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INNOVATION SPOTLIGHT

Cleared for Launch:

Policy Recommendations for the New Era in Global Connectivity

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Executive Summary

The space economy is booming due to the rapid growth of commercial launch capabilities. However, demand for launch services still outpaces capacity, challenging the satellite telecommunications industry, which has a limited time to deploy satellites to meet FCC and ITU spectrum requirements. Delays in deployment hinder access to economic activities and critical digital services for billions around the world who lack reliable high-speed broadband connections.

With a new generation of commercial medium- and heavy-lift launch vehicles entering the market in the next few years, the U.S. government should **consider the following steps** to ensure U.S. leadership in the new age of global connectivity:

1 STIM Program Reform

Reform the Space Transportation Infrastructure Matching Grants (STIM) program.

- Reduce the non-federal matching requirement.
- Appropriate $100 million annually to address the spaceport infrastructure backlog.

2 Traffic Control Modernization

Modernize air and space traffic control.

- Fund more modernization efforts, such as the ones provided in the One Big Beautiful Bill.
- Fully integrate space launch and re-entry operations into air traffic control systems.

Cleared for Launch: Policy Recommendations for the New Era of Global Connectivity

3 Integrated Federal Range Coordination

Improve coordination between commercial and national security missions at federal ranges.

- Integrate commercial and national security payload processing schedules.
- Establish a coordination mechanism between commercial and national security operators at federal ranges.

4 Spaceport Review Reform

Reform spaceport environmental reviews.

- Grant authority to a single agency or council to coordinate multi-agency reviews, eliminate duplicative requirements, and ensure collaboration.
- Provide categorical exceptions for repeated, low-impact activities.

5 Launch Licensing Reform

Reform launch licensing.

- Implement the recommendations of the Aerospace Rulemaking Committee (SpARC) report as soon as possible.
- Ensure that application reviews are technically consistent and focused on public safety.

6 Allied Space Cooperation

Support international partnerships.

- Reduce export control restrictions for close allies on widely available space technologies.
- Implement license equivalency agreements with foreign regulatory agencies.

Introduction

Satellite telecommunications have become one of the largest sectors in the global space economy,[1] providing reliable connectivity to areas without traditional broadband infrastructure. This growth is expected to accelerate with as many as 70,000 low Earth orbit (LEO) telecommunications satellites launching over the next five years.[2] With an estimated 43.7 million Americans[3] and billions more globally who lack reliable broadband access, this deployment could create a fully connected world.

However, the lack of launch opportunities remains a major impediment to truly unleashing the global digital economy. This is caused in large part by a lag in the manufacturing of affordable medium-lift (payload capacity of 2,000-45,000 lbs) and heavy-lift (45,000+ lbs) rockets. That gap should shrink as new commercial rockets are expected to enter the market in the near future, but further policy refinements are needed to increase annual launch capacity.

This report will focus on the policy challenges to increasing launch opportunities and will offer recommendations for policymakers.

Key issues include:

- Lack of federal investment in domestic spaceports;
- Modernizing air traffic and spaceport logistics;
- The complex launch regulations; and
- The barriers to access for international launch opportunities.

[1] See https://sia.org/news-resources/state-of-the-satellite-industry-report/
[2] See https://www.goldmansachs.com/insights/articles/the-global-satellite-market-is-forecast-to-become-seven-times-bigger
[3] See https://ccianet.org/research/stats/low-earth-orbit-leo-satellite-broadband-facts-and-stats/

Satellite Market Demand

Satellite telecommunications is a great option for populations that are not well served by terrestrial options. It is often the preferable option for: rural communities where ground fiber would be too expensive or too difficult to deploy;[4] airlines[5] and maritime industries;[6] secure military communications across remote or rapid deployments;[7] and other enterprise commercial customers[8] (see Figure 1).

