In Public Safety work, for example, NTIA advances the work of other Federal Programs (e.g., NIST/OLES, DHS/OIC, etc.) through leadership and critical technical contributions to the Project 25 Technical Committees, Working Groups, and Task Groups, as well as the associated organizational entities within the Telecommunications Industry Association TR-8 Committee.

NTIA will continue its on-going program in wireless networking in FY 2009. Advanced wireless technologies are expected to provide wireless voice, data, and image communications and a variety of advanced service features using small, inexpensive, lightweight, low-powered portable radio terminals. Advanced wireless technologies can extend wired information infrastructures to mobile, rural, and other users and can dramatically improve telecommunication service availability in natural disaster and other emergency situations. However, achieving these benefits will require solutions to major implementation problems. As wireless networks and applications expand, interference among users sharing spectrum is likely. Users and service providers hoping to develop advanced wireless networks may be faced with an over-abundance of candidate technologies, many of which are non-interoperable. NTIA is addressing these problems by providing objective, expert technical contributions in support of public interest concerns in national and international committees responsible for resolving wireless network implementation issues. A particular focus of NTIA activity is in the development of intra-system and inter-system interference assessment metrics and standards in the Alliance for Telecommunications Industry Solutions (ATIS) subcommittee WTSC/G3GRA (Wireless Technologies and Systems Committee — Radio Aspects of GSM/3G and Beyond) to enhance capability and harmonization among telecommunication systems in the environment. Results promote efficient use of increasingly scarce radio spectrum and improve wireless system coverage and performance.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$8,048	\$10,770	\$11,367	\$11,367	\$0
11.3 Other than full-time permanent	260	260	260	260	0
11.5 Other personnel compensation	94	20	20	20	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	8,402	11,050	11,647	11,647 *	0
12.1 Civilian personnel benefits	2,751	2,233	2,226	2,226 *	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	403	311	316	316	0
22 Transportation of things	4	10	10	10	0
23.1 Rental payments to GSA	1,277	1,308	1,339	1,339	0
23.2 Rental payments to others	15	10	10	10	0
23.3 Communications, utilities and miscellaneous charges	100	102	104	104	0
24 Printing and reproduction	15	35	36	36	0
25.1 Advisory and assistance services	540	410	410	410	0
25.2 Other services	2,579	2,519	1,316	1,316	0
25.3 Purchases of goods and services from Government accounts	1,036	972	1,088	1,088	0
25.7 Operation and maintenance of equipment	217	93	93	93	0
26 Supplies and materials	217	121	217	217	0
31 Equipment	759	200	406	406	0
41 Grants, subsidies and contributions	0	0	0	0	0
99 TOTAL OBLIGATIONS	\$18,315	\$19,374	\$19,218	\$19,218	\$0
Prior Year Recoveries/Refunds	(550)				
Unobligated balances from Prior Years	(1,611)	(1,908)			
Unobligated balance EOY	1,908				
Total Budget Authority	\$18,062	\$17,466	\$19,218	\$19,218	\$0

* Numbers differ from MAX input due to better estimates

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Personnel Data	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	93	103	103	103	0
Other than full-time permanent	0	0	0	0	0
Total	93	103	103	103	0
Authorized Positions:					
Full-time permanent	103	103	103	103	0
Other than full-time permanent	0	0	0	0	0
Total	103	103	103	103	0

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2009 Adjustments to Base	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
11 Personnel compensation				
11.1 Full-time permanent				
Senior Executive Level	\$0	\$0	\$0	\$0
General schedule	597	11,367 *	11,367	0
Subtotal	597	11,367	11,367	0
11.3 Other than full-time permanent				
General schedule	0	260	260	0
Subtotal	0	260	260	0
11.5 Other personnel compensation				
Cash awards		20	20	0
Subtotal	0	20	20	0
11.8 Special personnel services payments				
Other	0	0	0	0
Subtotal	0	0	0	0
11.9 Total personnel compensation	597	11,647	11,647	0
12.1 Civilian personnel benefits				
Civil service retirement	(18)	12	12	0
Federal employees' retirement	28	839	839	0
Thrift savings plan	5	155	155	0
Federal insurance contribution act - Medicare	0	157	157	0
Federal insurance contribution act - OASDI	15	422	422	0
Health insurance	7	630	630	0
Change in Compensable Day	(48)	56	56	0
Life insurance	0	7	7	0
Employees' compensation fund	4	(52)	(52)	0
Subtotal	(7)	2,226 *	2,226	0
13 Benefits for former personnel				
Subtotal	0	0	0	0

