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The National Telecommunications and Information Administration (NTIA): Current Roles and Programs

The National Telecommunications and Information Administration (NTIA), an executive branch agency within the Department of Commerce, plays a leading role in spectrum management, federal broadband support programs, and policymaking on issues related to the internet economy. By law, NTIA advises the President on telecommunications policy and represents the executive branch on domestic and international information and communications technology (ICT) policy matters to Congress, independent agencies, state and local governments, industry, and the public. Given the importance of ICTs in the domestic and global economy and for business, health, education, and social applications, NTIA's policies and actions have implications beyond telecommunications policy.

The Secretary of Commerce implemented Executive Order 12046 in 1978, establishing NTIA and designating the Assistant Secretary of Commerce for Communications and Information as the NTIA administrator. Congress codified the establishment in the NTIA Organization Act of 1992 (Title I of P.L. 102-538) and the delegation of certain authorities and functions. In particular, Congress has tasked the agency with managing and coordinating spectrum allocation for federal use and, recently, administering federal broadband grants.

The Communications Act of 1934, as amended, assigns joint jurisdiction for spectrum management in the United States to NTIA and the Federal Communications Commission (FCC). NTIA exercises the power of the President by managing spectrum allocation and use by federal agencies. The FCC oversees nonfederal allocation and use. NTIA and the FCC coordinate spectrum allocations to balance public and private sector interests and the deployment of advanced ICTs—including fifth-generation (5G) wireless—with protection of critical national functions. To address spectrum congestion and growing demand for spectrum, Congress directed NTIA to identify and reallocate spectrum used by federal agencies to the FCC for exclusive nonfederal use or shared use. By 2020, both agencies had made a total of 1,131 megahertz of frequency bandwidth available for 5G services. In February 2022, the two agencies established the Spectrum Coordination Initiative to promote efficient and shared use of spectrum and to collaborate in the development of a national spectrum strategy.

NTIA plays a crucial role, along with the FCC and the U.S. Department of Agriculture (USDA), in administering federal broadband support programs. NTIA currently administers \$1.6 billion in Broadband Connectivity grants established under the Consolidated Appropriations Act, 2021 (P.L. 116-260). The Infrastructure Investment and Jobs Act (IIJA, P.L. 117-58) assigned the agency responsibility for distributing over \$48 billion in broadband funding to help (1) deliver affordable and reliable broadband service to all Americans and close the digital divide, (2) further efforts with tribal connectivity, (3) address digital inclusion and equity, and (4) expand middle mile infrastructure. Implementation of those programs has become one of the most important activities at the agency. Among the IIJA broadband programs, the largest is the \$42.45 billion Broadband Equity, Access, and Deployment (BEAD) program to provide funds to states, territories, the District of Columbia, and Puerto Rico for broadband deployment, connectivity, mapping, and adoption projects. The law requires NTIA to work closely with stakeholders—including federal agencies; state, local, and tribal governments; communities and organizations; and private sector actors—to distribute funding in an efficient, effective, non-discriminatory, accountable, and coordinated manner.

NTIA is actively engaged in other important ICT policy initiatives, particularly in the area of cybersecurity. Among other activities, the agency established the Communications Supply Chain Risk Information Partnership (C-SCRIP) program to provide small and rural communications providers and equipment suppliers with supply chain risk information.

Policy issues affecting NTIA that Congress may consider include (1) reauthorizing NTIA, (2) improving the interagency coordination of spectrum allocation and management, (3) overseeing the distribution of federal broadband funding, and (4) the appropriate levels of funding for NTIA to enable the agency's mission to support the preservation and enhancement of U.S. competitiveness and ICT leadership.

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Introduction

The National Telecommunications and Information Administration (NTIA) is an executive branch agency within the Department of Commerce (DOC). It plays a leading role in spectrum management, federal broadband support programs, and policymaking on issues related to the internet economy. According to NTIA, its programs and policymaking activities focus on (1) expanding spectrum use, (2) expanding broadband access and adoption in the country, and (3) ensuring that the internet remains an engine for innovation and economic growth.¹ By law, NTIA “serves as the President’s principal adviser on telecommunications policies pertaining to the Nation’s economic and technological advancement and to the regulation of the telecommunications industry.”² In addition, NTIA represents the executive branch in both domestic and international information and communications technology (ICT) policy matters to Congress, independent agencies, state and local governments, and the public.³

Recently, NTIA has drawn congressional attention due to its expanded role in “connecting Americans.”⁴ The agency’s spectrum management and coordination activities support the fifth-generation (5G) wireless deployment and facilitate U.S. leadership in advanced ICTs and services, and Congress has increased the agency’s significant role in addressing the digital divide by authorizing broadband grant programs tasked with distributing over \$48 billion to state, local, tribal, and private sector stakeholders.⁵ Given the importance of ICTs in the domestic and global economy and for business, health, education, and social applications, NTIA’s policies and actions have implications beyond telecommunications policy.

This report provides an overview of NTIA, including its history, organization, and relationship to the Federal Communications Commission (FCC), and major areas of current programmatic activity. The report explains NTIA’s role in federal spectrum management, spectrum repurposing and allocation, and spectrum policy coordination with the FCC. It also describes the agency’s role in federal broadband funding coordination and broadband programs administered by NTIA, including the new \$42.45 billion Broadband Equity, Access, and Deployment Program. In addition, the report describes NTIA’s cybersecurity activities. It concludes with a discussion of policy issues for congressional consideration. These include NTIA reauthorization, spectrum coordination, oversight of federal broadband funding, and U.S. leadership in ICTs.

History and Overview

The creation of NTIA was a result of an executive branch reorganization in the late 1970s, during which President Jimmy Carter transferred most functions of the abolished White House’s Office of Telecommunications Policy to the Secretary of Commerce.⁶ The reorganization also combined

¹ NTIA, “About NTIA,” at <https://www.ntia.doc.gov/about>.

² 47 U.S.C. §902(b)(2)(D). The Telecommunications Act of 1996 (P.L. 104-104) defines the term *telecommunications* as the transmission of information (see 47 U.S.C. §153(50)).

³ See 47 U.S.C. §902(b)(2)(G), (H), (I), (J), (K), (L), (N), (O), (T), and (U).

⁴ U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Communications and Technology, hearing on *Connecting America: Oversight of NTIA*, 117th Cong., 2nd sess., February 16, 2022.

⁵ The Infrastructure Investment and Jobs Act (P.L. 117-58) created or expanded four broadband grant programs at NTIA and provided \$48.2 billion in 2021. NTIA received an additional \$1.6 billion for Broadband Connectivity Grants under the Consolidated Appropriations Act of 2021 (P.L. 116-260).

⁶ Executive Office of the President, “Reorganization Plan No.1 of 1977,” 42 *Federal Register* 56101, October 21, 1977; Executive Order 12046, “Relating to the Transfer of Telecommunications Functions,” 43 *Federal Register* 13349,

DOC's Office of Telecommunications with NTIA.⁷ The transferred and combined functions included "the President's authority to assign frequencies to radio stations belonging to and operated by the United States," the authority to carry out federal spectrum management activities, and the responsibility of "long-range spectrum planning in cooperation with the FCC."⁸ These functions remain among NTIA's current duties.

In 1978, the Secretary of Commerce implemented Executive Order 12046 by establishing NTIA and designating the Assistant Secretary of Commerce for Communications and Information as the administrator of NTIA.⁹ The Assistant Secretary is appointed by the President, "by and with the advice and consent of the Senate."¹⁰ In 1992, recognizing that telecommunications and information are "vital to the public welfare, national security, and competitiveness of the United States" and a need for "effective national and international policies and programs ... taking advantages of continued [technological] advancements," Congress codified the establishment of the agency in Title I of the Telecommunications Authorization Act of 1992 (NTIA Organization Act, P.L. 102-538) and the delegation of the authority and functions of the Secretary of Commerce in communications and information to it.¹¹

NTIA has the statutory mission to advance telecommunications and information policies to (1) promote the benefits of technological development for all users; (2) foster national security, economic prosperity, and social services; (3) facilitate competition, efficiency, and the free flow of commerce; (4) foster efficient use of telecommunications resources; and (5) further knowledge about telecommunications and information.¹² To achieve these goals, the agency performs various functions under its delegated authority,¹³ which can be summarized in four major areas:

- managing federal spectrum use;
- administering federal grants for broadband access, adoption, and deployment;
- advising the President on various telecommunications and information policy issues; and
- conducting telecommunications research.

Figure 1 shows the organization chart of the agency.

March 29, 1978.

⁷ NTIA, "A Short History of NTIA," at <https://www.ntia.doc.gov/legacy/opadhome/history.html>.

⁸ Ibid.

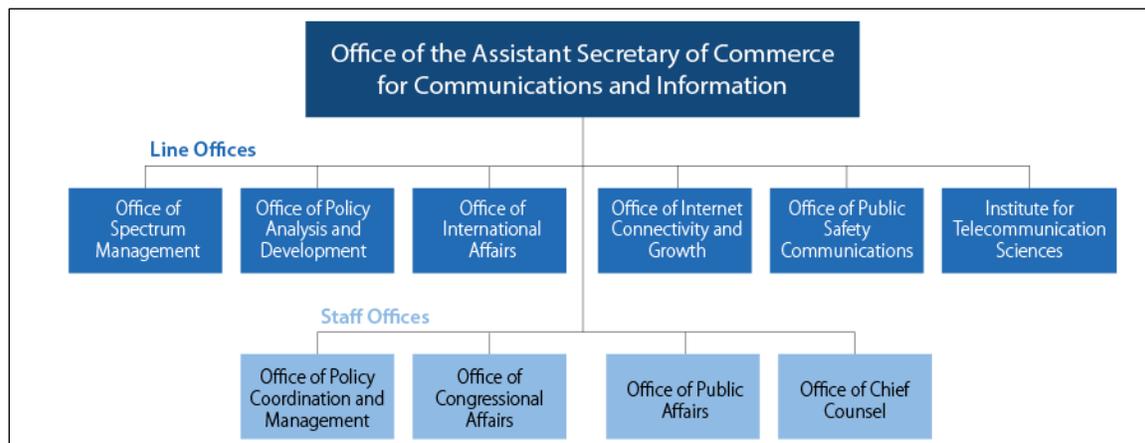
⁹ DOC, Office of the Secretary, "National Telecommunications and Information Administration: Establishment and Delegation of Authority [Department Organization Order 10-10]," 43 *Federal Register* 24348, June 5, 1978.

