



NATIONAL SPECTRUM STRATEGY IMPLEMENTATION PLAN

**NATIONAL TELECOMMUNICATIONS AND
INFORMATION ADMINISTRATION**

Alan Davidson

Assistant Secretary for Communications and Information

March 12, 2024



Table of Contents

Introduction	1
Implementation Plan Reading Guide	1
Strategic Objective Outcomes	4
Pillar One A Spectrum Pipeline to Ensure U.S. Leadership in Advanced and Emerging Technologies	4
Pillar Two Collaborative Long-Term Planning to Support the Nation’s Evolving Spectrum Needs	10
Pillar Three Unprecedented Spectrum Access and Management through Technology Development	15
Pillar Four Expanded Spectrum Expertise and Elevated National Awareness	22
Implementation Plan Summary Table	25
Pillar Outcomes Timeline	29
Execution	30
Actions/Milestones.....	30
Oversight/Reporting.....	30
Updates.....	30
Conclusion.....	30
Appendix: Approach and Schedule for Band Studies.....	A-1
Schedules of Band Studies.....	A-6
Timeline for Band Studies.....	A-13

Introduction

The National Spectrum Strategy (“the Strategy”),¹ released November 13, 2023, charts a course for sustained U.S. leadership in advanced wireless technologies and services. The radio spectrum provides numerous forms of connectivity to the American public, from the voice and data communications that fuel smartphones to critical government services that depend on spectrum access, and it therefore serves as a key foundation for the digital infrastructure on which the modern American economy runs. We must provide the spectrum access needed for Federal agency missions while addressing the private sector’s need for greater spectrum access, which is required to maintain and improve our global competitiveness and sustain economic growth. The Strategy will be implemented consistent with existing statutory authorities and Presidential directives, including the recent Presidential Memorandum on [Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy](#).²

This Strategy Implementation Plan (“Plan”) provides a public roadmap for this effort. For each strategic objective, the Plan identifies specific outcomes, with responsible Federal agencies, contributing stakeholders, and a timeline for both the beginning and the expected completion of the effort. A table summarizing the timelines (estimated by month and year) is provided at the end of the description of the outcomes. While it cannot identify publicly all actions being taken to implement the Strategy, the Plan describes steps needed to implement it.

This Plan is intended to be a living document. In order to release Plan updates on a three-year cycle, the process of drafting updates will begin approximately two years after the start of implementation. The White House designated the National Telecommunications and Information Administration (NTIA) as the steward for execution of this Plan, and as such, it will establish an oversight function. Federal agencies will work with the Office of Management and Budget (OMB) to ensure that funding proposals in the President’s budget are aligned with the activities outlined in this Implementation Plan.

Implementation Plan Reading Guide

This Plan is organized around the four pillars and 12 strategic objectives of the Strategy. It focuses on outcomes, not activities. For each strategic objective, the Plan identifies desired outcomes that must be pursued so that their achievement will contribute to fulfillment of the strategic objectives. Each outcome is accompanied by a summary description of the necessary actions to achieve it, along with an estimated timeline. Responsible agencies for each outcome will include a task breakdown with a more detailed schedule of actions.

¹ The White House, *National Spectrum Strategy* (November 13, 2023) available at <https://www.whitehouse.gov/wp-content/uploads/2023/11/National-Spectrum-Strategy.pdf> (National Spectrum Strategy).

² The White House, *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy* (November 13, 2023) available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/11/13/memorandum-on-modernizing-united-states-spectrum-policy-and-establishing-a-national-spectrum-strategy/> (Presidential Memorandum).

Below are the fields presented in this Plan:

Pillar – The top-level of outcomes aligned to the top-level goals of the four Pillars of the Strategy.

Strategic Objective – The second-level outcomes aligned to the Strategy. The Administration will achieve the strategic objectives through the pursuit and attainment of the outcomes identified under them.

Outcome – Includes the number, title, and description of the activities that will be taken to reach that outcome.

Responsible Agency – The Federal agency or agencies primarily responsible for leading the effort to achieve the outcome. This Plan employs the term “Federal agencies” to mean executive branch agencies with spectrum equities. It refers to the Federal Communications Commission (FCC), an independent agency, separately. Typically, the responsible agency or agencies will need to collaborate and coordinate with the other contributing stakeholders. A single entity may be the responsible agency; however, NTIA and the FCC are co-listed on some items due to their complementary roles: (1) the FCC, with its statutory role as an independent agency and the exclusive regulator of non-Federal spectrum use; and (2) NTIA, with its statutory role as the sole agency responsible for authorizing Federal spectrum use and the principal advisor to the President on information and communications policy matters, including the use of spectrum. The following explains how to interpret the use of different designations that include Federal agencies:

- A specific agency is named when there is only one or two specific organizations.
- “Federal agencies” is used when an agency representative will participate in the effort to provide input for the agency.
- The Interagency Spectrum Advisory Council³ or “ISAC” is used when the action involves a consensus Federal position. It represents the Council collaboratively, producing a single output on behalf of all the agencies as a group.
- The Interdepartment Radio Advisory Committee or “IRAC” is used for any activity that falls within its purview.
- The Commerce Spectrum Management Advisory Committee (CSMAC)⁴ “(Collaboration Framework)” represents the improved national framework for collaboration on spectrum policy envisioned in the Strategy that will be established under Outcome 2.1(a). It is used for efforts involving collaboration between non-Federal stakeholders

³ The Interagency Spectrum Advisory Council (ISAC), established by the Presidential Memorandum, serves as the principal interagency forum for senior agency officials to advise NTIA on spectrum policy matters and to ensure that all decisions made by NTIA take into consideration the diverse missions of the Federal Government.

⁴ The Commerce Spectrum Management Advisory Committee (CSMAC), created in 2004, advises the Assistant Secretary for Communications and Information at NTIA on a broad range of spectrum policy issues. The members are spectrum policy experts, appointed as “Special Government Employees,” from outside the Federal government in order offer expertise and perspective on topics of interest. *See generally* https://www.ntia.gov/sites/default/files/csmac_charter.pdf.

and Federal agencies, beginning after its creation, which is projected for September 2025.

Contributing Stakeholder(s) – Stakeholders that have a specific and significant role in the development and execution of actions to achieve the outcome, including by contributing expertise or resources, engaging in complementary efforts, or coordinating on elements of the effort. This is not intended to be a comprehensive list of all entities with equities in achieving an outcome.

Estimated Start – This is the estimated start time for work towards a particular outcome and is indicated by month and year (e.g., “June 2025”). Not all actions can begin simultaneously and immediately, so this reflects the planned phasing of efforts.

Estimated Completion – This is the estimated amount of time in months it will take to execute actions to accomplish the outcome. It is also reflected in the Summary Table as the projected month and year for completion of the effort, calculated from the Estimated Start plus the number of months estimated to achieve the outcome.

Strategic Objective Outcomes

Pillar One | A Spectrum Pipeline to Ensure U.S. Leadership in Advanced and Emerging Technologies

U.S. leadership in next-generation technologies and services requires greater spectrum access for both the private and public sectors in the near- and medium-term. The Strategy calls for a “spectrum pipeline” encompassing spectrum bands that are in various stages of consideration for repurposing to satisfy non-Federal and Federal needs. In coordination with the Federal agencies, NTIA will review and fine-tune its Federal spectrum management processes for assessing spectrum bands for possible repurposing. This will secure sufficient spectrum access to support Federal agency missions now and for projected future needs. In order to ensure that we are using spectrum to benefit a broad range of sectors and Federal missions, the spectrum bands identified in the Strategy will be studied for a variety of uses, including, but not limited to, terrestrial wireless broadband, innovative space services, unmanned aviation, and other autonomous vehicle operations. Pillar Two calls for the development of a long-term planning process; however, given that the planning process may not be implemented fully for several years, Pillar One identifies and seeks to implement improvements to certain planning components in the near term, including developing metrics for evaluating spectrum usage, applying best practices for conducting studies, and creating a dedicated program management function for managing spectrum reallocation activities.

Strategic Objective 1.1 | Ensure sufficient spectrum access to support Federal agency missions now and into the future

Outcome 1.1(a): Documented agency requirements to secure sufficient spectrum access to support Federal agency missions

As reinforced in the Strategy, essential government missions rely on wireless systems on the ground, in the air, at sea, and in space to protect our national security and to deliver important public services. Critical U.S. Government services and missions increasingly depend on spectrum access, just as ongoing innovations in wireless technologies demand additional spectrum access for private-sector purposes. To ensure agencies have the access they require, NTIA needs a documented record of agency spectrum requirements in order to assess and promote that Federal users are making the best possible and most efficient use of Federal spectrum allocations.⁵

In coordination with the Federal agencies, NTIA will fine-tune Federal processes related to agency requirements when studying spectrum for the pipeline. This will ensure that any reallocation of Federal spectrum maintains sufficient spectrum access to support agencies’ missions. As outlined in the Strategy, this will include consideration of “the agency’s operational requirements and the nature of its mission(s)” and “the potential for improved efficiency and mission effectiveness through new technological developments (such as compression and modulation technology) and coexistence techniques.”⁶ Federal agencies will fully support efforts to study the pipeline bands identified in the Strategy to ensure their needs are considered, and essential spectrum access is

⁵ See 47 U.S.C. § 902(b)(2)(U).

⁶ *National Spectrum Strategy*, Strategic Objective 1.1, at 4.

secured, in a manner that supports their missions but also allows for identifying spectrum access opportunities for non-Federal uses if possible. With an improved understanding of current Federal spectrum needs, NTIA can assess resources available and work on behalf of the Executive Branch to protect spectrum access for agency missions as additional spectrum bands are considered for non-Federal reallocation.

Responsible Agency: NTIA
Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
September 2024	24 Months

Outcome 1.1(b): Establishment of an updated process for assessing Federal agency requirements for additional spectrum resources

When studying pipeline bands, the process for considering future spectrum access needed to support agency missions should be better defined. NTIA, in coordination with the Federal agencies, will standardize a method for documenting future spectrum access needs beyond fully documented systems (i.e., those undergoing certification) so they can be factored into band studies described in Outcome 1.2(c). As required by the Presidential Memorandum, NTIA, in coordination with Federal agencies, will improve its criteria and processes for certification regarding spectrum availability to facilitate spectrum access. As part of this effort, improvements will be considered towards building a more comprehensive record of any additional spectrum access needed to support agency missions in the future. NTIA, working through the IRAC, will update both the relevant guidance and the procedures for NTIA review of agency spectrum requirements to help ensure that spectrum access will meet new requirements. This includes checking whether agencies have determined if their identified requirements could be met through other technologies or techniques. Additionally, use of commercial services can reduce competition for spectrum allocated for exclusive Federal use by shifting appropriate Federal operations⁷ to commercially licensed spectrum. Federal agencies should review their internal processes to ensure they consider and comply with the following policies.