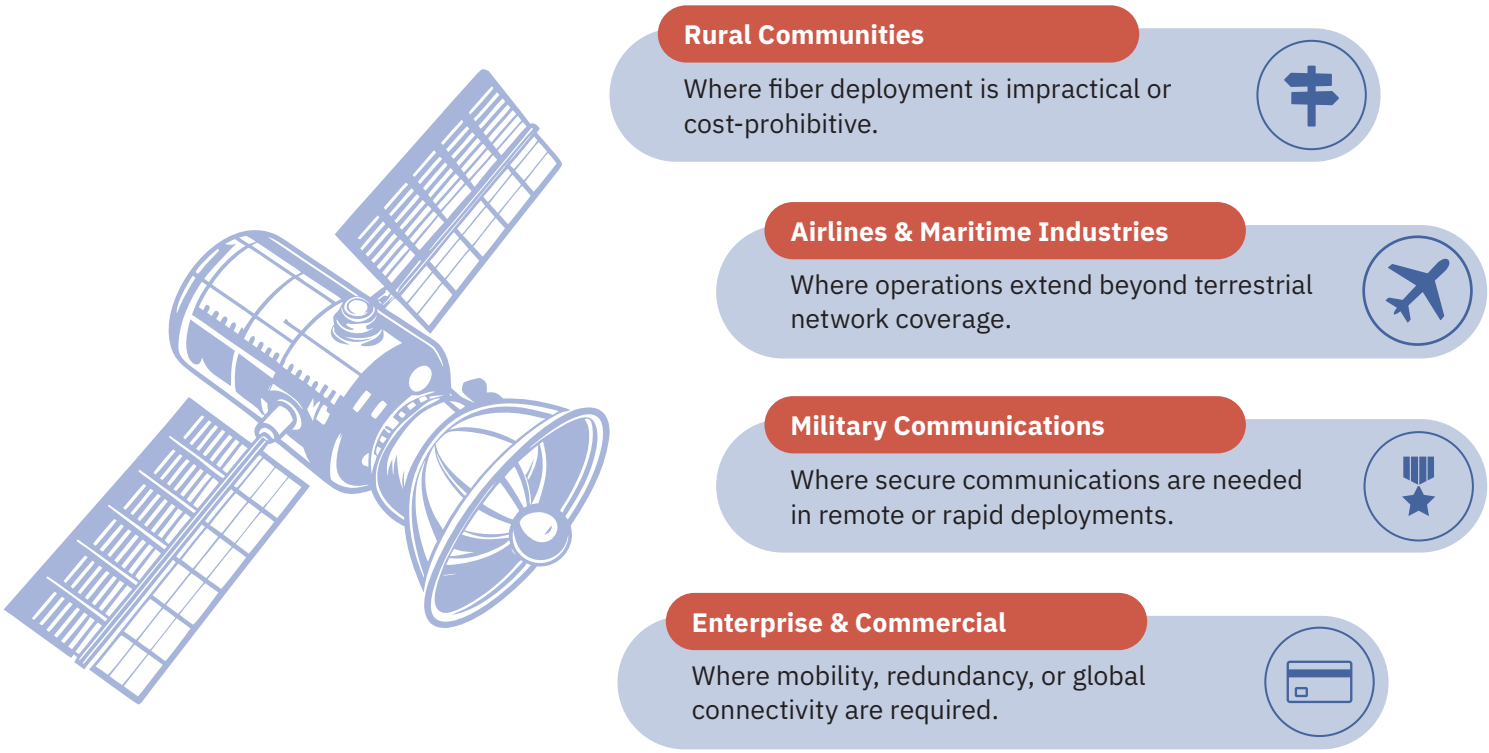


Figure 1: A fully connected world: This deployment could unite an estimated **43.7 million Americans** and billions more globally who lack reliable broadband access.

Because protected spectrum access is a finite resource, the International Telecommunications Union requires satellite operators to deploy 50% of their planned satellite constellation within five years of filing and have full deployment within seven years of filing, or risk losing their spectrum rights.[9] Unfortunately, the lack of launch opportunities might prevent satellite operators from meeting these deadlines, which could risk billions of dollars in investments.