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2009 Adjustments to Base	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
21				
Travel and transportation of persons				
Common carrier	\$0	175	\$175	\$0
Per diem/actual mileage	4 1	127 14	127 14	0 0
Subtotal	5	316	316	0
22				
Transportation of things	0	10	10	0
23.1				
Rental payments to GSA	31	1,339	1,339	0
23.2				
Rental payments to others	0	10	10	0
23.3				
Communications, utilities and miscellaneous char				
Rental of ADP equipment	0	0	0	0
Rental of office copying equipment	0	0	0	0
Other equipment rental	0	0	0	0
Federal telecommunications system	1	32	32	0
Other telecommunications services	0	50	50	0
Postal Service by USPS	1	12	12	0
Other		0	0	0
Subtotal	2	104	104	0
24				
Printing and reproduction	0	35	35	0
Publications	1	1	1	0
Other	0	0	0	0
Subtotal	1	36	36	0
25.1				
Advisory and assistance services				
Management and professional support services	0	60	60	0
Studies, analyses, and evaluation	0	0	0	0
Engineering and technical services	0	350	350	0
Subtotal	0	410	410	0

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Object Class	2009 Adjustments to Base	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
25.2 Other services				
Training	\$0	0	\$0	\$0
Other non-government contracts	20	1,316	1,316	0
Subtotal	20	1,316	1,316	0
25.3 Purchases of goods and services from Government	0	0	0	0
Maintenance of equipment	0	0	0	0
Payments to GA, WCF, NARA	116	1,088	1,088	0
Subtotal	116	1,088	1,088	0
25.7 Operation and maintenance of equipment	0	93	93	0
26 Supplies and materials		0	0	
Office supplies	0	0	0	0
ADP supplies	2	217	217	0
Other	0	0	0	0
Subtotal	2	217	217	0
31 Equipment				
Office machines and equipment	0	0	0	0
ADP hardware/software	6	406	406	0
Equipment depreciation	0	0	0	0
Other	0	0	0	0
Subtotal	6	406	406	0
41 Grants, subsidies and contributions	0	0	0	0
99 Budget Authority	\$773	\$19,218	\$19,218	\$0

* Numbers differ from MAX input due to better estimates

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
APPROPRIATIONS LANGUAGE AND CODE CITATIONS

For necessary expenses, as provided for by law, of the National Telecommunications and Information Administration (NTIA), \$19,218,000, to remain available until September 30, 2009. Provided, That notwithstanding 31 U.S.C. 1535(d), the Secretary of Commerce shall charge Federal agencies for costs incurred in spectrum management, analysis and operations, and related services and such fees shall be retained and used as offsetting collections for costs of such spectrum services, to remain available until expended: Provided further, That the Secretary of Commerce is authorized to retain and use as offsetting collections all funds transferred, or previously transferred, from other Government agencies for all costs incurred in telecommunications research, engineering, and related activities by the Institute for Telecommunication Sciences of NTIA, in furtherance of its assigned functions under this paragraph, and such funds received from other Government agencies shall remain available until expended.

15 U.S.C. § 1512
15 U.S.C. § 1532
47 U.S.C. § 305
47 U.S.C. § 606
47 U.S.C. § 901, *et seq.*

15 U.S.C. § 1512 authorizes the Secretary of Commerce to foster, promote and develop foreign and domestic commerce.

15 U.S.C. § 1532 authorizes the Secretary of Commerce to conduct research and analysis in all telecommunications sciences; to investigate the transmission of radio waves and electromagnetic radiation; and to compile, evaluate, publish, and distribute related information.