- 41 U.S.C. § 3307 provides that “[t]he head of each executive agency shall ensure that procurement officials in that executive agency, to the maximum extent practicable . . . acquire commercial services or commercial products or non-developmental items other than commercial products to meet the needs of the executive agency.”
- OMB Circular A-76 reiterates that “it has been and continues to be the general policy of the Government to rely on commercial sources to supply the products and services the Government needs” while also recognizing there are some inherently governmental activities that are so valuable to the public interest as to mandate performance by Government personnel.
- Section 2.3.3 of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management states that, except in limited circumstances, “all functions normally

⁷ This includes those that are not inherently governmental and for which mission requirements can be met in a manner that is not materially detrimental to national interests.

associated with providing [telecommunication services] shall be performed by the private sector.”

Responsible Agency: NTIA
Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
September 2024	24 Months

Strategic Objective 1.2 | Ensure spectrum resources are available to support private sector innovation now and into the future

Outcome 1.2(a): Adoption of study plans and schedules for completing in-depth studies

The Strategy identified the following spectrum bands for near-term, in-depth study to determine whether they may be repurposed for non-Federal or shared Federal and non-Federal use: (1) 3.1-3.45 GHz; (2) 5030-5091 MHz; (3) 7.125-8.4 GHz; (4) 18.1-18.6 GHz; and (5) 37.0-37.6 GHz. The study plans will be developed jointly by NTIA and the affected Federal agencies. The studies will consider various typically employed spectrum management mechanisms to assess fully the possibilities for expanded or more efficient uses of the spectrum. The study plans will be mutually agreed to between NTIA and affected Federal agencies. The Appendix provides the approach to band studies and details on adoption of study plans. It also lists the top-line schedule for completing studies of these spectrum bands.

Responsible Agency: NTIA/Affected Federal Agencies
Contributing Stakeholders: Non-Federal Stakeholders, FCC

Estimated Start	Estimated Completion
See Appendix	See Appendix

Outcome 1.2(b): Establishment of a project plan for study of each band and an integrated master schedule for tracking and oversight

NTIA will implement leading program management practices to plan the band studies and monitor progress on an ongoing basis. This will involve tracking actions, identifying risks, and addressing issues early to minimize any disruption in executing the studies.

Responsible Agency: NTIA
Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
March 2024	2 Months

Outcome 1.2(c): Completion of band studies

A crucial element in the success of the Strategy is furnishing a robust spectrum pipeline for both Federal and non-Federal uses that is developed through a transparent process. The Strategy outlines five specific bands to be studied to determine suitability for repurposing for expanded use while ensuring sufficient access for Federal users to meet their mission requirements. Central to delivering a pipeline of spectrum is conducting band studies—without preconceived limitations—in a timely, coordinated, data-driven, and science-based manner centered on reasonable and realistic

methodologies and assumptions. NTIA, in collaboration with the Federal agencies, will seek private-sector input throughout the process. For studies that require funding from the Spectrum Relocation Fund (SRF) (i.e., the lower 3 GHz and 7/8 GHz studies), the start date will depend on when a plan (referred to as a “pipeline plan”), is approved and transmitted to Congress and when funding has been transferred to the applicable Federal agencies. This process is governed by 47 U.S.C. §928(g), generally referred to as the Spectrum Pipeline Act. The start date for the other studies will be conducted as outlined in the Appendix.

Responsible Agency: NTIA/Affected Federal Agencies

Contributing Stakeholders: Non-Federal Stakeholders, FCC

Estimated Start	Estimated Completion
ASAP upon funding, if applicable	See Appendix

Outcome 1.2(d): Identification of spectrum for repurposing based upon in-depth studies

The results of the in-depth studies performed pursuant to Outcome 1.2(c) will inform the quantity of spectrum potentially repurposed, if any, and the eventual FCC rules for the repurposed spectrum. Any identification of potential spectrum that could be reallocated or otherwise repurposed is expected to occur through a final recommendation prepared at the end of the in-depth study of each band. Any such identification will be based on rigorous analysis and an aggregation of evidenced-based results documented in the various technical reports and other deliverables prepared as part of other planning activities (e.g., economic analysis, system acquisition information), coordinated with the affected Federal agencies via the ISAC. The Secretary of Commerce, working through NTIA, will identify any spectrum to the FCC that feasibly can be repurposed for non-Federal, or shared Federal and non-Federal use, along with any related special requirements to facilitate follow-on, coordinated action.⁸ For bands identified for reallocation and auction, Federal agencies may continue to work with SRF funds until the FCC announces the planned commencement of an auction, consistent with existing law. Agencies may conduct other planning activities in support of FCC rulemaking activities, and refining and finalizing estimated transition costs and timelines, to inform auction planning.

Responsible Agency: NTIA

Contributing Stakeholders: Federal Agencies, FCC, ISAC

Estimated Start	Estimated Completion
To be determined based on Studies	2 Months

⁸ Following the identification of spectrum for repurposing, if the DoD is required to surrender use of frequencies of which it is a primary user in order to make such frequencies available for other use, NTIA and the Secretary of Commerce shall comply with the requirements of Pub. L. 106–65, div. A, title X, § 1062(b), Oct. 5, 1999, 113 Stat. 768.

Strategic Objective 1.3 | Maintain the spectrum pipeline by applying guiding principles and leading program management practices to identify additional bands for study

Outcome 1.3(a): Determination of pertinent metrics and data elements for assessing spectrum utilization and creation of data specifications for collecting the data

The Strategy underscores the importance of getting relevant and timely information from all stakeholders to sustain decision-making processes in support of the spectrum pipeline. Critically, U.S. spectrum-regulating agencies need to be able to quantify Federal and non-Federal spectrum usage to ensure that spectrum is being put to its best possible use and to determine whether additional or different types of services may be accommodated in a given band. In the near- and medium-term, prior to the implementation of the collaboration framework outlined in Pillar Two, NTIA will work collaboratively with Federal agencies on a similar effort to determine metrics (including interference protection criteria and data elements) for quantifying Federal spectrum usage and providing qualitative assessments of how mission needs are being met. NTIA will also look at how to mitigate the potential risks to agencies' mission effectiveness in the pipeline bands, along with a specification for collecting these relevant data (subject to national security and competition constraints). For data that require protection (e.g., national security information or controlled unclassified information), control requirements for metrics and data will be identified by the responsible agency and coordinated across affected stakeholders.

Responsible Agency: NTIA/FCC
Contributing Stakeholders: Federal Agencies, CSMAC

Estimated Start	Estimated Completion
March 2025	12 Months

Outcome 1.3(b): Publication of spectrum management principles and best practice methods to guide the Federal Government in spectrum studies

The Administration can facilitate consensus around Federal spectrum management decisions by developing principles and standard engineering methodologies for conducting spectrum studies. Working with the Federal agencies, NTIA will identify the coordination guidelines for spectrum studies and the processes for determining types of studies, interference criteria, assumptions, and timelines. These will be starting points for coordination with non-Federal stakeholders to establish national best practices and Tribal consultation procedures under Pillar Two.

Responsible Agency: NTIA
Contributing Stakeholders: Federal Agencies, FCC

Estimated Start	Estimated Completion
March 2024	14 Months

Outcome 1.3(c): Creation of a program management function for managing spectrum reallocation activities

The Government Accountability Office has previously recommended that NTIA “align its spectrum reallocation-planning efforts with leading practices for program management by developing a plan, analyzing risks, and creating and updating a schedule for NTIA’s ongoing and future reallocation efforts.”⁹ NTIA will establish a function for managing the end-to-end activities associated with reallocation of spectrum bands in which Federal agencies have equities. NTIA will coordinate and track actions across stakeholders involved with studying bands, and if applicable, monitor activities involved with developing rules, preparing for auction, and tracking transition to the new uses. Inherent in this function will be a periodic assessment of the spectrum pipeline by U.S. spectrum-regulating agencies until the long-term spectrum planning process outlined in Pillar Two is established and implemented.

Responsible Agency: NTIA
Contributing Stakeholders: Federal Agencies, FCC

Estimated Start	Estimated Completion
March 2024	3 Months

⁹ Government Accountability Office, Spectrum Management: NTIA Should Improve Spectrum Reallocation Planning and Assess Its Workforce (GAO-22-104537) (January 27, 2022) *available at* <https://www.gao.gov/products/gao-22-104537> at 30.

Pillar Two | Collaborative Long-Term Planning to Support the Nation's Evolving Spectrum Needs

As the demands for spectrum access continue to increase, the Nation must implement a long-term planning process in which stakeholders work together openly, consistently, and transparently (subject to national security and competition constraints) to address users' current and future spectrum requirements. To make spectrum resources available for a growing number of spectrum-dependent technologies, services, and applications, NTIA and the FCC will establish a new, improved collaboration framework and develop a methodology for representing current spectrum use, as well as future requirements. NTIA and the FCC will also institute a policy for submitting inputs for long-term planning, pursue a value-based model to support decision-makers, and document requirements for any new capabilities, information technologies, and modeling tools needed to support this national-level process. The focus is on establishing robust collaboration that includes all stakeholders (Federal and non-Federal, including state, local, and Tribal governments, as well as unserved and historically under-served populations).

Strategic Objective 2.1 | Establish a persistent strategic spectrum planning process guided by the best available science and data

Outcome 2.1(a): Establishment of an improved collaboration framework

To implement a persistent long-term planning process, the Nation needs an improved way to bring stakeholders together to generate recommendations based on the combined knowledge and perspectives of both the Federal Government and the private sector. To support this, NTIA will establish a new, improved framework for collaboration on national spectrum policy and policy-related matters. The objective is to institutionalize collaboration through existing groups and formal Tribal consultation procedures, as applicable. The framework will enable creation of ad hoc groups, as needed, to facilitate regular dialogue and data sharing (subject to national security constraints), building trust and transparency among Federal, commercial, and other stakeholders.

NTIA will outline a collaboration framework that identifies existing advisory and working groups and includes a mechanism for establishing new, integrated working groups, allowing open dialog between Federal and non-Federal stakeholders. The framework will identify specific entities and the expected interaction between them, documenting roles and responsibilities for each. It will allow the creation of band- or issue-specific, multi-stakeholder groups composed of Federal, non-Federal, and prospective new spectrum users (if applicable). These groups could engage in activities such as targeted early engagements to consider repurposing possibilities. Stakeholder engagements may include sharing information such as electromagnetic compatibility modeling tools and results and other technical interchanges.