¹⁰ 47 U.S.C. §902(a)(2).

¹¹ 47 U.S.C. §§901-904. The House Committee on Energy and Commerce in its report accompanying the original bill indicated that (1) it was concerned that NTIA's non-statutorily recognized status rendered it "vulnerable to attempts by the Department of Commerce to change its responsibilities and activities in a manner that could diminish NTIA's effectiveness"; (2) "it is in the national interest to codify the authority of NTIA to fulfill the need for a centralized agency to advise the President on telecommunications and information policies"; (3) NTIA required "statutory authorization to place the agency on an equal footing with other Executive agencies" and "retain its preeminent status as a leader in the development of telecommunications policy"; and (4) "nothing in the legislation would reassign any function currently vested in the FCC." (See U.S. Congress, House Committee on Energy and Commerce, *NTIA Organization and Authorization Act*, committee print, 102nd Cong., 1st sess., November 19, 1991, H. Rpt. 102-335, pp. 13-14.)

¹² Ibid., §901(c).

¹³ Ibid., §902(b).

Figure I. Organization Chart of NTIA

Source: CRS based on NTIA, *Organization Chart*, at <https://www.ntia.doc.gov/offices>.

Since it authorized NTIA in 1992, Congress has supported the agency’s functions and activities by providing resources through the appropriations process.¹⁴ For FY2022, the Consolidated Appropriations Act, 2022 (CAA, 2022, P.L. 117-103) provided \$50 million to the agency for its salaries and expenses, which was approximately \$4.5 million, or 9.9%, more than the FY2021 appropriated amount and about 55.9% of the FY2022 requested amount of \$89.5 million.¹⁵ In addition, CAA, 2022 directed DOC to charge other federal agencies for NTIA’s spectrum-related services, and retain and use such fees. The act also authorized DOC to retain and use reimbursement paid by other agencies for telecommunications research activities conducted by NTIA’s Institute for Telecommunication Sciences (ITS).¹⁶

Programmatic Plan in FY2023

In its FY2023 budget, NTIA requested a total of \$67.6 million.¹⁷ It presented to Congress five major categories of activities: Domestic and International Policies, Spectrum Management, Advanced Communications Research, Broadband Programs, and Public Safety Communications.¹⁸ **Table 1** summarizes the activities that NTIA has planned for FY2023.

¹⁴ For the consideration of reauthorization of the agency, see sub-section “Reauthorizing NTIA” in the last section of this report.

¹⁵ See DOC, *NTIA FY2022 Budget as Presented to Congress*, May 2021, p. NTIA-3, at https://www.commerce.gov/sites/default/files/2021-05/fy2022_ntia_congressional_budget_justification.pdf.

¹⁶ P.L. 117-103, p. 56.

¹⁷ DOC, *NTIA FY2023 Budget as Presented to Congress*, March 2022, p. NTIA-3, at <https://www.commerce.gov/sites/default/files/2022-03/FY2023-NTIA-Congressional-Budget-Submission.pdf>.

¹⁸ *Ibid.*, pp. NTIA-3-NTIA-4.

Table I. NTIA’s Programmatic Plan in FY2023

Program	Summary of Activities
Domestic and International Policies	<p>As the President’s advisor on communications and internet policy, NTIA is to</p> <ul style="list-style-type: none"> • Coordinate the executive branch’s policymaking, represent the Administration’s policy to independent agencies, and provide technical and policy support on internet infrastructure • Involve in interagency activities in cybersecurity • Play leading and supporting roles to address policy issues in the digital commerce, including the areas of online speech and content moderation, privacy, and 5G and next generation communications • Develop internet policies through multi-stakeholder engagements • Participate and represent the U.S. government in international fora to advocate for and preserve the multi-stakeholder approach to internet policymaking • Provide policy and technical support to U.S. free trade negotiations • Involve in interagency activities in telecommunications and information development and standards worldwide
Spectrum Management	<p>NTIA is to</p> <ul style="list-style-type: none"> • Manage federal spectrum assignments and operations • Conduct spectrum engineering studies and technical analyses • Develop, advocate, and implement domestic spectrum policies that expand spectrum access and improve efficiency across the federal government • Develop positions and promote U.S. interests in international bodies dealing with radio regulations and spectrum issues • Modernize its information technology systems for spectrum management
Advanced Communications Research	<p>NTIA’s ITS is to</p> <ul style="list-style-type: none"> • Conduct research to promote efficient spectrum access and sharing • Conduct research to inform NTIA’s policymaking in 5G and next generation communications technologies
Broadband Programs	<p>NTIA is to</p> <ul style="list-style-type: none"> • Through its BroadbandUSA program, provide technical assistance to tribal, state, and local communities to expand their connectivity • Through its Office of Minority Broadband Initiatives, expand minority stakeholder engagement in broadband and 5G deployment, economic competitiveness, and digital inclusion • Improve and expand its National Broadband Availability Map (NBAM) • Complete the award of broadband grants under the Consolidated Appropriations Act, 2021 and start post-award oversight
Public Safety Communications	<p>NTIA is to</p> <ul style="list-style-type: none"> • Provide policy leadership and technical support to public safety agencies for Next Generation 911 (NG911) deployment • Provide technical assistance and facilitation and coordination to 911 stakeholders

Source: CRS analysis of *NTIA FY2023 Budget as Presented to Congress*.

Notes:

- a. The BroadbandUSA program serves state, local, and tribal governments, industry, and nonprofits that seek to expand broadband connectivity and promote digital inclusion, by providing guides and resources, hosting workshops, and promoting interagency coordination.
- b. The NBAM is a geographic information system (GIS) mapping platform that 38 state and U.S. territory participants and five federal agencies can use to visualize and analyze various broadband data sets.

- c. NG911 refers to an Internet Protocol (IP)-based 911 system that allows digital emergency communications of voice, text, data, and multimedia information over broadband service.

NTIA's Relationship to the FCC

NTIA and the FCC are the two primary federal agencies responsible for executing telecommunications policy. For the last 30 years, the two agencies have been increasingly involved in national ICT policies and regulations as “the world becomes more interconnected via rapid growth of the Internet.”¹⁹ Congress has charged these agencies with managing and coordinating radio frequency allocation and usage for federal and nonfederal wireless communications services, respectively. Congress has also directed both agencies to administer federal broadband subsidy programs and distribution of broadband deployment funds.

While NTIA and the FCC are both “executive agencies,”²⁰ they are different types—an “executive department”²¹ and “independent establishment”²² respectively. NTIA is located within DOC, whose head, the Secretary of Commerce, is a member of the President’s Cabinet. The President, through the Secretary, delegates to NTIA the authority to perform policy functions in communications and information. The FCC is an independent regulatory agency.²³ Congress established the FCC with direct statutory authority for rulemaking on communications in the agency’s organic statute, the Communication Act of 1934, as amended (P.L. 73-416).²⁴

The NTIA Organization Act authorizes NTIA to serve as the President’s principal advisor and act as the representative and coordinator of the executive branch on telecommunications and information policy matters.²⁵ On the other hand, the Communications Act of 1934, as amended, charges the FCC with regulating interstate and international communications by wire and radio within the United States.²⁶ Accordingly, the FCC has the authority to enforce the law and its rules

¹⁹ Ibid., p. NTIA-3.

²⁰ See 5 U.S.C. §105.

²¹ See 5 U.S.C. §101.

²² See 5 U.S.C. §104(1).

²³ See 5 U.S.C. §§101, 104. Also, 44 U.S.C. §3502(5) defines the term *independent regulatory agency* by listing specific agencies, including the FCC, and any other agencies designated so by statute.

According to a legal opinion issued by the Department of Justice (DOJ), independent regulatory agencies are different from other executive branch agencies in that “Congress has adopted ... statutory mechanisms to provide independent regulatory agencies with a degree of insulation within the Executive Branch. Those mechanisms include fixed terms in office for the agency head, distinct from the President’s term; composition as a multi-member bipartisan board with staggered terms of office; the authority to submit testimony or proposed budgets to Congress without OMB [Office of Management and Budget] review; and independent litigating authority.” (Steven A. Engel, *Extending Regulatory Review Under Executive Order 12866 to Independent Regulatory Agencies*, DOJ, Office of Legal Counsel, Memorandum Opinion for the Counsel to the President, October 8, 2019, at <https://www.justice.gov/olc/file/1349716/download>.)

²⁴ See 47 U.S.C. §§151, 154(i). In administrative law, an organic statute is a legislation that creates an agency, establishes a program, or prescribes a function (see Note 429 of CRS Report R46484, *Understanding Federal Legislation: A Section-by-Section Guide to Key Legal Considerations*, by Victoria L. Killion). For more information about federal agencies’ rulemaking process, see CRS In Focus IF10003, *An Overview of Federal Regulations and the Rulemaking Process*, by Maeve P. Carey.

²⁵ 47 U.S.C. §902(b)(2).