47 U.S.C. § 305 authorizes the President to assign frequencies to radio stations or classes of radio stations belonging to and operated by the United States. Originally delegated to the Department of Commerce by Executive Order 12046, as later codified in the National Telecommunications and Information Administration Organization Act, 47 U.S.C. § 901, *et seq.*

47 U.S.C. § 606 and associated Executive Orders authorize the President to perform certain telecommunications emergency functions essential to security and the national defense.

47 U.S.C. § 901, *et seq.*, authorizing NTIA to perform the Secretary's communications and information functions.

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 ADVISORY AND ASSISTANCE SERVICES
 (Dollar amounts in thousands)

	<u>2007</u> <u>Actual</u>	<u>2008</u> <u>Estimate</u>	<u>2009</u> <u>Estimate</u>
Management and Professional Support Services	\$240	\$200	\$200
Studies, Analysis & Evaluations	0	0	0
Engineering & Technical Services	300	210	210
Total	<u>\$540</u>	<u>\$410</u>	<u>\$410</u>

NTIA utilizes consultants throughout its programs to provide scientific or technical expertise in specialized areas.

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 PERIODICALS, PAMPHLETS AND AUDIOVISUAL PRODUCTS
 (Dollar amounts in thousands)

	<u>2007</u> <u>Actual</u>	<u>2008</u> <u>Estimate</u>	<u>2009</u> <u>Estimate</u>
Periodicals	\$0	\$0	\$0
Pamphlets	15	20	20
Audiovisual Products	0	0	0
Total	<u>\$15</u>	<u>\$20</u>	<u>\$20</u>

NTIA utilizes pamphlets to provide an overview of NTIA programs and services to the public.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
AVERAGE GRADE AND SALARIES

	2007 <u>Actual</u>	2008 <u>Estimate</u>	2009 <u>Estimate</u>
Direct:			
Average ES Salary.....	\$142,802	\$149,799	\$153,095
Average Career Path Salary.....	\$85,704	\$89,903	\$91,881
Average GS Grade.....	12.6	12.6	12.6
Average GS Salary.....	\$93,256	\$97,826	\$99,978

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Department of Commerce
National Telecommunications and Information Administration
 Public Telecommunications Facilities, Planning and Construction
 SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

							Positions	FTE	Budget Authority	Direct Obligations	
FY 2008 Appropriation							13	13	\$18,800	\$22,103	
less: Obligations from prior years							0	0	0	(3,303)	
plus: 2009 adjustments to base							0	0	0	0	
2009 Base							13	13	18,800	18,800	
less: 2009 program changes							(13)	(13)	(18,800)	(18,800)	
2009 Estimate							0	0	0	0	
Comparison by activity/subactivity	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Public Telecommunications Facilities, Planning and Construction											
Grants.....	Pos/BA	0	\$19,730	0	\$16,800	0	\$16,800	0	\$0	0	(\$16,800)
	FTE/Obl.	0	22,450	0	19,456	0	0	0	0	0	
Program management.....	Pos/BA	13	1,999	13	2,000	13	2,000	0	0	(13)	(2,000)
	FTE/Obl.	9	1,698	13	2,647	13	0	0	0	(13)	
TOTALS.....	Pos/BA	13	21,729	13	18,800	13	18,800	0	0	(13)	(18,800)
	FTE/Obl.	9	24,148	13	22,103	13		0		(13)	
Adjustments to Obligations											
Recoveries/Refunds.....		(3,339)		0		0		0		0	
Unobligated Balance, start of year.....		(2,383)		(3,303)		0		0		0	
Unobligated Balance, end of year.....		3,303		0		0		0		0	
Unobligated Balance expiring.....		0		0		0		0		0	
Financing from transfers:											
Transfer from other accounts (-).....		0		0		0		0		0	
Transfer to other accounts (+).....		0		0		0		0		0	
Appropriation.....		21,729		18,800		18,800		0		(18,800)	

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Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF FINANCING
(Dollar amounts in thousands)