NTIA, in coordination with the FCC, will formally document this collaboration framework. NTIA will explore implementing integrated Federal and non-Federal working groups under the auspices of the

CSMAC, consistent with the Federal Advisory Committee Act.¹⁰ Tribal consultations¹¹ will be held, as applicable, and Federal trust responsibilities will be considered pursuant to the Memorandum of Understanding (MOU) signed between the U.S. Department of the Interior (DOI), the FCC, and NTIA¹² for this purpose.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, ISAC, Tribes, Public

Estimated Start	Estimated Completion
March 2024	18 Months

Outcome 2.1(b): Implementation of a national long-term spectrum planning process

In collaboration with the Executive Office of the President (EOP) and the FCC, NTIA will initiate actions to develop and implement a national spectrum planning process that incorporates spectrum needs into the process of identifying potential allocation changes to support both Federal and non-Federal stakeholders. To harmonize potential allocation changes with procurement decisions, agencies should update their acquisition policies to ensure that those processes properly consider spectrum coexistence and access prior to milestone investment decisions. Meanwhile, they also must consider the value of spectrum as outlined in OMB Circular A-11.¹³ Working through the new collaboration framework, stakeholders will agree on the key inputs needed to inform national spectrum policy decisions, including information about current and future use and technology developments. They also will agree on additional processes, as needed, for identifying requirements and assessing additional spectrum access across stakeholders. Once there is agreement around a strategic, long-term planning process, NTIA and the FCC will collaborate to establish a policy for representation of new and future Federal and non-Federal spectrum requirements that provides better understanding and can be used as the basis for consideration.

¹⁰ See Federal Advisory Committee Act of 1972 (Public Law 92-463)(FACA).

¹¹ Exec. Order No. 13,175, 65 Fed. Reg. 67,249 (November 6, 2000) *available at* <https://www.govinfo.gov/content/pkg/FR-2000-11-09/pdf/00-29003.pdf> (Tribal Governments Executive Order); The White House, *Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships* (January 26, 2001) *available at* <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/> (Tribal Governments PM).

¹² Memorandum of Understanding among the U.S. Department of the Interior, and the Federal Communications Commission, and the U.S. Department of Commerce, National Telecommunications and Information Administration (November 23, 2022) *available at* https://www.bia.gov/sites/default/files/dup/inline-files/mou_esb46-009818_doi-fcc-ntia_electromagnetic_spectrum_on_tribal_lands_2022-11-23_final_fcc_ntia_doi_signed_508.pdf (MOU).

¹³ Executive Office of the President, Office of Management and Budget, Circular No. A-11: Preparation, Submission, and Execution of the Budget, Section 31.11 (August 2023) *available at* <https://www.whitehouse.gov/wp-content/uploads/2018/06/s31.pdf>.

To support an evidence-based decision-making methodology, stakeholders will define a standard submission requirement and supporting data, including a preference for studies based on agreed-to best-practices and the greatest possible transparency (subject to national security and competition constraints).

Responsible Agency: NTIA/FCC

Contributing Stakeholders: EOP, Federal Agencies, ISAC, CSMAC, Public

Estimated Start	Estimated Completion
September 2024	24 Months

Strategic Objective 2.2 | Develop and document an evidence-based national spectrum decision-making methodology

Outcome 2.2(a): A value-based model to inform spectrum policy decisions

NTIA will sponsor development of a value-based model to inform spectrum policy decisions, potentially including contributions from academic researchers through cooperation with the National Science Foundation (NSF). A model built on a value-based framework will benefit decision-makers by allowing for comprehensive evaluation of the potential impacts such as societal, economic, and national security considerations associated with various spectrum allocation options. This value-based model will encompass a methodology to identify essential inputs and data for quantifying the overall spectrum value, specifically tailored to allocation decisions. Importantly, the framework also will enable estimates of the overall costs and benefits relative to national priorities. This understanding will then equip decision-makers with a more comprehensive toolset for evaluating future spectrum allocation scenarios.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: EOP, Federal Agencies, NSF, ISAC, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
March 2026	12 Months

Outcome 2.2(b): Historical assessment of reallocated/auctioned bands

By examining past reallocations of Federal spectrum to non-Federal use we can gain valuable insights to inform future spectrum decisions. Analyzing past successes and challenges helps to understand the root causes of past issues, which can help with identifying solutions to current and future challenges. Policymakers facing critical questions about spectrum allocation can benefit from an objective assessment of past reallocations of Federal spectrum to non-Federal use. To provide context for future decisions, Federal spectrum regulators will pursue a comprehensive assessment of the bands already repurposed from Federal to non-Federal use. This review will evaluate both the benefits and the mission implications to Federal users of these previous allocation changes, including increased risks to meeting future mission requirements.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, Public

Estimated Start	Estimated Completion
March 2025	12 Months

Strategic Objective 2.3 | Define requirements and implement capabilities to capture essential data and information on spectrum use

Outcome 2.3(a): A defined, agreed-to methodology for representing current spectrum use and future requirements

Standardized, granular data (subject to national security and competition constraints) is needed to inform evidence-based spectrum decisions. Leaders need to have the whole picture in order to make the best possible reallocation or other repurposing decisions. To this end, the FCC recently adopted a Notice of Inquiry to explore how it might leverage new data sources, technologies, and methods to advance its understanding of non-Federal spectrum usage.¹⁴ NTIA and the FCC will seek to develop a standard method to validate current use and represent future access needs. This will be done in a manner that allows for comparison across stakeholders and uses. The goal is to best ensure that requests for expanded spectrum access are reasonable, based on current or likely future needs, and are being satisfied in the most effective and efficient way. Additionally, procedures and controls will be developed to ensure spectrum data are kept current.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC, Public

Estimated Start	Estimated Completion
March 2025	12 Months

Outcome 2.3(b): Documented requirements for new capabilities needed to process improved data, including information technology and modeling tools

Modernizing the country's spectrum management capabilities is a prerequisite to support the improved spectrum planning processes envisioned by the Strategy, especially for spectrum use and requirements as will be defined by Outcome 2.3(a). Besides the need for NTIA and FCC systems to communicate with one another, new tools will be needed to collect and use more granular data (subject to national security and competition constraints), including the type of use (active or passive), the time and frequency of use, the waveforms and power used, and the geography involved. Additionally, requirements for real-time spectrum monitoring and radio-frequency sensors may also be needed to support new spectrum management technologies.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
November 2026	12 Months

¹⁴ Federal Communications Commission, *In the Matter of Advancing Understanding of Non-Federal Spectrum Usage*, Notice of Inquiry, WT Docket No. 23-232 (August 4, 2023).

Outcome 2.3(c): Establishment of national best practices for performing unbiased technical, scientific, mission, and economic analyses

Spectrum management decisions often rely on a combination of technical, scientific, mission, and economic analyses. In each of these fields, adherence to agreed methodologies and transparency in analyses and underlying datasets (subject to national security and competition constraints) can increase acceptance of findings and reduce disputes. Leveraging work done by both Federal agencies and the private sector, NTIA and the FCC will coordinate to publish best practices for common procedures—such as accepted Federal and non-Federal approaches—in conducting studies of spectrum bands when considering changes in their current use. These procedures will include conducting formal Tribal consultations, when applicable. Once developed, stakeholders should utilize validated models and real-world measurements as outlined in the national best practices for spectrum studies.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
March 2026	24 Months

Pillar Three | Unprecedented Spectrum Access and Management through Technology Development

To accelerate innovation and realize the full potential of the electromagnetic spectrum, the nation must deepen its understanding of electromagnetic compatibility. The spectrum research community must enhance the coordination of its research and development (R&D) endeavors and identify and address critical areas of spectrum R&D. By doing so, we can amplify the impact of collective efforts and foster important advancements. Our spectrum policies also must be designed to optimize flexible use and support emerging technologies.

Strategic Objective 3.1 | Improve spectrum efficiency and bolster coexistence by facilitating investments in new and emerging technologies

Outcome 3.1(a): A process to identify enabling technologies for spectrum-dependent systems to enhance spectrum efficiency and foster coexistence

Through the collaboration framework created under Pillar Two, stakeholders will establish a process for exploring and identifying technologies and capabilities that could enable improved spectrum usage through coexistence among spectrum-dependent systems. As part of exploring technologies, Federal agencies and non-Federal stakeholders will leverage the collaboration framework to consider engaging with academic institutions in sponsored research, which will provide technical input and other expertise. The process proposed by stakeholders will include potential pathways to inject identified technologies into new acquisitions and legacy systems. It also will estimate spectrum-efficiency performance that could be achieved if the identified technologies are included in the acquisition processes for spectrum-based systems.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
October 2025	6 Months

Outcome 3.1(b): Published, recommended, key motivating factors for driving Federal and non-Federal investment in spectrum innovation

To accelerate innovation and improve spectrum access, stakeholders must invest in capabilities and technologies that enhance efficiency, flexibility, and adaptability while maintaining or enhancing mission effectiveness. Incentivizing investments in spectrum sharing and coexistence capabilities will be a key element in improving spectrum access. An R&D working group established under Pillar Two: Outcome 2.1(a) will survey key Federal and non-Federal spectrum users to identify motivating factors for investing in spectrum innovation, as well as those that disincentivize investment or that pose challenges to research efforts. Subsequently, the working group will publish a report providing recommendations to encourage investments in innovation for spectrum-utilizing systems.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
March 2026	6 Months

Outcome 3.1(c): A roadmap for improving receiver resistance to harmful interference

Spectrum efficiency and the capacity for both disparate and like systems to coexist may depend greatly on receiver characteristics. Stakeholders will build upon the FCC's efforts to conduct a review of receiver requirements and performance parameters. They will then develop a roadmap for improving receiver resistance to harmful interference. Federal agencies will consider engaging with academic institutions through sponsored research to provide technical input and other expertise.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
October 2025	9 Months

Outcome 3.1(d): Recommendations for potential investment based on assessment of smart spectrum management technologies

U.S. spectrum-regulating agencies will encourage dynamic spectrum sharing and coexistence that employs enabling spectrum management technologies (e.g., software, tools, and devices) while mitigating the risks of degrading capabilities to meet mission requirements. Through the collaboration framework, members will provide recommendations and an outline for deploying and implementing spectrum management technologies. Recommendations could include identification of factors that are optimal for dynamic spectrum sharing, as well as those that discourage or make it challenging to implement. Federal agencies will consider engaging with academic institutions through sponsored research to provide technical input and other expertise. Such technologies could include cloud-based spectrum management, artificial intelligence and machine learning (AI/ML), advanced antenna systems, and other technologies for improving the efficient use of Federal spectrum.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
March 2026	6 Months

Outcome 3.1(e): Designation of a global standards for advanced spectrum sharing and technologies team

Consistent with the National Standards Strategy, the U.S. Government will collaborate with industry to promote and advance spectrum-sharing approaches and technologies that support U.S. interests in global standards bodies. The collaboration framework will be leveraged to identify or form a team to support such U.S. interests.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: CSMAC (Collaboration Framework), National Institute of Standards and Technology (NIST)

Estimated Start	Estimated Completion
September 2025	3 Months

Outcome 3.1 (f): Recommendations for a common platform for shared spectrum access

The Federal Government will develop recommendations for deploying a spectrum-sharing application to manage Federal spectrum use. This capability should be deployed across shared Federal and non-Federal spectrum and among Federal users to facilitate efficient spectrum sharing (subject to national security and competition constraints). The application will attempt to both provide Federal agencies with a better ability to understand and manage their operations in complex spectrum environments and to accelerate implementation of rules established for repurposing spectrum. NTIA will lead the implementation of this innovative application by modernizing its spectrum management infrastructure to develop a common platform, which will provide a standardized capability across Government systems, to be applied across frequency bands where spectrum sharing is expected to occur. This common platform could include the incumbent informing capability (IIC),¹⁵ and Federal agencies will cooperate with and support NTIA in applying the IIC to Federal-to-Federal and Federal-to-non-Federal sharing to the maximum extent possible. NTIA and Federal agencies will implement a policy to consider using the common platform any time sharing is being assessed. This policy will improve and accelerate the spectrum repurposing process by providing regulatory and operational certainty leading up to a repurposing activity.