The United States has seen a significant increase in launches over the past decade, thanks in large part to the success of the SpaceX Falcon 9 rocket. But launch capacity still lags behind launch demand. A 2023 study by McKinsey found that full deployment of proposed satellite constellations would require an annual total launch capability of 15 kilotons by 2030[10]. Meanwhile, the global tonnage of payloads launched in 2025 was just 3.1 kilotons.[11]

[4] See https://www.ookla.com/resources/webinars/satellite-internet-uncovered
[5] See https://www.aboutamazon.com/news/innovation-at-amazon/jetblue-amazon-project-kuiper-in-flight-wifi-partnership
[6] See https://www.intelsat.com/resources/blog/transforming-maritime-operations-with-low-earth-orbit-connectivity/
[7] See https://federalnewsnetwork.com/federal-insights/2025/10/next-generation-of-global-communications-goes-hand-in-hand-with-dispersed-forces/; See also https://www.army.mil/article/274494/multi_orbit_satcom_to_boost_army_network_resiliency_capability_in_large_scale_combat_operations
[8] See https://leo.amazon.com/business/; see also https://starlink.com/business/case-studies
[9] See https://www.itu.int/en/mediacentre/backgrounders/Pages/Regulation-of-Satellite-Systems.aspx
[10] See https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/space-launch-are-we-heading-for-oversupply-or-a-shortfall
[11] See https://planet4589.org/space/stats/pay.html

Part of the gap between the capacity and demand for launch is the overall lack of medium- and heavy-lift rockets capable of launching a large group of satellites to LEO in a single launch. At the moment, there are just five such rockets in the U.S. that are fully operational: the SpaceX Falcon 9 and Falcon Heavy, the ULA Atlas V[12] and Vulcan Centaur, and the Blue Origin New Glenn. Over $50 billion has been invested in launch companies over the last ten years in response to this demand for more launch options.[13] This investment has resulted in several new medium- and heavy-lift rockets that are expected to enter into full operations in the near future (see Table 1).

Table 1: List of U.S.-based medium- and heavy-lift launch vehicles.

Company	Vehicle	Mass to LEO (lbs)	First Successful Commercial Launch
SpaceX	Falcon 9	38,600 (reusable) 50,300 (expendable)	2010
SpaceX	Falcon Heavy	126,000 (resusable) 141,000 (expendable)	2018
ULA	Atlas V	41,500	2002
ULA	Vulcan Centaur	19,400 (no boosters) 36,000 (with 2 boosters) 47,000 (with 4 boosters) 59,000 (with 6 boosters)	2024
Blue Origin	New Glenn 7x2	99,000	2025
Blue Origin	New Glenn 9x4	154,000	2026 (expected)
Rocket Lab	Neutron	29,000	2026 (expected)
Firefly	Eclipse	36,000	2026 (expected)
Stoke Space	Nova	6,500 (resusable) 15,500 (expendable)	2026 (expected)
Relativity Space	Terran R	74,000	2026 (expected)
SpaceX	Starship	220,000	2026 (expected, first test flight in 2023)

Most of the rockets in development are progressing towards full operations, although technical challenges remain. As these new vehicles enter the market, they are likely to face policy and regulatory challenges that threaten to stifle their full capabilities, including:

- Limited capacity of domestic spaceport;
- Financial barriers preventing new spaceport infrastructure projects;
- Lack of a modern, integrated air and space traffic management;
- Lack of integrated national security and commercial payload scheduling
- Overly complicated spaceport licensing process;
- Overly complicated launch licensing process;
- And barriers in securing international launch opportunities.

[12] ULA announced the end of Atlas V production in 2021, although as of December 2025 there are still 10 launches left in the manifest: 4 launches for Amazon Leo and six for Boeing's Starliner

[13] See https://www.spacecapital.com/space-iq

Limited Capacity of Domestic Spaceports

The majority of orbital launches in the United States are from just three federally managed spaceports: Cape Canaveral (U.S. Space Force), Kennedy Space Center (NASA), and Vandenberg Base (U.S. Space Force). In 2025, these spaceports accounted for 175 out of 176 orbital launches from U.S. soil,[14] which is a sharp increase since the Falcon 9's debut in 2010. And while the number of annual launches continues to grow, these spaceports are approaching the limit of what they can accommodate.