²⁶ Ibid., §§151-152.

and orders by opening investigations and taking enforcement actions.²⁷ **Table 2** provides a high-level comparison between the two agencies.²⁸

Table 2. Comparison of NTIA and the FCC

	NTIA	The FCC
Organization category	Agency within an executive department	Independent regulatory agency
Primary statutory responsibility	Performing “communications and information functions” assigned by the Secretary of Commerce; the authority is delegated by the President and vested in the President by statutes	Regulating interstate and international communications by wire and radio in the United States under the authority of the Communications Act of 1934 and other statutes
Original congressional authorization	NTIA Organization Act	Communications Act of 1934
FY2022 appropriations (for salaries and expenses)	\$50 million	\$382 million
FY2023 Budget Request	\$67.6 million	\$390.2 million

Source: CRS analysis of publicly available information on governmental websites.

Spectrum Management

Most wireless technologies, including mobile communications, radionavigation systems (e.g., the Global Positioning System, GPS), radar systems, satellites, and radio and television broadcasting, rely on a range of frequency of electromagnetic radiation to transmit signals and data.²⁹ Radio spectrum is the continuum of frequencies allocated for radio transmissions. Intended signals may be interfered with by signals transmitted on the same frequency at the same time as well as by spill-over from signals transmitted on adjacent frequencies. To minimize interference and maximize its efficient and productive use, governmental organizations regulate and coordinate spectrum use at national and international levels.

Current Spectrum Allocation

In the United States, NTIA coordinates with the FCC to allocate radio spectrum between 8.3 kHz and 275 GHz for federal uses.³⁰ NTIA has subdivided this range of spectrum into roughly 800 narrower frequency segments and specified federal frequency assignments for over 30 types of

²⁷ See *ibid.*, §§401, 403.

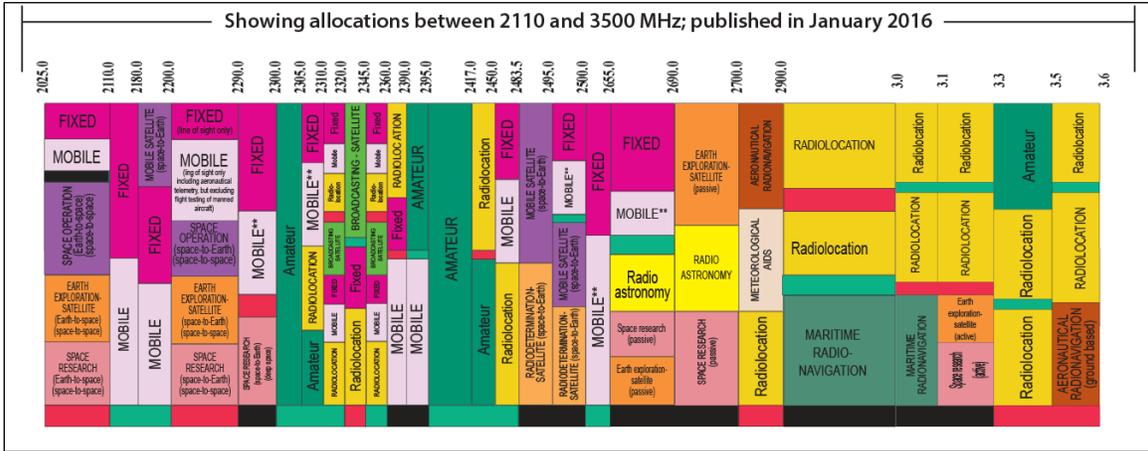
²⁸ For more information about the FCC, see CRS Report R45699, *The Federal Communications Commission: Current Structure and Its Role in the Changing Telecommunications Landscape*, by Patricia Moloney Figliola.

²⁹ John A. Stine and David L. Portigal, *Spectrum 101: An Introduction to Spectrum Management*, The MITRE Corporation, MITRE Technical Report MTR 04W0000048, March 2004, p. 1, at https://www.mitre.org/sites/default/files/pdf/04_0423.pdf.

³⁰ 47 C.F.R. §300.1, referring to NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, January 2021 Edition, Chapter 4, at <https://www.ntia.doc.gov/page/2011/manual-regulations-and-procedures-federal-radio-frequency-management-redbook>. In the regulation, NTIA expresses frequencies in kilohertz (kHz), up to 3230 kHz; in megahertz (MHz), from 3.23 MHz up to 8650 MHz; and in gigahertz (GHz), from 8.65 GHz up to 3000 GHz.

terrestrial or space radiocommunication services.³¹ Figure 2 provides an example of this subdivision and allocation.

Figure 2. Portion of NTIA's United States Frequency Allocations Chart



Source: NTIA, *United States Frequency Allocations: The Radio Spectrum Chart*, January 2016, at https://ntia.gov/files/ntia/publications/january_2016_spectrum_wall_chart.pdf.

Notes: This figure is included for illustrative purposes. It shows a portion of radio spectrum and its allocation for various uses in the United States as of September 2015.

Spectrum Policy Coordination

International Spectrum Policy

The International Telecommunication Union (ITU), a United Nations’ specialized agency, issues a collection of Radio Regulations (RR), an international agreement reached by member states, including the United States, to harmonize allocation and standardization of spectrum. NTIA collaborates with the FCC and the Department of State to develop and submit proposals and views that represent U.S. federal and private interests.³²

Domestic Spectrum Management

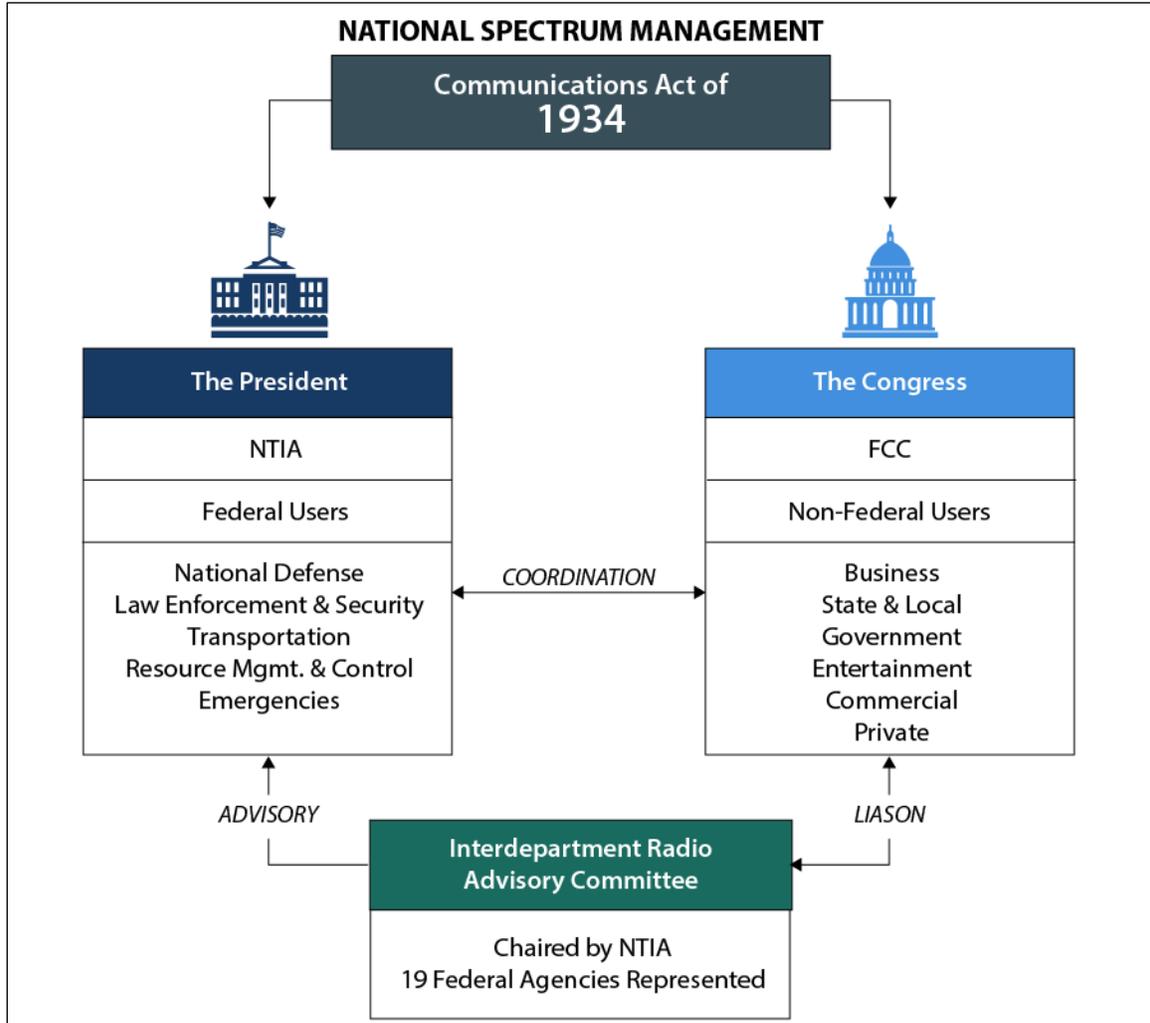
The Communications Act of 1934, as amended, assigns joint jurisdiction for domestic spectrum management (see **Figure 3**).³³ NTIA manages spectrum allocation and use by federal agencies. The FCC oversees nonfederal allocation and use.

³¹ See NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, Chapter 4b.

³² NTIA, *Spectrum Management: International*, at <https://www.ntia.doc.gov/category/international>. NTIA performs statutory functions of (1) developing and setting forth, in coordination with the Secretary of State and other agencies, plans, policies, and programs which related to international telecommunications issues, conferences, and negotiations; (2) coordinating economic, technical, operational, and related preparations for U.S. participation in international telecommunications conferences and negotiations; and (3) providing advice and assistance to the Secretary of State on international telecommunications policies to strengthen the position and serve the best interests of the United States. (47 U.S.C. §902(b)(2)(G)).