Comparison by activity	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
Total Obligations	\$24,148	\$22,103	\$18,800	\$0	(\$18,800)
Offsetting collections from:					
Federal funds.....	0	0	0	0	0
Non-Federal sources.....	0	0	0	0	0
Recoveries/Refunds.....	(3,339)	0	0	0	0
Unobligated balance, start of year.....	(2,383)	(3,303)	0	0	0
Unobligated balance, end of year.....	3,303	0	0	0	0
Unobligated balance expiring.....	0	0	0	0	0
Budget Authority	21,729	18,800	18,800	0	(18,800)
Financing:					
Transferred from other accounts (-).....	0	0	0	0	0
Transferred to other accounts (+).....	0	0	0	0	0
Appropriation	21,729	18,800	18,800	0	(18,800)

Department of Commerce
National Telecommunications and Information Administration
 Public Telecommunications Facilities, Planning and Construction
 PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Public telecommunications, facilities, planning and construction
 Subactivity: Grants and program management

Comparison by line item	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Grants.....	Pos/BA	0	\$19,730	0	\$16,800	0	\$16,800	0	\$0	0	(\$16,800)
	FTE/Obl.	0	22,450	0	19,456	0		0		0	
Program management.....	Pos/BA	13	1,999	13	2,000	13	2,000	0	0	(13)	(2,000)
	FTE/Obl.	9	1,698	13	2,647	13		0		(13)	
Direct Obligations.....	Pos/BA	13	21,729	13	18,800	13	18,800	0	0	(13)	(18,800)
	FTE/Obl.	9	24,148	13	22,103	13		0		(13)	

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
Justification of Program Performance

Goal Statement

The Public Telecommunications Facilities, Planning and Construction Program (PTFP) is being discontinued in FY 2009. Since 2000, the majority of PTFP grants have been used to support public broadcasting's transition to digital formats. Most public television stations have completed their transition to digital broadcasts, in order to comply with the rules of the FCC. Funding for any remaining digital transition and other activities is available elsewhere.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$721	\$1,194	\$1,198	\$0	(\$1,198)
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	721	1,194	1,198	0	(1,198)
12.1 Civilian personnel benefits	180	299	299	0	(299)
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	17	25	25	0	(25)
22 Transportation of things	1	1	0	0	0
23.1 Rental payments to GSA	65	87	87	0	(87)
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities and miscellaneous charges	33	44	44	0	(44)
24 Printing and reproduction	3	3	3	0	(3)
25.1 Advisory and assistance services	0	0	0	0	0
25.2 Other services	232	514	0	0	0
25.3 Purchases of goods and services from Government accounts	372	437	344	0	(344)
25.7 Operation and maintenance of equipment	0	0	0	0	0
26 Supplies and materials	13	13	0	0	0
31 Equipment	61	30	0	0	0
41 Grants, subsidies and contributions	22,450	19,456	16,800	0	(16,800)
99 TOTAL OBLIGATIONS	\$24,148	\$22,103	\$18,800	\$0	(18,800)
Prior Year Recoveries/Refunds	(3,339)				
Unobligated balances from Prior Years	(2,383)	(3,303)	0	0	0
Unobligated balance EOY	\$3,303				
Total Budget Authority	\$21,729	\$18,800	\$18,800	\$0	(18,800)

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Personnel Data	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	9	13	13	0	(13)
Other than full-time permanent	0	0	0	0	0
Total	9	13	13	0	(13)
Authorized Positions:					
Full-time permanent	13	13	13	0	(13)
Other than full-time permanent	0	0	0	0	0
Total	13	13	13	0	(13)

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
APPROPRIATIONS LANGUAGE AND CODE CITATIONS:

For the administration of prior year grants, recoveries and unobligated balances of funds previously appropriated are hereafter available for the administration of all open grants until their expiration. (Consolidated Appropriations Act, 2008)

47 U.S.C. 391 authorizes the Secretary of Commerce to provide grant funds for the planning and construction of public telecommunications facilities by eligible entities.

