

U.S. DEPARTMENT OF COMMERCE

National Telecommunications and Information Administration

FY 2017 Budget as Presented to Congress



February 2016

**DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Budget Estimates, Fiscal Year 2017
Budget as Presented to Congress**

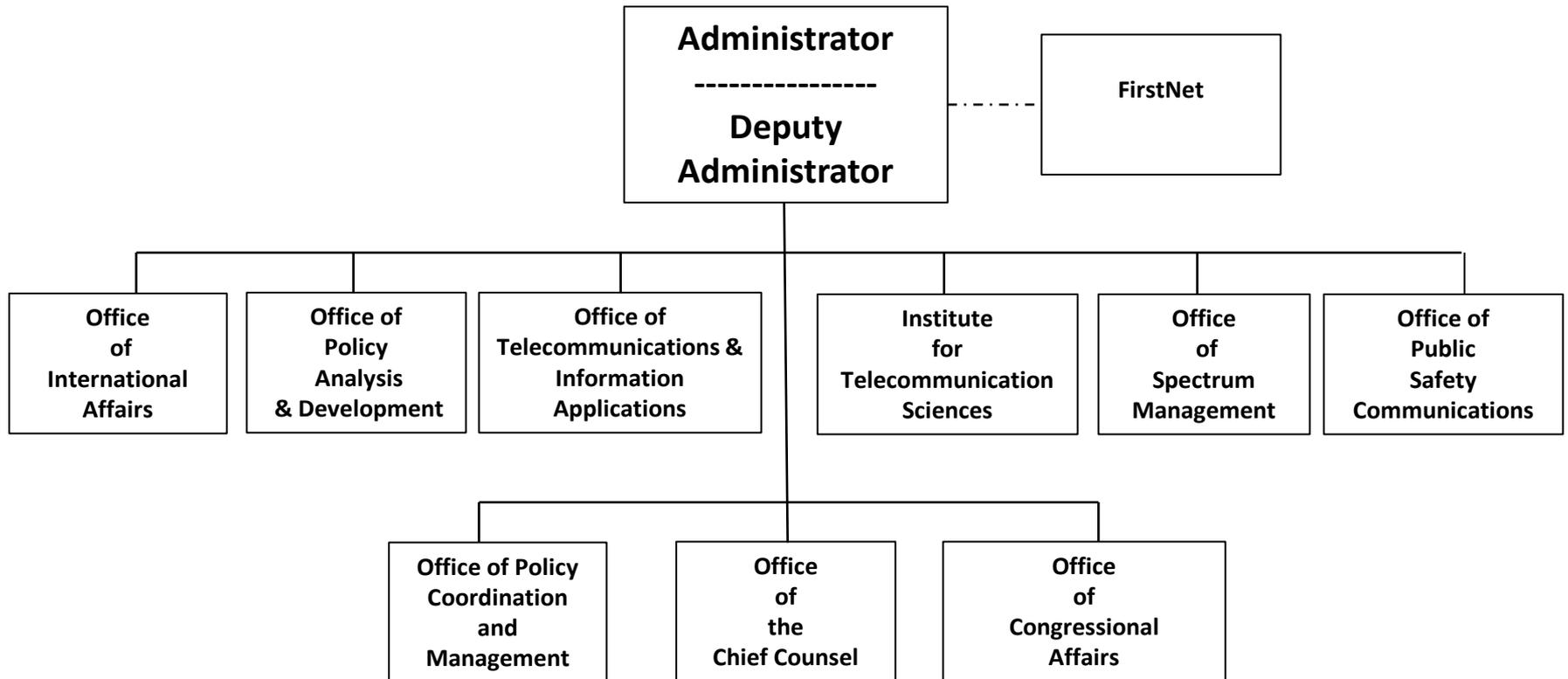
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U.S. DEPARTMENT OF COMMERCE

National Telecommunications & Information Administration



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**Department of Commerce
National Telecommunications and Information Administration
Fiscal Year 2017 Congressional Submission**

Executive Summary

Summary of Change (\$000)

Program	FY 2016 Enacted	FY 2017 Base	FY 2017 Request	Difference
Domestic and International Policies	\$9,093	\$9,225	\$15,832	\$6,607
Spectrum Management	8,488	8,634	8,884	250
Advanced Communications Research	10,075	10,237	13,212	2,975
Broadband Programs	11,844	11,979	12,913	934
Total	39,500	40,075	50,841	10,766

Introduction: The National Telecommunications and Information Administration (NTIA) is responsible by law for advising the President on communications and information policy issues, as well as for managing the federal government’s use of spectrum. NTIA’s programs and policymaking focus on expanding broadband Internet access and adoption in America, expanding the availability of spectrum for all users, and ensuring that the Internet remains an engine for innovation and economic growth. These goals are critical to America’s competitiveness in the 21st century global economy and to addressing many of the nation’s most pressing needs, such as improving education, health care, and public safety.

Salaries and Expenses

The NTIA FY 2017 budget request for Salaries and Expenses totals \$50.9 million, an increase of \$10.8 million over the FY 2017 base budget. This includes ramping down administration of broadband grants and reprogramming funds to BroadbandUSA, NTIA’s community broadband assistance and advisory program. The request includes funding to carry out spectrum management activities related to the Spectrum Pipeline Act, which expanded NTIA’s role in supporting repurposing of federal spectrum beyond the 500 MHz goal established in a 2010 Presidential Memorandum. Additional resources are required to: tackle critical gaps in Internet policy coverage (including cybersecurity); address the industry’s plans to transition to Internet protocol (IP); and support the modernization of mutual legal assistance treaties through outreach to key online industry participants.

Also requested is funding for the Center for Advanced Communications (CAC) to support research, testing, and standards development required to address the Nation’s critical need for spectrum to meet ever-increasing demands from federal agencies and commercial interests. The CAC, a joint partnership between NTIA’s Institute for Telecommunication Sciences (ITS) and the National Institute of Standards and Technology, provides a unique blend of basic and applied scientific research on spectrum capability, spectrum management approaches (including spectrum sharing) and spectrum-enabled technology development and testing for both federal agencies and private industry partners. ITS also provides test-beds to catalyze accelerated development, testing, and deployment of advanced communications technologies for both commercial and government applications.

In addition, the increase funds mandatory pay raises and inflationary adjustments necessary to maintain current programs.

Domestic and International Policies. As the Internet matures and expands globally, policy issues proliferate and threats to its openness have increased. NTIA must sufficiently influence domestic and international policies and discussions to preserve the Internet's openness and its cultural and economic potentials while advancing key U.S. interests, such as innovation and economic development. NTIA must ensure its policy program is positioned to meet the growing complexity of the Internet environment, as the world becomes more interconnected via rapid growth of the Internet and the globalization of information technology services and equipment. The U.S. Government, U.S. industry, and U.S. citizens need to connect and operate anytime and anywhere, requiring the promotion and preservation of a harmonized, global Internet policy and governance landscape. In addition, NTIA must coordinate federal agencies' transition to Internet protocol (IP), as well as encourage modernization of mutual legal assistance treaties through work with foreign governments and U.S. industry.

NTIA is the only agency in the Executive Branch that has the mission to advise the President on these critical national and international issues. Therefore, NTIA is requesting an increase of \$6.6 million in FY 2017 to address gaps in Internet policy resources to shift from a reactive to proactive posture on the broad range of Internet policy and digital economy issues. NTIA will acquire staffing to support coverage of emerging policy issues and key activities including utilizing the multistakeholder process, which involves the full inclusion of stakeholders, to reach general consensus on priority internet policy issues (e.g., consumer data privacy, cybersecurity, digital copyright); providing central support for the Digital Economy Leadership Team (DELT); performing a central role in the Executive Branch's involvement in the Internet Governance Forum (IGF); and supporting mutual legal assistance treaty modernization efforts with key industries in the U.S.

Spectrum Management. NTIA is statutorily assigned with responsibility to ensure that the needs of federal agencies for spectrum to support their missions are appropriately accommodated through effective spectrum assignment and management. NTIA is also statutorily assigned with responsibility, along with the FCC, to further the full and efficient use of the nation's limited spectrum resources. The tremendous growth in demand for wireless broadband by consumers, businesses, and government agencies, and two Presidential Memoranda pledging to make additional wireless broadband spectrum available for commercial services, require NTIA to reassess its management of federal use of the nation's airwaves. NTIA is examining various spectrum-sharing techniques to leverage spectrum as a resource for economic growth. To this end, NTIA collaborates with the FCC, industry stakeholders, and other agencies to examine new technologies and techniques that can improve federal spectrum management and help address the ever-increasing demands of wireless communications.

The Spectrum Pipeline Act of 2015 (Act) significantly expands NTIA's role in chairing and administering the Technical Panel (which is comprised of members appointed by NTIA, OMB, and FCC) to facilitate repurposing spectrum beyond the 500 MHz initially identified in the Presidential Memorandum of June 28, 2010. The Technical Panel was established by the 2012 Tax Relief Act to review federal agencies' Transition Plans on how they plan to relocate from (or share) spectrum identified for auction. Since NTIA has no base budget for these activities, NTIA is requesting a redirection of \$0.3 million from Broadband Programs to the Office of Spectrum Management to hire one FTE to assist with implementing the mandates.

Advanced Communications Research. NTIA has a statutory directive to further scientific knowledge in connection with telecommunications, particularly with respect to radio spectrum. NTIA is expanding collaborative research and development in advanced communications technologies to support commercial and government applications. This is being done in partnership with NIST through the Center for Advanced Communications, by leveraging and expanding key research and engineering expertise and capabilities available at NTIA and NIST. This work will advance needed research, development, testing, and evaluation of advanced communications technologies to enhance spectrum sharing and other wireless efficiencies. NTIA is requesting \$3.0 million to ensure that its research programs are appropriately coordinated with NIST and other federal partners and to leverage federal investments in spectrum research and technology development effectively.

Broadband Programs. As broadband grants funded under the 2009 Recovery Act reach completion, NTIA has redirected base resources to address the pent-up demand for technical assistance and hands-on guidance in bringing broadband capabilities to American communities. By redirecting staff skills developed through management of the BTOP program to its BroadbandUSA program, NTIA will respond to high levels of demand for its services and continue its broadband leadership efforts by partnering with many unserved and underserved communities. The BroadbandUSA program provides technical and administrative expertise to communities, helping them to address challenges—including infrastructure financing, coalition building, broadband adoption, engineering challenges, project management, fee development, and billing management—that often cut short very promising broadband projects. Our strategy capitalizes on NTIA’s strong relationships with broadband providers, municipal organizations, innovation economy firms, non-profit organizations, foundations, and other federal stakeholders. NTIA will provide tools to advance community projects so that they can attract new business investments and spur economic growth. For FY 2017, NTIA is requesting a redirection of Recovery Act grant funds to BroadbandUSA for a net increase of \$0.9 million.

Public Safety – Mandatory

The Middle Class Tax Relief and Job Creation Act of 2012 provided \$7 billion in funding to establish a nationwide interoperable public safety broadband network. The investment is now fully supported by proceeds from spectrum auctions conducted by the Federal Communications Commission (FCC). In addition, the Act provided \$135 million for a grant program to assist state, regional, tribal, and local jurisdictions in identifying, planning, and implementing efficient and effective ways to utilize and integrate the infrastructure, equipment, and other architecture associated with the public safety broadband network.

In FY 2015, receipts transferred to NTIA from the FCC from the Advanced Wireless Services 3 (AWS-3) auction completed the deposits required to fully repay borrowing and fund the construction of the public safety network, the State and Local Implementation Program, provide a first installment to NIST for research on public safety communications as well as provide \$12 billion to Treasury for deficit reduction. NTIA expects an additional \$10 billion will be transferred to the Public Safety Trust Fund in FY 2016 from AWS-3 auction revenues. This will provide an additional \$8 billion for deficit reduction and provide the remaining funds for the research at NIST and funding for the Next Generation E-911 work between NTIA and the Department of Transportation. Balances in excess of the transfers detailed in the Act will be invested in Treasury Securities until they are returned to the Treasury for deficit reduction as the statute requires.

Public Television Facilities Planning and Construction Program

The Public Telecommunications Facilities Planning and Construction Program terminated in FY 2011. NTIA will continue to close out grants using recoveries and unobligated balances of funds available until all open grants have expired.

Summary

NTIA's FY 2017 Budget Request reflects a funding level matching the increasingly important economic and social roles played by the fast-growing broadband and Internet world. This budget provides the resources necessary to support NTIA's responsibilities as advisor to the President on Internet and communications issues; promote and create opportunities related to broadband expansion and adoption; manage core programs effectively and efficiently; deliver on Administration priorities, such as identifying and making available 500 MHz of spectrum for commercial broadband use by 2020; comply with the mandates regarding spectrum in the Spectrum Pipeline Act of 2015; and ensure that the Internet remains an engine for continued innovation and economic growth.

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 2016 President's Budget							160	160	\$39,500	\$39,500	
less: Obligations from prior years							0	0	0	0	
plus: 2017 adjustments to base							0	0	575	575	
2017 Base							160	160	40,075	40,075	
plus: 2017 program changes (net)							22	17	10,766	10,766	
2017 Estimate							182	177	50,841	50,841	
Comparison by budget program/sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/Decrease		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Domestic and International Policies.....	Pos/BA	33	\$7,580	35	\$9,093	35	\$9,225	48	\$15,832	13	\$6,607
	FTE/Obl.	26	\$6,574	35	\$10,887	35	\$9,225	45	\$15,832	10	\$6,607
Spectrum Management.....	Pos/BA	39	8,002	39	8,488	39	8,634	40	8,884	1	250
	FTE/Obl.	24	9,300	39	8,488	39	8,634	40	8,884	1	250
Advanced Communications Research.....	Pos/BA	42	7,197	50	10,075	50	10,237	58	13,212	8	2,975
	FTE/Obl.	29	8,674	50	10,082	50	10,237	56	13,212	6	2,975
Broadband Programs.....	Pos/BA	36	15,421	36	11,844	36	11,979	36	12,913	0	934
	FTE/Obl.	42	14,198	36	14,243	36	11,979	36	12,913 *	0	934
TOTALS.....	Pos/BA	150	38,200	160	39,500	160	40,075	182	50,841	22	10,766
	FTE/Obl.	121	38,746	160	43,700	160	40,075	177	50,841	17	10,766
Adjustments to Obligations:											
Recoveries/Refunds.....			(487)		0		0		0		0
Unobligated Balance, start of year.....			(4,679)		(4,200)		0		0		0
Unobligated Balance, end of year.....			4,200		0		0		0		0
Unobligated Balance expiring.....			420		0		0		0		0
Financing from transfers:											
Transfer from DOC Census (-).....			0		0		0		0		0
Transfer to other accounts (+).....			0		0		0		0		0
Appropriation.....			38,200		39,500		40,075		50,841		10,766

* Spend plan has changed since entry into MAX.

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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 sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2,017 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.	42	6,416	45	9,925	45	7,800	45	7,800	0	0
Other..... Pos/BA	1	0	1	0	2	0	2	0	0	0
FTE/Obl.	2	399	1	803	2	800	2	800	0	0
Total, Reimbursable projects..... Pos/BA	46	0	46	0	47	0	47	0	0	0
FTE/Obl.	44	6,815	46	10,728	47	8,600	47	8,600	0	0
<u>Spectrum Fees</u>										
Spectrum Management..... Pos/BA	109	0	114	0	114	0	123	0	9	0
FTE/Obl.	95	29,305	114	46,909	114	34,536	123	35,536	9 *	1,000
Total, Spectrum fees..... Pos/BA	109	0	114	0	114	0	123	0	9	0
FTE/Obl.	95	29,305	114	46,909	114	34,536	123	35,536	9	1,000
Total, Reimbursable Obligations..... Pos/BA	155	0	160	0	161	0	170	0	9	0
FTE/Obl.	139	36,120	160	57,637	161	43,136	170	44,136	9	1,000

* An addition of five FTE reflects NTIA's intention to reduce spending by transitioning continuing functions previously provided by contract vendors to federal employees. The remaining four additional employees are required to implement the Spectrum Pipeline Act of 2015.

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

Comparison by budget program	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/(Decrease)
Total Obligations.....	\$74,866	\$97,137	\$83,211	\$94,977	\$11,766
Offsetting collections from:					
Other	(35,721)	(57,137)	(42,636)	(43,636)	(1,000)
Non-Federal sources.....	(399)	(500)	(500)	(500)	0
Recoveries/Refunds.....	(487)	0	0	0	0
Unobligated balance, start of year.....	(4,679)	0	0	0	0
Unobligated balance, end of year.....	4,200	0	0	0	0
Unobligated balance, expiring.....	420				
Budget Authority.....	38,200	39,500	40,075	50,841	10,766
Restoration of unobligated balance, rescission.....	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.....	38,200	39,500	40,075	50,841	10,766

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

Adjustments to Base	FTE	Amount (\$000)
Pay Raises	0	\$ 317
<u>Full-year cost of FY 2016 pay increase and related costs</u>		
Total cost in FY 2017 of FY 2016 pay increase.....	237,333	0
Less amount funded in FY 2016.....	178,000	
Total amount requested in FY 2017 to provide cost of FY 2016 pay raise.....	59,333	
Other		
<u>FY 2017 pay increase and related costs</u>		
A general pay raise of 1.3 percent is assumed to be effective January 1, 2016.		
Total cost of FY 2016 pay raise.....	240,462	
Working Capital Fund.....	18,000	
Total adjustment for FY 2016 pay increase.....	258,462	
 Civil Service Retirement System (CSRS)	 0	 \$ (23)
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 3.7 percent in FY 2015 to 1.4 percent in FY 2016. The contribution rate will remain 7.0 percent.		
FY 2017 (\$16,220,000 x .001 x .07).....	1,135	
FY 2016 (\$16,220,000 x .021 x .07).....	23,843	
Total adjustment to base.....	(22,708)	
 Federal Employees Retirement System (FERS)	 0	 \$ 124
The number of employees covered by FERS continues to rise as employees covered by CSRS leave and are replaced by employees covered by FERS.		
FY 2017 (\$16,220,000 x .999 x .137).....	2,219,918	
FY 2016 (\$16,220,000 x .979 x .132).....	2,096,078	
Total adjustment to base.....	123,840	

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

Adjustments to Base	FTE	Amount (\$000)
<u>Federal Insurance Contribution Act (FICA)</u>	0	\$ 49
As the percentage of payroll covered by FERS rises, the cost of OASDI contributions will increase.		
Regular Employees		
FY 2017 (\$16,220,000 x .999 x .897 x .062).....		901,157
FY 2016 (\$16,220,000 x .979 x .866 x .062).....		852,596
		48,561
Other Employees		
FY 2017 (\$169,000 x .999 x .897 x .062).....		9,389
FY 2016 (\$169,000 x .979 x .866 x .062).....		8,883
		506
Total adjustment to base.....		49,067
<u>Thrift Savings Plan (TSP)</u>	0	\$ 6
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 at 1 percent.		
FY 2017 (\$17,516,000 x .999 x .02).....		324,076
FY 2016 (\$17,516,000 x .979 x .02).....		317,588
		6,488
<u>Health Insurance</u>	0	\$ 33
Effective January 2016, NTIA's contribution to Federal employees' health insurance premiums increased by 3.5 percent. Applied against the 2016 estimate of \$966,000, the additional amount required is \$33,810.		
<u>Employee Compensation Fund:</u>	0	13
The Employees Compensation Fund bill for the year ending June 30, 2017, is projected to be \$13,000 higher than the bill for the year ending June 30, 2017. The Employee Compensation fund is based on an actual billing from the Department of Labor.		
<u>Two Fewer Compensable Days</u>	0	\$ (151)
The decreased cost of two fewer compensable days in FY 2017 compared to FY 2016 is calculated by dividing the 2016 estimated personnel compensation (\$16,220,000) and applicable benefits (\$3,501,000) by 262 compensable days. The reduced cost resulting from two fewer compensable day is (\$150,542).		