³³ See 47 U.S.C. §§301, 303, 305.

Figure 3. The Dual Organizational Structure of National Spectrum Management



Source: CRS based on NTIA, *Basic Elements of Spectrum Management: Who Regulates the Spectrum*, at <https://www.ntia.doc.gov/book-page/who-regulates-spectrum>.

NTIA exercises the power of the President by assigning frequencies to federal agencies and has the authority to “amend, modify, or revoke such assignments.”³⁴ Accordingly, the agency develops and executes “policies, programs, procedures, and technical criteria pertaining to the allocation, management, and use of spectrum” by the federal government.³⁵ NTIA’s basic consideration in assigning radio frequencies is “the avoidance of harmful interference” to critical federal uses and “the national interest.”³⁶ Federal users must obtain spectrum assignments before

³⁴ 47 U.S.C. §902(b)(2)(A).

³⁵ *Ibid.*, §902(b)(2)(A), (K), (U). See also NTIA, *IRAC*, at <https://www.ntia.doc.gov/category/irac>.

³⁶ NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, p. 2-5.

they can operate transmitters.³⁷ When requesting such use, federal agencies must comply with NTIA's regulations and guidance.³⁸

The FCC has jurisdiction over all nonfederal users.³⁹ Those users generally obtain a license from the agency to transmit on an allocated frequency.⁴⁰ NTIA has the statutory responsibility to present to the FCC "the views of the executive branch on telecommunications matters."⁴¹ In exercising its federal spectrum management coordination role, NTIA chairs and receives assistance and advice from the Interdepartment Radio Advisory Committee (IRAC), which consists of representatives of executive departments and agencies that use radio spectrum.⁴²

Neither the Communications Act of 1934 nor the NTIA Organization Act provides for allocations of specific spectrum for a particular usage. Rather, all such allocations are coordinated by NTIA and the FCC under their respective authorities.⁴³ Frequencies allocated primarily for federal use may be used for nonfederal purposes on a "mixed-use basis,"⁴⁴ subject to certain conditions.⁴⁵ As a practical matter, over 90% of spectrum up to 300 GHz is shared between federal and nonfederal users.⁴⁶

The NTIA Organization Act requires NTIA and the FCC meet "at least biannually" to conduct joint national spectrum allocation planning. Both agencies are to take any necessary actions to promote efficient and shared use of the spectrum, which "does not cause harmful interference" and is "a means of increasing commercial access."⁴⁷ Both agencies executed a Memorandum of Understanding (MOU) on spectrum coordination in January 2003,⁴⁸ which updated their original MOU dating back to October 1940.⁴⁹ The agreement included the following provisions:⁵⁰

- NTIA and the FCC would meet regularly to discuss (1) licenses available for the FCC's spectrum auction, (2) future spectrum needs and allocation for public and private uses, and (3) spectrum management techniques to promote spectrum sharing.
- NTIA would have sufficient notice and time to comment on the FCC's proposed actions that could cause spectrum interference to government operations.

³⁷ NTIA, *Basic Elements of Spectrum Management: The National Telecommunications and Information Administration*, at <https://www.ntia.doc.gov/book-page/national-telecommunications-and-information-administration>.

³⁸ 47 C.F.R. §300.1(a).

³⁹ 47 U.S.C. §§303, 305.

⁴⁰ *Ibid.*, §301.

⁴¹ *Ibid.*, §902(b)(2)(J).

⁴² NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, pp. 1-5-1-6. The FCC has a liaison position in the IRAC.

⁴³ 47 U.S.C. §902(b)(2)(L)(i). See also NTIA, "FCC and NTIA Memorandum of Understanding on Spectrum Coordination," press release, January 31, 2003, at <https://www.ntia.doc.gov/other-publication/2003/fcc-and-ntia-memorandum-understanding-spectrum-coordination>.

⁴⁴ 47 U.S.C. §927(b)(1).

⁴⁵ *Ibid.*, §§903(e)(1), 927(b)(2).

⁴⁶ See NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, Chapter 4b; see also NTIA, *How the Spectrum Is Shared*.

⁴⁷ 47 U.S.C. §922.

⁴⁸ FCC and NTIA, *Memorandum of Understanding Between the FCC and NTIA*, January 31, 2003, at https://www.ntia.doc.gov/files/ntia/publications/fccntiamou_01312003.pdf.

⁴⁹ NTIA, *FCC and NTIA Memorandum of Understanding on Spectrum Coordination*.

⁵⁰ FCC and NTIA, *Memorandum of Understanding between the FCC and NTIA*, pp. 2-3.

- NTIA would give sufficient notice and time for the FCC to comment on NTIA’s proposed actions that could cause interference to nongovernmental operations.
- NTIA and the FCC would resolve technical, procedural, and policy differences by consensus.
- NTIA and the FCC would exchange information of their authorized frequency assignments.

In February 2022, NTIA and the FCC established the Spectrum Coordination Initiative, which included the following initial actions:⁵¹

- The Chair of the FCC and the Assistant Secretary of Commerce for Communications and Information would hold monthly meetings to conduct joint spectrum planning.
- NTIA and the FCC would update their MOU to reaffirm both agencies’ statutory roles in spectrum management and address gaps in coordination.
- The two agencies would collaborate in the development of a national spectrum strategy that reflects long-term spectrum use, needs, planning, and coordination.
- The agencies would cooperatively develop scientific, evidence-based processes for spectrum engineering compatibility analysis.
- The agencies would participate in cross-agency advisory groups to foster technical collaboration.

Repurposing Federal Spectrum

In 1993, Congress amended the NTIA Organization Act to add provisions under a new title “Transfer of Auctionable Frequencies” through the Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66). Through these provisions, Congress addressed spectrum congestion and growing demand for spectrum to support wireless technologies and services. The law directed NTIA to identify and reallocate spectrum used by federal agencies to the FCC for auctions and licensing to the private sector, for either exclusive nonfederal use or shared use.⁵²

Since 1993, Congress has further amended the spectrum transfer provisions, particularly Section 113 of the NTIA Organization Act, several times. For example, Congress created the Spectrum Relocation Fund (SRF) to provide financial assistance to eligible federal entities to identify potential spectrum for reallocation and sharing, plan their reallocation activities, and reconfigure their equipment and systems.⁵³ In the National Defense Authorization Act for Fiscal Year 2013 (P.L. 112-239), Congress recognized (1) critical federal spectrum uses, such as for national security and law enforcement functions; (2) a demand for additional spectrum for mobile broadband services; and (3) the long-term solution of reallocating and sharing of federal spectrum for private-sector use.⁵⁴

⁵¹ NTIA, “FCC, NTIA Establish Spectrum Coordination Initiative,” press release, February 15, 2022, at <https://www.ntia.doc.gov/press-release/2022/fcc-ntia-establish-spectrum-coordination-initiative>.

⁵² 47 U.S.C. §923.

⁵³ *Ibid.*, §§923(g)(1), 928. The SRF is administered by the Office of Management and Budget (OMB), “in consultation with the NTIA.”

⁵⁴ Section 1085 of P.L. 112-239.

NTIA has increased efforts to identify federal spectrum that can be reallocated for commercial use, particularly to support the deployment of 5G wireless telecommunications technologies. In January 2021, the agency published its *Second Annual Report on the Status of Spectrum Repurposing*, which documented its reallocation of 23 frequency segments below 95 GHz, in collaboration with the FCC.⁵⁵ According to the report, as of 2020, both agencies had made a total of 1,130.5 megahertz of frequency bandwidth available for 5G services.⁵⁶

Broadband Deployment

According to a 2019 Senate committee report, the United States “faces a persistent digital divide.”⁵⁷ The FCC reported that 4.4% of the overall population, or 14.4 million people, in 2019 lacked access to fixed broadband services at speeds of at least 25/3 Mbps.⁵⁸ Among them were 17.3% individuals in rural areas and 20.9% individuals in tribal lands, as compared to 1.2% individuals in urban areas.⁵⁹

Federal support for broadband deployment to bridge the digital divide occurs primarily through programs administered by three agencies: the FCC, the U.S. Department of Agriculture (USDA), and NTIA. Established pursuant to Section 254 of the Telecommunications Act of 1996 (P.L. 104-104),⁶⁰ the FCC’s Universal Service Fund (USF) disburses funds to eligible telecommunications carriers (ETCs)⁶¹ to support universal telecommunications service “at [a] just, reasonable, and affordable rate” to qualifying consumers or other eligible end users in defined service areas.⁶² In 2011, the FCC reformed the USF by “adopting support for broadband-capable networks as an express universal service principle.”⁶³ USDA, through its Rural Utilities Service (RUS), administers five programs that provide loans and grants to increase access to broadband service in rural areas.⁶⁴

⁵⁵ Charles Cooper, *NTIA Report on Spectrum Repurposing Finds Significant Progress*, NTIA, blog, January 7, 2021, at <https://www.ntia.doc.gov/blog/2021/ntia-report-spectrum-repurposing-finds-significant-progress>.

⁵⁶ NTIA, *Second Annual Report on the Status of Spectrum Repurposing*, p. 1. For an overview of the spectrum interference issue in the 5G context, see CRS In Focus IF12046, *National Spectrum Policy: Interference Issues in the 5G Context*, by Ling Zhu.

⁵⁷ U.S. Congress, Senate Committee on Commerce, Science, and Transportation, *Broadband Deployment Accuracy and Technological Availability Act*, report to accompany S. 1822, 116th Cong., 1st sess., S.Rept. 116-174 (Washington, DC: GPO, 2019), p. 1.