47 U.S.C. 392 sets forth the application requirements to be submitted to the Secretary of Commerce by eligible entities to request funds for the construction of public telecommunications facilities.

47 U.S.C. 902(b)(3) assigns to NTIA the administration of the Public Telecommunications Facilities Program.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
ADVISORY AND ASSISTANCE SERVICES
(Dollar amounts in thousands)

	2007 Actual	2008 Estimate	2009 Estimate
Management and Professional Support Services	\$0	\$0	\$0
Studies, Analysis & Evaluations	0	0	0
Engineering & Technical Services	0	0	0
Total	\$0	\$0	\$0

NTIA utilizes consultants throughout its programs to provide scientific or technical expertise in specialized areas.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
PERIODICALS, PAMPHLETS AND AUDIOVISUAL PRODUCTS
(Dollar amounts in thousands)

	2007 Actual	2008 Estimate	2009 Estimate
Periodicals	\$0	\$0	\$0
Pamphlets	0	0	0
Audiovisual Products	0	0	0
Total	\$0	\$0	\$0

NTIA utilizes pamphlets to provide an overview of NTIA programs and services to the public.

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Department of Commerce
National Telecommunications and Information Administration
 Information Infrastructure Grants
 SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

		Positions	FTE	Budget Authority	Direct Obligations					
FY 2008 Appropriation		0	0	\$0	\$1,820					
less: Obligations from prior years		0	0	0	(1,820)					
plus: 2009 adjustments to base		0	0	0	0					
2009 Base		0	0	0	0					
plus: 2009 program changes		0	0	0	0					
2009 Estimate		0	0	0	0					
Comparison by activity/subactivity	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Technology Opportunities Program										
Grants.....	Pos/BA	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	0	0	0	0	0	0	0	0
Program management.....	Pos/BA	0	0	0	0	0	0	0	0	0
	FTE/Obl.	1	397	0	1,820	0	0	0	0	0
TOTALS.....	Pos/BA	0	0	0	0	0	0	0	0	0
	FTE/Obl.	1	397	0	1,820	0	0	0	0	0
Adjustments to Obligations										
Recoveries/Refunds.....			(432)		0		0		0	0
Unobligated Balance, start of year.....			(1,785)		(1,820)		0		0	0
Unobligated Balance, end of year.....			1,820		0		0		0	0
Unobligated balance expiring.....			0		0		0		0	0
Financing from transfers:										
Transfer from other accounts (-).....			0		0		0		0	0
Transfer to other accounts (+).....			0		0		0		0	0
Appropriation.....			0		0		0		0	0

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Department of Commerce
National Telecommunications and Information Administration
 Information Infrastructure Grants
 SUMMARY OF FINANCING
 (Dollar amounts in thousands)

Comparison by activity	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase (Decrease)
Total Obligations.....	\$397	\$1,820	\$0	\$0	\$0
Offsetting collections from:					
Federal funds.....	0	0	0	0	0
Non-Federal sources.....	0	0	0	0	0
Recoveries/Refunds.....	(432)	0	0	0	0
Unobligated balance, start of year.....	(1,785)	(1,820)	0	0	0
Unobligated balance, end of year.....	1,820	0	0	0	0
Unobligated balance expiring.....	0	0	0	0	0
Budget Authority.....	0	0	0	0	0
Financing:					
Transferred from other accounts (-).....	0	0	0	0	0
Transferred to other accounts (+).....	0	0	0	0	0
Appropriation.....	0	0	0	0	0

Department of Commerce
National Telecommunications and Information Administration
 Information Infrastructure Grants
 PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Technology Opportunities Program
 Subactivity: Grants and program management

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Grants.....	Pos/BA	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
	FTE/Obl.	0	0	0	0	0	0	0	0	0	0
Program management.....	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	397	0	1,820	0	0	0	0	0	0
Direct Obligations.....	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	397	0	1,820	0	0	0	0	0	0

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
Justification of Program Performance

Technology Opportunities Program

The Technology Opportunities Program was discontinued in FY 2005.