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

Adjustments to Base	FTE	Amount (\$000)
<p><u>Per Diem</u> Per diem rates are projected to increase 1.8%. This percentage was applied to the FY 2016 estimate of \$457,000 to arrive at an increase of \$8,226.</p>	0	\$ 8
<p><u>Electricity</u> The average increase for PEPCO electricity is projected to be 2 percent.</p>	0	\$ 6
<p><u>Rental Payments to GSA</u> GSA rates are projected to increase 3.0 percent in FY 2017. This percentage was applied to the FY 2016 estimate of \$1,394,000 to arrive at an increase of \$41,820; costs for Federal Protective Services are estimated to be \$8,400.</p>	0	\$ 50
<p><u>Storage</u> National Archives and Records Administration (NARA) storage costs - In FY 2015, NARA estimates reflect a decrease of \$4,761 for records storage and maintenance costs.</p>	0	(5)
<p><u>Working Capital Fund</u> The amount of \$93,000 is a net reduction in charges for the Departmental Working Capital Fund.</p>	0	\$ (93)
<p><u>General Pricing Level Adjustment</u> This request applies 1.8 percent based on OMB economic assumptions for FY 2017 to object classes where the prices that the Government pays are established through the market system. Factors are applied to: other services (\$189,928), supplies and materials (\$4,014), equipment (\$40,248), travel (\$4,608), GPO printing (\$990), and communications, utilities, and misc. charges (\$2,880).</p>	0	\$ 241
<p>Subtotal, Cost Changes</p>	0	\$ 575
<p>Total, Adjustments to Base</p>	0	\$ 575

National Telecommunications and Information Administration (NTIA)

Salaries and Expenses

For FY 2017, NTIA requests an increase of \$10,766,000 and 17 FTE. NTIA has realigned resources within the Broadband Programs to reflect the transition from broadband grant management to the community capacity-building BroadbandUSA program. The requested increase also will help NTIA to address additional responsibilities within the Office of Spectrum Management mandated by the Spectrum Pipeline Act of 2015, enable NTIA to address Internet policy and digital economy issues proactively, and leverage federal investments in spectrum research and technology development more effectively through its joint partnership with NIST at the Center for Advanced Communications.

Current-level funding is required to ensure that NTIA remains a leading resource for Internet governance and policy making. NTIA still has significant work to do to advance efficient use of spectrum and spectrum sharing, and a strong research, testing, and information-sharing infrastructure is crucial. NTIA and NIST will combine their unique laboratory capabilities and collaborate to address these important scientific research and applied science issues through the Center for Advanced Communications.

OVERVIEW

NTIA is the principal adviser to the President on communications policy issues. 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. communications technology, equipment, and service companies. These policies further U.S. strategic goals of opening markets and encouraging competition, innovation, and entrepreneurship domestically and globally; advancing the public interest in communications, mass media, and information services; and promoting the availability of advanced services to people around the globe.

Since its creation in 1978, NTIA has been at the cutting edge of communications issues. NTIA programs and objectives are based on the interdisciplinary analysis of economic, technological, regulatory, legal, social, and foreign policy issues. NTIA works with the White House and other federal agencies on Administration-wide communications policy issues and obtains private-sector views on a broad range of communications policy matters. NTIA staff and facilities are located primarily in the Washington, DC, and Boulder, CO, areas. NTIA's activities fall within two DOC Strategic Goals:

Trade and Investment: Expand the U.S. economy through increased exports and inward foreign investment that lead to more and better American jobs: Objective 1.1. Increase opportunities for U.S. companies by opening markets globally.

Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies that lead to higher productivity and competitiveness: Objective 2.2. Strengthen the Nation's digital economy.

NTIA's Salaries and Expenses base budget is organized into four budget programs:

The **Domestic and International Policies program** formulates and promotes policies necessary to continue Internet innovation both domestically and internationally. The program

also formulates and promotes national policies for presentation in multilateral, bilateral, international, and multi-stakeholder organizational settings. This program has positioned NTIA to advocate strongly within interagency discussions and within a wide variety of domestic and international forums to advance the nation's economic, social, and political interests.

The **Spectrum Management program** develops, establishes, and implements plans, policies, activities, capabilities, and procedures to ensure that U.S. spectrum policy, spectrum allocations, and spectrum management capabilities and processes keep pace with the needs of federal agencies and the American public for access to the radio spectrum in the 21st century, both domestically and internationally.

The **Advanced Communications Research program** utilizes research and engineering to support Administration communications goals, such as enhanced domestic competition, advanced services and new technology deployment, improved foreign trade opportunities for U.S. communication firms, and more efficient use of spectrum. NTIA has a cooperative effort with NIST to align the world-class advanced communications capabilities of both organizations under a Center for Advanced Communications. The Center for Advanced Communications unites key research and engineering activities for collaborative research and engineering, including addressing current and long-term challenges in spectrum sharing, public safety communications, standards coordination, electromagnetics, and quantum electronics.

On a reimbursable basis, NTIA also serves as a principal federal resource for addressing the communications, information technology, and security challenges of other federal agencies and state, local, and tribal governments.

The **Broadband Programs** serve communities by providing information, tools, and assistance to support projects that expand broadband availability and adoption nationwide. This effort, BroadbandUSA, promotes sustainable approaches to planning, financing, and implementing broadband projects. Building on the knowledge and experience gained by managing hundreds of grants projects, NTIA provides technical assistance, financing advice, and management tools to help communities leverage existing resources and build public-private partnerships to support broadband projects. The program includes hands-on assistance for targeted underserved communities.

INFORMATION AND TECHNOLOGY

NTIA is serviced by a full range of infrastructure and information management efforts that support and promote NTIA's mission. NTIA proposes to continue its modernization of IT operations and standardize its platforms to support new initiatives in spectrum management, communications policy, and public safety communications. NTIA will migrate all legacy systems to standard platforms, reducing the number and types of technology it employs.

NTIA will continue to investigate and seek opportunities for new modernization efforts to improve business performance as well as invest in shared services, consolidation efforts, and improvements in administrative efficiencies.

SIGNIFICANT ADJUSTMENTS-TO-BASE:

NTIA requests a net increase of 0 FTE and \$0.575 million to fund adjustments to current programs. The increase includes funds for an FY 2017 federal pay raise of 1.6 percent as well as inflationary increases for non-labor activities, including service contracts, utilities, per diem,

rent charges from the General Service Administration (GSA), and NTIA's costs for the Working Capital Fund.

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

Budget Program: Salaries and Expenses
 Sub-Program: Domestic and International Policies

Comparison by sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Domestic and International Policies..... Pos/BA	33	\$7,580	35	\$9,093	35	\$9,225	48	\$15,832	13	\$6,607
FTE/Obl.	26	6,574	35	10,887	35	9,225	45	15,832	10	6,607
Direct Obligations..... Pos/BA	33	7,580	35	9,093	35	9,225	48	15,832	13	6,607
FTE/Obl.	26	6,574	35	10,887	35	9,225	45	15,832	10	6,607

**Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses**

Program Justification for Domestic and International Policies (\$000)

Program	FY 2016 Enacted	FY 2017 Base	FY 2017 Request	Difference
Domestic and International Policies	\$9,093	\$9,225	\$15,832	\$6,607
FTE	35	35	48	13

Mission/Objective: NTIA will protect and promote the Internet and the innovation and economic value it fosters.

Background: NTIA is the principal adviser to the President on communications issues and policies and represents each Administration before the Federal Communications Commission. It is the only Executive Branch agency with a core mission to protect and promote the Internet, digital economy, and the innovation and economic value it fosters. NTIA provides timely analyses and policy recommendations on Internet and communications policy issues. It also endeavors to ensure that the Internet remains an open, dynamic platform for innovation, job creation, and economic growth in traditional and emerging communications networks and services.

From major cybersecurity incidents, to net neutrality, to foreign Internet regulations, to digital copyright, to how online corporations are targeting ads and utilizing big data, NTIA addresses issues to support continued Internet innovation and job creation. The Internet and communications and information services are integral to the U.S. economy and account for a significant portion of our economy's recent growth. According to a 2011 estimate¹, the Internet accounted for 21 percent of the GDP growth in mature economies over the past five years. In the United States, online retail sales are growing more quickly than the economy as a whole. By 2016, the Internet economy is projected to contribute a trillion dollars to the U.S. GDP (just over five percent).

Domestically and internationally, NTIA promotes the multistakeholder approach to addressing Internet policymaking and governance issues, which involves the full inclusion of all stakeholders; relies on consensus-based decisionmaking; and operates in an open, transparent, and accountable manner. Although the Internet has flourished because this approach was followed from its infancy to resolve technical and policy issues, the multistakeholder approach currently is threatened by countries that do not share our interest in an open, dynamic, and innovative Internet. NTIA addresses these challenges through a combination of subject matter expertise; engagement with a broad array of multistakeholder organizations, regulatory agencies, and multilateral bodies; empirical research on broadband adoption and usage; and interagency coordination and collaboration.

FY 2017 Activities:

During FY 2017 NTIA will:

¹ Pélissié du Rausas, M., et al. "Internet matters: The Net's sweeping impact on growth, jobs, and prosperity," McKinsey & Company, May 2011,

- **Policy and Trends Analysis.** Engage new research resources from the private sector and develop new products to keep the Executive Branch, the Department, Congress, and other stakeholders apprised of fast developing Internet policy issues and trends.
- **Consumer Data Privacy.** Establish a privacy policy development process and convene a series of open, public meetings to encourage private-sector stakeholders to develop codes of conduct for consumer data privacy and will continue to address issues in a multistakeholder manner.
- **Cybersecurity.** Promote U.S. cybersecurity policies domestically and intergovernmental fora, including the Organizations for Economic Cooperation and Development (OECD) and the Asia Pacific Economic Cooperation (APEC) Telecommunications and Information Working Group.
- **Online Copyright Protection.** Develop positions on potential changes to U.S. copyright law in partnership with the U.S. Patent and Trademark Office.
- **Law Enforcement and National Security.** Provide advice focusing on innovation and economic growth in policy discussions related to the protection of Americans from criminal and national security threats in the online environment. Continue to participate in interagency discussions on topics ranging from countering online violence and radical extremism to proposals to authorize companies to “hack back” against the perpetrators of cyber-attacks.
- **Representing the Administration.** Coordinate Executive Branch communications policy and communicates this policy to independent agencies such as the Federal Communication Commission (FCC) and the Federal Trade Commission (FTC).
- **Domain Name System (DNS).** Provide technical and policy expertise to the Executive Branch and other stakeholders related to this important element of Internet infrastructure, the DNS. NTIA is known for its leadership in promoting Internet DNS security and stability, including providing a framework for the administration of the .edu domain.
- **Internet Corporation for Assigned Names and Numbers (ICANN).** Continue representing the USG in ICANN’s Governmental Advisory Committee (GAC) and coordinating USG policy positions. NTIA represents the U.S. Government in ICANN’s GAC. The GAC’s key role is to provide advice to ICANN on issues of public policy related to the DNS.
- **Internet Governance Forums.** Continue to shape the Internet Governance Forum (IGF) program and intersessional work as member of Multistakeholder Advisory Group (MAG) by improving the transparency, accountability and “results” of the global IGF; a multistakeholder venue that facilitates global discussions of Internet policy issues.
- **Intergovernmental Organizations.** Participate and advocate before multilateral forums, including the International Telecommunication Union (ITU), APEC, CITEL-- the specialized communications Advisory organization of the Organization of American States (OAS), and the OECD. These organizations address important Internet and communications services issues.
- **Satellite Organizations.** Provide policy and technical guidance to the State Department on issues before the International Telecommunications Satellite Organization (ITSO) and the International Mobile Satellite Organization (IMSO).
- **Trade Negotiations.** Participate and provide policy and technical support to the Department, United States Trade Representative (USTR) and other federal agencies to ensure that U.S. trade agreements support communications and e-commerce services and the free flow of information across borders, creating jobs for Americans and facilitating economic growth.

- **Surveying Broadband Adoption.** Measure and analyze broadband adoption in the United States, share its findings with the American public, and inform consumers of the benefits of using broadband.
- **Promoting Small Business and Minority Interests in the Digital Economy.** Conduct outreach to groups that represent minority interests in communications policies by engaging with minority trade associations; participates in meetings, conferences, and other events that focus on minority issues in the digital economy; and assists the Minority Business Development Agency (MBDA) in identifying strategic partnership prospects in emerging economies to advance Internet governance goals and promote MBDA's initiatives.
- **Digital Economy Leadership Team (DELT).** Provide leadership and support to the DELT formed in FY 2015, which, among other things, works to increase the Department's digital economy profile. Given the importance of digital economy issues to the Department and its stakeholders.
- **Digital Economy Federal Advisory Committee.** Provide leadership, management and administration to Federal Advisory Committee (FACA) focused on the Digital Economy.
- **Promoting the Multistakeholder Model.** Preserve, promote, and enhance the multistakeholder approach to address Internet policymaking and governance issues. Develop and present USG positions at bilateral, multilateral and international organizational meetings and stakeholder fora that support and advance the multistakeholder approach.
- **Interagency Leadership and Coordination.** Coordinate policies and positions that impact the Internet and other communications to ensure consistent U.S. messaging and positions domestically and internationally. Coordinate interagency positions and filings on matters pertaining to the Federal Communications Commission and the Federal Trade Commission. Support the interagency legislative coordination and clearance process and review Internet and Digital Economy policy related documents.
- **Internet Policy Task Force Leadership.** Serve as the executive secretariat for the Department's Internet Policy Task Force (IPTF), a cross-Department group that coordinates the efforts in communications and information policy, economic analysis, intellectual property, trade, and technical standards to address the most pressing issues in the Internet economy.
- **Training of International Partners.** Plan and conduct training to communications regulators from other countries through the U.S. Telecommunications Training Institute (USTTI) and a variety of digital Development Leadership Programs. These interactions with regulators and policymakers in emerging economies provide NTIA with the opportunity to emphasize the importance of open and competitive markets and transparent decisionmaking in communications policy as elements of economic development and growth.

Risk Assessment: Without adequate funding, NTIA runs the risk of failing to respond quickly and effectively to emerging Internet and Digital Economy policy issues, which could lead to disengagement with our stakeholders and lost economic opportunities with long-term negative impacts to U.S. citizens and businesses. If base funding is decreased, NTIA will lack capacity to provide needed interagency and stakeholder coordination and coherence that is essential to advancing the multistakeholder approach to Internet policymaking both domestically and internationally. Nor will NTIA be able to participate in some regional and bilateral training activities.

No other Executive Branch agency views – as a core mission – the Internet as something to protect and promote. If base funding is not sustained in FY 2017, NTIA will be unable to attract and maintain staffing that have policy expertise on the full range of Internet policy issues that are critical to U.S. economic and national security interests. From an economic and educational standpoint, broadband access and adoption are critical and without an ability to assess the impact of our efforts to promote broadband and the economic and societal benefits it brings, future investment and policy decisions would be less effective.

Significant Adjustments-To-Base (ATBs): NTIA requests a net increase of \$0.132 million and 0 FTE to fund adjustments-to-base to current programs for Domestic and International Policies activities. The increase will fund the estimated 2017 federal pay raise of 1.6 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, per diem, rent charges from the General Services Administration (GSA), and NTIA's costs for the Working Capital Fund.

PROGRAM CHANGE FOR FY 2017:

Internet Policy and the Digital Economy (Base Funding: \$9,225,000 and 35 FTE; Program Change: + \$6,607,000 and 10 FTE): NTIA requests an increase of \$6.607 million and 10 FTE for a total request of \$15,832,000 and 48 FTE. NTIA must address gaps in Internet policy resources to shift from a reactive to a proactive posture on the broad range of Internet policy and digital economy issues. The request will also enable NTIA to launch new research and analysis teams on fast moving Internet and digital economy issues; build a trends analysis and clearinghouse function; formalize stakeholder engagement through a federal advisory committee; and improve global training programs to support the multistakeholder model. In addition, NTIA will inventory, evaluate, and plan for the transition from time division multiplexing (TDM) technology to Internet protocol (IP) that is underway in U.S. communications networks. This will result in the ability to plug telephones in anywhere on a network system, connect multiple locations together to act in unison as a single system, and take advantage of a much longer life expectancy than with TDM. NTIA also will be able to support the Mutual Legal Assistance Treaties (MLATs) modernization by working with key online industry participants.

NTIA needs additional subject matter and methodological expertise to be able to fulfill its advisory, policy development, and international engagement missions under 47 U.S.C. § 902.

- Greater capacity to conduct economic analysis will enable NTIA to advance innovation and entrepreneurship. NTIA would strengthen its existing expertise in substantive areas (*e.g., consumer privacy and cybersecurity*), economic analysis methods, and its leadership role in the internet policy arena to solidify a federal approach and strategy.
- Similarly, policy experts with deep knowledge in areas such as digital trade, digital copyright, big data, and mobile technologies and applications would enrich and expand the policy analysis that NTIA can provide.

There are three components to the requested increase:

A) The Internet Policy and the Digital Economy: The Internet, and services it supports, represent one of the most important drivers of economic growth and job creation for the country. A healthy digital economy is essential for long-term economic development. Job opportunities, new business models, and innovation over the past decade have been associated primarily with the digital economy. Yet, important challenges remain. Our economic prosperity depends on

our ability to maintain an open, interoperable, secure, and reliable Internet. This rapid growth in the importance of the digital economy demands a growth in NTIA's resources to support the digital economy. To keep pace with the growth of the Internet and digital economy and to ensure it continues to evolve in a way that supports American values and economic goals, NTIA must also innovate and scale to meet today's demands and to anticipate those of tomorrow. These key activities include:

- **Upgraded Policy Analysis Teams and Trends Analysis.** Because of its extraordinary reach into our society and its rapid growth, the Internet is a platform with societal implications that policymakers are still struggling to understand. NTIA will deepen and extend its policy analysis and expertise in legislative, regulatory, technical, and economic analysis. For example, NTIA will expand its policy development into new areas, such as the implications of the sharing economy, while expanding its coverage and trends analysis for Internet openness, Internet intermediaries, privacy, security, the DNS, Internet routing, Internet standards setting activities, and intellectual property issues. Proposals to address specific issues will be informed by multidisciplinary analysis, so that the executive branch has a full understanding of the potential impacts of specific policy choices. NTIA will engage new research resources from the private sector and develop new products to keep the Executive Branch, DOC, Congress, and other stakeholders apprised of fast developing Internet policy issues and trends.

NTIA will also work with the Economics and Statistics Administration and other relevant bureaus in the Department to expand its study of the Internet economy, by using existing federal datasets and developing new analyses and sources of data. Because the Internet economy is so diffuse – with participants ranging from multinational corporations to individual innovators – it is vital to have broad expertise to properly understanding the industry.