⁵⁸ FCC, *Fourteenth Broadband Deployment Report*, FCC 21-18, January 19, 2021, pp. 19-20, at <https://docs.fcc.gov/public/attachments/FCC-21-18A1.pdf>. 25/3 Mbps refers to 25 megabits per second (Mbps) for downloading and 3 Mbps for uploading data. It remains FCC’s speed benchmark for fixed broadband service.

⁵⁹ *Ibid.*

⁶⁰ FCC, *Report and Order in the Matter of Federal-State Joint Board on Universal Service*, FCC 97-157; 12 FCC Rcd 8776; 62 *Federal Register* 32862, May 8, 1997, at <https://docs.fcc.gov/public/attachments/FCC-97-157A1.pdf>.

⁶¹ 47 C.F.R. §54.201. For more information of the USF, see CRS Report R46780, *Overview of the Universal Service Fund and Selected Federal Broadband Programs*, coordinated by Patricia Moloney Figliola.

⁶² *Ibid.*, §54.207. 47 U.S.C. §254(b)(1).

⁶³ FCC, *Report and Order and Further Notice of Proposed Rulemaking in the Matter of Connect America Fund, A National Broadband Plan for Our Future*, et al., FCC 11-161; 26 FCC Rcd 17663; 76 *Federal Register* 73829, November 18, 2011, p. 10, at <https://docs.fcc.gov/public/attachments/FCC-11-161A1.pdf>. The related universal service principle provided in Section 254(b) is that “[a]ccess to advanced telecommunications and information services should be provided in all regions of the Nation.” (47 U.S.C. §254(b)(2))

⁶⁴ For more information of USDA’s RUS broadband programs, see CRS Report R47017, *USDA’s ReConnect Program: Expanding Rural Broadband*, by Lisa S. Benson, and CRS Report R46912, *USDA Rural Broadband, Electric, and Water Programs: FY2022 Appropriations*, by Lisa S. Benson.

NTIA’s function and responsibility in managing federal broadband programs comes under a specific delegated authority in the NTIA Organization Act—“to coordinate [f]ederal telecommunications assistance to [s]tate and local governments.”⁶⁵ A goal of the agency is “expanding broadband [i]nternet access and adoption in America,” and it lists the administration of grant programs that “further the deployment and use of broadband and other technologies in America” as one of its primary activities.⁶⁶ In general, NTIA supports broadband deployment through its BroadbandUSA program. Its role in administering broadband grant programs was elevated through the passage of the Consolidated Appropriations Act, 2021 (CAA, 2021; P.L. 116-260) and Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58) in the 116th and 117th Congresses, respectively.

NTIA implements three Broadband Connectivity grant programs funded by the CAA, 2021, and four programs established and expanded by the IIJA (these programs are discussed in the following sub-sections). In particular, Congress allocated \$48.2 billion to NTIA to help (1) deliver affordable and reliable broadband service to all Americans and close the digital divide; (2) further efforts with tribal connectivity; (3) address digital inclusion and equity; and (4) expand middle-mile infrastructure. The CAA, 2021 and IIJA broadband provisions represent the largest federal investment in broadband. Administering these new broadband programs has become one of the largest areas of responsibility and activity at NTIA.

Coordinating Federal Broadband Funding

Over the past decade, the FCC, USDA, and NTIA have administered their grant programs to promote broadband deployment, particularly in rural areas.⁶⁷ To prevent redundant deployment in served areas rather than reaching unserved areas⁶⁸ and to “prevent duplication of support and ensure stewardship of taxpayer dollars,”⁶⁹ Congress enacted the Broadband Interagency Coordination Act of 2020 (Section 904 of Division FF, Title IX of the CAA, 2021). In June 2021, the three agencies entered into an interagency agreement as required by the law. Pursuant to the agreement, the agencies would coordinate the distribution of funding under some of the FCC’s USF programs,⁷⁰ USDA’s RUS programs, and the programs administered by NTIA.⁷¹

The agreement stipulates that these agencies “share information with each other about existing or planned projects that have received or will receive funds for new broadband deployment [under the covered programs].”⁷² Each agency must also, upon request, identify entities providing broadband service in a specified area, the levels of broadband service in that area, the scope of broadband service in that area, and each entity in that area that has or will receive funds from the

⁶⁵ 47 U.S.C. §902(b)(2)(N).

⁶⁶ NTIA, “About NTIA,” at <https://www.ntia.doc.gov/about>.

⁶⁷ U.S. Congress, Senate Committee on Commerce, Science, and Transportation, *Broadband Interagency Coordination Act of 2019*, report to accompany S. 1294, 116th Cong., 1st sess., S.Rept. 116-162 (Washington, DC: GPO, 2019), p. 1.

⁶⁸ Senate Committee on Commerce, Science, and Transportation, *Broadband Interagency Coordination Act of 2019*, report to accompany S. 1294, p. 2.

⁶⁹ U.S. Congress, House Committee on Appropriations, *H.R. 133, Division-by-Division Summary of Authorizing Matters*, committee print, 116th Cong., 2nd sess., January 1, 2020, p. 72.

⁷⁰ The covered USF programs include the programs under subpart D, J, K, L and M of 47 C.F.R. Part 54, Universal Service.

⁷¹ FCC, USDA, and NTIA, *Interagency Agreement*, June 25, 2021, at https://www.ntia.doc.gov/files/ntia/publications/bica_-_section_904_interagency_agreement.pdf.

⁷² FCC, USDA, and NTIA, *Interagency Agreement*, p. 1.

covered programs.⁷³ The agreement also requires the three agencies to consider basing the distribution of funds from the covered programs on standardized broadband coverage data.⁷⁴

BroadbandUSA and Broadband Availability Mapping

Using funding provided by Congress through the American Recovery and Reinvestment Act of 2009 (ARRA, P.L. 111-5), NTIA established the Broadband Technology Opportunities Program (BTOP) and provided over \$4 billion in grants to deploy broadband infrastructure, promote broadband adoption, and expand access.⁷⁵ Building upon its experience and data accumulated from BTOP, NTIA launched the BroadbandUSA initiative in 2015. The program has evolved to become an online portal for broadband funding and technical assistance resources for stakeholders seeking to enhance broadband connectivity and promote digital inclusion.⁷⁶

A feature of the BroadbandUSA program is the National Broadband Availability Map (NBAM), which NTIA developed in coordination with the FCC and released in October 2019.⁷⁷ It is a secure, cloud-based, geographic information system (GIS) platform for the visualization, comparison, and analysis of broadband data sets collected by federal agencies, state governments, and commercial organizations.⁷⁸ Congress provided NTIA with \$7.5 million to update the NBAM in the Consolidated Appropriations Act, 2018 (P.L. 115-141).⁷⁹ In 2021, NTIA added pricing information, updated speed-test data, and included federal funding information from the FCC’s Rural Digital Opportunity Fund (RDOF) and USDA’s ReConnect Program to the map.⁸⁰

In June 2021, NTIA released the Indicators of Broadband Need (IBN) map, based upon the NBAM data and technology.⁸¹ The IBN map provides a multi-layer presentation of the state of broadband access by visualizing various existing third-party datasets. According to NTIA, this is “the first interactive, public map” that help “public see the digital divide across the country.”⁸²

⁷³ Ibid., p. 2.

⁷⁴ Ibid.

⁷⁵ 47 U.S.C. §1305. See also NTIA, *The Broadband Technology Opportunities Program: Expanding Broadband Access and Adoption in Communities Across America*, Overview of Grant Awards, December 2010, pp. 2-3, at https://www.ntia.doc.gov/files/ntia/publications/ntia_report_on_btop_12142010.pdf.

⁷⁶ NTIA, *What Is BroadbandUSA?*, at <https://broadbandusa.ntia.doc.gov/>.

⁷⁷ Andy Spurgeon, “NTIA Releases New Broadband Availability Map Pilot for Policymakers,” NTIA, blog post, October 2, 2019, at <https://www.ntia.doc.gov/blog/2019/ntia-releases-new-broadband-availability-map-pilot-policymakers>. See also NTIA, *Data and Mapping: National Broadband Availability Map*, at <https://broadbandusa.ntia.doc.gov/resources/data-and-mapping>.

⁷⁸ NTIA, *Office of Internet Connectivity and Growth (OICG)*, at <https://www.ntia.gov/office/OICG>. The data sources include the FCC, U.S. Census Bureau, Universal Service Administrative Company, USDA, Ookla, Measurement Lab, BroadbandNow, White Star, and state governments.

⁷⁹ Congress provided another \$7.5 million to NTIA for broadband mapping within its “salaries and expenses” appropriation in FY2021, according to the Explanatory Statement included in the committee print of the House Committee on Appropriations. See U.S. Congress, House Committee on Appropriations, *Committee Print of the Committee on Appropriations, U.S. House of Representatives on H.R. 133/P.L. 116-260, Book 1 of 2*, committee print, 117th Cong., 1st sess., (Washington, DC: GPO, 2021), p. 206.

⁸⁰ NTIA, *ACCESS BROADBAND 2021 Report*, December 2021, p. 11, at https://www.ntia.gov/files/ntia/publications/ntia_access_broadband_2021_report.pdf.

⁸¹ NTIA, *Data & Mapping: Public Maps and Tools: Indicators of Broadband Need Map*, at <https://broadbandusa.ntia.doc.gov/resources/data-and-mapping>.

⁸² NTIA, “NTIA Creates First Interactive Map to Help Public See the Digital Divide Across the Country,” press release, June 2021, at <https://www.ntia.gov/press-release/2021/ntia-creates-first-interactive-map-help-public-see-digital-divide-across-country>.