Department of Commerce
National Telecommunications and Information Administration
 Information Infrastructure Grants
 SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Object Class	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	197	\$0	\$0	\$0	\$0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation		0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	197	0	0	0	0
12.1 Civilian personnel benefits	49	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	10	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	29	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities and miscellaneous charges	0	0	0	0	0
24 Printing and reproduction	0	0	0	0	0
25.1 Advisory and assistance services	0	0	0	0	0
25.2 Other services	112	1,820	0	0	0
25.3 Purchases of goods and services from Government accounts	0	0	0	0	0
25.7 Operation and maintenance of equipment	0	0	0	0	0
26 Supplies and materials	0	0	0	0	0
31 Equipment	0	0	0	0	0
41 Grants, subsidies and contributions	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 TOTAL OBLIGATIONS	397	1,820	0	0	0
Prior Year Recoveries/Refunds	(432)				
Unobligated balances from Prior Years	(1,785)	(1,820)	0	0	0
Unobligated balance from EOY	1,820				
Total Budget Authority	0	0	0	0	0

Department of Commerce
National Telecommunications and Information Administration
 Information Infrastructure Grants
 SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Personnel Data	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	1	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	1	0	0	0	0
Authorized Positions:					
Full-time permanent	1	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	1	0	0	0	0

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Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
 SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

		Positions	FTE	Budget Authority	Direct Obligations						
Estimate, FY 2008		16	16	616,828	630,719						
less: Obligations from prior years		0	0	0	(13,891)						
2009 Base		16	16	616,828	616,828						
plus: 2009 program changes		6	6	(25,161)	(25,161)						
2009 Estimate		22	22	591,667	591,667						
Comparison by activity/subactivity	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Digital-to-Analog Converter Box Voucher Program.....	Pos/BA	6	\$89,637	9	\$427,077	9	\$427,077	7	\$471,870	(2)	44,793
	FTE/Obl.	6	87,290	9	429,424	9	427,077	7	471,870	(2)	44,793
Public Safety Interoperable Communications Grants.....	Pos/BA	2	976,000	3	11,530	3	11,530	3	6,536	0	(4,994)
	FTE/Obl.	2	974,693	3	12,837	3	11,530	3	6,536	0	(4,994)
New York City 9/11 Digital Transition.....	Pos/BA	0	8,146	0	21,169	0	21,169	0	290	0	(20,879)
	FTE/Obl.	0	7,973	0	21,342	0	21,169	0	290	0	(20,879)
Low-Power Television and Translator Digital to Analog Conversion Program.....	Pos/BA	2	380	2	7,911	2	7,911	2	687	0	(7,224)
	FTE/Obl.	2	316	2	7,975	2	7,911	2	687	0	(7,224)
Low-Power Television and Translator Upgrade Program	Pos/BA	0	0	1	1,640	1	1,640	5	59,541	4	57,901
	FTE/Obl.	0	0	1	1,640	1	1,640	5	59,541	4	57,901
National Alert Programs.....	Pos/BA	0	10,000	1	90,112	1	90,112	4	2,186	3	(87,926)
	FTE/Obl.	0	0	1	100,112	1	90,112	4	2,186	3	(87,926)
National Tsunami Warning Program.....	Pos/BA	0	0	0	0	0	0	0	50,000	0	50,000
	FTE/Obl.	0	0	0	0	0	0	0	50,000	0	50,000
Enhanced 9-1-1 Service Support.....	Pos/BA	0	0	0	42,389	0	42,389	1	557	1	(41,832)
	FTE/Obl.	0	0	0	42,389	0	42,389	1	557	1	(41,832)
Essential Air Service Program.....	Pos/BA	0	0	0	15,000	0	15,000	0	0	0	(15,000)
	FTE/Obl.	0	0	0	15,000	0	15,000	0	0	0	(15,000)
TOTALS.....	Pos/BA	10	1,084,163	16	616,828	16	616,828	22	591,667	6	(25,161)
	FTE/Obl.	10	1,070,272	16	630,719	16	616,828	22	591,667	6	(25,161)
Adjustments to Obligations:											
Recoveries/Refunds.....			0		0		0		0		0
Unobligated Balance, start of year.....			0		(13,891)		0		0		0
Unobligated Balance, end of year.....			13,891		0		0		0		0
Unobligated Balance expiring.....			0		0		0		0		0
Financing from transfers:											
Transfer from other accounts (-).....			0		0		0		0		0
Transfer to other accounts (+).....			0		0		0		0		0
Budget Authority			1,084,163		616,828		616,828		591,667		(25,161)
Financing from borrowing authority:											
Authority to borrow, start of year.....			2,194,500		1,124,228						
Borrowed (-).....			(164,489)		(433,511)						
Repaid (+).....			0		598,000						
Obligated, not borrowed (-)			(905,783)		(197,208)						
Authority to borrow available, end of year.....			1,124,228		0						
Receipts available, end of year			0		10,099,009				11,565,342		0