- **Interagency Coordination and Collaboration.** Collaboration and coordination are fundamental to avoiding duplication of efforts and incompatible policies. Numerous federal agencies have missions that touch the Internet and communications infrastructure, technology, and services in some way. NTIA will focus on optimizing policies that impact the Internet and the broader digital economy to ensure consistent U.S. messaging and positions domestically and internationally.
- **Digital Economy Federal Advisory Committee.** Implementing policies that promote innovation and entrepreneurship requires extensive engagement with private-sector stakeholders and international and intergovernmental partners. The U.S. Government advocates a market-driven, private sector-led approach, which often does not fit the mold of regulation that many governments, international organizations, and even some companies expect. NTIA ensures that the input received from U.S.-based commercial industry and civil society stakeholders are given due consideration in developing Internet policy. NTIA supports the DOC Secretary-level Federal Advisory Committee (FACA) focused on the Digital Economy. The FACA engages Chief Executive Officer level representatives from the country's leading Internet companies to provide strategic advice and guidance to the Department on policy issues including cybersecurity, big data, digital copyright, and the free flow of information.
- **International Training.** One of the most significant threats to an open and innovative Internet is the attempt by individual governments to cede decisionmaking on Internet

governance to international organizations such as the ITU. Through a global outreach and training program, NTIA will educate government officials in developing countries about the benefits of an open and unfettered Internet, the multistakeholder Internet governance model, and laws that will promote innovation while reducing fraud and cybercrime. Many countries, including developing nations in Africa and Asia, are not active in multistakeholder organizations where Internet governance policymaking discussions are taking place, as they lack the resources to engage effectively in a multistakeholder environment. NTIA will expand its collaboration with USTTI by funding seminars and webinars to develop a consortium of countries that will help to uphold and maintain the goals of open and innovative Internet, sound Internet governance, and policymaking based on the multistakeholder model.

B) IP Transition Inventory, Evaluation, and Assistance for Federal Agencies: One statutory mission of NTIA is to coordinate Executive Branch communications policy and to communicate this policy to independent agencies such as the FCC. As part of that mission, NTIA will coordinate the efforts across the Executive Branch to inventory, evaluate, and plan for the foundational transition from TDM technology to IP that is underway in U.S. communications networks.

Companies such as AT&T have reported that they plan to retire all TDM technology in their network by 2020. This transition affects millions of internal and external, public-facing federal systems – having impacts from financial in nature to public safety to Americans nationwide. Therefore, it is important that Executive Branch agencies inventory, evaluate, and plan for this transition to ensure that the federal government is prepared for the transition at the time it will impact mission-critical federal contracts.

C) Mutual Legal Assistance Treaty (MLAT) Outreach and Education: NTIA is the only non-law enforcement agency with a leadership role in providing policy and technical assistance to support mutual legal assistance treaty modernization by executing an outreach and education initiative aimed at key online industry participants in the U.S. Commerce will work with the Departments of Justice (DOJ) and State to facilitate industry input into DOJ's modernization planning process. The Department will also undertake a formal industry outreach and education process to educate U.S. industry about DOJ's modernized MLAT process and methods to promote the initiative with foreign governments, and to emphasize to U.S. industry the need to optimize their response to and compliance with foreign law enforcement requests. The responsibilities of the new personnel are listed below:

- Provide leadership and participate in domestic, interagency, international, multilateral and multistakeholder conferences and meetings promoting the U.S. Internet and Digital Economy policy issues in order to advance agreements that are favorable to U.S. interests, particularly with regard to emerging information technologies.
- Conduct a comprehensive study of the Internet economy through targeted research and issue papers on new and emerging topics such as mobile application policy and the Internet of Things;
- Provide a central clearinghouse of information on the digital economy and emerging policy issues;
- Identify new consumer privacy and cybersecurity best practices and codes of conduct;
- Provide the necessary leadership and administrative support for the Digital Economy Federal Advisory Committee whose mission is to provide expert advice and input on a range of global issues that affect the Digital Economy; federal advisory committee;

- Make recommendations on legislative amendments to copyright, trade secret, and patent law and support for IPTF efforts to identify voluntary solutions to online copyright infringement challenges; and
- Improve the training strategy to promote international acceptance and use of the multistakeholder approach to Internet policymaking and governance.

It is vital that the U.S. has a coherent, coordinated policy toward the Internet and digital economy. No other Executive Branch agency has the responsibility to protect and promote the Internet and digital economy as a core component of its mission. At its current staffing levels, NTIA is unable to properly protect the Internet from threats to its vibrancy and openness that threaten U.S. innovation and economic growth.

Proposed Action: NTIA proposes to hire ten FTEs to supplement the current policy workforce with economists, engineers, researchers, policy experts, managers, and technicians to enable NTIA to accomplish its designated mission successfully. Although NTIA's current staff has expertise in a wide variety of communications and internet policy areas, base funding and staffing is not enough to keep pace with these issues. Without additional subject-matter experts, NTIA will struggle with mission-essential work in developing communications policy.

Statement of Need and Economic Benefits: The digital economy is the great engine of innovation and economic growth of the 21st century. NTIA is its principal champion in the federal government. The Department has an essential role to strengthen the nation's digital economy by helping to expand digital infrastructure, developing capabilities to ensure the continued development of the online marketplace, and crafting policies that will leverage the Internet to spur economic growth and innovation. The economic benefits to the U.S. of an open, globally interconnected Internet are tremendous. These benefits are manifest in quantitative measures, such as GDP contributions and productivity gains, and in ways that are more difficult to measure, such as consumer convenience, democratic participation, and international economic and cultural leadership. For example, according to the Census Bureau, between 1999 and 2007, business-to-consumer online commerce increased over 500 percent. Taking into account business-to-business transactions, online commerce in 2010 accounted for approximately \$4.1 trillion in shipments, sales, or revenue to the U.S. economy. U.S. mobile commerce grew to an estimated \$2.4 billion. Demand for new broadband applications and services, in combination with the arrival of smartphones and tablets, has created a seismic shift in industry structure and relationships. Converged services, emerging machine-to-machine communications, cloud computing services, and "over-the-top" services are giving raise to new service providers. Cisco predicts that global mobile data traffic will grow nearly 11-fold between 2013 and 2018 with a compound growth rate of 61 percent, a rate that is three times faster than fixed broadband traffic. Sustaining this growth is one of the most pressing economic issues for the U.S. Government.

NTIA's Internet policy work strongly complements NTIA's leading role in identifying spectrum to expand wireless broadband Internet access. Ensuring that the wireless broadband revolution leads to the same economic benefits that the past 15 years of Internet privatization and broadband adoption have brought requires continuing attention to privacy, cybersecurity, openness and neutrality, copyright, the free flow of information, and other policy challenges. NTIA is uniquely positioned to provide leadership on these issues domestically and internationally.

Non-monetary benefits include advances in the government's understanding of the size and scope of the Internet economy as well as the policy variables that affect growth and innovation

in this segment of the economy. This understanding will provide the Executive Branch and Congress with a stronger empirical basis for developing Internet policy. It will also provide NTIA and other federal agencies with a foundation that can be used to support U.S. positions in international discussions and negotiations. Finally, industry and the economy will benefit from new analyses and data and have opportunities to formalize their engagement with government on critical digital economy issues. These initiatives will also deliver benefits through more rapid and complete implementation of existing U.S. Internet policy positions.

Base Resources Assessment: NTIA's base funding is used primarily for labor expenses. The current level of funding supports NTIA analysis of policies relating to the Internet, as well as policies and potential regulations that apply to wireline and wireless telephony. However, this level has remained relatively steady at a time when the internet environment is exploding. The range of policy issues that affect Internet-based innovation and the Internet economy continue to expand. While NTIA will continue to play leadership and coordinating roles in interagency processes, current resource levels have restricted the number and depth of areas NTIA can accommodate effectively.

Schedule & Milestones

During FY 2017, NTIA will:

- Coordinate, develop and present the Administration's views on U.S. proposals and positions for domestic, international and multistakeholder meetings where Internet and Digital Economy policy issues are addressed;
- Lead and or participate in bilateral, multilateral and multistakeholder conferences and meetings on Digital Economy issues;
- Consult bilaterally and multilaterally to advance U.S. Internet governance and policymaking. NTIA will work to foster better international awareness of the multistakeholder approach to Internet Governance by creating and engaging in bilateral and regional education programs. This will include the translation of policy documents and other relevant materials that will support these bilateral relationships and inform developing countries on issues related to Internet governance and policymaking;
- Conduct in-depth research, on an ongoing basis, into new and emerging issues and make policy recommendations, potentially for public comment, in areas such as big data, unmanned aerial systems, the Internet of things, intermediary liability, data localization, and mobile applications policy;
- Create a clearinghouse of information and analysis on cutting edge Internet policy issues and trends impacting the digital economy. Access would be available in the latter part of FY 2017;
- Coordinate an inventory of U.S. federal agency assessments examining their readiness to transition from the legacy communications network to Internet protocol (IP) based technology, and associated risks.
- Conduct an inventory, analysis, and planning process across federal agencies focused on the transition from the legacy communications network to Internet protocol technology; and
- Conduct outreach to Internet corporations and host workshops for industry on modernizing the MLAT process.

Deliverables:

During FY 2017, NTIA will:

- Enhance and increase the Department of Commerce's Digital Economy profile, coordinate work across operating bureaus and federal agencies and promote policies that will have a positive impact and enable U.S. businesses to maintain their technological advantage globally;
- Promote domestically and internationally U.S. approaches and policies on emerging Digital Economy issues, technologies and business sectors to ensure U.S. competitiveness and provide economic opportunity to American people
- Represent within a broad range of interagency discussions the critical goals of protecting and promoting the Internet and the innovation and economic growth that flows from it.
- Analyze other administrations and stakeholders proposals to determine the impact on the U.S. Internet and Digital Economy.
- Advance the multistakeholder approach to Internet policymaking both domestically and internationally.
- Enhance NTIA's multistakeholder platforms using state-of-the-art technology solutions.
- Develop a Digital Economy Policy Lab that leverages the skills and expertise of the Department's bureaus to proactively identify and engage in emerging Digital Economy issues, technologies and business sectors.
- Conduct various regional and bilateral training activities to encourage the adoption of U.S. Government policy approaches with the goal of increasing U.S. Government allies in international debates, policy summits, treaty conferences, and Internet governance policy development.
- Partner with USTTI to develop seminars and webinars on Internet governance and policymaking.

Performance Goals and Measurement Data:

Performance Goal: Innovation	FY 2015 Actual	FY 2016 Target	FY 2017 Target	FY 2018 Target	FY 2019 Target	FY 2020 Target	FY 2021 Target
Recommendations With Increase	5	5	15	15	15	15	15
Without Increase	5	5	5	5	5	5	5
Description: This measure is focused on formulating coherent and pro-innovation policy recommendations that will be advanced in interagency discussions and through policy papers, speeches, and domestic and international conferences.							

Performance Goal: Innovation	FY 2015 Actual	FY 2016 Target	FY 2017 Target	FY 2018 Target	FY 2019 Target	FY 2020 Target	FY 2021 Target
Multistakeholder engagements With Increase	2	2	4	6	7	7	7
Without Increase	2	2	2	2	2	2	2

Description: This measure is focused on significant NTIA-led multistakeholder engagements to address critical privacy, security, intellectual property, governance, and other issues.

Performance Goal: Innovation	FY 2015 Actual	FY 2016 Target	FY 2017 Target	FY 2018 Target	FY 2019 Target	FY 2020 Target	FY 2021 Target
International training							
With Increase	15	15	30	50	50	50	50
Without Increase	15	15	15	15	15	15	15

Description: This measure is focused on the number of foreign government officials with which NTIA can meaningfully engage through outreach, meetings, workshops, conferences, and USTTI trainings to promote understanding and acceptance of the multistakeholder model of Internet governance and decisionmaking.

Performance Goal: Innovation	FY 2015 Actual	FY 2016 Target	FY 2017 Target	FY 2018 Target	FY 2019 Target	FY 2020 Target	FY 2021 Target
Federal Inventories							
With Increase				10	6	4	4
Without Increase				2	0	0	0

Description: This measure is focused on the number of federal agencies' inventories assessed and completed to prepare for the transition to IP networks.

Performance Goal: Innovation	FY 2015 Actual	FY 2016 Target	FY 2017 Target	FY 2018 Target	FY 2019 Target	FY 2020 Target	FY 2021 Target
Workshops							
With Increase				2	2	2	2
Without Increase				0	0	0	0

Description: This measure is focused on the number of workshops to be held on the Mutual Legal Assistance Treaty (MLAT) Outreach and Education process.

PROGRAM CHANGE PERSONNEL DETAIL

Budget Program: Salaries and Expenses
 Sub-Program: Domestic and International Policies
 Program Change: Internet Policy and the Digital Economy

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Economist	Washington, DC	GS-15	2	128,082	256,164
Telecommunications Policy Specialist	Washington, DC	GS-14	2	108,887	217,774
Economist	Washington, DC	GS-13	2	92,145	184,290
Telecommunications Policy Specialist	Washington, DC	GS-13	2	92,145	184,290
Telecommunications Policy Specialist	Washington, DC	GS-12	2	77,490	154,980
Business & Industry Specialist	Washington, DC	GS-11	1	64,650	64,650
Telecommunications Policy Specialist	Washington, DC	GS-9	2	53,435	106,870
Total			<u>13</u>		<u>1,169,018</u>
Less Lapse		25%	<u>(3)</u>		<u>(292,255)</u>
Total full-time permanent (FTE)			10		876,764
2017 Pay Adjustment (1.6%)					<u>14,028</u>
TOTAL					<u>890,792</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	10
Other than full-time permanent	<u>0</u>
Total	10

Authorized Positions:

Full-time permanent	13
Other than full-time permanent	<u>0</u>
Total	13

FY 2016 Enacted plus Adjustments to Base plus Program Change by Object Class

(Dollar amounts in thousands)

Budget Program: Salaries and Expenses
 Sub-Program: Domestic and International Policies
 Program Change: Internet Policy and the Digital Economy

Object Class	2016 Enacted	2017 ATBs	2017 Base	2017 Prg Chg	2017 Request
11 Personnel compensation	0	0	0	0	0
11.1 Full-time permanent	3,879	28	3,907	891	4,798
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other pers. compensation	53	0	53	53	106
11.8 Spec. personnel serv. paymts	0	0	0	0	0
11.9 Total pers. compensation	3,932	28	3,960	944	4,904
12 Civilian personnel benefits	1,120	53	1,173	249	1,422
13 Benefits for former personnel	0	0	0	0	0
21 Travel & transport. of persons	328	3	331	1	332
22 Transportation of things	1	0	1	1	2
23.1 Rental payments to GSA	359	16	375	104	479
23.2 Rental Payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	96	0	96	13	109
24 Printing and reproduction	3	0	3	2	5
25.1 Advisory & assistance services	0	0	0	0	0
25.2 Other services	824	41	865	1,210	2,075
25.3 Goods & serv. fr. Gov't accts.	2,195	(19)	2,176	3,876	6,052
25.4 Operation & maint. of facilities	0	0	0	0	0
25.5 Research & devel. contracts	0	0	0	0	0
25.6 Medical care	0	0	0	0	0
25.7 Op. and maint. of equip.	2	0	2	5	7
25.8 Subsist. & support of persons	0	0	0	0	0
26 Supplies and materials	36	1	37	20	57
31 Equipment	62	9	71	182	253
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies & contributions	135	0	135	0	135
42 Insurance claims & indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total obligations	9,093	132	9,225	6,607	15,832

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

Budget Program: Salaries and Expenses
 Sub-Program: Spectrum Management

Comparison by sub-program		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Spectrum Management.....	Pos/BA	39	\$8,002	39	\$8,488	39	\$8,634	40	\$8,884	1	\$250
	FTE/Obl.	24	9,300	39	8,488	39	8,634	40	8,884	1	250
Direct Obligations.....	Pos/BA	39	8,002	39	8,488	39	8,634	40	8,884	1	250
	FTE/Obl.	24	9,300	39	8,488	39	8,634	40	8,884	1	250

**Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses**

Program Justification for Spectrum Management (\$000)

Program	FY 2016 Enacted	FY 2017 Base	FY 2017 Request	Difference
Spectrum Management	\$8,488	\$8,634	\$8,884	\$250
FTE	39	39	40	1

Mission/Objective: The Spectrum Management program ensures federal government spectrum needs are secured and managed effectively and efficiently, while creating opportunities to meet the increasing demand for both federal and commercial users.

Background: Many federal agencies rely on spectrum, a limited resource, to execute their core missions -- from national defense and law enforcement operations to scientific applications, weather prediction, and satellite operations. Such services could not be provided without NTIA's management of vital spectrum resources. Among its spectrum management functions, NTIA:

- Executes the spectrum management functions and activities assigned to NTIA under 47 U.S.C. 902, 903, and 921-929.
- Works with the FCC to coordinate spectrum use, recover and reallocate spectrum, update spectrum policies, and provide incentives and assistance to enable federal agencies or affected entities to make up to 500 MHz of additional spectrum available for commercial use by 2020, in accordance with the Presidential Memorandum of June 28, 2010 (*Unleashing the Wireless Broadband Revolution*).
- Promotes spectrum efficiency and sharing by facilitating government and industry collaboration, quantifying federal spectrum use, and requiring agencies to justify new spectrum uses between 400 MHz and 6 GHz, as required by the Presidential Memorandum of June 14, 2013 (*Expanding America's Leadership in Wireless Innovation*).
- Plans for and executes federal spectrum management functions during emergencies.
- Ensures system compatibility and efficient use of limited spectrum resources through the certification of spectrum support and assignment of radio frequencies for federal agency radio systems.
- Coordinates and registers internationally planned federal government satellite networks and selected assignments for terrestrial systems.
- Develops positions and promotes U.S. interests in international bodies dealing with radio regulations and other spectrum issues.
- Collaborates with the FCC, industry stakeholders, and other agencies to examine new technologies and techniques that can improve federal spectrum management and help address the ever-increasing demands of wireless communications.

FY 2017 Activities:

Domestic Spectrum Policy. NTIA develops programs and policies to expand the use of spectrum by all users. NTIA, the FCC, and federal agencies have made significant progress toward the implementation of relevant Presidential Memoranda and the Middle Class Tax Relief and Job Creation Act of 2012 to fulfill the President's goal of making available an additional 500 MHz of

spectrum for commercial broadband use. Spectrum has tremendous value for the U.S. as a whole, as demonstrated by the results of the 2014 Advanced Wireless Service auction producing more than \$40 billion in proceeds that will fund agency transitions, the FirstNet public safety broadband network, as well over \$20 billion in deficit reduction.

During FY 2017, NTIA will:

- Engage with the FCC, federal agencies, and licensees to ensure timely and successful transition of the 1695-1710 MHz and 1755-1780 MHz bands, including facilitating spectrum sharing during the transition period or indefinitely for identified systems and locations.
- Develop/publish an annual report on federal agencies' progress in transitioning systems.
- Engage with the FCC, federal agencies, and commercial broadband providers in carrying out rule changes to allow consumer access to the 3550-3650 MHz band, and potential access to the 5350-5470 and 5850-5925 MHz bands.
- Utilize results from the spectrum quantification assessments to support detailed feasibility studies of candidate bands for increased spectrum access for commercial broadband.
- Implement and update the Strategy for Federal Spectrum Management and its associated spectrum management action plan, in coordination with federal agencies.
- Convene the Policy and Plans Steering Group (PPSG) on a quarterly basis and the PPSG Spectrum Working Group on a monthly basis to obtain advice and help resolve any ongoing spectrum policy issues.
- Co-chair the Wireless Spectrum R&D (WSRD) Senior Steering Group, convening monthly meetings and periodic workshops to coordinate research and development activities across federal agencies and the private sector; and optimize spectrum-sharing investments.

Federal Agency Spectrum Management, Policy and Information. In coordination with the FCC and other federal agencies, NTIA develops and implements policies regarding spectrum use by federal agencies. NTIA develops Executive Branch views and inputs on FCC proceedings, reviews and drafts proposed spectrum legislation, and responds to Congressional requests for information on federal spectrum use or operations. NTIA also provides information regarding federal spectrum use and regulation of federal operations via its website and other electronic media, and performs outreach to federal agencies, industry, academia, and other spectrum stakeholders, including providing spectrum training courses and seminars for U.S. and foreign spectrum managers.