The IBN map has limitations. The data used in the map is updated only if new data from external sources becomes available.⁸³ Each data source, such as the U.S. Census American Community Surveys (ACSs) and FCC Form 477, has its own update cycle and the data is collected and processed using each source’s own methodology. NTIA indicates that the IBN map “should complement the FCC’s mapping work but it is not intended as a substitute,” and that “[m]ore granular data may be available from commercial data providers.”⁸⁴

Broadband Connectivity Grants⁸⁵

With the enactment of the CAA, 2021, Congress created grants for broadband connectivity to be implemented by NTIA. The act provided \$1 billion for Tribal Broadband Connectivity grants and \$300 million for Broadband Infrastructure grants.⁸⁶ In addition, the act provided \$285 million for NTIA to implement the Connecting Minority Communities (CMC) Pilot Program.⁸⁷

NTIA received more than 280 applications for a total of \$5.8 billion requested in the Tribal Broadband Connectivity Program and began to award grants in November 2021.⁸⁸ Grantees, such as a tribal government, college, or organization, can use the funding for broadband infrastructure deployment projects, as well as for affordable broadband services, distance learning, telehealth, digital inclusion efforts, and other broadband adoption activities in tribal and Native communities. Congress provided an additional \$2 billion to the program through the IJA.

NTIA received more than 230 applications for a total of \$2.5 billion requested in the Broadband Infrastructure Program and made its first-round grants in February 2022.⁸⁹ The grants are directed to partnerships between a state or its political subdivisions and fixed broadband service providers for projects to deploy broadband service in those census blocks where it is not available, especially rural areas.

NTIA received more than 200 applications in December 2021 for a total of \$833 million requested in the CMC Pilot Program.⁹⁰ The program was designed to support eligible Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), Minority-Serving Institutions (MSIs), and consortia led by those organizations to purchase broadband

⁸³ NTIA, *Indicators of Broadband Need: About This Map: Update Schedule*, November 15, 2021, at <https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?id=e2b4907376b548f892672ef6afbc0da5>.

⁸⁴ NTIA, *Indicators of Broadband Need: Frequently Asked Questions*, June 2021, p. 1, at <https://broadbandusa.ntia.doc.gov/sites/default/files/2021-06/Indicators%20of%20Broadband%20Need%20-%20FAQs.pdf>.

⁸⁵ For more information about NTIA’s broadband grant programs under the CAA, 2021, see CRS Report R46701, *The Consolidated Appropriations Act, 2021 Broadband Provisions: In Brief*, coordinated by Colby Leigh Rachfal.

⁸⁶ Section 905 of Division N, Title IX of CAA, 2021.

⁸⁷ *Ibid.*, Section 902(c)(1)(A), (2), (5).

⁸⁸ NTIA, “Department of Commerce’s NTIA Awards First Grants to Tribal Groups Seeking to Expand Broadband,” press release, November 16, 2021, at <https://ntia.gov/press-release/2021/department-commerce-s-ntia-awards-first-grants-tribal-groups-seeking-expand>.

⁸⁹ NTIA, “Department of Commerce’s NTIA Awards \$277M in Grants to Expand Broadband Infrastructure,” press release, February 25, 2022, at <https://www.ntia.doc.gov/press-release/2022/department-commerce-s-ntia-awards-277m-grants-expand-broadband-infrastructure>.

⁹⁰ NTIA, “NTIA’s Connecting Minority Communities Program Receives More Than 200 Applications, over \$833 Million in Funding Requests,” press release, December 9, 2021, at <https://www.ntia.doc.gov/press-release/2021/ntia-s-connecting-minority-communities-program-receives-more-200-applications>.

service or equipment or to hire and train information technology personnel in minority communities.

Office of Internet Connectivity and Growth (OICG)

To enhance NTIA’s role in promoting broadband access, adoption, and deployment and coordinating federal efforts in broadband funding, Congress in the ACCESS BROADBAND Act (Section 903 of Division FF, Title IX of the CAA, 2021) directed NTIA to establish the OICG and reallocate to it all broadband-related duties and activities within the agency.⁹¹ Congress specifically charged the office with the following tasks:⁹²

- providing community outreach, guidance, and technical assistance;
- streamlining and standardizing the process for applying for federal support programs;
- tracking broadband infrastructure built using federal funding;
- coordinating with other agencies to prevent duplication of support and ensure federal funding is distributed “in an efficient, technology-neutral, and financially sustainable manner” to unserved population;
- submitting an annual report to its oversight committees on the number of U.S. residents who received broadband service as a result of federal funding, and the economic impact of such federal efforts; and
- developing a public website that provides information and method to apply for federal support programs.

In July 2021, NTIA replaced the Office of Telecommunications and Information Applications (OTIA) with the OICG, and dedicated it to the mission of digital equity and universal access to broadband.⁹³ The OICG administers the three Broadband Connectivity Grants as well as the overarching outreach program of BroadbandUSA. It plans to focus on four areas: (1) funding broadband infrastructure and digital inclusion efforts, (2) leveraging data for decisionmaking, (3) facilitating interagency, state, tribal, and private sector coordination, and (4) building capacity of communities.⁹⁴ Through OICG, NTIA aims to continue efforts to “improve availability of broadband-related data, enhance coordination across federal partners, and enable transparency in governing [federal broadband] spending.”⁹⁵

In December 2021, NTIA published a report to meet a statutory mandate in the ACCESS BROADBAND Act.⁹⁶ The report provides a description of “federal broadband investment landscape,” based on responses from 13 federal agencies that administered 66 broadband-related programs in FY2020, including 19 broadband programs with funding outlays above \$500,000.⁹⁷

⁹¹ 47 U.S.C. §1307(b)-(d).

⁹² *Ibid.*, §1307(c), (e), (f).

⁹³ NTIA, “NTIA Establishes Two Broadband-Focused Offices,” press release, August 25, 2021, at <https://www.ntia.doc.gov/press-release/2021/ntia-establishes-two-broadband-focused-offices>.

⁹⁴ NTIA, *ACCESS BROADBAND 2021 Report*, p. 6.

⁹⁵ NTIA, “Department of Commerce’s NTIA Publishes First ACCESS BROADBAND Report,” press release, December 23, 2021, at <https://broadbandusa.ntia.doc.gov/news/latest-news/department-commerces-ntia-publishes-first-access-broadband-report>.

⁹⁶ 47 U.S.C. §1307(c)(2)(C).

⁹⁷ NTIA, *ACCESS BROADBAND 2021 Report*, pp. 20-23. The report does not include those programs administered by

According to NTIA, the report “serves as a baseline of current capabilities and challenges associated with tracking available data across programs,” and lays “the foundation for future editions of the report.”⁹⁸

NTIA also established the Office of Minority Broadband Initiatives (OMBI) within the OICG, pursuant to Section 902 of Division N, Title IX of the CAA, 2021.⁹⁹ The OMBI is to collaborate with federal agencies; state, local, and tribal governments; HBCUs, TCUs, and MSIs; and other stakeholders to expand access to broadband and associated devices, services, and digital opportunities for the aforementioned unserved minority institutions, their students, and their nearby low-income communities.¹⁰⁰

Broadband Funding in the Infrastructure Investment and Jobs Act¹⁰¹

In November 2021, Congress charged NTIA with administering \$48.2 billion grants in broadband programs in Division F of the IJA.¹⁰² NTIA’s OICG implements the newly established programs. For the first time, Congress gives NTIA a leading role in managing federal broadband subsidies.

The largest, the Broadband Equity, Access, and Deployment (BEAD) Program, is to provide \$42.45 billion to states, territories, the District of Columbia, and Puerto Rico for broadband deployment, connectivity, mapping, and adoption projects.¹⁰³ The first priority for funding is those projects constructing and deploying infrastructure to provide broadband service to unserved areas,¹⁰⁴ followed by those projects for underserved areas,¹⁰⁵ and then for connecting eligible community anchor institutions.¹⁰⁶

For the BEAD program, the law requires NTIA to work closely with all broadband stakeholders, including state, local, and tribal governments, communities and organizations, and private sectors, as well as other federal agencies, to distribute the funding in an efficient, effective, non-discriminatory, accountable, and coordinated manner. The law also lets the states and territories administer the distribution of the allocated funding to broadband deployment projects within their

NTIA, which were established in FY2021 under the CAA, 2021.

⁹⁸ NTIA, *ACCESS BROADBAND 2021 Report*, p. 3.

⁹⁹ NTIA, “NTIA Establishes Two Broadband-Focused Offices.”

¹⁰⁰ 47 U.S.C. §1306(b)(3).

¹⁰¹ For more explanations of the broadband provisions in the IJA, see CRS Report R46967, *The Infrastructure Investment and Jobs Act (P.L. 117-58): Summary of the Broadband Provisions in Division F*, coordinated by Patricia Moloney Figliola.

¹⁰² The \$48.2 billion funding includes an additional \$2 billion Congress provided to the Tribal Broadband Connectivity Program implemented by NTIA under the CAA, 2021.

¹⁰³ Section 60102(a)(2)(F), (b)(2), and (f) of P.L. 117-58.

¹⁰⁴ An unserved service project would serve an area within which at least 80% of serviceable locations have lacked access to reliable broadband service with at least the 25/3 Mbps speed and low latency. See Section 60102(a)(1)(A), (a)(1)(B), and (h)(1)(A)(i)(I) of P.L. 117-58.

¹⁰⁵ An underserved service project would serve an area within which at least 80% of serviceable locations have lacked access to reliable broadband service with at least the 100/20 Mbps speed and low latency. See Section 60102(a)(1)(C), (a)(1)(D), and (h)(1)(A)(i)(II) of P.L. 117-58.