Responsible Agency: NTIA

Contributing Stakeholders: Federal Agencies, CSMAC, FCC

Estimated Start	Estimated Completion
September 2024	6 Months

Strategic Objective 3.2 | Commit to improving collective understanding of the electromagnetic spectrum through coordinated, focused, and sophisticated research and development (R&D)

Outcome 3.2(a): Development and publication of a National Spectrum R&D Plan

The R&D Plan will be released by the White House Office of Science and Technology Policy. It will be an organized, national document guiding government support for spectrum-related research, helping shape private-sector efforts and providing a shared reference for stakeholder interactions. The scope of the R&D Plan, and the process to update it on an ongoing basis, will be coordinated with the ISAC. Development of the R&D Plan will consider input from Federal and non-Federal stakeholders.

Responsible Agency: OSTP

Contributing Stakeholders: NTIA, NSF, FCC, ISAC, Federal Agencies, Public

Estimated Start	Estimated Completion
March 2024	6 Months

¹⁵ See generally, DiFrancisco, Michael, et al., National Telecommunications and Information Administration, *Incumbent Informing for Time-Based Spectrum Sharing* (February 22, 2021) available at <https://www.ntia.gov/report/2021/ntia-report-incumbent-informing-capability-iic-time-based-spectrum-sharing>.

Outcome 3.2(b): Revision of the National Spectrum R&D Plan

The National Spectrum R&D Plan released under 3.2(a) will be revised. This effort will validate the process to refine and enhance the key innovation areas for spectrum R&D on an ongoing basis.

Responsible Agency: OSTP

Contributing Stakeholders: NTIA, NSF, FCC, ISAC, Federal Agencies, Public

Estimated Start	Estimated Completion
March 2025	12 Months

Outcome 3.2(c): Process for a national (including government, industry, and academia) assessment and certification of spectrum R&D infrastructure and tools

This outcome will establish a process to assess, validate, and certify spectrum research components such as datasets, electromagnetic (EM) compatibility, spectrum sharing, coexistence models, and models for EM propagation. This will give Federal agencies a resource to help ensure they are using validated technical and economic modeling and analysis tools in their studies. NTIA will include Federal agency experts and will engage with industry and academic experts.

Responsible Agency: NTIA

Contributing Stakeholders: CSMAC (Collaboration Framework), NIST, Federal Agencies, FCC

Estimated Start	Estimated Completion
March 2026	6 Months

Outcome 3.2(d): Data collection and spectrum utilization program

To increase available data for fine-tuning or validating EM models, and to gather better data regarding spectrum utilization, the Government will establish a data collection and spectrum utilization program. Data collection will include real-world measurement campaigns, field testing (whenever possible), and increased awareness and availability of outdoor wireless testbeds. NTIA and the FCC will explore conducting such measurement campaigns on Tribal lands, in accordance with the Tribal Governments Executive Order, to gather more accurate information about spectrum access and utilization on Tribal lands.¹⁶ The spectrum utilization program will provide a capability to characterize spectrum utilization for Federal and non-Federal users and share data with Federal and non-Federal data users, including academic researchers, whenever possible (subject to national security and competition constraints).

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies, CSMAC (Collaboration Framework)

Estimated Start	Estimated Completion
October 2025	12 Months

¹⁶ *Tribal Governments Executive Order.*

Outcome 3.2(e): Spectrum Sandbox Program

To encourage private sector-led innovation and advancement, stakeholders working through the collaboration framework will explore establishing a Spectrum Sandbox Program (which may include both existing and new geographic areas) that enables experimental research while protecting incumbents. Stakeholders will submit proposals and suggestions for the Program to NTIA and the FCC for their consideration. Spectrum sandboxes may provide expedited or pre-approved frequency authorizations to non-Federal users for spectrum experimentation and R&D (operational frequencies could include millimeter or sub-terahertz frequencies). Such sandboxes can provide real-world data, further the development of dynamic spectrum sharing techniques, and help formulate additional technical rules to enable sharing. NTIA and the FCC will work in conjunction with DOI to review the development and utilization of spectrum sandboxes for non-Federal use on Tribal lands.

Responsible Agency: NTIA

Contributing Stakeholders: CSMAC (Collaboration Framework), FCC, Federal Agencies, National Advanced Spectrum and Communications Test Network (NASCTN)¹⁷

Estimated Start	Estimated Completion
December 2025	6 Months

Outcome 3.2(f): Advanced dynamic spectrum sharing demonstration and report

Traditional spectrum management, which is still used in all but a few spectrum bands, involves static separation of systems in frequency, space, or time. In contrast, dynamic spectrum sharing (DSS) involves the operation of independent systems close enough together (in frequency, space, or time) that dynamic access methods are required to prevent harmful interference. As defined in the NSF Spectrum Innovation Initiative-National Radio Dynamic Zone (SII-NRDZ)¹⁸ program, dynamic access methods refer to a rule or control system for spectrum access that depends on external conditions (for example, an “if-then” statement to be executed at runtime). The Department of Defense (DoD) and NTIA will conduct a 12-to-18-month initiative, in coordination with the FCC and Federal agencies (specifically DOI where Tribal lands or interests are implicated), and in consultation with industry and academia. The effort will focus on the 3.1-3.45 GHz band and will achieve measurable outcomes that substantially improve the efficiency of spectrum use as compared with current approaches to dynamic spectrum sharing (such as the Citizens Broadband Radio Service) by leveraging new technologies and capabilities.

¹⁷ The National Advanced Spectrum and Communications Test Network (NASCTN) was established by NIST, NTIA and DoD in March of 2015 to improve opportunities for successful spectrum sharing through accurate, reliable, rigorously scientific, and unbiased measurements and analyses via a voluntary, cooperative federated network of spectrum sharing expertise and capabilities. See generally <https://www.nist.gov/ctl/nasctn>.

¹⁸ See generally National Science Foundation (NSF) Spectrum Innovation Initiative: National Radio Dynamic Zone (SII-NRDZ), available at <https://new.nsf.gov/funding/opportunities/spectrum-innovation-initiative-national-radio>.

The initiative will explore investment incentives that improve the efficiency and performance of the overall ecosystem of the band and improve the ability of Federal agencies, including DoD, to effectively use spectrum in the increasingly congested and contested environment in which they operate. NTIA's Institute for Telecommunication Sciences (ITS) will conduct an independent assessment of the initiative following the demonstration.

Responsible Agency: DoD/NTIA
Contributing Stakeholders: FCC, NIST, Federal Agencies

Estimated Start	Estimated Completion
March 2024	18 Months

Outcome 3.2(g) National DSS Testbed

A National DSS Testbed will be created for dynamic sharing technology, consisting of a federated network of sites providing complementary capabilities. This will enable Federal, industry, and academic experimentation in Federal and non-Federal bands and will serve as a technical demonstration platform. Stakeholder agencies, in consultation with industry and academia, will define key gaps in currently available testbeds and options to enhance testbed capability through investment in current and new testbeds, except on Tribal lands. To conduct the DSS demonstration within the 12-to-18-month timeline set forth in the Strategy, NTIA will establish a national testbed function capable of coordinating experiments across a network of sites. It also will conduct a demonstration using a spectrum-sharing experiment carried out by NSF or another third party.

NTIA will play a key role in establishing and coordinating the National DSS Testbed. However, it is important to clarify the specific responsibilities and limitations of NTIA's ownership. NTIA will define standards for data and metadata formats and application programming interfaces to ensure compatibility and facilitate data sharing across the testbed. NTIA will act as a central hub for the testbed, reporting on activities and status, and will facilitate communication between stakeholders. Finally, NTIA will establish criteria for sites to be considered part of the National DSS Testbed. It will encompass a range of environments and use cases to provide maximum utility for advancing dynamic spectrum sharing technologies. NTIA ownership does not include responsibility for programmatic, physical, or operational management of individual testbed sites or for staffing, equipment, and day-to-day operations. That responsibility will remain with the respective individual site owners.

Responsible Agency: NTIA
Contributing Stakeholders: NSF, DoD, FCC, Federal Agencies

Estimated Start	Estimated Completion
March 2024	18 Months

Strategic Objective 3.3 | Pursue spectrum policies that maximize flexible use of spectrum, accommodate new and innovative technologies, and identify opportunities to expand spectrum access

Outcome 3.3(a): Policy initiatives to maximize regulatory flexibility to promote U.S. technological innovation and opportunistic sharing

National spectrum policies that maximize flexible use of spectrum will foster U.S. technological innovation and opportunistic sharing, reduce barriers to expanding spectrum access, stimulate industry and government research, provide access to state-of-the-art technologies and services, and allow Federal agencies to pivot when new mission requirements are considered. Leveraging the collaboration framework, U.S. spectrum-regulating agencies will promote the opportunistic and spectrally efficient use of spectrum bands. Stakeholders working through the collaboration framework will recommend policy initiatives to expand spectrum access for users in underrepresented communities, including small and non-traditional internet service providers, enterprises, schools, libraries and other community anchor institutions in underserved areas. NTIA and the FCC will work directly with DOI to promote the opportunistic use of spectrum on Tribal lands and to advance new Tribal self-determination and economic development initiatives, in keeping with the Joint Tribal Spectrum MOU among DOI, the FCC and NTIA (November 23, 2022).

Responsible Agency: NTIA/FCC

Contributing Stakeholders: CSMAC (Collaboration Framework), Federal Agencies

Estimated Start	Estimated Completion
October 2025	6 Months

Outcome 3.3(b): Spectrum Relocation Fund recommendations for improved coexistence and compatibility

OMB and NTIA will collaborate on ways to maximize the ability of the SRF to drive flexible use of spectrum and innovation. This could include proposing legislative changes to foster general spectrum coexistence and compatibility research and development by Federal entities, applicable across all spectrum access models. Recommendations should also consider payments for costs incurred by agencies associated with advanced spectrum sharing.