During FY 2017, NTIA will:

- Update/publish information (at *spectrum.gov*) on federal agencies' use of spectrum, providing stakeholders a better sense of potential opportunities and obstacles for accessing particular bands.
- Respond to requests from Congress and others for information about federal spectrum operations.
- Plan and conduct at least three NTIA spectrum training courses and seminars for U.S. and foreign spectrum managers.
- Monitor Congressional activity on spectrum management issues and assess draft legislation for potential impact to federal spectrum management or operations.
- Support the interagency legislative coordination and clearance process and review spectrum-related documents.

- Convene the Commerce Spectrum Management Advisory Committee (CSMAC) on a quarterly basis to address priority spectrum policy issues.
- Provide the Designated Federal Officer for the CSMAC and support administrative requirements including meeting notifications, agendas, and minutes.

International Spectrum Policy. NTIA, working closely with the Department of State, the FCC, and other federal agencies, represents the spectrum-related international interests of the Executive Branch, as well as the interests of the U.S. as a whole, at international forums.

During FY 2017, NTIA will:

- Lead efforts to implement the 2015 World Radio Conference (WRC) treaty results as domestic spectrum regulations.
- Coordinate federal government positions, proposals, and studies to be submitted to regional and international forums involved in spectrum management matters.
- Participate in international spectrum activities on behalf of the U.S. at International Telecommunication Union (ITU) and other international and regional organizations.
- Review federal space systems for compliance with national requirements, register federal satellite networks with the ITU, and coordinate with foreign administrations and domestic operators to protect federal satellite services from harmful interference.
- Initiate and conduct scientific and technical cooperation in communications and spectrum management with specific foreign countries in accordance with U.S. foreign and international trade policy objectives.
- Identify regulatory and procedural barriers to the timely and global implementation of U.S. innovations in radiocommunication technologies and services and recommend methods to remove these barriers.

Interdepartment Radio Advisory Committee (IRAC). Composed of representatives of 19 federal Government agencies and an FCC liaison, the IRAC assists the Assistant Secretary in assigning frequencies to U.S. Government systems and in developing and executing policies, programs, procedures, and technical criteria pertaining to the allocation, management, and use of spectrum.

During FY 2017, NTIA will:

- Chair the IRAC and its subcommittees to coordinate spectrum use, review spectrum plans, develop federal technical standards, perform emergency planning, support satellite registration and coordination, prepare for international conferences, and develop frequency coordination arrangements with Canada and Mexico.
- Coordinate with the FCC on technical and policy decisions.
- Develop and update federal rules/regulations for managing the federal government's use of spectrum.
- Provide administrative and technical support to the IRAC, its subcommittees, and ad hoc groups.

Emergency Services. NTIA supports the national security and emergency preparedness communications planning process. NTIA assists the Department of Homeland Security (DHS) by ensuring that provisions for the use of spectrum-dependent communications systems are part of the readiness planning process. NTIA also ensures that federal agencies include provisions for interoperable communications in their readiness and response planning processes.

During FY 2017, NTIA will:

- Participate with federal, state, tribal, territorial, and local authorities in emergency preparedness planning through DHS working groups.

- Provide for integrated federal response communications systems, ensuring interoperability among federal, state, tribal, territorial, and local response agencies.
- Provide emergency readiness planning for federal use of the radio frequency spectrum.
- In consultation with the IRAC, assist in administering priorities for spectrum-dependent resources belonging to and operated by the federal government.

Frequency Assignment and Spectrum Certification Services. NTIA, in consultation with the IRAC, reviews, processes, and authorizes federal radio frequency assignments within the U.S. and coordinates federal spectrum requirements along the border areas with Canada and Mexico. NTIA assigns spectrum to meet the short-term needs of federal and non-federal users by rapidly processing Special Temporary Authorization requests. It also performs frequency assignment functions for certain federal agencies not represented on the IRAC and facilitates spectrum access for the United Nations and foreign embassies in the United States.

Also, in consultation with the IRAC, NTIA certifies federal radio systems for spectrum supportability and for compliance with applicable spectrum regulations, policies, and technical standards. NTIA evaluates systems for compatibility with other spectrum-dependent systems and provides guidance on frequency bands, design parameters, and operating constraints necessary to mitigate harmful interference and ensure effective use of available spectrum.

During FY 2017, NTIA will:

- Process and evaluate requests by federal agencies for frequency assignment and spectrum certification actions.
- Continue development and implementation of new information technology capabilities required to satisfy the needs of federal agencies for computer-automated tools to assist in the preparation of frequency assignment and spectrum certification requests, the determination of compliance with rules and regulations, and the prediction and mitigation of radio frequency interference.
- Participate in the negotiation of spectrum coordination agreements and spectrum sharing protocols with Mexico and Canada.
- Participate in the Joint Commission on Resolution of Radio Interference to resolve cases of harmful interference between radio stations in the U.S. and Mexico.
- Coordinate requests for assignments in the U.S./Canadian border area to ensure interference-free operations in both countries.
- Coordinate FCC requests for assignments from the private sector when requests involve use of spectrum allocated for federal use on a primary or shared federal/non-federal basis.

Spectrum Engineering and Analysis. NTIA conducts in-depth engineering studies and analyses of spectrum use, assists federal agencies in resolving domestic interference problems, provides technical engineering/policy analysis support for international studies and radio treaty conferences, and establishes and improves federal standards to assure efficient and effective use of spectrum. NTIA examines 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 missions. In support of the goal to identify 500 MHz of spectrum for commercial wireless broadband, NTIA performs detailed technical studies to assess sharing proposals between federal and commercial operations.

During FY 2017, NTIA will:

- Perform technical studies to identify spectrum that can be made available (through relocation or sharing) for commercial licensed and unlicensed wireless broadband

services, and develop technical recommendations and approaches to support required policy and regulatory changes.

- Conduct studies of current and projected federal spectrum use, prioritizing bands and services based on the potential for federal/non-federal sharing (identified in quantification analysis).
- Leverage the Spectrum Sharing Innovation Test-Bed to develop guidelines for a testing and certification methodology, including specialized measurement techniques, for evaluation of future dynamic Spectrum Access Systems and environmental sensing technologies and their impact on incumbent federal systems.
- Resolve spectrum conflicts between federal agencies or between federal and non-federal spectrum users by analyzing effects of, or trade-offs between, changes in frequency assignments, operational procedures, or equipment.
- Identify changes to policies and procedures to minimize future problems.
- Identify and develop new or improved automated analysis techniques for the study of spectrum sharing, interference prediction, and frequency coordination.
- Provide technical support in the development and implementation of improved spectrum engineering algorithms.
- Develop an annual plan for the Spectrum Measurement Program and coordinate spectrum measurements in select frequency bands to support ongoing studies on spectrum sharing, interference, standards, policy development, coordination, and efficiency.
- Implement improved data requirements and engineering algorithms to more efficiently assign frequencies in the 7/8 GHz band.
- Through the IRAC, coordinate and develop standards for federal systems to ensure efficient and effective use of the spectrum.

Risk Assessment: Decreases below the FY 2016 funding levels will have a significant impact on daily operations by delaying or reducing government FTEs or specialized contractor support. Loss of staff without replacement will negatively impact NTIA's ability to process frequency assignments and spectrum certifications. This will result in growing backlogs, creating delays in federal program development and deployment and impacting federal mission operations across the government.

Furthermore, reduction of staff will slow the continued progress on items directed in the Presidential Memoranda of June 28, 2010 and June 14, 2013, which promotes spectrum efficiency and sharing. Steps to implement spectrum relocation and/or sharing will be delayed or stopped. Participation and leadership at the ITU will be reduced, risking poor outcomes in treaty negotiations with other countries regarding bands for wireless broadband and other services and delaying federal government satellite registrations.

Reductions in funding will also adversely impact contracts and other services planned for FY 2017. Cuts will eliminate or significantly delay information technology investments to modernize and improve automated capabilities in support of the federal spectrum management mission. Specifically, future-generation, spectrum-management automated systems and related functions will be delayed, impacting NTIA's ability to support federal government operations and directly hampering other federal agencies' ability to satisfy their spectrum requirements.

Significant Adjustments-To-Base (ATBs): NTIA requests a net increase of \$0.146 million and 0 FTE to fund adjustments-to-base to current programs for Spectrum Management activities. The increase will fund the estimated 2017 federal pay raise of 1.6 percent. The increase will also provide

inflationary increases for non-labor activities, including service contracts, utilities, per diem, rent charges from the General Services Administration, and NTIA's costs for the Working Capital Fund.

PROGRAM REDIRECTION/INCREASE FOR FY 2017:

Spectrum Pipeline (Base Funding: \$0 and 0 FTE: Program Change: +\$250,000 and + 1 FTE): NTIA requests a redirection of \$0.250 million from Broadband Programs to the Office of Spectrum Management and an increase of 1 FTE for a total of \$250,000 and 1 FTE. The new position will assist with implementing requirements under the recently passed Spectrum Pipeline Act of 2015 (Spectrum Pipeline Act). Specifically, the Spectrum Pipeline Act significantly expands NTIA's role in chairing and administering the Technical Panel (which is comprised of members appointed by NTIA, OMB, and FCC) to facilitate repurposing spectrum beyond the 500 MHz initially identified in the Presidential Memorandum of June 28, 2010. The Technical Panel, established by the 2012 Tax Relief Act to review federal agencies' Transition Plans on how they plan to relocate from (or share) spectrum identified for auction, will now also be required to review and determine the approval of federal entities seeking funding from the Spectrum Relocation Fund (SRF) for research and development, engineering studies, economic analyses, or other planning activities intended to improve the efficiency and effectiveness of spectrum use. NTIA has no base budget for these activities.

Proposed Action: NTIA requests a redirection of \$250,000 to hire one FTE to assist with spectrum requirements in the Spectrum Pipeline Act.

The Spectrum Pipeline Act mandates that each member of the Technical Panel "shall be a radio engineer or a technical expert". In addition to expanding NTIA's role to accomplish the additional assessments, these expanded responsibilities significantly increase NTIA's administrative support requirements to the Technical Panel. This effort will continue in perpetuity to create a sustainable mechanism to identify federal spectrum for potential relocation or sharing to enable wireless broadband services.

The responsibilities of the new personnel are listed below:

- Chair and manage administrative support to the Technical Panel.
- Review and validate agency transition plans.
- Review and approve agency plans for research and development, engineering studies, economic analyses, and other proposals for the efficient and effective use of spectrum. Provide subject matter expertise in the areas of spectrum management, interagency negotiations, and technical and programmatic knowledge of the research and development process.
- Establish and maintain liaison with high level representatives of the federal government departments and agencies, Congress, trade associations, and the communications industry.
- Facilitate the repurposing of spectrum to accommodate wireless broadband services while ensuring current and future federal operations are not impacted.

Statement of Need and Economic Benefits: NTIA plays a unique role in managing all federal government use of spectrum while increasing non-federal spectrum access through relocation of federal systems or spectrum sharing. Wireless spectrum is a key component in America's global technology leadership and an engine for enhancing economic competitiveness. Wireless spectrum enables world-leading consumer technologies, and systems that protect the country, enhance public safety, allow detailed weather observations, enable a quick response to

disasters, and fuels economic growth.

The Act puts in place mechanisms that will ultimately result in the identification of additional spectrum beyond the President's current 500 MHz goal. Expanding the availability of spectrum for innovative and flexible commercial uses, including for broadband services, will further promote our nation's economic development by providing citizens and businesses with greater speed and availability of coverage, and encourage further development of cutting-edge wireless technologies, applications, and services. At the same time, federal agencies must also have spectrum access to provide mission-critical capabilities for the American people.

The Administration, the NTIA, the FCC, and Congress worked collaboratively to help make 65 MHz of federal spectrum available in the hugely successful AWS-3 auction, resulting in approximately \$41B in net proceeds. The Act built on the successful effort in AWS-3 and took up the President's call to action on spectrum through smart, targeted reforms, which will allow for advanced spectrum planning and federal agency research in support of making additional federal spectrum available for commercial use, while enhancing mission capabilities. The Act reinforces NTIA and FCC efforts to aggressively pursue the full range of repurposing opportunities while balancing our national broadband requirements with federal spectrum access needs. Though NTIA has been successful in making more spectrum available to accommodate wireless services, it has become more difficult as the pool of spectrum to choose from decreases, thus reducing the repurposing opportunities. For this reason, along with the increased responsibilities of the Technical Panel, NTIA requires additional resources to support the President's spectrum goals.

Risk Assessment: Insufficient funding in FY 2017 to allow the execution of NTIA's role with the Technical Panel will:

- Preclude NTIA's ability to carry out its Technical Panel responsibilities as mandated in the Spectrum Pipeline Act of 2015.
- Cripple NTIA's ability to meet the demands of the federal agencies that are attempting to launch efforts to improve efficient and effective use of spectrum.
- Fail to increase the opportunity for available spectrum to meet the demands created by expanding broadband wireless services across the nation.
- Preclude NTIA's ability to serve as a facilitator to further advance research, development, experimentation, and testing for innovative spectrum efficient technologies.
- Significantly hinder NTIA's ability to coordinate federal programs in a way that increases broadband wireless services to support our nation's priorities.

Base Resource Assessment: NTIA has no base budget for these activities involving the Spectrum Pipeline Act's mandates for NTIA to fulfill new responsibilities as a member of the Technical Panel and for NTIA to repurpose spectrum beyond the 500 MHz initially identified (from the Presidential Memorandum of June 28, 2010). NTIA will utilize resources from the ramping down of BTOP grant administration to hire one FTE to assist with handling the spectrum responsibilities under the Spectrum Pipeline Act.

Schedule & Milestones:

10/2016-indefinite Chair the Technical Panel. Provide management and administration of the panel including holding regular meetings with its members from OMB and FCC.

- 10/2016-indefinite Review submitted plans, engineering studies, economic analyses, or other planning activities intended to improve efficiency and effectiveness of spectrum use.
- 10/2016-indefinite Issue approval of submitted plans, engineering studies, economic analyses, or other planning activities intended to improve the efficiency and effectiveness of the spectrum use.

Performance Goals and Measurement Data:

Performance Goals and Measurement Data:						
Performance Goal:	FY15	FY16	FY17	FY18	FY19	FY20
Innovation	Actual	Target	Target	Target	Target	Target
Percentage of agency plans reviewed in a timely manner (within 120 days)						
With increase			100%	100%	100%	100%
Without increase			0	0	0	0

Description: The Technical Panel will assess and approve/disapprove (not later than 120 days after submission) agency plans to receive SRF funding for research and development, engineering studies, economic analyses, or other planning activities intended to improve the efficiency and effectiveness of spectrum use. The approved plans will result, over time, in the identification of federal spectrum for relocation or sharing to enable commercial access and auction revenue no later than 8 years after (SRF) payment.

PROGRAM CHANGE PERSONNEL DETAIL

Budget Program: Salaries and Expenses
 Sub-Program: Spectrum Management
 Program Change: Spectrum Pipeline

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Telecommunications Specialist	Washington, DC	GS-15	<u>1</u>	128,082	<u>128,082</u>
Total			<u>1</u>		<u>128,082</u>
Less Lapse		25%	<u>0</u>		<u>0</u>
Total full-time permanent (FTE)			1		128,082
2017 Pay Adjustment (1.6%)					<u>2,049</u>
TOTAL					<u>130,131</u>

Personnel Data

Full-Time Equivalent Employment

- Full-time permanent
- Other than full-time permanent
- Total

Number

1

0

1

Authorized Positions:

- Full-time permanent
- Other than full-time permanent
- Total

1

0

1

FY 2016 Enacted plus Adjustments to Base plus Program Change by Object Class

(Dollar amounts in thousands)

Budget Program: Salaries and Expenses
 Sub-Program: Spectrum Management
 Program Change: Spectrum Pipeline

Object Class	2016 Enacted	2017 ATBs	2017 Base	2017 Prg Chg	2017 Request
11 Personnel compensation	0	0	0	0	0
11.1 Full-time permanent	2,833	29	2,862	130	2,992
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other pers. compensation	29	0	29	3	32
11.8 Spec. personnel serv. paymts	0	0	0	0	0
11.9 Total pers. compensation	2,862	29	2,891	133	3,024
12 Civilian personnel benefits	835	60	895	34	929
13 Benefits for former personnel	0	0	0	0	0
21 Travel & transport. of persons	91	3	94	10	104
22 Transportation of things	5	0	5	0	5
23.1 Rental payments to GSA	404	18	422	10	432
23.2 Rental Payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	16	1	17	1	18
24 Printing and reproduction	15	0	15	0	15
25.1 Advisory & assistance services	0	0	0	0	0
25.2 Other services	900	46	946	13	959
25.3 Goods & serv. fr. Gov't accts.	3,066	(22)	3,044	19	3,063
25.4 Operation & maint. of facilities	0	0	0	0	0
25.5 Research & devel. contracts	0	0	0	0	0
25.6 Medical care	0	0	0	0	0
25.7 Op. and maint. of equip.	0	0	0	0	0
25.8 Subsist. & support of persons	0	0	0	0	0
26 Supplies and materials	46	1	47	1	48
31 Equipment	248	10	258	29	287
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies & contributions	0	0	0	0	0
42 Insurance claims & indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total obligations	8,488	146	8,634	250	8,884

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

Budget Program: Salaries and Expenses
 Sub-Program: Advanced Communications Research

Comparison by sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Advanced Communications Research.....	Pos/BA	42	\$7,197	50	\$10,075	50	\$10,237	58	\$13,212	8	\$2,975
	FTE/Obl.	29	\$8,674	50	\$10,082	50	10,237	56	\$13,212	6	2,975
Direct Obligations.....	Pos/BA	42	7,197	50	10,075	50	10,237	58	13,212	8	2,975
	FTE/Obl.	29	8,674	50	10,082	50	10,237	56	13,212	6	2,975

**Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses**

Program Justification for Advanced Communications Research (\$000)

Program	FY 2016 Enacted	FY 2017 Base	FY 2017 Request	Difference
Advanced Communications Research	\$10,075	\$10,237	\$13,212	\$2,975
FTE	50	50	56	6

Mission/Objective: Through cutting-edge research and technology development, NTIA enhances domestic competition, advances telecommunication and information services, and improves foreign trade opportunities.

Background: NTIA's research facility in Boulder, CO, is recognized as one of the world's leading communications research laboratories. This research is a critical component in NTIA's development of policies to support more efficient usage of the nation's radio spectrum resources, including the application of new spectrum-sharing arrangements, and advances Administration positions in national and international standards-setting bodies. In addition to direct-funded research, the laboratory performs research on a cost-reimbursable basis for other federal agencies and for private entities.

The Advanced Communications Research program:

- Provides timely technical advice in support of NTIA's mandate to develop and promulgate Executive Branch policies that address domestic and international communications issues.
- Promotes expanded understanding of communications technologies and systems related to spectrum management and sharing to promote a more agile regulatory environment.
- Delivers expanded knowledge of the nature and interaction of communications equipment, systems, and services in support of the deployment of new technologies and services that rely on spectrum to position U.S. industry for international leadership in communications technology.
- Leverages, through interagency agreements, NTIA expertise and capabilities on behalf of other federal agencies to perform propagation modeling, electromagnetic compatibility and interference analysis of new or proposed systems, development of interference mitigation strategies, and engineering analysis of evolving technologies to support planning for spectrum reallocation or sharing and to resolve interference events.