¹⁰⁶ An eligible community anchor institution is a community organization that lacks access to gigabit-per-second-level broadband service and includes a school, library, health clinic, health center, hospital or other medical provider, public safety entity, higher education institution, public housing organization, or community support organization. See Section 60102(a)(1)(E), (a)(2)(E), and (h)(1)(A)(i)(III) of P.L. 117-58.

jurisdictions.¹⁰⁷ To calculate the amount of funding to be allocated to each state, NTIA will use a formula based on the number of unserved locations in the state, determined by the FCC’s broadband mapping data, which is collected and published as required by the Broadband DATA Act.¹⁰⁸

The Digital Equity Act Programs are to provide a total of \$2.75 billion over five years to eligible states to develop and implement State Digital Equity Plans and to other eligible entities to develop and implement digital equity and inclusion projects for covered population.¹⁰⁹ According to NTIA, these programs are “to ensure that all individuals and communities have the skills, technology, and capacity needed” to enjoy the full benefits offered by the digital economy.¹¹⁰

Additionally, the law directs NTIA to establish a program to make \$1 billion grants on a technology-neutral, competitive basis to eligible entities for the construction, improvement, or acquisition of middle-mile infrastructure.¹¹¹ The purpose of the middle-mile grant program is (1) to reduce the connecting cost between unserved or underserved areas and the internet backbone, and (2) to increase broadband connection resiliency (i.e., creating alternative network connection paths to prevent single points of failure).¹¹²

Other ICT Policy Programs

Cybersecurity¹¹³

Software Bill of Materials

A Software Bill of Materials (SBOM) is essentially a list of “ingredients” of a software product. It contains the details and supply-chain relationships of existing open-source and third-party commercial software components used in creating the new software product.¹¹⁴ When provided with an SBOM, developers and users of the software product can analyze and evaluate

¹⁰⁷ Section 60102(f) of P.L. 117-58.

¹⁰⁸ *Ibid.*, Section 60102(c).

¹⁰⁹ The term *digital equity* means the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States (see Section 60302(10) of P.L. 117-58). The term *digital inclusion* means the activities that are necessary to ensure that all individuals in the United States have access to, and the use of, affordable ICTs (see Section 60302(11) of P.L. 117-58).

To receive a grant under the Digital Equity Act Programs, a state shall develop a State Digital Equity Plan with required contents and submit it with other application materials to NTIA (see Section 60304(c)(1) and (d)(2) of P.L. 117-58).

“Covered population” includes individuals in a household which income is at or below 150% of the poverty level; aging individuals; veterans; individuals with disabilities, language barrier, living in a state correction facility, or residing in a rural area; and members of a racial or ethnic minority group (see Section 60302(8) of P.L. 117-58).

¹¹⁰ NTIA, “Grants: Infrastructure Investment and Jobs Act Overview,” at <https://www.ntia.doc.gov/category/grants>.

¹¹¹ Section 60401(a)(9) and (c) of P.L. 117-58. Middle mile infrastructure connects national and regional internet backbones to local connection sites such as a school, library, business, or residence. It includes a variety of non-end-user-facing wired and wireless broadband infrastructure and services.

¹¹² *Ibid.*, Section 60401(b)(1).

¹¹³ For introduction of general issues in cybersecurity, see CRS In Focus IF10559, *Cybersecurity: A Primer*, by Chris Jaikaran.

¹¹⁴ Section 10(j) of Executive Order 14028, “Improving the Nation’s Cybersecurity,” 86 *Federal Register* 26633, May 12, 2021.

vulnerabilities in those components, and in turn, risks associated with the product.¹¹⁵ An SBOM may make it easier to develop software security applications to protect end-users.¹¹⁶ In his *Executive Order on Improving the Nation's Cybersecurity*, President Biden identified a pressing need to “improve the security and integrity of the software supply chain.”¹¹⁷ The order also identified SBOM as a crucial tool for risk management of the software supply chain.¹¹⁸

Pursuant to the executive order, NTIA published in July 2021 a report on the elements required in an SBOM, including baseline information about each component such as supplier, version, and dependency relationships.¹¹⁹ NTIA continues to promote development of SBOMs for the security of software supply chain and engage with stakeholders across the government, private sector, and academia to “bring this model into regular practice” of software.¹²⁰

Communications Supply Chain Risk Information Partnership¹²¹

The security of U.S. communications service providers' supply chains, specifically their dependence on “equipment and services manufactured and provided by foreign companies,” has been an area of congressional interest.¹²² To prevent future vulnerabilities in the communications supply chain, the Secure and Trusted Communications Network Act of 2019 (P.L. 116-124) directed NTIA to establish a program that facilitates sharing security risk information with trusted providers of advanced communication service and suppliers of communications equipment or services.¹²³ The law instructed NTIA to conduct outreach and engage service providers and equipment suppliers, particularly those that are small businesses or serve rural areas.¹²⁴ The program is to ensure that providers and suppliers are adequately informed about risks before they make investments, potentially mitigating the need for remediation in the future.¹²⁵

In July 2020, NTIA established the Communications Supply Chain Risk Information Partnership (C-SCRIP), in collaboration with the Office of the Director of National Intelligence, the Department of Homeland Security, the Federal Bureau of Investigation (FBI), and the FCC.¹²⁶ The goal of the program is to improve the access of trusted small and rural communications providers and equipment suppliers to risk information about key components such as equipment

¹¹⁵ Ibid.

¹¹⁶ DOC and NTIA, *The Minimum Elements for a Software Bill of Materials (SBOM)*, DOC, Pursuant to Executive Order 14028 on Improving the Nation's Cybersecurity, July 12, 2021, p. 3, at https://www.ntia.doc.gov/files/ntia/publications/sbom_minimum_elements_report.pdf.

¹¹⁷ Executive Order 14028.

¹¹⁸ Ibid., Section 10(j).

¹¹⁹ DOC and NTIA, *The Minimum Elements for a Software Bill of Materials (SBOM)*.

¹²⁰ NTIA, “Marking the Conclusion of NTIA's SBOM Process,” blog post, February 9, 2022, at <https://www.ntia.doc.gov/blog/2022/marking-conclusion-ntia-s-sbom-process>.

¹²¹ For more information of the FCC's Secure and Trusted Communications Networks Reimbursement Program, see CRS Insight IN11663, *Secure and Trusted Communications Networks Reimbursement Program: Frequently Asked Questions*, by Jill C. Gallagher.

¹²² For an example of such interest, see U.S. Congress, House Committee on Energy and Commerce, *Memorandum: Markup of Nine Communications and Technology Bills*, committee print, 116th Cong., 1st sess., November 12, 2019, pp. 4-5.

¹²³ 47 U.S.C. §1607(a).

¹²⁴ Ibid., §1607(a)(2).

¹²⁵ NTIA, *NTIA's Communications Supply Chain Risk Information Partnership (C-SCRIP)*, at <https://ntia.gov/cscrip>.

¹²⁶ NTIA, “Establishment of the Communications Supply Chain Risk Information Partnership,” 85 *Federal Register* 41006, July 8, 2020.

and software in their supply chain.¹²⁷ In October 2021, C-SCRIP began its outreach program by sending out its first newsletter of supply chain security.¹²⁸ The newsletter contains information on the FCC’s reimbursement program, NTIA’s Software Bill of Materials, and broadband grants.¹²⁹

Secure 5G¹³⁰

The Secure 5G and Beyond Act of 2020 (P.L. 116-129) required the President to develop a national strategy and an implementation plan to ensure the security of 5G and future generation wireless systems and infrastructure in the United States, its allies, and strategic partner countries. The strategy should protect the competitiveness of U.S. companies, the privacy of American consumers, and the integrity of technology standard-setting bodies against political influence.¹³¹ The law directed the President and NTIA to implement the strategy.¹³²

On March 23, 2020, the Trump Administration released the *National Strategy to Secure 5G*.¹³³ On January 6, 2021, it released the implementation plan.¹³⁴ The plan was managed by the National Security Council and the National Economic Council, and supported by NTIA.¹³⁵ Consistent with the strategy, the plan focused on four lines of effort:¹³⁶

- Facilitating the private sector-led domestic rollout of 5G;
- Assessing risks to and identifying core security principles of 5G infrastructure;
- Addressing risks to U.S. economic and national security during development and deployment of 5G infrastructure worldwide; and
- Promoting an engagement plan for risk mitigation, standards, and security principles.

The plan listed 18 activities to be performed and coordinated by more than 30 executive branch departments, agencies, offices, and entities.¹³⁷ No public information is available on whether or how the Biden Administration has acted on the recommendations in the implementation plan.

¹²⁷ Ibid.

¹²⁸ NTIA, *NTIA Launches C-SCRIP Information-Sharing Program*, blog, October 12, 2021, at <https://www.ntia.doc.gov/blog/2021/ntia-launches-c-scrip-information-sharing-program>.

¹²⁹ Ibid.

¹³⁰ For more information of the 5G technology, see CRS Report R45485, *Fifth-Generation (5G) Telecommunications Technologies: Issues for Congress*, by Jill C. Gallagher and Michael E. DeVine.

¹³¹ Sections 3 and 4 of P.L. 116-129.

¹³² Ibid., Section 5(d)(1)(A).

¹³³ White House, “National Strategy to Secure 5G of the United States of America,” March 2020, at <https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/03/National-Strategy-5G-Final.pdf>.

¹³⁴ The Executive Branch, *National Strategy to Secure 5G Implementation Plan*, January 6, 2021, at https://www.ntia.doc.gov/files/ntia/publications/2021-1-12_115445_national_strategy_to_secure_5g_implementation_plan_and_annexes_a_f_final.pdf.

¹³⁵ Ibid., p. 3.