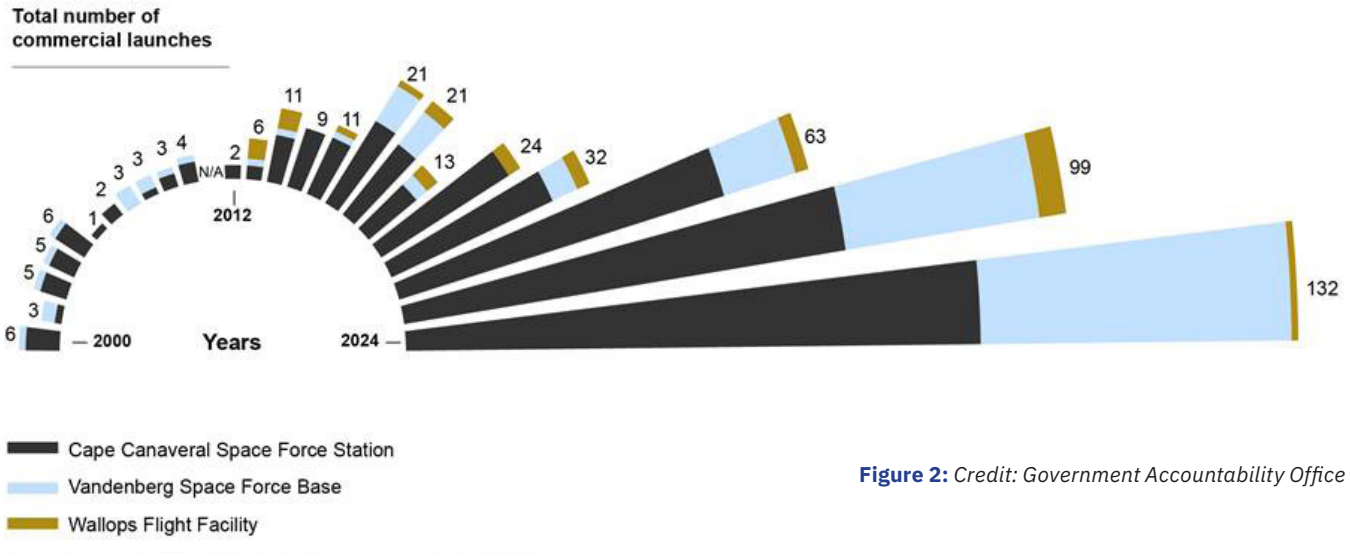


Figure 2: *Credit: Government Accountability Office*

A 2025 Government Accountability Office (GAO) report found that increased commercial launches strained federal ranges' infrastructure and resources.[15] For example, high-powered rockets require water deluge systems that spray large volumes of water below the rocket to mitigate noise and heat impacts,[16] but the GAO report found that Cape Canaveral and Vandenberg's wastewater treatment system couldn't handle volume from frequent launches of medium- and heavy-launch vehicles. Meanwhile, maintenance of critical infrastructure like roads, bridges, and power systems has increased from quarterly to monthly to address the increased wear and tear. The larger size of some of the new rockets present a logistical issue as they are too large to transport over some of the bridges at or near the spaceports, causing congestion and safety issues as operators take longer routes. The GAO report cites a 2023 Space Force review which found at least six incidents at Cape Canaveral where launch vehicle transport led to issues such as near-misses with range infrastructure, boosters getting stuck on roads, collisions with powerlines, and unsafe transportation of explosives.

The new propellant types and the large amount of propellant required for modern launch vehicles further exacerbate these issues. Rockets in development, such as SpaceX's Starship, plan to use liquid oxygen and liquid methane as their primary fuel. However, the FAA lacks the data or models to determine the minimum safe clearance zone for these launches, leading to preemptively large clearance zones that disrupt neighboring operations during launches.[17]

[14] The additional launch being a Rocket Lab Electron launch from the Mid-Atlantic Regional Spaceport.
[15] See https://www.gao.gov/products/gao-25-107228
[16] See https://www.nytimes.com/2023/04/21/us/spacex-rocket-dust-texas.html
[17] See https://arstechnica.com/space/2024/07/theres-not-enough-room-for-starship-at-cape-canaveral-spacex-rivals-claim/

Routing launch vehicles to other spaceports could alleviate some of these issues. But no other U.S. spaceport has capabilities at the level of the three main federally-owned spaceports. The Mid-Atlantic Regional Spaceport (MARS) hosts a small number of launches every year, and Rocket Lab is currently constructing a new launch pad for their upcoming Neutron rocket at the facility. The Pacific Spaceport Complex-Alaska has hosted several small-lift orbital launches but lacks the infrastructure for medium- and heavy-lift vehicles. Spaceport America in New Mexico has never hosted any vertical launches. Spaceport Camden, which received an FAA license in 2021 to support vertical launch, was never fully developed after 72% of Camden County voters rejected the development proposal.[18] SpaceX operates its own exclusive-use spaceport in Boca Chica, Texas for its Starship rocket, making it the only non-federal spaceport capable of supporting medium- and heavy-lift orbital launches.