Responsible Agency: NTIA/OMB

Contributing Stakeholders: Federal Agencies, FCC

Estimated Start	Estimated Completion
September 2024	6 Months

Pillar Four | Expanded Spectrum Expertise and Elevated National Awareness

All stakeholders, including the Federal Government, industry, academia, state, local and Tribal governments, must have a spectrum workforce with the necessary skills to innovate across current and emerging technologies. The U.S. Government will take actions to attract and prepare a well-trained U.S. workforce to meet today's needs and prepare for a rapidly evolving wireless environment. Innovation is a key to successful national economic growth and spectrum access in support of critical Federal missions. The Government will publish a national-level workforce plan and work to ensure the Federal careers series offers the right skills and compensation needed for a high-performing spectrum workforce. Further, the Government will educate decision-makers about spectrum and spectrum-related issues and will increase overall public awareness of the important role that spectrum plays in their lives.

Strategic Objective 4.1 | Attract, train, and grow the current and next-generation spectrum workforce

Outcome 4.1(a): A National Spectrum Workforce Plan

The U.S. Government will develop a National Spectrum Workforce Plan to prioritize and enhance the development of the spectrum ecosystem workforce. This Plan should identify strategic goals and establish initiatives that contribute to a holistic approach to education and workforce development to meet the current needs. It will consider the knowledge, skills and abilities required for cross-functional positions, including the full range of operational, technical and policy positions involved in spectrum-related activities. The Plan also will document gaps (e.g., shrinking interest in spectrum fields) and actions to fill them, including potential career-field enhancements and incentives for recruiting, mentoring, and retaining a skilled Federal spectrum workforce. The focus will be on ensuring the U.S. Government, in particular, but also the nation's workforce more generally, is able and ready to excel in all the jobs needed to support the evolving spectrum ecosystem.

Responsible Agency: NSF/NTIA

Contributing Stakeholders: EOP, FCC, CSMAC, Federal Agencies

Estimated Start	Estimated Completion
June 2024	18 Months

Outcome 4.1(b): Agency spectrum workforce programs

Agencies with a spectrum workforce that is critical to their missions should maintain a developmental program to ensure ongoing support to their mission. Programs may include establishing an engineering honors program, a cross-agency detail program, or collocating their spectrum personnel with another agency's spectrum office. Federal agencies should also proactively recruit at Historically Black Colleges and Universities, Hispanic-Serving Institutions, and Tribal Colleges and Universities to ensure a diverse workforce. Federal agencies will report to the ISAC semi-annually on their workforce developmental efforts.

Responsible Agency: Federal Agencies

Contributing Stakeholders: NTIA, NSF, FCC, academic institutions, professional societies

Estimated Start	Estimated Completion
March 2024	12 Months

Strategic Objective 4.2 | Improve policymakers' understanding of spectrum considerations

Outcome 4.2(a): Senior-level spectrum training and awareness materials repository

Making spectrum-related decisions for our Nation requires a complex, cross-cutting understanding of the technical aspects of spectrum use, the economic and legal implications of spectrum allocations, stakeholder incentives, and the potential impacts to critical Federal missions, including the Federal trust responsibility.¹⁹ NTIA, in collaboration with the FCC, will develop resources to support decision-makers (regulators, legislators, policymakers and community leaders). This may include leveraging the efforts of other agencies with science education programs, as well as other higher education institutions, to develop materials to help understand the technical aspects of spectrum and the policy, regulatory, economic, and legal ones, which are complex and interrelated. The focus will be on educating leaders on spectrum challenges and supporting working groups such as the Wireless Spectrum Research and Development (WSRD) Interagency Working Group. NTIA and the FCC will develop tutorials and materials and make them available through a central repository as a resource for decision-makers. They also will pursue a collaboration with the Congressional Spectrum Caucus to connect lawmakers with spectrum experts, including at Federal agencies, non-Federal users, and academia.

Responsible Agency: NTIA/FCC

Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
September 2024	12 Months

¹⁹ Exec. Order No. 14,112, 88 Fed. Reg. 86,021 (December 6, 2023) *available at* <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/12/06/executive-order-on-reforming-federal-funding-and-support-for-tribal-nations-to-better-embrace-our-trust-responsibilities-and-promote-the-next-era-of-tribal-self-determination/>.

Outcome 4.2(b): “Spectrum 101” training program for leaders at all levels of government

In coordination with the FCC, NTIA will develop and maintain materials to explain spectrum and key current issues to White House and Congressional staffs. NTIA will extend an invitation to newly hired staff members for an initial orientation and will implement a schedule to make recurring sessions easily and regularly available. NTIA will also make this available to state, local and Tribal governments. Federal agencies are encouraged to initiate a “newcomers” orientation for newly onboarded senior leaders and their staffs using the training materials.

Responsible Agency: NTIA/FCC
Contributing Stakeholders: Federal Agencies

Estimated Start	Estimated Completion
March 2025	12 Months

Strategic Objective 4.3 | Improve the public’s understanding of electromagnetic spectrum and raise awareness of its role in everyday life

Spectrum plays a vital role in Americans’ daily activities, from education and emergency services to mapping and navigation systems. Everything from critical national infrastructure to banking and e-commerce, telemedicine, entertainment, and social media relies on spectrum access. The U.S Government will prioritize educating the public about spectrum and the role it plays in everyday lives, including how citizens rely on, and benefit from, spectrum usage. Americans should know about the crucial role of spectrum in critical government missions, especially involving public safety, infrastructure, scientific endeavors (including weather and climate), and national security.

Outcome 4.3(a): A public spectrum “literacy” program

Efforts will be made to increase public “literacy” around the importance of spectrum and the competing interests for spectrum access. Agencies will include public messaging in their outward communications about their use of spectrum and how it contributes to society. Public service messages will raise public awareness of the value of Federal spectrum use to provide a better understanding of the balance needed in spectrum policies to support national priorities.

Responsible Agency: Federal Agencies
Contributing Stakeholders: NTIA, FCC, NSF

Estimated Start	Estimated Completion
March 2026	12 Months

Implementation Plan Summary Table

Pillar One					
A Spectrum Pipeline to Ensure U.S. Leadership in Advanced and Emerging Technologies					
Outcome #	Outcome	Estimated Start	Estimated Completion	Responsible Agency	Contributing Stakeholder(s)
Strategic Objective 1.1 Ensure sufficient spectrum access to support Federal agency missions now and into the future					
1.1(a)	Documented agency requirements to secure sufficient spectrum access to support Federal agency missions	Sep 2024	Sep 2026	NTIA	Federal Agencies
1.1(b)	Establishment of an updated process for assessing Federal agency requirements for additional spectrum resources	Sep 2024	Sep 2026	NTIA	Federal Agencies
Strategic Objective 1.2 Ensure spectrum resources are available to support private sector innovation now and into the future					
1.2(a)	Adoption of study plans and schedules for completing in-depth studies	See Appendix	See Appendix	NTIA/ Affected Federal Agencies	Non-Federal Stakeholders, FCC
1.2(b)	Establishment of a project plan for study of each band and an integrated master schedule for tracking and oversight	Mar 2024	May 2024	NTIA	Federal Agencies
1.2(c)	Completion of band studies	ASAP upon funding, if applicable	See Appendix	NTIA/ Affected Federal Agencies	Non-Federal Stakeholders, FCC
1.2(d)	Identification of spectrum for repurposing based upon in-depth studies	TBD based on Studies	2 Months Later	NTIA	Federal Agencies, FCC, ISAC
Strategic Objective 1.3 Maintain the spectrum pipeline by applying guiding principles and leading program management practices to identify additional bands for study					
1.3(a)	Determination of pertinent metrics and data elements for assessing spectrum utilization and creation of data specifications for collecting the data	Mar 2025	Mar 2026	NTIA/FCC	Federal Agencies, CSMAC
1.3(b)	Publication of spectrum management principles and best practice methods to guide the Federal Government in spectrum studies	Mar 2024	May 2025	NTIA	Federal Agencies, FCC
1.3(c)	Creation of program management function for managing spectrum reallocation activities	Mar 2024	Jun 2024	NTIA	Federal Agencies, FCC