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Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Digital-to-Analog Converter Box Voucher Program

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Digital-to-Analog Converter Box Voucher Program.....											
	Pos/BA	6	\$89,637	9	\$427,077	9	\$427,077	7	\$471,870	(2)	\$44,793
	FTE/Obl.	6	87,290	9	429,424	9	427,077	7	471,870	(2)	44,793
Direct Obligations.....											
	Pos/BA	6	89,637	9	427,077	9	427,077	7	471,870	(2)	44,793
	FTE/Obl.	6	87,290	9	429,424	9	427,077	7	471,870	(2)	44,793

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Public Safety Interoperable Communications Grants

Comparison by line item	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Public Safety Interoperable Communications										
Grants..... Pos/BA	2	\$976,000	3	\$11,530	3	\$11,530	3	\$6,536	0	(\$4,994)
FTE/Obl.	2	974,693	3	12,837	3	11,530	3	6,536	0	(4,994)
Direct Obligations..... Pos/BA	2	976,000	3	11,530	3	11,530	3	6,536	0	(4,994)
FTE/Obl.	2	974,693	3	12,837	3	11,530	3	6,536	0	(4,994)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: New York City 9/11 Digital Transition

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
New York City 9/11 Digital Transition.....	Pos/BA	0	\$8,146	0	\$21,169	0	\$21,169	0	\$290	0	(\$20,879)
	FTE/Obl.	0	7,973	0	21,342	0	21,169	0	290	0	(20,879)
Direct Obligations.....	Pos/BA	0	8,146	0	21,169	0	21,169	0	290	0	(20,879)
	FTE/Obl.	0	7,973	0	21,342	0	21,169	0	290	0	(20,879)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Low-Power Television and Translator Digital to Analog Conversion Program

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Low-Power Television and Translator Conversion Program.....	Pos/BA	2	\$380	2	\$7,911	2	\$7,911	2	\$687	0	(\$7,224)
	FTE/Obl.	2	316	2	7,975	2	7,911	2	687	0	(7,224)
Direct Obligations.....	Pos/BA	2	380	2	7,911	2	7,911	2	687	0	(7,224)
	FTE/Obl.	2	316	2	7,975	2	7,911	2	687	0	(7,224)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Low-Power Television and Translator Upgrade Program

Comparison by line item	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Low-Power Television and Translator Upgrade Program.....	Pos/BA	0	\$0	1	\$1,640	1	\$1,640	5	\$59,541	4	\$57,901
	FTE/Obl.	0	0	1	1,640	1	1,640	5	59,541	4	57,901
Direct Obligations.....	Pos/BA	0	0	1	1,640	1	1,640	5	59,541	4	57,901
	FTE/Obl.	0	0	1	1,640	1	1,640	5	59,541	4	57,901