FY 2017 Activities:

The Advanced Communications Research program focuses on the following:

- Promoting development of next generation communications technologies, new spectrum sharing techniques, improved dynamic frequency management, and advanced spectrum sharing systems through joint research and development with the National Institute of Standards and Technology (NIST) under the umbrella of the Center for Advanced Communications.
- Performing propagation analyses, electromagnetic compatibility analyses, and radio frequency measurements to inform spectrum sharing decisions and spectrum

management policy and procedures.

- Applying NTIA's scientific and engineering expertise to develop and prototype equipment, methods, and best practices for ongoing spectrum monitoring to support spectrum sharing through conformity assessment of newly deployed systems, acquisition of occupancy data for dynamic spectrum access systems, and long term surveillance testing to support regulatory enforcement actions.
- Performing collaborative research with FirstNet and other federal and local agencies to improve communications efficiency, interoperability, and robustness for public safety, national security, and emergency preparedness.
- Contributing to the development and application of national and international telecommunication standards by leading, participating in, and making technical contributions to national and international telecommunication standards organizations.
- Managing, maintaining, and administering agreements for the use of the Table Mountain Field Site and Radio Quiet Zone.
- Documenting and disseminating research outcomes, technical advances, and best practices for spectrum utilization through publication of NTIA Technical Reports and journal articles in peer-reviewed open-literature publications and presentations at scientific and industry conferences.

Center for Advanced Communications: In June 2013, NTIA announced a cooperative effort with the NIST to align the world-class advanced communications capabilities of both organizations under a Center for Advanced Communications. The Center for Advanced Communications unites key research and engineering activities for collaborative research and engineering. This research is expected to address current and long-term challenges related to spectrum sharing, public safety communications, standards coordination, electromagnetics, and quantum electronics. The Center for Advanced Communications will also coordinate and tackle several national priorities outlined in the Presidential Memorandum *Expanding America's Leadership in Wireless Communications*, such as spectrum monitoring and supporting advances in new spectrum-sharing technologies and policies. The Center for Advanced Communications will develop critical new radio analysis tools, capabilities, and test-beds, providing accelerated development, testing, and deployment of advanced communications technologies for commercial and government sectors.

During FY 2017 NTIA will:

- Promote better understanding of how spectrum is currently used and explore opportunities for spectrum sharing to advance federal and commercial use.
- Coordinate information and share data on spectrum-related research and applied technology to support improved management of spectrum and the efficiency of technology.
- Continue collaborative scientific and engineering experiments to support the development of nascent next generation communications technologies.

Radiowave Propagation Prediction: Government communications operations, including those for public safety and national security, depend critically on the ability to successfully predict radio propagation in a variety of environments and conditions. Different propagation models are used to predict radio link behavior at different frequencies, antenna heights, antenna characteristics, and the distances. The accuracy of a propagation prediction depends not only on the reliability of the model itself, but also on the suitability of the model for use in the particular case.

During FY 2017 NTIA will:

- Develop and validate improved radio propagation models for various radio bands and environments and promulgate them to industry, agencies, and national and international standard bodies.
- Apply models towards assessing new spectrum-sharing techniques and the development of improved dynamic frequency management and spectrum-sharing systems.
- Refine and expand computerized propagation prediction methods as the technology advances to ensure continued availability of accurate, rapid, and easily accessible propagation prediction planning tools for deployment of new, relocated, or expanding wireless services.

Electromagnetic Compatibility Analyses: Electromagnetic compatibility (EMC) analyses examine the totality of spectrum usage by radio transmitters and receivers and the interactions between different radio systems. Effective spectrum sharing and spectrum reallocation can only be accomplished if both legacy and new services operating in the same or adjacent bands can be protected from interference. EMC studies use models, simulations, tests, and measurements to characterize the emissions of different radio devices to define technical parameters in support of new spectrum uses/sharing requirements, develop interference protection criteria, or develop algorithms for detection and avoidance so that equipment in shared bands can be programmed to limit interference by recognizing and avoiding the emissions of other devices. Ideally, these studies are carried out prospectively, while new equipment or new sharing regulations are still under development. Sometimes, however, they are needed to trace to its root cause interference experienced in situations that were previously thought to be safe for sharing and to devise mitigation strategies.

During FY 2017 NTIA will:

- Conduct comprehensive EMC studies that include realistic scenarios, radio wave propagation constraints, transmitter emission characteristics, receiver susceptibility to other signals, radio system protocols, and radio regulation considerations.
- Use electromagnetic compatibility (EMC) analysis to predict and prevent or troubleshoot and resolve interference issues involving federal communications and radar systems, such as safety-of-life radar stations, by determining the source of the interference.
- Recommend mitigation actions to federal agencies, including necessary system modifications, and assist with FCC enforcement actions.
- Conduct experiments to define technical interference protection parameters such as transmitter emission limits, frequency offsets, or separation distances for proposed rulemakings in support of new spectrum uses/sharing requirements.
- Support key regulatory reforms aimed at improving radar spectrum efficiency through revised Radar Spectrum Engineering Criteria (RSEC) requirements derived from NTIA-developed measurement methods and institutional knowledge of radar system characteristics.

Radio Frequency Measurements: Radio frequency (RF) measurements of spectrum occupancy and device emissions provide information about the electromagnetic radiation actually present in a certain band in select locations: how many signals, the extent of coverage, how often they occur, and on what frequencies. They provide quantitative data to inform assessments of spectrum utilization for policy and regulatory actions. Accurate measurements are also critical for validating the propagation models that underpin spectrum management decisions on spectrum reallocation or sharing for improving spectrum efficiencies.

During FY 2017 NTIA will:

- Develop propagation measurement systems, radio channel models, statistical analysis techniques, signal processing algorithms, and specialized RF emissions measurement systems.
- Improve and expand NTIA's ability to perform accurate, timely, and ongoing radio frequency measurements of spectrum occupancy and device emissions to inform assessments of spectrum usage and sharing feasibility, and continue to perform and publish the results of such measurements to inform federal and private sector spectrum planning and use.
- Study and characterize the broadband transmission channel for within-building and campus-wide wireless networks and ultrawideband communications.

Spectrum Monitoring: NTIA intends to conduct spectrum monitoring over the entire lifecycle of new radio technologies, from the earliest stages when spectrum sharing is first proposed, to conformity assessment of newly deployed systems, to longer-term surveillance testing regulators may use to support enforcement actions. The Spectrum Monitoring Pilot Program began in FY 2014 with a limited study of existing Department of Defense (DoD) systems in the 3.5 GHz band, one of the bands identified by NTIA in its Fast Track report as a prioritized candidate for sharing with new non-government systems. In FY 2015, a proof-of-concept system was deployed with four locations along the coasts to better track activities in that band; six additional systems were be deployed in FY 2016. The Measured Spectrum Occupancy Database and associated user interface were completed and policies for information sharing with authorized users were developed in coordination with DoD.

Besides serving as a prototype test-bed, the program's work in the 3.5 GHz band provided key insights into usage, which benefited both industry and DoD. A key achievement was an agreement between NTIA and DoD on spectrum sensor capabilities that effectively amounts to a joint validation of the system and its associated data. This facilitates collaborations on refinements to the models and assumptions for the 3.5 GHz band, yielding better spectrum-sharing rules.

During FY 2017 NTIA will:

- Continue to facilitate access to monitoring data for spectrum policy makers, researchers, and other stakeholders to investigate the feasibility of new spectrum-sharing approaches in key federal and non-federal bands.
- Build additional sensors for different sharing scenarios and continue to expand the potential applications of a fully developed spectrum monitoring system.
- Implement program changes recommended to the spectrum monitoring pilot based on preliminary results in FY 2015 and FY 2016, including exploration of the use of empirical data to inform agency quantitative assessments of actual spectrum usage and to refine models for assessing the potential for interference with federal systems in bands identified for future sharing.
- Pursue private-sector participation in the spectrum monitoring effort and in efforts to develop approaches for spectrum sharing.
- Assess spectrum-sharing opportunities in key bands of interest, including evaluating the degree of LTE deployment in the bands allocated to FirstNet and gauging the degree of legacy Project 25 LMR usage.
- Prepare an annual status report based on monitoring data and spectrum-related technology developments including an assessment of data collected, its potential uses,

and recommendations.

Public Safety Communications Research: The Public Safety Communications Research (PSCR) program (www.pscr.gov), a joint effort that leverages the capabilities of NIST and NTIA through collaborative research projects. PSCR is one of the largest sponsored programs at the Institute, with support from the Department of Homeland Security (DHS) Office for Interoperability and Compatibility (OIC), the DHS Office for Emergency Communications (OEC), and FirstNet. PSCR conducts research and contributes to standardization efforts to assist fire, emergency medical, national security, emergency preparedness, and law enforcement agencies to select and procure communications equipment that meets their needs and to facilitate communications interoperability and information sharing within and among the various public safety communities. These users have unique needs compared to commercial wireless customers with respect to extent and reliability of coverage and with respect to signal and network quality and network management.

During FY 2017 NTIA will:

- Conduct close, constant coordination with public safety practitioners, and develop standards, technologies, and test methods to ensure interoperability of land mobile radio and broadband communications systems used by law enforcement, fire, emergency medical response, and emergency preparedness communities.
- Develop information technology standards that public safety can adopt to ensure interoperability for information sharing. With respect to standards, advance the work of other federal programs (e.g., FirstNet, DHS/OEC, etc.) through leadership and critical technical contributions to the 3GPP for public safety broadband.
- Operate a broadband demonstration network to provide manufacturers and practitioners a venue to test and evaluate broadband technologies and systems for newly available FirstNet 700 MHz spectrum.

Radio Network Performance Assessment and Enhancement: The ultimate arbiter of the performance of a telecommunications service for inter-human communication is the end user, the listener or viewer of the audio or video content transmitted over that network. User experience of a telecommunications service is governed by many factors at multiple levels. Engineering studies identify the numerically quantifiable factors that influence how accurately and reliably digital representations of speech, video, images, text messages, etc. are moved between users. NTIA conducts research and development leading to implementation, publication, and standardization of perception-based tools for assessment and optimization of video and audio communication systems. This work provides important information for network and equipment designers as well as reliable technical input to standards bodies.

During FY 2017 NTIA will:

- Develop tools to monitor and optimize the user experience of audio and video information on communication channels, especially in light of bandwidth constraints and time-varying channel quality.
- Use subjective testing to assess the success of emerging audio and video coding and transmission technologies
- Perform technology transfer to government, industrial, academic, and individual users to support the development and validation of automated perception-based audio and video performance assessment tools for critical new areas including Internet multimedia conferencing, advanced television, and wireless services.
- 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.

Domestic and International Standards: Strong and unbiased standards propagation modeling, delineating interference protection criteria, and describing performance parameters for transmitting and receiving equipment are fundamental for advancing new technologies in a shared spectrum environment. NTIA contributes to the development and application of national and international telecommunication standards by leading, participating in, and making technical contributions to national and international telecommunication standards organizations (SDO), such as the 3rd Generation Partnership Project (3GPP—see story on page 61), ITU, and Alliance for Telecommunications Industry Solutions (ATIS).

During FY 2017 NTIA will:

- In cooperation with other federal agencies and U.S. industry, influence domestic and international communications standards and policies that support industry and U.S. spectrum-sharing initiatives and needs, as well as fair competition in the information and communications technology sector.
- In cooperation with the U.S. ITU National Committees, provide technical contributions and leadership to committees in ITU-T (Telecommunication Standardization Sector) and ITU-R Study Groups developing technical standards of importance to U.S. industry and government.
- Submit recommendations on emerging mobile radio technologies, broadband network performance, radio propagation prediction, and radar systems, and coordinate their formal review and approval in important standards development organizations including the ITU, 3GPP, TIA, URSI, and IEEE.
- Develop and coordinate approval of related U.S. voluntary consensus standards where appropriate.

Table Mountain Field Site and Radio Quiet Zone: NTIA manages the Table Mountain Field Site and Radio Quiet Zone, an 1,800 acre, open-air test location that supports fundamental research into the nature, interaction, and evaluation of communications devices, systems, and services. It is one of only two sites in the country regulated to prevent the transmissions of powerful signals over the site, and currently the only one consistently available for use by private industry. The flat surface of the site and its geological features create ideal conditions for radio research to safely develop and test new spectrum-efficient technologies, and for other electromagnetic and geomagnetic research.

This site serves as a resource for federal agencies and private companies through interagency agreements and Cooperative Research and Development Agreements (CRADAs). The site is currently being used by several federal agencies and companies to research, develop, and test operational performance of new communication technologies, including new radar systems; to evaluate broadband and laser radar (LADAR) technologies for public safety and national defense applications; to test radio receivers for NOAA's "All Hazards" national warning system; to perform absolute gravity measurements and gravimeter calibrations; and to measure and monitor solar, ultraviolet, and infrared radiation.

During FY 2017 NTIA will:

- Maintain and improve facilities as necessary to ensure researchers have the

infrastructure (e.g., Internet access) and laboratories needed to perform research and fully utilize the site.

- Administer CRADAs and interagency agreements to enable access to and maximize utilization of this unique resource.

Risk Assessment: If the base funding is not sustained in FY 2017 and research activities are reduced, NTIA will not have the critical data and technical information available that is necessary for spectrum-sharing models aimed at better utilization of the highly demanded, but limited, spectrum resources. Reductions in base funding will also limit NTIA's participation in the Center for Advanced Communications. This joint effort with NIST will provide federal agencies, industry, and academia with critical access to test-bed resources and the infrastructure necessary to catalyze accelerated development, testing, and deployment of advanced communications technologies in support of commercial and government applications.

Significant Adjustments-To-Base (ATBs): NTIA requests a net increase of \$0.162 million and 0 FTE to fund adjustments-to-base to current programs for Advanced Communications Research activities. The increase will fund the estimated 2017 federal pay raise of 1.6 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, per diem, rent charges from the General Services Administration (GSA), and NTIA's costs for the Working Capital Fund.

PROGRAM INCREASE FOR FY 2017:

Center for Advanced Communications (Spectrum Sharing and Monitoring) (Base Funding: \$10,237,000 and 50 FTE; Program Change: \$2,975,000 +6 FTE): NTIA requests an increase of \$2.975 million and 6 FTE for a total request of \$13,212,000 and 56 FTE. The increase will fund test bed and collaboration tools expansion for advanced communications. NTIA seeks to ensure that its research programs are appropriately coordinated with NIST and other federal partners and to effectively leverage federal investments in spectrum research and technology development. More specifically, the Center for Advanced Communications will expand access to a variety of test-bed resources and the infrastructure necessary to catalyze accelerated development, testing, and deployment of advanced communications technologies in support of both commercial and government applications. In addition, NTIA will develop proven collaboration technologies and tools to improve communications between federal agencies and between federal and non-government organizations NTIA will establish and manage a repository for research results on specified focus areas and technologies. This clearinghouse will create a common base of knowledge and socialize the exchange of technical information and ideas, using web-based technology, organized forums, and meetings. This clearinghouse also will highlight promising technologies and technical approaches and target this information directly at those institutions interested in collaborating on advanced communication technologies. The knowledge base will allow rapid dissemination of both positive and negative outcomes, allowing researchers to leverage each organization's experiences to avoid duplication of effort.

Statement of Need and Economic Benefits: The need for these activities was highlighted by the President's National Wireless Initiative, which directs the Secretary of Commerce, through NTIA and NIST, to publish an inventory and description of federal test facilities available to commercial and other stakeholders engaged in The Center for Advanced Communications provides a common process, framework, and environment whereby NTIA, NIST, other federal labs, universities, and the private sector can collaborate and invest resources in the most valuable communications projects and technologies. The focused approach is expected to

accelerate the economic development and growth associated with spectrum sharing and other innovations, and it also should provide federal agencies with a clear alternative for spectrum-related development work, lowering technology costs of federal agencies.

Risk Assessment: Insufficient funding in FY 2017 to support the Center for Advanced Communication's goals will:

- Hinder efforts by NTIA, NIST, other federal labs, universities, and the private sector to collaborate, leverage, and invest resources in the most valuable communications projects and technologies that will address the technical barriers to the implementation and adoption of new communications and sharing technologies
- Fail to satisfy growing needs for ever-higher bandwidth
- Delay advancements in knowledge and technology transfer among all stakeholder groups on spectrum related issues

Base Resource Assessment: In FY15, NTIA received funding in the amount of \$1.5 million to startup the Spectrum Monitoring Pilot. In FY16, these funds were combined with the Telecommunications Sciences Research base program activity to form the Advanced Communications Research program activity. In FY16, an additional \$2.3 million was received to expand the Spectrum Monitoring program and to startup the Center for Advanced Communications. NTIA's Institute for Telecommunication Sciences will expand test bed activities and research into advanced communications technology with the remaining funds requested in FY17.

Schedule and Milestones:

10/2016-6/2017	Test bed infrastructure and equipment will be in place within 9 months
10/2016-8/2017	Collaboration tools established

Performance Goals and Measurement Data:

Performance Goal:	FY						
Innovation	2015	2016	2017	2018	2019	2020	2021
	Actual	Target	Target	Target	Target	Target	Target
Number of government and private test-bed facilities partnering with the Center for Advanced Communications (with NIST)							
With Increase	0	1	2	2	3	3	4
Without Increase	0	0	1	1	1	1	1
Description: By 2017, the CAC will become a single point of contact for engaging industry and other government agencies on advanced communications technologies. The CAC will increase its partnerships, in particular, in the area of testing, validation, and conformity assessment.							

PROGRAM CHANGE PERSONNEL DETAIL

Budget Program: Salaries and Expenses
 Sub-Program: Advanced Communications Research
 Program Change: Spectrum Sharing & Monitoring, Center for Advanced Communications

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Electronics Engineer	Boulder, CO	ZP-IV	4	126,940	507,760
Electronics Engineer	Boulder, CO	ZP-III	1	90,142	90,142
IT Specialist	Boulder, CO	ZP-III	2	90,142	180,284
Administrative Specialist	Boulder, CO	ZA-II	1	67,277	67,277
Total			<u>8</u>		<u>845,463</u>
Less Lapse		25%	<u>(2)</u>		<u>(211,366)</u>
Total full-time permanent (FTE)			6		634,097
2017 Pay Adjustment (1.6%)					<u>10,146</u>
TOTAL					<u>644,243</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	6
Other than full-time permanent	<u>0</u>
Total	6
Authorized Positions:	
Full-time permanent	8
Other than full-time permanent	<u>0</u>
Total	8

FY 2016 Enacted plus Adjustments to Base plus Program Change by Object Class

(Dollar amounts in thousands)

Budget Program: Salaries and Expenses

Sub-Program: Advanced Communications Research

Program Change: Spectrum Sharing & Monitoring, Center for Advanced Communications

Object Class	2016 Enacted	2017 ATBs	2017 Base	2017 Prg Chg	2017 Request
11 Personnel compensation	0	0	0	0	0
11.1 Full-time permanent	3,754	37	3,791	644	4,435
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other pers. compensation	24	0	24	3	27
11.8 Spec. personnel serv. paymts	0	0	0	0	0
11.9 Total pers. compensation	3,778	37	3,815	647	4,462
12 Civilian personnel benefits	1,089	78	1,167	177	1,344
13 Benefits for former personnel	0	0	0	0	0
21 Travel & transport. of persons	154	4	158	0	158
22 Transportation of things	3	0	3	1	4
23.1 Rental payments to GSA	62	0	62	80	142
23.2 Rental Payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	2	1	3	5	8
24 Printing and reproduction	8	0	8	15	23
25.1 Advisory & assistance services	0	0	0	0	0
25.2 Other services	847	59	906	732	1,638
25.3 Goods & serv. fr. Gov't accts.	2,178	(31)	2,147	291	2,438
25.4 Oeration & maint. of facilities	0	0	0	0	0
25.5 Research & devel. contracts	0	0	0	0	0
25.6 Medical care	0	0	0	0	0
25.7 Op. and maint. of equip.	84	0	84	38	122
25.8 Subsist. & support of persons	0	0	0	0	0
26 Supplies and materials	70	1	71	29	100
31 Equipment	1,800	13	1,813	960	2,773
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies & contributions	0	0	0	0	0
42 Insurance claims & indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total obligations	10,075	162	10,237	2,975	13,212

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

Budget Program: Salaries and Expenses
 Sub-Program: Broadband Programs

Comparison by sub-program		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Broadband Programs.....	Pos/BA	36	\$15,421	36	\$11,844	36	\$11,979	36	\$12,913	0	\$934
	FTE/Obl.	42	14,198	36	14,243	36	11,979	36	12,913	0	934
Direct Obligations.....	Pos/BA	36	15,421	36	11,844	36	11,979	36	12,913	0	934
	FTE/Obl.	42	14,198	36	14,243	36	11,979	36	12,913	0	934

**Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses**

Program Justification for Broadband Programs (\$000)

Program	FY 2016 Enacted	FY 2017 Base	FY 2017 Request	Difference
Broadband Programs	\$11,844	\$11,979	\$12,913	\$934
FTE	36	36	36	0

Mission/Objective: NTIA will support communities across America to accelerate domestic adoption of broadband technologies and generate opportunities critical for economic growth and social progress.