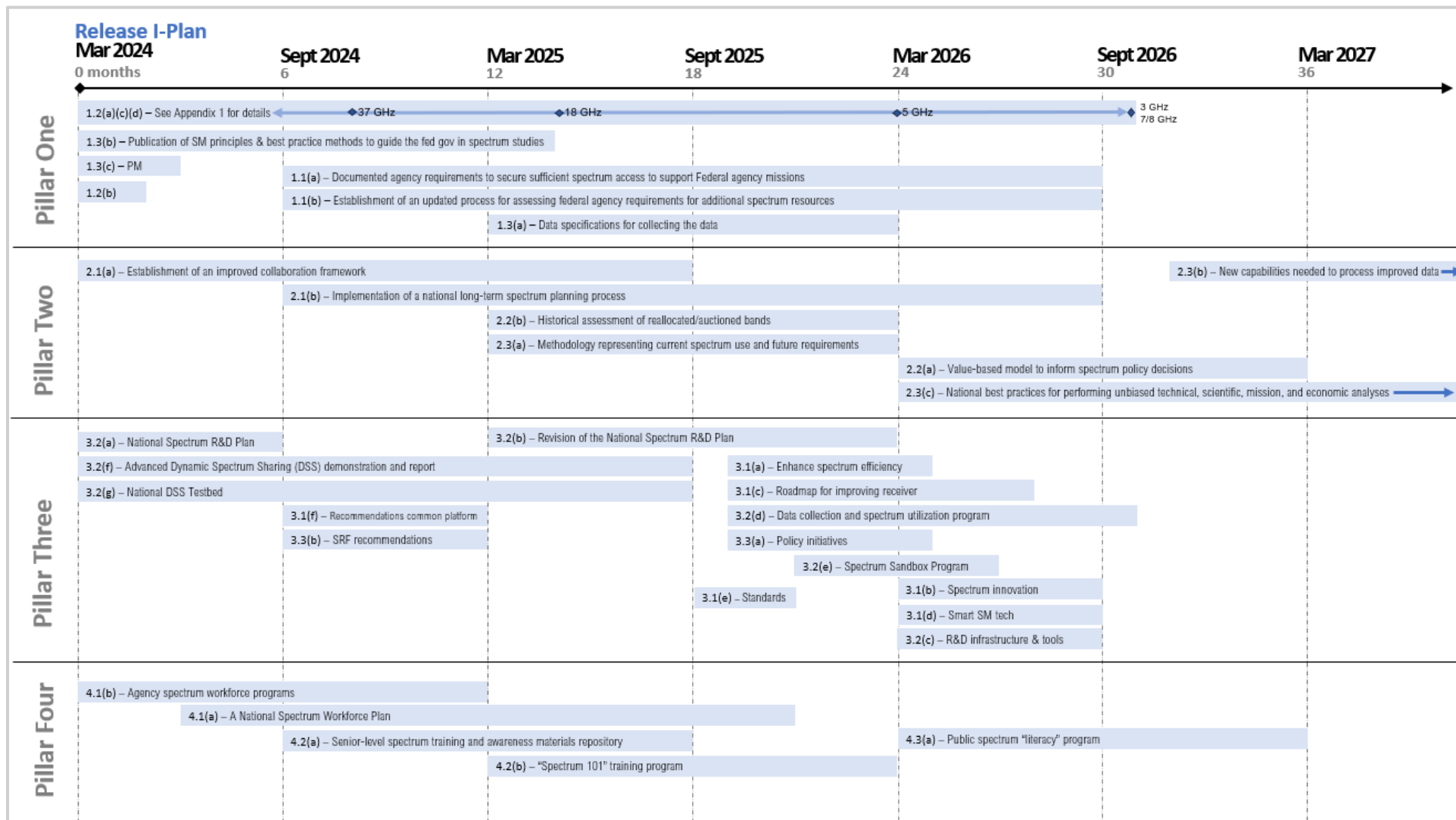
Pillar Two					
Collaborative Long-Term Planning to Support the Nation's Evolving Spectrum Needs					
Outcome #	Outcome	Estimated Start	Estimated Completion	Responsible Agency	Contributing Stakeholder(s)
Strategic Objective 2.1 Establish a persistent strategic spectrum planning process guided by the best available science and data					
2.1(a)	Establishment of improved collaboration framework	Mar 2024	Sep 2025	NTIA/FCC	Federal Agencies, ISAC, Tribes, Public
2.1(b)	Implementation of national long-term spectrum planning process	Sep 2024	Sep 2026	NTIA/FCC	EOP, Federal Agencies, ISAC, CSMAC, Public
Strategic Objective 2.2 Develop and document an evidence-based national spectrum decision-making methodology					
2.2(a)	A value-based model to inform spectrum policy decisions	Mar 2026	Mar 2027	NTIA/FCC	EOP, Federal Agencies, NSF, ISAC, CSMAC (Collaboration Framework)
2.2(b)	Historical assessment of reallocated/auctioned bands	Mar 2025	Mar 2026	NTIA/FCC	Federal Agencies, Public
Strategic Objective 2.3 Define requirements and implement capabilities to capture essential data and information on spectrum use					
2.3(a)	A defined, agreed-to methodology for representing current spectrum use and future requirements	Mar 2025	Mar 2026	NTIA/FCC	Federal Agencies, CSMAC, Public
2.3(b)	Documented requirements for new capabilities needed to process improved data, including information technology and modeling tools	Nov 2026	Nov 2027	NTIA/FCC	Federal Agencies
2.3(c)	Establishment of national best practices for performing unbiased technical, scientific, mission, and economic analyses	Mar 2026	Mar 2028	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)

Pillar Three					
Unprecedented Spectrum Access and Management through Technology Development					
Outcome #	Outcome	Estimated Start	Estimated Completion	Responsible Agency	Contributing Stakeholder(s)
Strategic Objective 3.1 Improve spectrum efficiency and bolster coexistence by facilitating investments in new and emerging technologies					
3.1(a)	A process to identify enabling technologies for spectrum-dependent systems to enhance spectrum efficiency and foster coexistence	Oct 2025	Apr 2026	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)
3.1(b)	Published, recommended key motivating factors for driving Federal and non-Federal investment in spectrum innovation	Mar 2026	Sep 2026	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)
3.1(c)	A roadmap for improving receiver resistance to harmful interference	Oct 2025	Jul 2026	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)
3.1(d)	Recommendations for potential investment based on assessment of smart spectrum management technologies	Mar 2026	Sep 2026	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)
3.1(e)	Designation of a global standards for advanced spectrum sharing and technologies team	Sep 2025	Dec 2025	NTIA/FCC	CSMAC (Collaboration Framework), NIST
3.1(f)	Recommendations for a common platform for shared spectrum access	Sep 2024	Mar 2025	NTIA	Federal Agencies, CSMAC, FCC
Strategic Objective 3.2 Commit to improving collective understanding of the electromagnetic spectrum through coordinated, focused, and sophisticated research and development (R&D)					
3.2(a)	Development and publication of a National Spectrum R&D Plan	Mar 2024	Sep 2024	OSTP	NTIA, NSF, FCC, ISAC, Federal Agencies, Public
3.2(b)	Revision of the National Spectrum R&D Plan	Mar 2025	Mar 2026	OSTP	NTIA, NSF, FCC, ISAC, Federal Agencies, Public
3.2(c)	Process for a national (government, industry, and academia) assessment and certification of spectrum R&D infrastructure and tools	Mar 2026	Sep 2026	NTIA	CSMAC (Collaboration Framework), NIST, Federal Agencies, FCC
3.2(d)	Data collection and spectrum utilization program	Oct 2025	Oct 2026	NTIA/FCC	Federal Agencies, CSMAC (Collaboration Framework)
3.2(e)	Spectrum Sandbox Program	Dec 2025	June 2026	NTIA	CSMAC (Collaboration Framework), FCC, NASCTN, Federal Agencies
3.2(f)	Advanced Dynamic Spectrum Sharing demonstration and report	Mar 2024	Sep 2025	DoD/NTIA	FCC, NIST, Federal Agencies
3.2(g)	National DSS Testbed	Mar 2024	Sep 2025	NTIA	NSF, DoD, FCC, Federal Agencies

Outcome #	Outcome	Estimated Start	Estimated Completion	Responsible Agency	Contributing Stakeholder(s)
Strategic Objective 3.3 Pursue spectrum policies that maximize flexible use of spectrum, accommodate new and innovative technologies, and identify opportunities to expand spectrum access					
3.3(a)	Policy initiatives to maximize regulatory flexibility to promote U.S. technological innovation and opportunistic sharing	Oct 2025	Apr 2026	NTIA/FCC	CSMAC (Collaboration Framework), Federal Agencies
3.3(b)	Spectrum Relocation Fund recommendations for improved coexistence and compatibility	Sep 2024	Mar 2025	NTIA/OMB	Federal Agencies, FCC

Pillar Four					
Expanded Spectrum Expertise and Elevated National Awareness					
Outcome #	Outcome	Estimated Start	Estimated Completion	Responsible Agency	Contributing Stakeholder(s)
Strategic Objective 4.1 Attract, train, and grow the current and next-generation spectrum workforce					
4.1(a)	A National Spectrum Workforce Plan	Jun 2024	Dec 2025	NSF/NTIA	EOP, FCC, CSMAC, Federal Agencies
4.1(b)	Agency spectrum workforce programs	Mar 2024	Mar 2025	Federal Agencies	NTIA, NSF, FCC, academic institutions, professional societies
Strategic Objective 4.2 Improve policymakers' understanding of spectrum considerations					
4.2(a)	Senior-level spectrum training and awareness materials repository	Sep 2024	Sep 2025	NTIA/FCC	Federal Agencies
4.2(b)	"Spectrum 101" training program for leaders at all levels of government	Mar 2025	Mar 2026	NTIA/FCC	Federal Agencies
Strategic Objective 4.3 Improve the public's understanding of electromagnetic spectrum and raise awareness of its role in everyday life					
4.3(a)	A public spectrum "literacy" program	Mar 2026	Mar 2027	Federal Agencies	NTIA, FCC, NSF

Pillar Outcomes Timeline



Execution

Actions/Milestones

Responsible Agencies are tasked with leading activities to execute the necessary actions for achieving the outcomes specified in this Implementation Plan, thereby supporting the implementation of the National Spectrum Strategy. With the exception of those outcomes estimated to start before June 15, 2024, each designated responsible agency must provide actions/milestones to NTIA 90 days prior to the start of the outcome for which they are the responsible agency. NTIA will incorporate tasks and schedules into a National Spectrum Strategy Implementation Master Schedule. During a periodic review cycle, actions will be added, schedules will be adjusted, and outcomes will be removed upon completion.

Oversight/Reporting

NTIA will schedule recurring status updates to the ISAC on the progress of implementation. Responsible agencies should be prepared to brief the status of their efforts as part of status briefings to the ISAC.

Updates

NTIA will update this Implementation Plan periodically based on status of efforts. The target for release of an updated Plan is three years after initial publication.

Conclusion

The National Spectrum Strategy reflects an ethic of continuous reassessment and adjustment of implementation efforts. This process is dynamic, as government and the private sector engage, work together, and respond to new challenges with innovative initiatives and solutions. The approach to implementing and executing on the unprecedented strategic objectives set forth in the Strategy must be as agile and dynamic as the U.S. wireless ecosystem, with all its complexities and opportunities. The Strategy's four pillars are inherently collaborative; therefore, only through collaboration can the United States ensure that it will reap the massive benefits of advanced wireless technologies and maximize efficient use of the Nation's spectrum resources.

Appendix: Approach and Schedule for Band Studies

Outcome 1.2(a): Adoption of study plans and schedules for completing in-depth studies

Pillar One outlines strategic objectives for ensuring U.S. leadership in advanced and emerging spectrum-based technologies. Strategic Objective 1.2 identifies five spectrum bands for near-term, in-depth study to determine whether the bands may be repurposed for expanded or more efficient uses.

Approach to Band Studies

The National Telecommunications and Information Administration (NTIA) has overall responsibility for the band studies called for in the Strategy. This is consistent with its authority as the executive branch agency principally responsible for advising the President on telecommunications and information policies subject to and consistent with the needs and missions of Federal agencies and the Presidential *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy*.¹ NTIA will establish deliverables and due dates and will track the status of the studies using leading project management practices. The schedules for the band studies below are based on best-case estimates, especially with regard to the time needed for agencies to receive Spectrum Relocation Fund (SRF) funds prior to beginning the studies.

As directed by the Strategy, NTIA and the affected Federal agencies will collaboratively and jointly co-lead the band studies of the lower 3 GHz (3.1-3.45 GHz) and 7/8 GHz (7.125-8.4 GHz) bands. This will be accomplished via Spectrum Study Groups (SSGs) under the Interagency Spectrum Advisory Council (ISAC). The technical studies will be conducted within Technical Interchange Groups (TIGs). NTIA will also establish a multi-stakeholder forum for non-Federal stakeholders to engage with the Federal agencies conducting the studies. Collaboration by the TIGs with the multi-stakeholder forum will be ongoing throughout the studies, with an emphasis on certain milestone events. For example, following initial development of use cases, the TIGs will seek input on how to model non-Federal systems and plans for studying compatibility. Additionally, after Federal efforts have developed a draft final report, the TIGs will engage with the multi-stakeholder forum to share results and inform it on next steps.