¹³⁶ Ibid., p. 3.

¹³⁷ Ibid., p. 7.

Policy Issues for Congressional Consideration

Reauthorizing NTIA

After FY1993, Congress provided NTIA with appropriations without an express authorization of appropriations. Since the original authorization of NTIA, ICTs have advanced and the agency's responsibilities have evolved, particularly in the areas of federal spectrum management and broadband funding. In recent Congresses, some Members have introduced legislation that would address various aspects of NTIA responsibilities and committees of jurisdiction have held hearing examining NTIA and the potential of its reauthorization. **Appendix** lists 11 examples of enacted legislation affecting the agency in the last six years.

Through a reauthorization act, Congress may provide NTIA authorization for appropriations, new or updated authorities, and guidance on priorities and policies, for example in spectrum, broadband, cybersecurity, internet governance, and public safety communications. In November 2021, Senators Roger Wicker and John Thune introduced S. 3288, the NTIA Reauthorization and Reform Act of 2021. The bill contains provisions that would

- authorize appropriations for the administration of NTIA, which would be \$52.831 million for FY2022 and FY2023, respectively;
- elevate the head of NTIA from Assistant Secretary of Commerce for Communications and Information to Under Secretary of Commerce for Communications and Information;
- expand NTIA's policy focus to include (1) fostering the digital economy and safeguarding the openness of global communications networks, and (2) achieving universal access to ICTs;
- authorize NTIA to conduct studies and make recommendations concerning policy issues relating to communications, information, and the digital economy, including interoperability, privacy, security, spectrum use, emergency readiness, intermediaries, universal service, and the flow of information;
- clarify that federal agencies should consult with NTIA, and both parties should ensure that the views of the executive branch on telecommunications matters are coordinated and effectively presented to the FCC;
- require NTIA and the FCC to update their MOU on spectrum coordination executed in January 2003; and
- require the Secretary of Commerce to assign NTIA responsibility for providing advice and recommendations to the Secretary of State regarding selecting the U.S. head of delegation and ambassador to the World Radiocommunication Conference.

Spectrum Coordination Between NTIA and the FCC

The last two decades have seen increased demand for spectrum, which has led, at times, to different views or approaches among agencies on spectrum allocation, use, and assessments of potential signal interference. These instances have caused some experts to raise concerns about the efficacy of spectrum coordination between NTIA and the FCC. Congress may consider whether the current interagency process is adequate for identifying potential harmful interference and resolving differences. It may also consider whether the process effectively balances public

and private sector interests in accelerating commercial 5G deployment with protection of critical national functions. Several Members of Congress have called for NTIA and the FCC to update their 2003 MOU on spectrum coordination.¹³⁸

In the 117th Congress, some Members introduced S. 1472, the Improving Spectrum Coordination Act of 2021. The bill would require the two agencies to update their MOU periodically and report to Congress annually on joint spectrum planning activities.¹³⁹ Among other things, those mandatory updates would (1) outline processes for addressing differences in frequency allocation; (2) seek to clarify NTIA’s role in managing spectrum use by federal government; (3) take into account scientific analyses and implications of spectrum policy in decisionmaking; and (4) try to ensure the efficient use of frequencies assigned to federal government and the reallocation of those frequencies not required for federal use to nonfederal users.¹⁴⁰ Another bill, H.R. 2501, the Spectrum Coordination Act, would require NTIA and the FCC to update the MOU to “improve the process for resolving frequency allocation disputes in shared or adjacent bands ... expeditiously and efficiently,” and “ensure that spectrum is used or shared efficiently.”¹⁴¹

Oversight of Federal Broadband Funding

The CAA, 2021 and IJA charged NTIA with administering over \$48 billion in federal broadband funding, including the \$42.45 billion BEAD program. By February 2022, NTIA had received 557 public written comments on a wide range of policy and program considerations associated with the grant programs under the IJA.¹⁴² Given the magnitude of the federal investment and the complexity, variety, and scope of the programs the agency administers, NTIA may be a focus of congressional oversight efforts. Congress may consider the pace and effectiveness of NTIA disbursement of funds, the extent to which these programs address the digital divide, and the extent to which NTIA structure facilitates these outcomes.

NTIA has reported facing several challenges tracking federal broadband investments:¹⁴³

- Federal programs across agencies have significant variations in the purpose, focus, usage, and measurement of their funding, the definition of broadband connection, and the collection of programmatic data.
- Agencies have limited capabilities and technologies to collect and report data at a complex level requested by NTIA, and limited abilities to share data due to differences in reporting systems, inconsistent data formats, or privacy requirements.
- Measuring outcomes of infrastructure deployment projects is challenging, as they usually take years to complete and quality-of-service metrics such as network speed, latency, and capacity levels are complex and remain to be defined.

¹³⁸ U.S. Senate Committee on Commerce, Science, and Transportation, “Committee Leaders Introduce Legislation to Improve Spectrum Coordination Among Agencies,” press release, May 29, 2021, at <https://www.commerce.senate.gov/2021/4/committee-leaders-introduce-legislation-to-improve-spectrum-coordination-among-agencies>.

¹³⁹ S. 1472.

¹⁴⁰ Ibid.

¹⁴¹ H.R. 2501.

¹⁴² NTIA, “NTIA Receives More Than 550 Comments on Broadband Programs in Bipartisan Infrastructure Law,” blog post, February 14, 2022, at <https://www.ntia.doc.gov/blog/2022/ntia-receives-more-550-comments-broadband-programs-bipartisan-infrastructure-law>.

¹⁴³ NTIA, *ACCESS BROADBAND 2021 Report*, p. 44.

Congress may assess whether data collection by NTIA is sufficient to address reporting challenges and needs. Congress may also consider whether to provide additional resources to NTIA, so the agency may continue its work on its own national broadband maps (i.e., NBAM and IBN map) in addition to efforts underway by the FCC.

U.S. Competitiveness and Leadership in ICT

ICTs play a large and growing role in government, economic, and social activities. According to its FY2023 budget request, NTIA would advance policies that “protect and promote the internet and digital commerce, foster innovation, create economic value, and enhance security.”¹⁴⁴ In particular, NTIA sought \$2 million to build additional program capacity for cybersecurity and international emerging technology standards, to support the Administration’s cybersecurity priorities, and to facilitate U.S. technology leadership globally.¹⁴⁵

Congress may consider whether NTIA’s current budget is sufficient to support its mission as the President’s principal advisor on telecommunications and information policy issues, or whether additional resources may be needed. Congress may also contemplate the advantages and disadvantages of having potentially overlapping programs at multiple agencies that address ICT policies, such as broadband access and adoption, 5G deployment, data privacy, cybersecurity, and internet governance.

In October 2021, several Senators introduced S. 3014, the Next Generation Telecommunications Act.¹⁴⁶ The bill would create the Next Generation Telecommunications Council to advise Congress on advancements and issues of standardization and development of advanced communications technologies, by reviewing the nation’s practice in deploying 5G technology.¹⁴⁷ The council would develop a national strategy for (1) the development and adoption of 6G and other advanced wireless technologies, (2) the federal government’s roles and responsibilities, (3) research and development in the technologies, and (4) international cooperation in those technologies.¹⁴⁸

The council would be composed of the heads of certain executive branch agencies, including the Deputy Secretary of Commerce, the Assistant Secretary of Commerce for Communications and Information, the Undersecretary of the National Institute of Standards, the Chairperson of the FCC, and the Director of the NSF.¹⁴⁹ The Senate and House would each appoint five additional council members.¹⁵⁰ The bill would designate NTIA and the FCC as the primary agencies to provide the council with administrative support.¹⁵¹ The bill would also authorize an appropriation of \$10 million in FY2022 for the council to carry out its duties.¹⁵²

¹⁴⁴ DOC, *NTIA FY2023 Budget as Presented to Congress*, p. NTIA-12.

¹⁴⁵ *Ibid.*, p. NTIA-16.

¹⁴⁶ S. 3014 was introduced by Senator Cortez Masto and cosponsored by Senators Wicker, Schumer, Thune, and Lujan.

¹⁴⁷ Section 2(f) of S. 3014.

¹⁴⁸ *Ibid.*, Section 2(g).

¹⁴⁹ *Ibid.*, Section 2(b)(1)(A).

¹⁵⁰ *Ibid.*

¹⁵¹ *Ibid.*, Section 2(h)(4).

¹⁵² *Ibid.*, Section 2(n)(1).

Appendix. List of Major Legislation Affecting NTIA Since the 114th Congress

Table A-I. Major Legislation Affecting NTIA

Legislation	Title of the Law
P.L. 117-58, Division F	Division F of the Infrastructure Investment and Jobs Act
P.L. 116-283, Division H, Title XCII, Sections 9202-9204	Sections 9202-9204 of the William M. (Mac) Thornberry National Defense Authorization Act for FY2021
P.L. 116-260, Division N, Title IX	Division N, Title IX of the Consolidated Appropriations Act, 2021
P.L. 116-260, Division FF, Title IX, Section 903	The ACCESS BROADBAND Act
P.L. 116-260, Division FF, Title IX, Section 904	The Broadband Interagency Coordination Act of 2020
P.L. 116-260, Division FF, Title IX, Section 905	The Beat CHINA for 5G Act of 2020
P.L. 116-129	The Secure 5G and Beyond Act of 2020
P.L. 116-124, Section 8	Section 8 of the Secure and Trusted Communications Network Act of 2019
P.L. 115-141, Division P, Title V, Section 507	Section 507 of the RAY BAUM's Act of 2018
P.L. 115-141, Division P, Title VI	The MOBILE NOW Act
P.L. 114-74, Title X	The Spectrum Pipeline Act of 2015

Source: CRS analysis of the legislative history.

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