U.S. SPACEPORTS AND LAUNCH/REENTRY SITES*

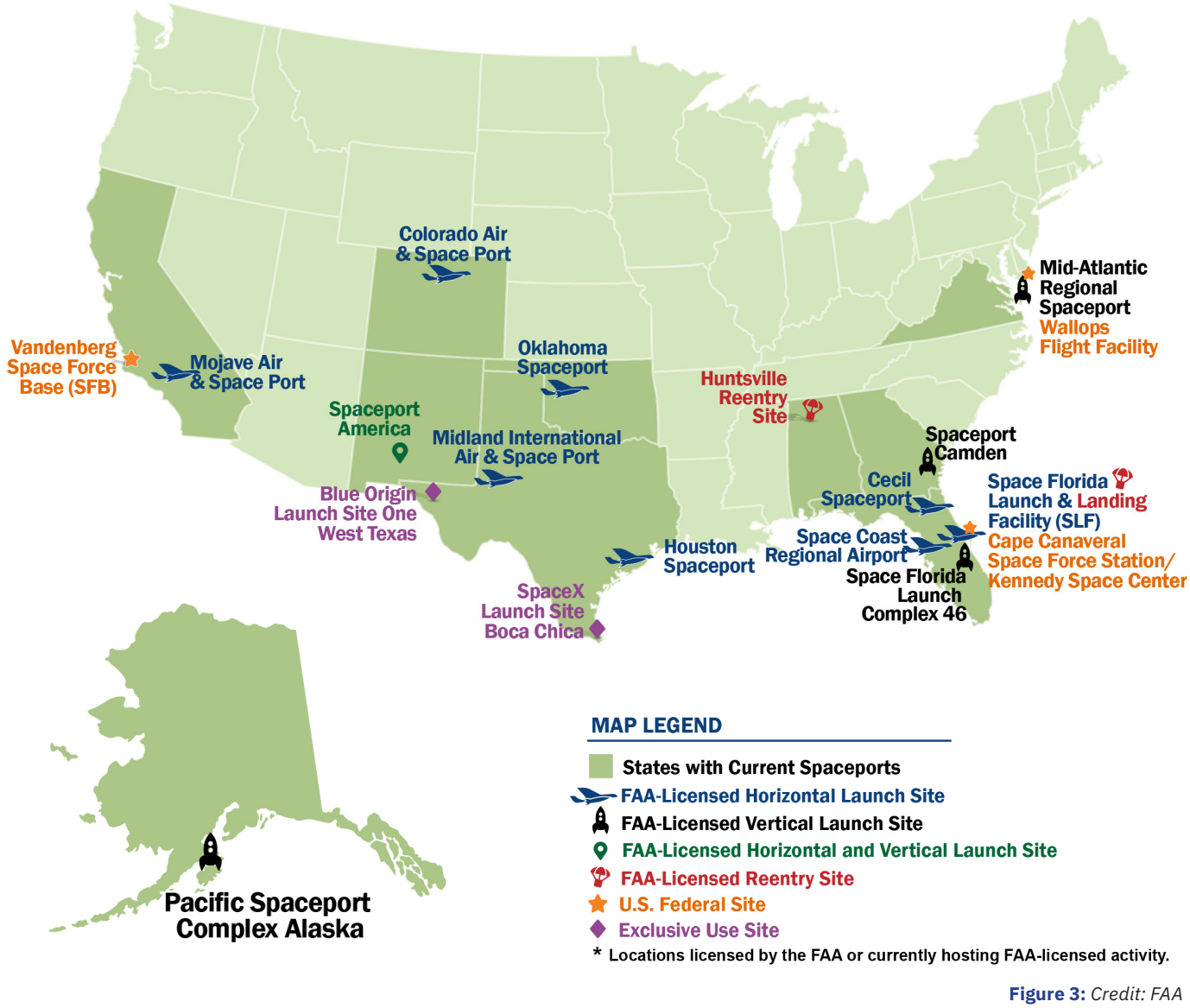


Figure 3: *Credit: FAA*

[18] See https://thecurrentga.org/2022/03/08/voters-to-spaceport-camden-abort-launch/