Meanwhile, NTIA and the Federal Communications Commission (FCC) will co-lead the studies of the 5030-5091 MHz, 18.1-18.6 GHz, and 37.0-37.6 GHz bands with the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA), and the Department of Defense (DoD), respectively, also under the Interagency Spectrum Advisory Council (ISAC).

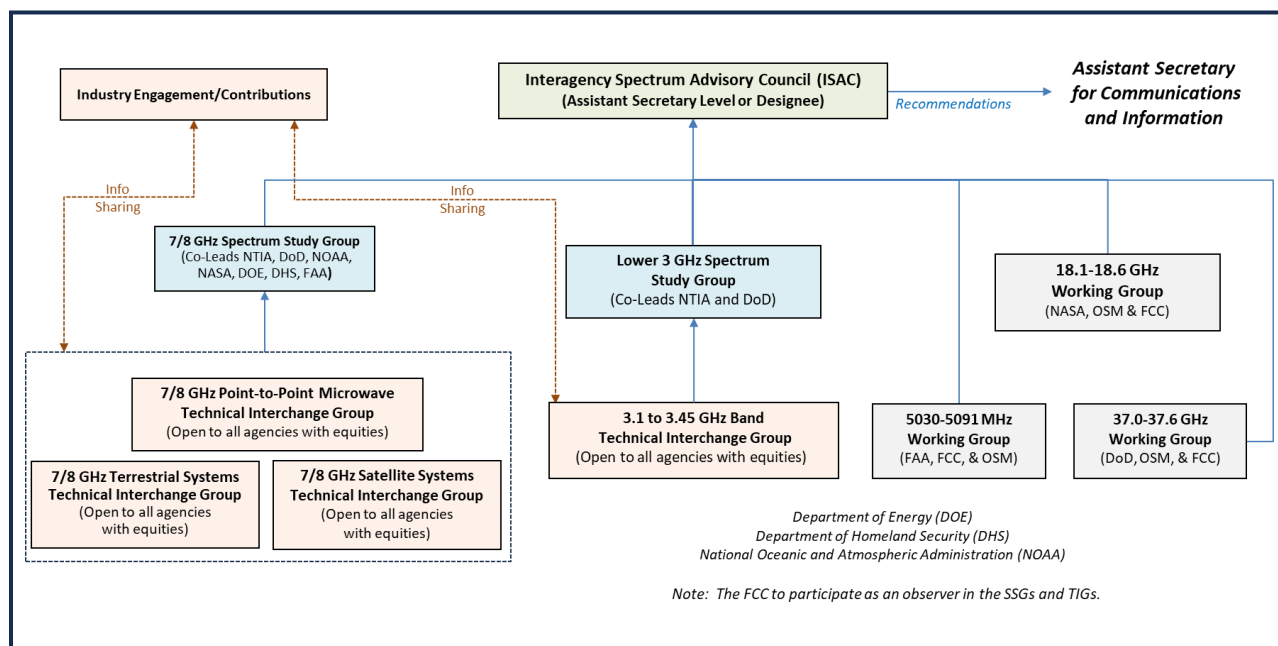
In all cases, each agency shall respond promptly (within one week) to requests for information from NTIA and will provide timely updates on their activities to NTIA to ensure that the status of the studies is properly documented and briefed to the ISAC. Upon conclusion of the technical studies, NTIA will coordinate findings and finalize band reports drafted in the TIGs, with recommendations on repurposing (if determined possible) and rules for any reallocation, as appropriate. NTIA will aggregate technical

¹ The White House, *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy* (November 13, 2023) available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/11/13/memorandum-on-modernizing-united-states-spectrum-policy-and-establishing-a-national-spectrum-strategy/> (Presidential Memorandum).

reports, as applicable, into a final draft band report and coordinate it with all participating agencies. The figure below reflects the high-level organizational structure for executing the band studies, with roles and responsibilities outlined below.

Detailed study plans and study reports will include a classified annex when system details or potential mission impacts are classified. If agreement cannot be reached about any key aspect of planning for, or executing, the studies, the dispute will be resolved as set forth in the interagency process described in National Security Memorandum–2 of February 4, 2021 (Renewing the National Security Council System).²

Organizational Structure



Roles and Responsibilities

Technical Interchange Group (TIG): The TIG is the working-level group for conducting system-specific technical studies, similar to TIGs created under the Interdepartment Radio Advisory Committee's Technical Subcommittee (IRAC TSC). There will be a single TIG for the 3.1-3.45 GHz band study, while the 7/8 GHz band will have three TIGs: one specifically for point-to-point microwave systems, one for other terrestrial systems, and one for satellite systems.

NTIA and DoD will collaboratively and jointly co-lead the 3.1-3.45 GHz TIG, while the 7/8 GHz band TIGs will be convened by NTIA's Office of Spectrum Management (OSM), Spectrum Engineering and Analysis Division (SEAD), and managed as collaborative bodies. Within the TIGs, the studies will be conducted jointly by OSM/SEAD and the affected Federal agencies, with collaboration with industry and academia.

² The White House, Memorandum on Renewing the National Security Council System, National Security Memorandum/nSM-2 (February 4, 2021) available at <https://www.whitehouse.gov/briefing-room/statements-releases/2021/02/04/memorandum-renewing-the-national-security-council-system/>.

For the 3.1-3.45 GHz TIG, DoD will run the mission impact studies and will provide interim results for assessment by the TIG on a frequent basis. Federal agencies participating in the 7/8 GHz TIGs will do the same.

As a general matter for conducting the studies, NTIA will run the spectrum sharing analysis in an iterative and agile manner and will provide interim results for assessment by the TIGs on a frequent basis. To promote transparency and technical rigor, NTIA will provide the source code used in the analysis to permit scientific peer review and independent verification and validation by the participants of the TIGs. The Federal agencies will provide system information/data, as well as mission requirements, to support the spectrum sharing studies. Industry and academia will provide the necessary information/data to characterize the commercial systems, deployment, and usage. OSM/SEAD will propose the initial study approach and seek to obtain agreement of all participants on all aspects of the studies, including (but not limited to) establishment of the technical parameters, assumptions, deployments, interference protection criteria, and EMC analysis models to be used. The spectrum sharing analysis will consider use-cases for the various spectrum management mechanisms typically employed in order to fully assess the possibilities for expanded and/or more efficient uses of the spectrum to enable non-Federal, or shared Federal and non-Federal access. These mechanisms include (but are not limited to) spectrum sharing, repacking, relocation, and compression³ of Federal systems, as well as co-existence via variations in frequency usage, operating locations, time of use, and power levels—for both the Federal and commercial systems.

The final NTIA report will be co-written by the 3.1-3.45 GHz TIG, while NTIA will aggregate the three 7/8 GHz TIG reports into a single final report for the band. In practice, the draft technical report and the underlying data is shared iteratively with the TIGs, which are encouraged to raise questions and provide feedback. This allows the Federal stakeholders to provide feedback early and continuously during the formation of a technical spectrum study. With an emphasis on early and continuous delivery of a working draft report (of the technical spectrum study), this process can be a valuable tool to collaborate with stakeholders to adapt the study. Iterative drafts can also assist in measuring the progress of the study, which can help mitigate schedule slippage.

When Federal agencies evaluate the mission impacts, the evaluation will consider specific band environments, including the aggregate risk of interference to Federal systems and identification and availability of landing bands to which Federal systems would be relocated, where applicable.

Specific functions of the TIGs include:

- Develop and follow study plans;
- Engage with the multi-stakeholder forum (including coordinating study plan and findings);
- Collect information/data;
- Develop EMC models;
- Conduct study efforts;
- Review findings/draft report;

³ Repacking is a technique to assign new frequencies to systems within a band in such a manner that frequencies are made available for new systems in a band. Relocation is a technique where systems are moved from one frequency band to another frequency band to make spectrum available for new systems. Compression is a technique where frequencies in a band are re-assigned to the upper or lower portion of a band to vacate spectrum for new systems in a band.

- Co-write NTIA report; and
- Coordinate on final report.

Spectrum Study Group (SSG): There will be one SSG for the lower 3 GHz band and one for the 7/8 GHz band. The SSGs will function as executive steering groups.

The SSG for the 3.1-3.45 GHz study will be co-led by NTIA/OSM and DoD/EMSEPP. For the 7/8 GHz study, the SSG will be co-led by the OSM's Associate Administrator (AA) and representatives of agencies that have equities in the band.

Generally, NTIA/OSM and co-leads will administer the group and call meetings as needed. Each SSG will agree on the study objectives and provide guidance and direction for the technical studies that will be executed within the TIGs. The SSG will also monitor the status of the studies and consider items raised from the TIGs for guidance and direction. This guidance will include defining the assumptions for commercial systems' technical characteristics and deployments, and the specific scenario(s) to be studied.

Besides oversight of the TIGs, the SSGs will also oversee any additional planning activities conducted with pipeline funds to support the reallocation and auction of spectrum following the technical studies. Specific functions of the SSGs include:

- Set objectives for study;
- Establish TIG(s) for the bands;
- Track status and oversee technical studies;
- Direct, oversee, and track other planning activities conducted by agencies with SRF (pipeline) funds;
- Address schedule and resource Issues
 - Agencies will provide spending and status reports semi-annually, or upon request;
- Provide conflict resolution for issues raised by the TIGs;
- Forward unresolved issues to the ISAC;
- 7/8 GHz SSG Only: Review and concur with the reports of the three TIGs prior to NTIA integrating findings into the final report; and
- Review/forward final reports to ISAC as recommendation for approval and subsequent submission to the DOC Assistant Secretary for Communications and Information (AS).

Band Working Group (WG): WGs for the remaining three bands will be stood up by FAA, NASA, and DoD, working collaboratively with NTIA and the FCC as co-leads, including other agencies with equities as members. The WGs will develop recommendations to expand non-Federal and Federal access in the 5030-5091 MHz, 18.1-18.6 GHz, and 37.0-37.6 GHz bands, respectively. Specific functions of the WGs will include:

- Meet periodically to monitor the work progress;
- Develop proposals for expanded operations in the bands; and
- Forward recommendations to the ISAC for subsequent submission to the AS for submission to the FCC.

Private Sector Engagement/Contributions: The primary forum for private sector engagement and contributions will be through a multi-stakeholder forum established by NTIA. Collaboration will be co-led by affected agencies—and specifically DoD for the 3 GHz band study—and will be ongoing throughout the 3 GHz and 7/8 GHz band studies via the TIGs. Additionally, NTIA, in coordination with the affected agencies and the FCC, may provide additional opportunities for private sector input, as appropriate.