Background: More than five years ago, NTIA used funding under the American Recovery and Reinvestment Act of 2009 (Recovery Act) to invest over \$4 billion in grants through the Broadband Technology Opportunities Program (BTOP) and State Broadband Initiative (SBI) to build network infrastructure, establish public computer centers, and develop digital literacy training to expand broadband access, increase workforce development, and bolster broadband adoption throughout the United States. Grantees built or upgraded more than 115,000 network miles, connected nearly 26,000 community anchor institutions, such as schools and libraries, established or upgraded 3,000 public computer centers, trained more than 4 million people, and helped more than 671,000 households sign up for broadband.

As NTIA scales down its administration of the BTOP grants, which has been extended until 2020, it is requesting a ramping up of its fledgling BroadbandUSA program. Funds from BTOP grant administration and staff with unique broadband access and adoption skills will be redirected to BroadbandUSA. In addition to years of hand-on experience providing technical assistance to BTOP grantees, these staff have years of government, private-sector, and non-profit experience that will benefit communities as they work to improve their citizens' access and use of high-speed Internet. This change is necessary to ensure continued assistance to American communities (especially in rural areas) with insufficient access to education, healthcare, and job opportunities because they are not integrated into the digital economy and they are still lacking tools to leverage broadband to increase community economic development.

FY 2017 Activities: NTIA will use a collection of community outreach products and technical assistance strategies – from toolkits and training programs, to webinars and workshops – to make broadband technologies more accessible and promote economic development. During FY2017, NTIA will:

- Provide effective oversight of the Recovery Act grants through their close-out and federal-interest period to protect the federal government's investment in broadband infrastructure, public computer centers, and broadband adoption projects.
- Manage the grant closeout process to ensure that: recipients have met all financial and reporting requirements; funds were used for eligible grant activities; and excess funds are expeditiously returned to the Treasury.

Adjustments-To-Base (ATBs) +\$0.135 million and +0FTE: NTIA requests a net increase of \$0.135 million and 0 FTE to fund adjustments-to-base to current programs for Broadband Programs activities. The increase will fund the estimated 2017 federal pay raise of 1.6 percent. The increase

will also provide inflationary increases for non-labor activities, including service contracts, utilities, per diem, rent charges from the General Services Administration (GSA), and NTIA's costs for the Working Capital Fund

PROGRAM CHANGE FOR FY 2017:

Grants Administration (Base Funding: \$6.235.000 and 20 FTE: Program Change: - \$3.178.000 and -14 FTE): NTIA requests a decrease of \$ 3.2 million and a reduction of 14 FTE for a total of \$3,057,000 and 6 FTE. As NTIA ramps down oversight of the Recovery Act grants, it seeks to redirect these funds to support BroadbandUSA. The remaining funding for grant administration will continue to support portfolio oversight and protect the federal interest in these projects. As a result of the Continuing Appropriations Act, 2016, NTIA has an ongoing responsibility to oversee the extended BTOP grants until 2020. These funds will continue to prevent waste, fraud, and abuse of the existing grants; ensure that recipients accomplish program goals; disseminate best practices; and oversee recipients' continued activities to fulfill the terms of their grants through the federal-interest period. NTIA proposes to redirect \$4,112,000 of these resources to meet the established and growing need voiced by American communities for the BroadbandUSA program.

Statement of Need and Economic Benefits: Without the funding, NTIA will be unable to conduct adequate oversight to mitigate the risk of waste, fraud, and abuse of public funds. With approximately \$100 million in remaining grant funds at risk of potential waste, fraud, and abuse, this is a prudent investment to protect taxpayer funds.

Risk Assessment: These funds are required to effectively administer the grants and follow-on activities of the grant closeout. Reducing funds below the proposed grant administration funding level will:

- Increase the potential for waste, fraud, and abuse due to inadequate program oversight.
- Compromise NTIA's ability to identify, recover, and return funds to the Treasury.
- Preclude the documentation and sharing of BTOP and SBI lessons learned and best practices in support of broadband initiatives and as a resource for states and communities to use in building out future broadband projects.

Schedule & Milestones:

- 9/30/2015: All State Broadband Initiatives (SBI) Recovery Act Projects completed
- 3/30/2016: BTOP grantees provided all information to NTIA for review of approved revised activities for extended projects.

Deliverables: N/A

Performance Goals and Measurement Data:

Performance Goal:	FY15	FY16	FY17	FY18	FY19	FY20
Innovation	Actual	Target	Target	Target	Target	Target
Broadband networks deployed						
Target	118,000	116,000	116,000	116,000	116,000	116,000
Actual	115,565 *					

* Grantees exceeded the program's original goal, which was set at 100,000 miles. Overachievement led to resetting the target to a "stretch goal" of 118,000 miles. Based on our most recent data, NTIA is re-projecting the larger number of network miles for the remaining active projects. The program has been extended until 2020.

PROGRAM CHANGE PERSONNEL DETAIL

Budget Program: Salaries and Expenses
 Sub-Program: Broadband Programs
 Program Change: Broadband USA

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Comm. Program Specialist	Washington, DC	GS-15	(5)	144,939	(724,695)
Comm. Program Specialist	Washington, DC	GS-14	(8)	123,216	(985,728)
Secretary	Washington, DC	GS-09	(1)	60,465	(60,465)
Total			<u>(14)</u>		<u>(1,770,888)</u>
Less Lapse		0%	<u>0</u>		<u>0</u>
Total full-time permanent (FTE)			(14)		(1,770,888)
2017 Pay Adjustment (1.6%)					<u>0</u>
TOTAL					<u>(1,770,888)</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	(14)
Other than full-time permanent	<u>0</u>
Total	(14)
Authorized Positions:	
Full-time permanent	(14)
Other than full-time permanent	<u>0</u>
Total	(14)

BASE BUDGET PLUS PROGRAM CHANGE BY OBJECT CLASS

(Dollar amounts in thousands)

Budget Program: Salaries and Expenses
 Sub-Program: Broadband Programs
 Program Change: Recovery Act Grant Administration

		2017	2017	2017
Object Class		Base Budget	Prg Chg	Request
11	Personnel compensation	0	0	0
11.1	Full-time permanent	2,774	(1,771)	1,003
11.3	Other than full-time permanent	0	0	0
11.5	Other personnel compensation	30	0	30
11.8	Special personnel services payments	0	0	0
11.9	Total personnel compensation	2,804	(1,771)	1,033
12	Civilian personnel benefits	763	(500)	263
13	Benefits for former personnel	0	0	0
21	Travel and transportation of persons	75	(34)	41
22	Transportation of things	3	0	3
23.1	Rental payments to GSA	280	(66)	214
23.2	Rental Payments to others	0	0	0
23.3	Commun. Utilities, & misc. charges	15	(9)	6
24	Printing and reproduction	33	(4)	29
25.1	Advisory and assistance services	307	(105)	202
25.2	Other services	1,804	(665)	1,139
25.3	Goods & services fr. Gov't accts.	56	0	56
25.4	Operation and maintenance of facilities	0	0	0
25.5	Research and development contracts	0	0	0
25.6	Medical care	0	0	0
25.7	Operation and maintenance of equip.	0	0	0
25.8	Subsistence and support of persons	0	0	0
26	Supplies and materials	34	(24)	10
31	Equipment	61	0	61
32	Lands and structures	0	0	0
33	Investments and loans	0	0	0
41	Grants, subsidies and contributions	0	0	0
42	Insurance claims and indemnities	0	0	0
43	Interest and dividends	0	0	0
44	Refunds	0	0	0
99	Total obligations	6,235	(3,178)	3,057

PROGRAM REDIRECTION/INCREASE FOR FY 2017:

BroadbandUSA (Base Funding: \$5,744,000 and 16 FTE; Program Change: +\$4,112,000 and +14 FTE): NTIA requests an increase of \$4,112,000 and 14 FTE to continue efforts to expand community broadband adoption and utilization across the country through BroadbandUSA. This increase includes a redirection from the \$3,178,000 reduction to BTOP and a redirection of 14 FTE from BTOP due to the phasing out of the BTOP grant program.

BroadbandUSA advances and the digital economy and promotes economic development by assisting communities in improving broadband deployment and adoption, with a primary focus on decreasing unemployment, improving wages, and growing small businesses.

BroadbandUSA's work focuses on the following primary goals:

- **Connecting America's Communities**
 - Assisting communities and federal/state government agencies in improving access to broadband services, with the ultimate goal of promoting new gigabit-capable communities and encouraging new connections to schools, hospitals, libraries, and public safety entities; and
- **Getting Americans Online**
 - Supporting digital literacy and adoption efforts to lower the barriers to broadband adoption, with a primary focus on vulnerable populations that have historically lagged behind in their broadband use relative to the rest of the country.

The BroadbandUSA request of \$4,112,000 will be used for the following six coordinated activities:

Intergovernmental and Partnerships

- NTIA is fostering relationships with federal agencies and other broadband stakeholders to remove barriers to broadband deployment, improve funding opportunities, and increase support for community broadband deployment and education programs.
- NTIA will promote cross-cutting policy initiatives amongst federal agencies to support broadband deployment and adoption investments.
- It will provide guidance to federal agencies, state, and local governments, tribal nations, industry, philanthropic community, and other stakeholder groups to promote greater investment in broadband networks and adoption activities. Staff will leverage interagency and stakeholder relationships to identify opportunities for BroadbandUSA's Technical Assistance team to provide assistance.
- NTIA staff will be responsible for continued leadership of the Broadband Opportunity Council, or any successor entity, and identification and resolution of policy barriers. Staff will continue to advise federal agencies as they implement the changes outlined in The Council's report to modernize regulations and increase support for broadband in federal programs.
- NTIA's staff will develop and implement a "Community Connectivity Index" program in collaboration with the National Economic Council, Office of Science Technology Policy, and communities to identify indicators of broadband access and adoption and promote mobilization by localities to address challenges.
- NTIA will support 15 state/local/regional government jurisdictions in efforts to replicate Broadband Opportunity Council-type efforts to identify and remove barriers to broadband deployment; assist 50 communities in completing the Community Connectivity Index; and participate in 10 workshops hosted by federal agencies.

Technical Assistance

- NTIA will provide technical assistance in communities across the country to foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies.
- NTIA will serve as a hands-on resource for communities beginning their broadband planning, helping to turn local excitement into tactical plans by providing access to field-tested tools and a network of like-minded localities.
- NTIA will offer online and in-person technical assistance to a diverse set of stakeholder groups and individual communities that request assistance or information from NTIA's team of financial, engineering, project management, and economic experts.
- NTIA will broaden public-private engagement efforts with stakeholders, building on the demonstrable outcomes and best practices of recent public and private broadband investments.
- NTIA will engage NTIA's state broadband leaders' network by providing technical assistance to state broadband leaders who direct their states' broadband availability and adoption efforts and also support collaboration across geographic boundaries.
- NTIA will hold 8 regional technical assistance forums, 12 technical assistance webinars, and 12 speaking engagements at conferences and other events.

Community Broadband Publications

- NTIA's development of publications supports the digital economy, as well as workforce and economic development as these tools help communities gain a technical understanding of broadband deployment and digital literacy, which directly benefit a communities businesses, schools and libraries, and households.
- This will develop and distribute publications providing guidance, strategies, and insights to communities as they develop strategies to expand broadband access and adoption. These publications include toolkits, primers, manuals, and white papers, such as "Broadband Funding Guide," "Introduction to Effective Public-Private Partnerships," and "Broadband Adoption Toolkit."
- These references and tools are written for a broad audience of community stakeholders (e.g., government officials, community champions, and key partners) in response to tremendous, demonstrated demand. While such information has been utilized by thousands of communities, it is particularly essential for economically disadvantaged communities that otherwise would lack resources for broadband programs.
- NTIA will produce 20 publications on broadband topics ranging from Small Cell and Wi-Fi technology to digital literacy evaluation techniques. Small Cell technology uses operator-controlled, low-powered radio access nodes to extend wireless service coverage and increase network capacity in areas unreached by traditional cell towers. Wi-Fi technology uses radio waves to provide wireless high-speed internet and network connections.
- It will also support other federal agencies in the development of broadband publications for their targeted audiences.

State Broadband Leaders (SBL)

- NTIA's State Broadband Initiative (SBI) provided a forum for state broadband programs to share best practices regarding broadband data gathering and verification, local and regional planning efforts, and state broadband capacity building. Building on SBI, NTIA will continue to provide technical assistance and support through a State Broadband

Leaders (SBL) Initiative as a way to promote policies and practices that will drive effective broadband projects.

- NTIA will provide technical assistance to state broadband leaders who direct their states' broadband availability and adoption efforts, as well as their industry partners, associated state offices, and state incorporated entities.
- NTIA will support collaboration across geographic boundaries. Building on its existing state leadership network, NTIA will continue accumulating effective broadband strategies and sharing such lessons learned with other state leaders, via technology systems as well as in-person events, individual technical assistance, consultations, and regional coalition- building.
- NTIA will convene 1 national meeting and 2 regional meetings, conduct 12 webinars, and produce best-practice materials available to both public and SBL participants.

Community Broadband Outreach

- BroadbandUSA connects with communities that need access to high-speed internet and improved digital inclusion efforts through various forms of outreach and communication techniques.
- NTIA will develop and hold regional workshops across the country to share best practices and effective strategies for promoting broadband access and adoption.
 - NTIA has already hosted four such events. More than 200 attendees, representing more than 100 individual communities, have attended **each event**. The most recent Maine event had 225 participants and an additional 400 participates on-line.
- NTIA will work with various industry groups to ensure that BroadbandUSA is reaching constituent communities that need assistance or additional information including rural communities.
- NTIA will develop targeted broadband training, webinars, and presentations for various demographic communities.
- NTIA will develop targeted information for stakeholder publications.
- NTIA will develop web content on broadband; draft articles on improving broadband access and its benefits for use in partner and stakeholder publications; send outreach emails to BroadbandUSA constituents; host four major regional workshops; provide content and logistics support for technical assistance webinars and forums; support adoption and digital inclusion surveys; and attend ten industry and partner conferences.

Statement of Need and Economic Benefits: Through the Recovery Act, NTIA oversaw investments of \$3.5 billion in broadband infrastructure projects, \$450 million in public computer center and adoption programs, and \$300 million in state broadband availability data and capacity building, and learned important lessons about broadband policy and economic development. NTIA will be able to provide technical assistance to communities to expand broadband adoption and utilization, while prudently reducing administrative resources for remaining projects and those that are closed.

Risk Assessment: Without access to the requested funding, NTIA will have insufficient resources to accomplish NTIA's mission, meet its FY 2017 objectives, and achieve the goals set forth by the President and the Broadband Opportunity Council.

Communities rely on NTIA’s talented team of subject-matter experts who possess unique know-how in navigating the financial, technical, and human-capital issues to promote broadband development across the country. This is particularly critical for cities, towns, and counties that have limited financial resources, which are often most in need of leveraging the power of technology to strengthen their local economies. Without this level of funding, NTIA will be unable to support these communities as they seek to expand broadband availability and adoption.

Insufficient funding will also:

- Cripple NTIA’s ability to meet the demands of communities across the country that are attempting to launch efforts to grow and expand their broadband readiness and preparedness capabilities;
- Inhibit individual wage growth by approximately \$100 annually and employment by 0.2 to 0.3 percent because workers do not have the opportunities to increase digital literacy skills to improve employment opportunities;
- Increase the potential for communities to miss vital, non-partisan information from NTIA products when making broadband adoption and deployment decisions;
- Risk the loss of potential matchmaking and partnership opportunities to assist communities in improving their broadband adoption and deployment;
- Preclude NTIA’s ability to serve as an essential, neutral resource to help communities improve economic development through broadband deployment and adoption efforts; and
- Render NTIA unable to coordinate federal programs in a way that increases broadband infrastructure and adoption for communities in need.

Performance Goals and Measurement Data:

Performance Goal:	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Innovation	Actual	Target	Target	Target	Target	Target
Number of communities to which NTIA provides technical assistance						
With increase	175*	250*	375*	375*	375*	375*
Without increase		250	250	250	250	250

* NTIA anticipates that it will continue to assist communities from FY 2015 through the life cycle of their projects.

Description: Many communities were not able to receive NTIA assistance during the BTOP grant period. These communities now will be to take advantage of NTIA’s technical expertise and outreach program, thereby leveraging the expansion of broadband. This performance metric measures the additional communities that NTIA still can assist now that grant funding has expired.