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: National Alert Program

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Alert Program.....	Pos/BA	0	\$0	1	\$90,112	1	\$90,112	4	\$2,186	3	(\$87,926)
	FTE/Obl.	0	0	1	90,112	1	90,112	4	2,186	3	(\$87,926)
Remote _____ Program.....	Pos/BA	0	10,000	0	0	0	0	0	0	0	0
	FTE/Obl.	0	0	0	10,000	0	0	0	0	0	0
Direct Obligations.....	Pos/BA	0	10,000	1	90,112	1	90,112	4	2,186	3	(87,926)
	FTE/Obl.	0	0	1	100,112	1	90,112	4	2,186	3	(87,926)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: National Tsunami Warning Program

Comparison by line item	2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
National Tsunami Warning Program	Pos/BA	0	\$0	0	\$0	0	\$0	0	\$50,000	0	\$50,000
	FTE/Obl.	0	0	0	0	0	0	0	50,000	0	\$50,000
Direct Obligations.....	Pos/BA	0	0	0	0	0	0	0	50,000	0	50,000
	FTE/Obl.	0	0	0	0	0	0	0	50,000	0	50,000

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Enhanced 9-1-1 Service Support

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Enhanced 9-1-1 Service Support.....	Pos/BA	0	\$0	0	\$42,389	0	\$42,389	1	\$557	1	(\$41,832)
	FTE/Obl.	0	0	0	42,389	0	42,389	1	557	1	(\$41,832)
Direct Obligations.....	Pos/BA	0	0	0	42,389	0	42,389	1	557	1	(\$41,832)
	FTE/Obl.	0	0	0	42,389	0	42,389	1	557	1	(41,832)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television Transition and Public Safety Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Activity: Digital Television Transition and Public Safety Fund
 Subactivity: Essential Air Service Program

Comparison by line item		2007 Actual		2008 Estimate		2009 Base		2009 Estimate		2009 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Essential Air Service Program.....	Pos/BA	0	\$0	0	\$15,000	0	\$15,000	0	\$0	0	(\$15,000)
	FTE/Obl.	0	0	0	15,000	0	15,000	0	0	0	(15,000)
Direct Obligations.....	Pos/BA	0	0	0	15,000	0	15,000	0	0	0	(15,000)
	FTE/Obl.	0	0	0	15,000	0	15,000	0	0	0	(15,000)

Department of Commerce
National Telecommunications and Information Administration
 Digital Television and Public Safety Fund
 SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Object Class	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2009 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$1,269	\$1,650	\$1,650	\$2,283	\$633
11.3 Other than full-time permanent	93	112	112	112	0
11.5 Other personnel compensation	67	112	112	154	42
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	1,429	1,874	1,874	2,549	675
12.1 Civilian personnel benefits	308	494	494	709	215
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	35	75	75	75	0
22 Transportation of things	3	5	5	7	2
23.1 Rental payments to GSA	180	234	234	354	120
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities and miscellaneous charges	39	30	30	30	0
24 Printing and reproduction	37	8	8	5	(3)
25.1 Advisory and assistance services	0	2,600	2,600	2,600	0
25.2 Other services	85,608	61,079	57,188	62,984	5,796
25.3 Purchases of goods and services from Government accounts	974,693	74,159	64,159	53,912	(10,247)
25.7 Operation and maintenance of equipment	0	15	15	5	(10)
26 Supplies and materials	19	19	19	12	(7)
31 Equipment	66	27	27	25	(2)
41 Grants, subsidies and contributions	7,855	490,100	490,100	468,400	(21,700)
99 TOTAL OBLIGATIONS	\$1,070,272	\$630,719	\$616,828	\$591,667	(25,161)
Prior Year Recoveries/Refunds	0				
Unobligated balances from Prior Years	0	(13,891)			
Unobligated balance EOY	13,891				
Unobligated balance, expiring	0				
Total Budget Authority					—

Department of Commerce
National Telecommunications and Information Administration
 Digital Television and Public Safety Fund
 SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Personnel Data	2007 Actual	2008 Estimate	2009 Base	2009 Estimate	2008 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	12	16	16	22	6
Other than full-time permanent	0	0	0	0	0
Total	12	16	16	22	6
Authorized Positions:					
Full-time permanent	12	16	16	22	6
Other than full-time permanent	0	0	0	0	0
Total	12	16	16	22	6

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