Interagency Spectrum Advisory Council (ISAC): The ISAC will function in accordance with its charter as the principal interagency forum for heads of agencies to advise NTIA on spectrum policy matters and to ensure that all decisions made by NTIA take into consideration the diverse missions of the Federal Government. Specifically, for purposes of executing the band studies called for in the Strategy, the ISAC will:

- Provide executive steering/oversight, as needed;
- Address any issues identified as unresolved by the SSG;
- Review/approve the final band report; and
- Forward a recommendation to the Assistant Secretary on repurposing of bands.

Schedules of Band Studies

Lower 3 GHz (3.1-3.45 GHz): Schedule, Milestones, and Deliverables

For all Federal systems, the study will include: (1) consideration of coexistence (sharing) and moving systems out of the band or to alternate locations; (2) compressing the frequency usage within the band; (3) additional access below 3.1 GHz; and (4) any other mechanisms and possibilities with the potential to allow for expanded or more efficient uses of the spectrum. Outstanding issues arising from the study implementation, results, or recommendations (if any) will be subject to resolution as set forth in the President's February 4, 2021, Memorandum on Renewing the National Security Council System. Furthermore, the Office of the Joint Chiefs of Staff may, if it so chooses, provide a written National Security Risk Assessment to the President through the Secretary of Defense before any decision is made to repurpose this band.

MILESTONE/DELIVERABLE	DESCRIPTION	OPR⁴	OCR⁵	TARGET DUE DATE
Dynamic Spectrum Sharing (DSS)	Development of a DSS Demonstration	NTIA and DoD		September 2025
Establish Spectrum Study Group	NTIA and DoD will set up the Lower 3 GHz Spectrum Study Group (SSG), including identifying participants, establishing work methods, and planning meetings.	NTIA and DoD	ISAC	March 2024
Submit SRF Pipeline Plans for R&D and Planning Activities	Federal agencies seeking SRF Pipeline Act funding for research, engineering studies, and other expenses allowed pursuant to 47 U.S.C. § 923(g)(3)(A)(iii) will submit plans to the Technical Panel for approval.	Federal Agencies		May 2024
Initiate engagement with non-Federal stakeholders via the multi-stakeholder forum	Initiate actions for first meeting via multi-stakeholder forum to engage non-Federal stakeholders on plans for conducting the band study.	NTIA and DoD		June 2024
Approval of SRF Pipeline Plans for R&D and Planning Activities	The Technical Panel will review Pipeline Plans and approve/disapprove them.	Tech Panel		June 2024 or Target 30 Days from Receipt of Plan
Initiate Technical Interchange Group	Establish working groups by identifying participants, establishing work methods, and planning meetings and begin study.	NTIA and DoD	Federal Agencies	October 2024 or Following receipt of SRF funding,

⁴ Office of Primary Responsibility (OPR): This is the entity primarily responsible for taking actions to achieve the milestone.

⁵ Office of Collateral Responsibility (OCR): These are additional entities identified to provide input or support to the OPR.

				whichever is soonest
Finalize Study Plan	Draft and agree to a plan, including task descriptions of scope of areas for technical study, goals, objectives, organization (including private sector engagement), project risks, and budget issues (if any).	NTIA and DoD	Federal Agencies	December 2024
Finalize Project Schedule	Draft and agree to a project schedule, including start and completion dates for key deliverables, sequencing of activities, and interdependencies.	NTIA and DoD	Federal Agencies	December 2024
Input from Dynamic Spectrum Sharing (DSS) Initiative	After receiving input based on completion of DSS initiative by DoD, consider how the DSS effort can augment the sharing studies.	NTIA and DoD	Federal Agencies	October 2025
Coordinate findings with non-Federal stakeholders via multi-stakeholder forum	Coordinate findings and iterate appropriate section of report with non-Federal stakeholders via multi-stakeholder forum.	NTIA and DoD	Federal Agencies	July 2026
Complete In-Depth Study	Execute the in-depth study consistent with the agreed upon study plan and project schedule, including completion of deliverables (e.g., technical reports) and drafting of overall study report.	NTIA and DoD	Federal Agencies	August 2026
Final Report	Final co-written report with findings and recommendations submitted to the ISAC.	NTIA and DoD	ISAC	October 2026

5030-5091 MHz: Schedule, Milestones and Deliverables

MILESTONE/DELIVERABLE	DESCRIPTION	OPR	OCR	TARGET DUE DATE
Establish Study Working Group	Stand-up a working group to perform compatibility studies, including agency subject matter experts (SMEs) and stakeholders willing to participate. This will be a touch point for private sector engagement and contributions.	FAA, FCC, NTIA	Federal Agencies	March 2025
Finalize Study Plan	Draft and agree to a project plan, including task descriptions of scope of areas for technical study, goals, objectives, organization, project risks, and budget issues (if any).	FAA, FCC, NTIA	Federal Agencies	April 2025
Finalize Project Schedule	Draft and agree to a project schedule, including start and completion dates for key deliverables, sequencing of activities, and interdependencies.	FAA, FCC, NTIA	Federal Agencies	April 2025
Complete In-Depth Study	Execute the in-depth study consistent with the agreed upon study plan and project schedule, including completion of deliverables identified in the study plan and drafting of overall study report.	FAA, FCC, NTIA	Federal Agencies	December 2025
Final Report	Final report with findings and recommendations.	NTIA and FAA	IRAC	March 2026

7/8 GHz (7.125-8.4 GHz): Schedule, Milestones and Deliverables

For all Federal systems in the 7.125-8.4 GHz band, the study will include: (1) consideration of coexistence (sharing) and moving systems out of the band or to alternate locations; (2) compressing the frequency usage within the band; and (3) any other mechanisms and possibilities with the potential to allow for expanded or more efficient uses of the spectrum. Due to the number of disparate Federal operations in this band, NTIA, pursuant to its statutory role as the manager of Federal frequency assignments, will lead the establishment of technical parameters and assumptions for potential repurposing scenarios for studying this band. Agencies with equities in this band will co-lead the study effort, including being funded and empowered to lead those portions of the study relevant to individual agency mission requirements for the systems supported by the incumbent spectrum assignments in the band. Outstanding issues arising from the study implementation, results, or recommendations (if any) will be subject to resolution as set forth in the President's February 4, 2021, Memorandum on Renewing the National Security Council System. Furthermore, the Office of the Joint Chiefs of Staff may, if it so chooses, provide a written National Security Risk Assessment to the President through the Secretary of Defense before any decision is made to repurpose this band.

MILESTONE/DELIVERABLE	DESCRIPTION	OPR	OCR	TARGET DUE DATE
Establish Spectrum Study Group	NTIA, in coordination with co-leads, will stand up the group, including identifying participants, establishing work methods, and planning meetings. This group will function as an executive steering group and set objectives for the study to be executed within the TIG.	NTIA and Co-lead Agencies	ISAC	March 2024
Submit SRF Pipeline Plans for R&D and Planning Activities	Federal agencies seeking SRF Pipeline Act funding for research, engineering studies, and other expenses allowed pursuant to 47 U.S.C. § 923(g)(3)(A)(iii) will submit plans to the Tech Panel for approval.	Federal Agencies		May 2024
Initiate engagement with non-Federal stakeholders via the multi-stakeholder forum	Initiate actions for first meeting via multi-stakeholder forum to engage non-Federal stakeholders on plans for conducting the band study.	NTIA		June 2024
Approval of SRF Pipeline Plans for R&D and Planning Activities	The Tech Panel will review Pipeline Plans and approve/disapprove them.	Tech Panel		June 2024 or Target 30 Days from receipt of Plan
Initiate Technical Interchange Groups • Microwave point to point • Satellite (uplink and downlink) systems	Stand-up a working group to perform compatibility studies. It will function similarly to IRAC TSC and include agency SMEs and stakeholders willing to participate. It also will be a touch point for private sector engagement and contributions.	NTIA	Federal Agencies	October 2024, or Following receipt of SRF whichever soonest

• Tactical/transportable communication/satellite (uplink and downlink) systems				
Finalize Study Plan	Draft and agree to a project plan, including task descriptions of scope of areas for technical study, goals, objectives, organization (including private sector engagement), project risks, and budget issues (if any).	NTIA	Federal Agencies	December 2024
Finalize Project Schedule	Draft and agree to a project schedule, including start and completion dates for key deliverables, sequencing of activities, and interdependencies.	NTIA	Federal Agencies	December 2024
Coordinate findings with non-Federal stakeholders via multi-stakeholder forum	Coordinate findings and iterate appropriate section of report with non-Federal stakeholders via multi-stakeholder forum	NTIA	Federal Agencies	July 2026
Complete In-Depth Study	Execute the in-depth study consistent with the agreed upon study plan and project schedule, including completion of deliverables (e.g., technical reports) and drafting of overall study report.	NTIA	Federal Agencies	August 2026
Final Report	Final report with findings and recommendations.	NTIA	ISAC	October 2026

18.1-18.6 GHz: Schedule, Milestones and Deliverables

MILESTONE/DELIVERABLE	DESCRIPTION	OPR	OCR	TARGET DUE DATE
Establish Study Working Group	Stand-up a working group to perform compatibility studies, including agency SMEs and stakeholders willing to participate. This will be a touch point for private sector engagement and contributions.	NTIA and NASA		May 2024
Finalize Study Plan	Draft and agree to a project plan, including task descriptions of scope of areas for technical study, goals, objectives, organization, project risks, and budget issues (if any).	NASA	NTIA	June 2024
Finalize Project Schedule	Draft and agree to a project schedule, including start and completion dates for key deliverables, sequencing of activities, and interdependencies.	NASA	NTIA	June 2024
Complete In-Depth Study	Execute the in-depth study consistent with the agreed upon study plan and project schedule, including completion of deliverables identified in the study plan and drafting of overall study report.	NASA	NTIA	February 2025
Final Report	Final report with findings and recommendations.	NTIA and NASA	IRAC	May 2025

37.0-37.6 GHz: Schedule, Milestones and Deliverables

MILESTONE/DELIVERABLE	DESCRIPTION	OPR	OCR	TARGET DUE DATE
Establish Study Working Group	Stand-up a working group to perform compatibility studies, including agency SMEs and stakeholders willing to participate. This will be a touch point for private sector engagement and contributions.	NTIA and DoD	FCC	March, 2024
Finalize Study Plan	Draft and agree to a plan, including task descriptions of scope of areas for technical study, goals, objectives, organization, project risks, and budget issues (if any).	DoD	NTIA and FCC	April 2024
Finalize Project Schedule	Draft and agree to a project schedule, including start and completion dates for key deliverables, sequencing of activities, and interdependencies.	DoD	NTIA and FCC	April 2024
Complete In-Depth Study	Execute the in-depth study consistent with the agreed upon study plan and project schedule, including completion of deliverables identified in the study plan and drafting of overall study report.	DoD	NTIA and FCC	October 2024
Final Report	Final report with findings and recommendations.	NTIA and DoD	ISAC	November 2024

Timeline for Band Studies