PROGRAM CHANGE PERSONNEL DETAIL

Budget Program: Salaries and Expenses
 Sub-Program: Broadband Programs
 Program Change: Broadband USA

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Comm. Program Specialist	Washington, DC	GS-15	5	144,939	724,695
Comm. Program Specialist	Washington, DC	GS-14	8	123,216	985,732
Secretary	Washington, DC	GS-09	1	60,465	60,465
Total			<u>14</u>		<u>1,770,892</u>
Less Lapse		0%	<u>0</u>		<u>0</u>
Total full-time permanent (FTE)			14		1,770,892
2017 Pay Adjustment (1.6%)					<u>28,334</u>
TOTAL					<u>1,799,226</u>

Personnel Data

Full-Time Equivalent Employment
 Full-time permanent
 Other than full-time permanent
 Total

Number

14
 0
14

Authorized Positions:

Full-time permanent
 Other than full-time permanent
 Total

14
 0
14

FY 2016 Enacted plus Adjustments to Base plus Program Change by Object Class

(Dollar amounts in thousands)

Budget Program: Salaries and Expenses
 Sub-Program: Broadband Programs
 Program Change: BroadbandUSA

		2016	2017	2017	2017	2017
	Object Class	Enacted	ATBs	Base	Prg Chg	Request
11	Personnel compensation	0	0	0	0	0
11.1	Full-time permanent	5,754	27	5,781	1,799	7,580
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other pers. compensation	63	0	63	0	63
11.8	Spec. personnel serv. Paymts.	0	0	0	0	0
11.9	Total pers. compensation	5,817	27	5,844	1,799	7,643
12	Civilian personnel benefits	1,598	56	1,654	500	2,154
13	Benefits for former personnel	0	0	0	0	0
21	Travel & transport. of persons	155	3	158	62	220
22	Transportation of things	7	0	7	2	9
23.1	Rental payments to GSA	593	16	609	75	684
23.2	Rental Payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	23	1	24	7	31
24	Printing and reproduction	44	0	44	3	47
25.1	Advisory & assistance services	0	0	0	0	0
25.2	Other services	757	43	800	(353)	447
25.3	Goods & serv. fr. Gov't accts.	2,650	(21)	2,629	2,011	4,640
25.4	Operation & maint. of facilities	0	0	0	0	0
25.5	Research & devel. contracts	0	0	0	0	0
25.6	Medical care	0	0	0	0	0
25.7	Operation & maint. of equip.	0	0	0	0	0
25.8	Subsist. & support of persons	0	0	0	0	0
26	Supplies & materials	71	1	72	2	74
31	Equipment	129	9	138	4	142
32	Lands & structures	0	0	0	0	0
33	Investments & loans	0	0	0	0	0
41	Grants, subsidies & contributions	0	0	0	0	0
42	Insurance claims & indemnities	0	0	0	0	0
43	Interest & dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total obligations	11,844	135	11,979	4,112	16,091

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

Object Class	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2,017 Increase/(Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$18,889	\$16,220	\$16,341	\$18,034	\$1,693
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	190	169	169	228	59
11.8 Other	0	0	0	0	0
11.9 Total personnel compensation	19,079	16,389	16,510	18,262	1,752
12.1 Civilian personnel benefits	5,454	4,642	4,889	5,349	460
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	580	728	741	781	40
22 Transportation of things	5	16	16	19	3
23.1 Rental payments to GSA	1,343	1,418	1,468	1,671	203
23.2 Rental payments to others	0	0	0	0	0
23 Communications, utilities and miscellaneous charges	214	137	140	157	17
24 Printing and reproduction	32	70	70	86	16
25.1 Advisory and assistance services	0	0	0	0	0
25.2 Other services	1,016	3,328	3,517	4,349	832
25.3 Purchases of goods and services from Government accounts	8,488	14,289	9,996	16,193	6,197
26 Research and development	0	0	0	0	0
25.7 Operation and maintenance of equipment	95	86	86	129	43
26 Supplies and materials	250	223	227	255	28
31 Equipment	2,137	2,239	2,280	3,455	1,175
41 Grants, subsidies and contributions	53	135	135	135	0
99 TOTAL OBLIGATIONS	\$38,746	\$43,700	\$40,075	\$50,841	\$10,766
Prior Year Recoveries/Refunds	(487)				
Unobligated balances from Prior Years	(4,679)	(4,200)			
Unobligated balance EOY	4,200				
Unobligated balance, expiring	420				
Total Budget Authority	\$38,200	\$39,500	\$40,075	\$50,841	\$10,766

* Object class breakout different from object class breakout in MAX due to updated calculations after MAX locked.

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

Personnel Data	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2,017 Increase/(Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	121	160	160	177	17
Other than full-time permanent	0	0	0	0	0
Total	121	160	160	177	17
Authorized Positions:					
Full-time permanent	150	160	160	182	22
Other than full-time permanent	0	0	0	0	0
Total	150	160	176	182	22

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), [\$49,232,000]\$50,841,000 to remain available until September 30, [2017]2018: 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.
 47 U.S.C. § 1304
 47 U.S.C. § 1305

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. authorizes NTIA to perform the Secretary's communications and information functions.

47 U.S.C. § 1304 authorizes the Secretary of Commerce to establish and administer a grant program for the development and implementation of statewide initiatives to identify and track the availability and adoption of broadband services within each State.

47 U.S.C. § 1305 authorizes the Assistant Secretary of Commerce for Communications and Information to establish and administer a national broadband service development and expansion grant program and to develop and maintain a comprehensive nationwide inventory map of existing broadband service capability and availability in the United States.

Department of Commerce
National Telecommunications and Information Administration
 Salaries and Expenses
 ADVISORY AND ASSISTANCE SERVICES

	<u>2015</u> Actual	<u>2016</u> Estimate	<u>2017</u> Estimate
Management and Professional Support Services.....	\$0	\$0	\$0
Studies, Analysis & Evaluations.....	0	0	0
Engineering & Technical Services.....	<u>31</u>	<u>50</u>	<u>50</u>
Total	\$31	\$50	\$50

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

	<u>2015 Actual</u>	<u>2016 Estimate</u>	<u>2017 Estimate</u>
Periodicals.....	\$0	\$0	\$0
Pamphlets.....	4	5	5
Audiovisual Products.....	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$4	\$5	\$5

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

	<u>2015</u> <u>Actual</u>	<u>2016</u> <u>Estimate</u>	<u>2017</u> <u>Estimate</u>
Direct:			
Average ES Salary.....	\$173,448	\$175,703	\$177,987
Average Career Path Salary.....	118,069	119,604	121,159
Average GS Grade.....	13.10	13.10	13.10
Average GS Salary.....	\$117,462	\$118,989	\$120,536

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 2016 President's Budget		0	0	\$0	\$0						
less: Obligations from prior years		0	0	0	0						
plus: 2017 adjustments to base		0	0	0	0						
2017 Base		0	0	0	0						
plus: 2017 program changes		0	0	0	0						
2017 Estimate		0	0	0	0						
Comparison by budget program/sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	(Decrease)	Amount	
Public Telecommunications Facilities, Planning and Construction											
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	98	0	935	0	0	0	0	0	0
TOTALS.....	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	98	0	935	0	0	0	0	0	0
Adjustments to Obligations											
Recoveries/Refunds.....			(10)		0		0		0		0
Unobligated Balance, start of year.....			(1,023)		(935)		0		0		0
Unobligated Balance, end of year.....			935		0		0		0		0
Unobligated Balance, rescinded.....			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
 Public Telecommunications Facilities, Planning and Construction
 SUMMARY OF FINANCING
 (Dollar amounts in thousands)

Comparison by budget program	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/(Decrease)
Total Obligations.....	\$98	\$935	\$0	\$0	\$0
Offsetting collections from:					
Federal funds.....	0	0	0	0	0
Non-Federal sources.....	0	0	0	0	0
Recoveries/Refunds.....	(10)	0	0	0	0
Unobligated balance, start of year.....	(1,023)	(935)	0	0	935
Unobligated balance, end of year.....	935	0	0	0	0
Unobligated balance, rescinded.....	0	0	0	0	0
Budget Authority.....	0	0	0	0	0
Restoration of unobligated balance, rescission..	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
 Public Telecommunications Facilities, Planning and Construction
 PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

Budget Program: Public telecommunications, facilities, planning and construction

Sub-Program: Grants and program management

Comparison by sub-program		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 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	98	0	935	0	0	0	0	0	0
Direct Obligations.....	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	98	0	935	0	0	0	0	0	0

**APPROPRIATION ACCOUNT: PUBLIC TELECOMMUNICATIONS FACILITIES, PLANNING
AND CONSTRUCTION**

**BUDGET PROGRAM: PUBLIC TELECOMMUNICATIONS FACILITIES, PLANNING AND
CONSTRUCTION**

The Public Telecommunications Facilities, Planning and Construction program was discontinued in FY 2011.

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	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$47	\$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	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	47	0	0	0	0
12.1 Civilian personnel benefits	13	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	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	8	10	0	0	0
25.1 Advisory and assistance services	0	0	0	0	0
25.2 Other services	0	0	0	0	0
25.3 Purchases of goods and services from Government account	30	925	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
99 TOTAL OBLIGATIONS	\$98	\$935	\$0	\$0	\$0
Recoveries/Refunds	(10)				
Unobligated Balance, start of year	(1,023)	(935)			
Unobligated Balance, end of year	935				
Unobligated Balance, rescinded	0				
Total Budget Authority	\$0	\$0	\$0	\$0	\$0

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	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

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 available for the administration of all open grants until their expiration. [Consolidated Appropriations Act, 2016]

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
 Information Infrastructure Grants
 SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

							Positions	FTE	Budget Authority	Direct Obligations	
FY 2016 Enacted							0	0	\$0	\$0	
less: Obligations from prior years							0	0	0	0	
plus: 2017 adjustments to base							0	0	0	0	
2017 Base							0	0	0	0	
plus: 2017 program changes							0	0	0	0	
2016 Estimate							0	0	0	0	
Comparison by budget program/sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 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	\$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	68	0	342	0	0	0	0	0	0
TOTALS.....	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	68	0	342	0	0	0	0	0	0
Adjustments to Obligations											
Recoveries/Refunds.....		(3)		0		0		0		0	
Unobligated Balance, start of year.....		(407)		(342)		0		0		0	
Unobligated Balance, end of year.....		342		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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APPROPRIATION ACCOUNT: INFORMATION INFRASTRUCTURE GRANTS

BUDGET PROGRAM: INFORMATION INFRASTRUCTURE GRANTS

The Technology Opportunities Program was discontinued in FY 2005.

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

		Positions	FTE	Budget Authority	Direct Obligations						
FY 2016 Enacted		93	93	665,880	682,891						
less: Obligations from prior years		0	0	0	0						
plus: 2017 adjustments to base		0	0	0	0						
2017 Base		93	93	665,880	682,891						
plus: 2017 program changes		15	15	(644,460)	(640,934)						
2017 Estimate		108	108	21,420	41,957						
Comparison by activity/subactivity	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
Public Safety Trust Fund	Pos/BA	0	\$6,398,912	0	\$365,000	0	\$365,000	0	\$0	0	(365,000)
	FTE/Obl.	0	6,396,613	0	\$367,269	0	367,269	0	0	0	(367,269)
First Responder Network Authority	Pos/BA	32	14,524	83	\$0	83	0	98	0	15	0
Administrative	FTE/Obl.	23	9,064	83	11,338	83	11,338	98	12,637	15	1,299
National Telecommunications and Information Administration Oversight & Programmatic	Pos/BA	4	6,500	9	0	9	0	9	0	0	0
	FTE/Obl.	9	3,020	9	3,404	9	3,404	9	7,900	0	4,496
NIST Public Safety Wireless Research	Pos/BA	0	278,000	0	193,700	0	193,700	0	13,600	0	(180,100)
	FTE/Obl.	0	92,700	0	193,700	0	193,700	0	13,600	0	(180,100)
Next Generation E-911 Department of Transportation	Pos/BA	0	115,000	0	104,560	0	104,560	0	7,820	0	(96,740)
	FTE/Obl.	0	0	0	104,560	0	104,560	0	7,820	0	(96,740)
Next Generation E-911, NTIA	Pos/BA	0	0	1	2,620	1	2,620	1	0	0	(2,620)
	FTE/Obl.	0	0	1	2,620	1	2,620	1	0	0	(2,620)
State and Local Implementation Fund	Pos/BA	0	131,800	0	0	0	0	0	0	0	0
	FTE/Obl.	0	130,874	0	0	0	0	0	0	0	0
TOTALS.....	Pos/BA	36	6,944,736	93	665,880	93	665,880	108	21,420	15	(644,460)
	FTE/Obl.	32	6,632,271	93	682,891	93	682,891	108	41,957	15	(640,934)
Adjustments to Obligations:											
Recoveries/Refunds.....			(2,271)		0		0		0		0
Unobligated Balance, start of year.....			(1,792,369)		(157,258)		(157,258)		(140,247)		17,011
Unobligated Balance, end of year.....			157,258		140,247		140,247		119,710		(20,537)
Appropriation.....			4,994,889		665,880		665,880		21,420		(644,460)

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Department of Commerce
National Telecommunications and Information Administration
 Network Construction Fund
 SUMMARY OF REIMBURSABLE OBLIGATIONS
 (Dollar amounts in thousands)

Comparison by sub-program			2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/(Decrease)	
			Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
<u>Reimbursable projects</u>												
First Responder Network Authority	Pos/BA	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	
	FTE/Obl.	67	73,757	126	114,767	126	114,767	148	6,526,000	22	6,411,233	
NTIA/Opt-OUT	Pos/BA			0	\$0	0	\$0	0	\$0	0	\$0	
	FTE/Obl.	1	1,245	4	3,400	4	3,400	5	3,200	1	(200)	
Total, Reimbursable Obligations.....	Pos/BA	0	0							0	0	
	FTE/Obl.	68	75,002	130	118,167	130	118,167	153	6,529,200	23	6,411,033	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Public Safety Trust Fund	Pos/BA	0	\$6,398,912	0	\$365,000	0	\$365,000	0	\$0	0	(\$365,000)
	FTE/Obl.	0	6,396,613	0	367,269	0	367,269	0	0	0	
Direct Obligations.....	Pos/BA	0	6,398,912	0	365,000	0	365,000	0	0	0	(365,000)
	FTE/Obl.	0	6,396,613	0	367,269	0	367,269	0	0	0	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
First Responder Network Authority Administrative	Pos/BA	32	\$14,524	83	\$0	83	\$0	83	\$0	0	\$0
	FTE/Obl.	23	9,064	83	11,338	83	11,338	83	12,637	0	
Direct Obligations	Pos/BA	32	14,524	83	0	83	0	83	0	0	0
	FTE/Obl.	23	9,064	83	11,338	83	11,338	83	12,637	0	

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

Activity: Public Safety Trust Fund

Comparison by line item	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
National Telecommunications and Information Administration Oversight & Programmatic	Pos/BA	4	\$6,500	9	\$0	9	\$0	9	\$0	0	\$0
	FTE/Obl.	9	3,020	9	3,404	9	\$3,404	9	7,900	0	
Direct Obligations	Pos/BA	4	6,500	9	0	9	0	9	0	0	0
	FTE/Obl.	9	3,020	9	3,404	9	3,404	9	7,900	0	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NIST Public Safety Wireless Research	Pos/BA	0	\$278,000	0	\$193,700	0	\$193,700	0	\$13,600	0	(\$180,100)
	FTE/Obl.	0	92,700	0	\$193,700	0	193,700	0	\$13,600	0	
Direct Obligations.....	Pos/BA	0	278,000	0	193,700	0	193,700	0	13,600	0	(180,100)
	FTE/Obl.	0	92,700	0	193,700	0	193,700	0	13,600	0	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Next Generation E-911	Pos/BA	0	\$115,000	0	\$104,560	0	\$104,560	0	\$7,820	0	(\$96,740)
Department of Transportation	FTE/Obl.	0	0	0	104,560	0	104,560	0	7,820	0	
Direct Obligations.....	Pos/BA	0	115,000	0	104,560	0	104,560	0	7,820	0	(96,740)
	FTE/Obl.	0	0	0	104,560	0	104,560	0	7,820	0	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Next Generation E-911, NTIA	Pos/BA	0	\$0	1	\$2,620	0	\$2,620	1	\$0	1	(\$2,620)
	FTE/Obl.	0	0	1	2,620	0	2,620	1	0	1	
Direct Obligations.....	Pos/BA	0	0	1	2,620	0	2,620	1	0	1	(2,620)
	FTE/Obl.	0	0	1	2,620	0	2,620	1	0	1	

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

Activity: Public Safety Trust Fund

Comparison by line item		2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2017 Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
State and Local Implementation Fund	Pos/BA	0	\$131,800	0	\$0	0	\$0	0	\$0	0	\$0
	FTE/Obl.	0	130,874	0	0	0	0	0	0	0	0
Direct Obligations.....	Pos/BA	0	131,800	0	0	0	0	0	0	0	0
	FTE/Obl.	0	130,874	0	0	0	0	0	0	0	0

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

Object Class	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/ (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	\$4,364	\$6,332	\$6,332	\$7,776	\$1,444
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	108	108	108	0	(108)
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	4,472	6,440	6,440	7,776	1,336
12.1 Civilian personnel benefits	1,300	1,300	1,300	1,960	660
13 Benefits for former personnel	0	0	0	2	2
21 Travel and transportation of persons	139	216	216	35	(181)
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	408	336	336	427	91
23.2 Rental payments to others	0	0	\$0	0	0
23.3 Communications, utilities and miscellaneous charges	31	31	31	31	0
24 Printing and reproduction	51	27	27	5	(22)
25.1 Advisory and assistance services	496	591	591	3,600	3,009
25.2 Other services	1,102	1,238	1,238	5,500	4,262
25.3 Purchases of goods and services from Government accounts	3,644	3,990	3,990	1,200	(2,790)
25.7 Operation and maintenance of equipment	1	0	0	0	0
26 Supplies and materials	39	45	45	1	(44)
31 Equipment	401	528	528	0	(528)
41 Grants, subsidies and contributions	0	0	0	0	0
94 Expenditure transfer	6,620,186	668,149	668,149	21,420	(646,729)
99 TOTAL OBLIGATIONS	\$6,632,270	\$682,891	\$682,891	\$41,957	(\$640,934)
Prior Year Recoveries/Refunds	(2,269)				
Unobligated balances from Prior Years	(1,792,369)				
Unobligated balance EOY	157,258				
Unobligated balance, expiring					
Total Mandatory Budget Authority	\$4,994,890	\$682,891	\$682,891	\$41,957	(\$640,934)

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

Personnel Data	2015 Actual	2016 Enacted	2017 Base	2017 Estimate	2017 Increase/ (Decrease)
Full-Time Equivalent Employment:					
Full-time permanent	32	93	93	108	15
Other than full-time permanent	0	0	0	0	0
Total	32	93	93	108	15
Authorized Positions:					
Full-time permanent	36	93	93	108	15
Other than full-time permanent	0	0	0	0	0
Total	36	93	93	108	15

Department of Commerce
National Telecommunications and Information Administration
 State and Local Implementation Fund
 SUMMARY OF REIMBURSABLE OBLIGATIONS
 (Dollar amounts in thousands)

Comparison by sub-program	2015 Actual		2016 Enacted		2017 Base		2017 Estimate		2,017 Increase/(Decrease)		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
<u>Reimbursable projects</u>											
State and Local Implementation	Pos/BA	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Grant Fund Administration	FTE/Obl.	4	2,805	4	3,523	4	3,523	2	1,897	0	(1,626)
Total, Reimbursable Obligations.....	Pos/BA	4	2,805							0	0
	FTE/Obl.	4	2,805	4	3,523	4	3,523	2	1,897	0	(1,626)

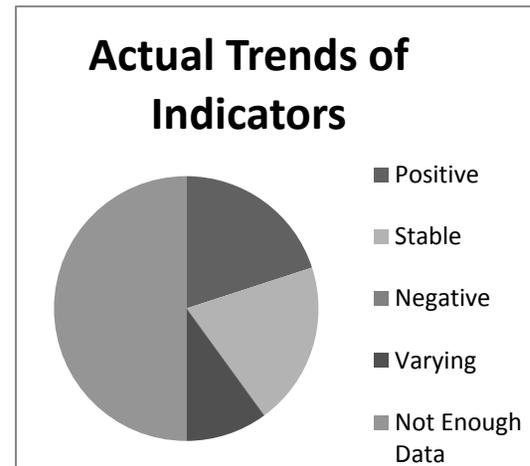
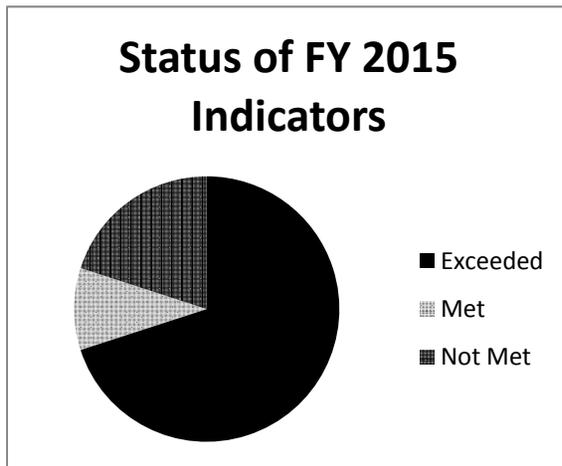
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FY 2017 Performance Planning and FY 2015 Report Backup

National Telecommunications and Information Administration

Performance Indicator Information

Summary of Performance



- Of the ten FY 2015 indicators, seven actuals (70%) exceeded their targets, one actual (10%) met its target, and two actuals (20%) did not meet their targets. The actual for the number of test-bed facilities did not meet its target because there was no NTIA Director for the Center for Advanced Communications on board to promote or negotiate such arrangements until late in the third quarter. The actual miles of broadband networks deployed was below the target. Originally, broadband grantees exceeded the program's goal of 100,000 miles, which led to a reset, stretch target of 118,000 miles. Broadband miles are based on efforts of grant recipients and are not directly in NTIA's control.
- There were five indicators that had trends (more than three years of data).
- Of those indicators with trends, two (40%) had positive trends; two (40%) had stable trends, and one (20%) had a varying trend. NTIA did not have any negative trends.

Summary of Indicator Performance

Summary of FY 2015 Indicator Performance

Indicator	Target	Actual	Status	Trend
Percentage of NTIA positions substantially adopted or successful at international meetings	75% of NTIA positions substantially adopted/successful at international meetings	Exceeded target of 75 % by meeting 95% of NTIA positions substantially adopted/successful at international meetings	Exceeded	Stable
Spectrum identified for commercial broadband use	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Exceeded goal of 66% by achieving 80% of annual milestones regarding the identification of 500 MHz for wireless broadband	Exceeded	Stable
In coordination with DOC operating units, conduct outreach activities with government, industry, and multistakeholder groups to identify and address privacy and global free flow of information issues (forums and proceedings)	6 public forums and proceedings	10 multistakeholder meetings	Exceeded	Not Enough Data
Number of times research publications are downloaded annually	7,300	8,960	Exceeded	Not Enough Data
Successfully completed deliverables under reimbursable agreements (on time, on budget, and accepted)	>95%	99%	Exceeded	Not Enough Data
Number of government and private test-bed facilities partnering with the Center for Advanced Communications (with NIST)	2	0	Not Met	Not Enough Data
Communities to which NTIA provides technical assistance	175 communities	337 communities	Exceeded	Not Enough

				Data
Delivery by FirstNet and acceptance of each state's network plan or, alternatively, FCC approval of a state's plan required for the implementation of the Public Safety Broadband Network	RFP Development and Consultation with Regional, State, Tribal and Local Jurisdictions	Draft RFP and Special Notice released, Operational Architecture released. Special Notice and Cyber Security appendix released. Completed first round consultations with 50 of the 56 States and Territories	Met	Variable
Miles of broadband networks deployed (infrastructure Projects) (Agency Priority Goal)	118,000	115,565	Not Met	Positive
Community anchor institutions connected (Infrastructure Projects) (Agency Priority Goal)	23,500	25,766	Exceeded	Positive

Detailed Indicator Plans and Performance

Strategic Goal 1	Trade and Investment: Expand the U.S. economy through exports and inward foreign investment that lead to more and better American jobs							
Objective 1.1	Increase opportunities for U.S. companies by opening markets globally							
Indicator	Percentage of NTIA positions substantially adopted or successful at international meetings							
Category	Supporting (Non-Strategic Plan)							
Type	Intermediate Outcome							
Description	NTIA will promote acceptance of U.S. positions and proposals internationally by representing U.S. interests at treaty-making conferences, regional communications conferences and meetings, bilateral and multilateral meetings, and multi-stakeholder meetings and conferences. This measure tracks the number of accepted U.S. technical and policy positions and proposals to international treaty-making conferences, bilateral and multilateral meetings, multi-stakeholder meetings, and regional communications conferences and meetings.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target		75% of NTIA positions	75% of NTIA					

		substantially adopted/ successful at international meetings	substantially adopted/ successful at international meetings	substantially adopted/ successful at international meetings	substantially adopted/ successful at international meetings	substantially adopted/ successful at international meetings	substantially adopted/ successful at international meetings	positions substantially adopted/ successful at international meetings
Actual		Exceeded target of 75 % by meeting 95% of NTIA positions substantially adopted/ successful at international meetings	>80% of NTIA positions substantially adopted/ successful at international meetings	>80% of NTIA positions substantially adopted/ successful at international meetings	Exceeded target of 75 % by meeting 95% of NTIA positions substantially adopted/ successful at international meetings	Exceeded target of 75 % by meeting 95% of NTIA positions substantially adopted/ successful at international meetings		
Status		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded		
Trend	Stable							
Explanation (if not met in FY 2015)	None.							
Actions to be taken / Future Plans	None.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							
Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation’s digital economy							

Indicator	Spectrum identified for commercial broadband use							
Category	Key							
Type	Intermediate Outcome							
Description	<p>NTIA is undertaking tasks, in response to the June 28, 2010 Presidential Memorandum and in collaboration with the Federal Communications Commission (FCC), to make available a total of 500 MHz (in bandwidth) of spectrum to support wireless broadband services or products by 2020. NTIA, with input from other federal agencies and the FCC, developed a Ten-Year Plan and Timetable, identifying over 2,200 MHz of spectrum for evaluation. As this work has progressed, the band analysis process continues, but much of the effort has turned toward implementation of bands that NTIA and/or the FCC have identified. The combination of the ongoing analysis and implementation of band-repurposing results in a new set of deliverables each fiscal year. NTIA will establish at the beginning of each fiscal year the set of expected deliverables to complete this complex project.</p>							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target			Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband	Meet 66% of annual milestones regarding the identification of 500 MHz for wireless broadband
Actual			Exceeded goal of 66% by achieving 100% of annual milestones regarding the identification of 500 MHz for wireless broadband	Exceeded goal of 66% by achieving 100% of annual milestones regarding the identification of 500 MHz for wireless broadband	Exceeded goal of 66% by achieving 100% of annual milestones regarding the identification of 500 MHz for wireless broadband	Exceeded goal of 66% by achieving 80% of annual milestones regarding the identification of 500 MHz for wireless broadband		
Status			Exceeded	Exceeded	Exceeded	Exceeded		
Trend	Stable							

Explanation (if not met in FY 2015)	None.
Actions to be taken / Future Plans	None.
Adjustments to targets	None.
Notes	None.
Information Gaps	None.

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation’s digital economy							
Indicator	In coordination with DOC operating units, conduct outreach activities with government, industry, and multistakeholder groups to identify and address privacy and global free flow of information issues (forums and proceedings)							
Category	Supporting (Non-Strategic Plan)							
Type	Intermediate Outcome							
Description	Stakeholders from industry, consumer groups, government, academia, and the technical community will work toward crafting a consensus on privacy and global free flow of information issues. NTIA will seek public input and comments to lay the groundwork for these challenges. NTIA’s role is not to substitute its judgment for the views of stakeholders, but will ensure the process is open, transparent, and consensus-based, leading to the achievement of consensus on at least one policy issue by the end of FY 2016.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target					6 public forums and proceedings			
Actual					9 multistakeholder meetings	10 multistakeholder meetings		
Status					Exceeded	Exceeded		
Trend	Not enough data							
Explanation (if not met in FY 2015)	None.							

met in FY 2015)	
Actions to be taken / Future Plans	None.
Adjustments to targets	None.
Notes	None.
Information Gaps	None.

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	Number of times research publications are downloaded annually							
Category	Supporting (Non-Strategic Plan)							
Type	Output							
Description	Telecommunications engineering research publications are used by engineers and scientists associated with industry, other government agencies, standards development organizations, and academia for technical data and information to support efficient and effective management of spectrum and innovative use of new technologies.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target					7,000	7,300	7,500	8,000
Actual					7,707	8,960		
Status					Exceeded	Exceeded		
Trend	Not enough data							
Explanation (if not met in FY 2015)	None.							
Actions to be taken / Future Plans	None.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation’s digital economy							
Indicator	Successfully completed deliverables under reimbursable agreements (on time, on budget, and accepted)							
Category	Supporting (Non-Strategic Plan)							
Type	Process							
Description	NTIA’s laboratory performs research on a cost-reimbursable basis for other federal agencies under interagency agreements (IAAs) and for private entities under CRADAs. As a proxy for customer satisfaction with research performed under an aggregate of unique agreements, the laboratory tracks as “Met/Not Met” three success parameters for each deliverable under all agreements: on time, on budget, and accepted. The metric reports the percent of total parameters (total number of deliverables under all MOUs x three parameters for each) that are reported as “Met.”							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target					>95%	>95%	>95%	>95%
Actual					98%	99%		
Status					Exceeded	Exceeded		
Trend	Not enough data							
Explanation (if not met in FY 2015)	None.							
Actions to be taken / Future Plans	None.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation’s digital economy							
Indicator	Number of government and private test-bed facilities partnering with the Center for Advanced Communications (with NIST)							
Category	Supporting (Non-Strategic Plan)							

Type	Output							
Description	By 2017, the CAC will become a single point of contact for engaging industry and other government agencies on advanced communications technologies. The CAC will increase its partnerships, in particular, in the area of testing, validation, and conformity assessment.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target						2	2	8
Actual						0		
Status						Not Met		
Trend	Not enough data							
Explanation (if not met in FY 2015)	There was no NTIA CAC Director on board to promote or negotiate such arrangements until late third quarter.							
Actions to be taken / Future Plans	None.							
Adjustments to targets	None.							
Notes	This is a new performance indicator beginning in FY 2015.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies
Objective 2.2	Strengthen the nation's digital economy
Indicator	Miles of broadband networks deployed (infrastructure Projects) (Agency Priority Goal)
Category	Key
Type	Outcome
Description	BTOP funded projects that provide broadband service in unserved areas and enhance broadband service in underserved areas of the United States. The BTOP portfolio of projects initially included 123 infrastructure projects totaling \$3.5 billion in federal grant funds to construct broadband networks and to connect "community anchor institutions" such as schools, libraries, hospitals, and public safety facilities. This indicator's target is the cumulative total number of miles of network (e.g., fiber, microwave) deployed using BTOP funding. The Recovery Act provided all funding for BTOP grants. Infrastructure projects are scheduled to be substantially completed by the end of FY 2013. As in FY 2015, NTIA will continue to administer in FY 2016 the BTOP grants through their completion and federal interest period in order to protect the federal government's investment in broadband infrastructure, public computer centers, and broadband adoption projects.

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target		10,000	50,000	100,000	115,000	118,000	116,000	116,000
Actual		29,191	78,699	111,361	113,555	115,565 *		
Status		Exceeded	Exceeded	Exceeded	Met	Not Met		
Trend	Positive							
Explanation (if not met in FY 2015)	* The number of miles of broadband is based on the efforts of the grant recipients and is not directly in NTIA's control. Grantees exceeded the program's original goal, which was set at 100,000 miles. Overachievement led to resetting the target to a "stretch goal" of 118,000 miles.							
Actions to be taken / Future Plans	None.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	Communities to which NTIA provides technical assistance							
Category	Key							
Type	Outcome							
Description	Among the communities that were not able to receive NTIA assistance during the BTOP grant period, various communities now will be able to take advantage of NTIA's technical expertise during NTIA's subsequent outreach program, thereby leveraging the expansion of broadband. This performance metric measures the additional communities that NTIA still can assist now that grant funding no longer exists.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target						175 communities*	250 communities*	325 communities*
Actual						337 communities		
Status						Exceeded		
* Not cumulative								
Trend	Not enough data							
Explanation (if not	None.							

met in FY 2015)	
Actions to be taken/ Future Plans	Collection of data
Adjustments to targets	None.
Notes	This is a new performance indicator beginning in FY 2015.
Information Gaps	None.

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	Sales by small businesses and small manufacturers through engaging in e-commerce due to NTIA's assistance							
Category	Supporting (Non-Strategic Plan)							
Type	Outcome							
Description	Program assists small businesses and small manufacturers to expand their markets domestically and abroad by learning to promote businesses online by creating websites, optimizing search, understanding applications, mobile search, etc.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target							\$5 million	\$10 million
Actual								
Status								
Trend	Not enough data							
Explanation (if not met in FY 2015)	None.							
Actions to be taken/ Future Plans	Collection of data							
Adjustments to targets	None.							
Notes	This is a new performance indicator beginning in FY 2016. NTIA anticipates that the number of small businesses and small manufacturers it will assist through its adoption grant program to increase from 150 in FY 2016 to 1,250 in FY 2017.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	Delivery by FirstNet and acceptance of each state's network plan or, alternatively, FCC approval of a state's plan required for the implementation of the Public Safety Broadband Network							
Category	Supporting (Non-Strategic Plan)							
Type	Outcome							
Description	Under Title IV Subtitle B of the Middle Class Tax Relief and Job Creation Act of 2012, FirstNet must deliver to each state governor (or his designee) a plan for the construction, operation, maintenance and improvement out of the nationwide, interoperable broadband network in the state upon completion of a Request for Proposal (RFP) process. Upon delivery of the plan, each State and territory must choose whether to participate in the network deployment as proposed by FirstNet or conduct its own deployment of a radio access network in the State (opt-out). States seeking to opt-out must first obtain permission to do so by the Federal Communications Commission. If successful in opting out, these states must still comply with network standards developed by FirstNet.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target				Issue RFPs	Issue RFPs	RFP Development and Consultation with Regional, State, Tribal and Local Jurisdictions	Issue RFPs	Complete RFP Process
Actual				Issuance of 11 Requests for Information (RFIs)	Consultation with Regional, State, Tribal and Local Jurisdictions initiated. Two additional RFIs, including the key RFI for Comprehensive Network Solution(s), and the Draft Comprehensive	Draft RFP and Special Notice released, Operational Architecture released. Special Notice and Cyber Security appendix released. Completed first round consultations with 50 of the 56 States and Territories.		

					Statement of Objectives (SOO) were issued.			
Status				Not Met	Not Met	Met		
Trend	Variable							
Explanation (if not met in FY 2015)	None.							
Actions to be taken/ Future Plans	Complete the evaluation of RFPs issued in FY 2016.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							

Non-Recurring Indicators

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	Community anchor institutions connected (Infrastructure Projects) (Agency Priority Goal)							
Category	Key							
Type	Outcome							
Description	The Recovery Act places a high priority on deploying and enhancing broadband capabilities for community anchor institutions such as libraries, hospitals, schools, and public safety entities. The BTOP portfolio of projects initially included 123 infrastructure projects totaling \$3.5 billion in federal grant funds to construct broadband networks and to connect “community anchor institutions” such as schools, libraries, hospitals, and public safety facilities. This measure’s target is the cumulative total number of anchor institutions connected with new or improved broadband capabilities. The Recovery Act provided all funding for BTOP grants. Infrastructure projects are scheduled to be substantially completed by the end of FY 2013. As in FY 2015, NTIA will continue to administer in FY 2016 the BTOP grants through their completion and federal interest period in order to protect the federal government’s investment in broadband infrastructure, public computer centers, and broadband adoption projects.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target		3,000	10,000	18,000	23,000	23,500	Retired	Retired

Actual		4,163	11,246	20,325	25,391	25,766		
Status		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded		
Trend	Positive							
Explanation (if not met in FY 2015)	None.							
Actions to be taken / Future Plans	This indicator is being retired because NTIA will have exceeded its final target.							
Adjustments to targets	None.							
Notes	None.							
Information Gaps	None.							

Strategic Goal 2	Innovation: Foster a more innovative U.S. economy—one that is better at inventing, improving, and commercializing products and technologies							
Objective 2.2	Strengthen the nation's digital economy							
Indicator	New household and business subscribers to broadband (Sustainable Broadband Adoption Projects) (Agency Priority Goal)							
Category	Key							
Type	Outcome							
Description	The BTOP portfolio of projects initially included 44 sustainable broadband adoption (SBA) projects totaling \$250.7 million in federal grant funds to support innovative projects that promote broadband adoption, especially among vulnerable population groups where broadband technology traditionally has been underutilized. This measure's target is the cumulative total number of new household and business subscribers to broadband generated by projects funded through the BTOP Sustainable Broadband Adoption category of funding, as reported by awardees.							
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Target		100,000	350,000	600,000	670,000	Retired	Retired	Retired
Actual		210,213	522,981	629,175	736,489			
Status		Exceeded	Exceeded	Exceeded	Exceeded			
Trend	Positive							
Explanation (if not met in FY 2015)	None.							

Actions to be taken / Future Plans	This indicator has been retired because NTIA has exceeded its final target.
Adjustments to targets	None.
Notes	None.
Information Gaps	None.

Other Indicators

None

Resource Requirements Table

	FY 2010 Actual	FY 2011 Actual	FY 2012 Actual	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Enacted	FY 2017 Base	Increase/ Decrease	FY 2017 Request
Performance Objective 1.1. Increase opportunities for U.S. companies by opening markets globally.										
Salaries & expenses	2,385	2,746	2,996	2,572	1,417	3,024	5,008	4,243	3,040	7,283
Domestic and international policies	2,385	2,746	2,996	2,572	1,417	3,024	5,008	4,243	3,040	7,283
Subtotal, Objective 1.1	2,385	2,746	2,996	2,572	1,417	3,024	5,008	4,243	3,040	7,283
FTE	11	12	13	14	11	12	16	16	5	21
Performance Objective 2.2 Strengthen the Nation's digital economy.										
Salaries & expenses	55,467	89,370	81,657	77,093	84,605	71,842	96,329	78,968	8,726	87,694
Domestic and international policies	2,385	2,745	2,995	2,571	4,721	3,550	5,879	4,982	3,567	8,549
Spectrum management	35,870	45,245	37,228	34,963	40,304	39,004	56,200	43,970	1,250	45,220
Advanced Communications Research	14,827	16,838	14,048	12,531	15,239	15,090	20,007	18,037	2,975	21,012
Broadband Programs	0	21,796	24,390	24,456	24,341	14,198	14,243	11,979	934	12,913
Spectrum Sharing and Monitoring	0	0	0	0	0	0	0	0	0	0
Digital Television Transition and Public Safety Fund	54,059	57,955	18,555	0	0	0	0	0	0	0
Broadband Technology Opportunities Program (ARRA)	4,287,827	0	0	0	0	0	0	0	0	0
Grants	4,248,380	0	0	0	0	0	0	0	0	0
Program management	39,447	0	0	0	0	0	0	0	0	0
Digital To Analog Converter Box Program (ARRA)	1,258	0	0	0	0	0	0	0	0	0
Public Telecommunications Facil., Planning, & Construction	22,914	1,210	1,298	526	347	98	935	0	0	0
Grants	21,182	0	0	0	0	0	0	0	0	0
Program management	1,732	1,210	1,298	526	347	98	935	0	0	0
Information Infrastructure Grants	101	170	64	55	223	68	342	0	0	0
Grants	0	0	0	0	0	0	0	0	0	0
Program management	101	170	64	55	223	68	342	0	0	0
Subtotal, Objective 2.2	4,329,411	41,501	43,462	38,826	85,176	72,008	97,606	78,968	8,726	87,694
FTE	287	273	256	243	240	248	299	300	26	326
Total Discretionary										
Direct	4,331,796	44,246	46,457	41,397	44,905	38,912	43,700	40,075	10,766	50,841
Reimbursable	35,771	46,504	36,562	36,277	41,688	36,120	57,637	43,136	1,000	44,136
Mandatory	54,059	57,955	18,555							
Total Funding	4,421,626	148,705	101,574	77,674	86,593	75,032	102,614	83,211	11,766	94,977
Total FTE	298	285	269	257	251	260	315	316	31	347