Spaceport Infrastructure Funding

One of the largest obstacles to expanding launch opportunities is the high cost of infrastructure. In 1994, Congress attempted to address this issue with the Space Transportation Infrastructure Matching Grants (STIM) program, which was created to "ensure the resiliency of the space transportation infrastructure of the United States."[19] Congress authorized $10 million towards the STIM program at the onset, but only a small portion of authorized funding was actually spent. The FAA released approximately $500,000 in STIM funding over Fiscal Years 2010, 2011, and 2012, marking the only period in the program's history that any funding was released (see Table 2). By contrast, a 2020 study by the Global Spaceport Alliance (GSA) identified 44 different high-priority improvement projects that had a total estimated cost of over $382 million, leaving a funding shortfall of approximately $380.4 million.[20]

The overly restrictive requirements for the grants can partially explain the lack of STIM-funded projects. By statute, federal grants from the program cannot account for more than 50% of the total cost of a project, and private sector contributions must cover at least 10% of the cost. However, many planned spaceport infrastructure projects are run at the city or county level, and at an average project cost of $8 million, few can afford to meet the matching requirements for the grants. Airports and seaports also tend to be run by municipal authorities, but most are located in major metropolitan areas with a large enough tax base and proximity to private capital to support such infrastructure projects. Spaceports, on the other hand, tend to be built far away from major population centers due to safety concerns, and thus lack the substantial local tax base and access to local private capital.

Some states, such as Texas,[21] have started implementing funding structures to support the commercial space industry. However, most states do not have the capacity to support spaceport infrastructure projects at a high level. Commercial-use spaceports can face additional hurdles with financing as it can be years before income from tenants, fees, and concessions can reach a sufficient level to self-fund infrastructure improvements. Some private-use spaceports do exist, for instance both SpaceX and Blue Origin have private-use spaceports in Texas. However, this model requires a level of capital investment that is out of reach for most small and medium size enterprises.

Figure 4: DoT Funding for Infrastructure by Industry

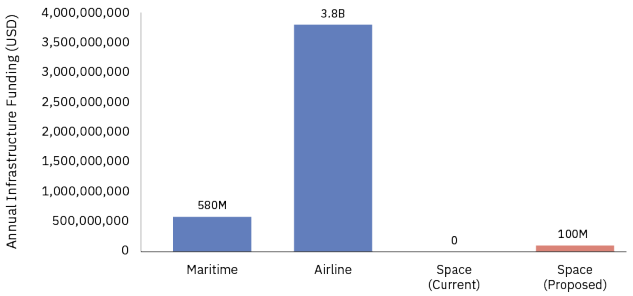
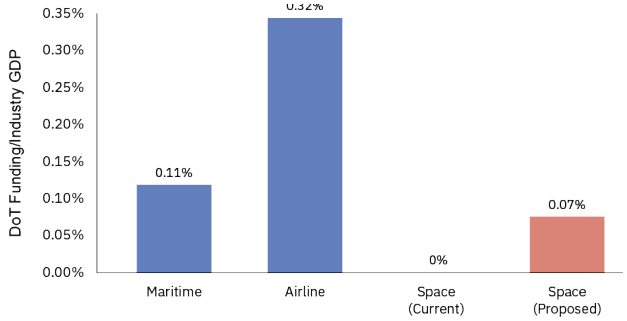


Figure 5: DoT Infrastructure Funding Relative to the Domestic GDP Value of Each Industry



The amount of infrastructure funding each industry receives from the Department of Transportation (Figure 4) and the funding relative to the contribution of each sector to domestic GDP (Figure 5), based on the most recent estimates.

[19] See https://uscode.house.gov/view.xhtml?path=/prelim@title51/subtitle5/chapter511&edition=prelim
[20] See https://www.globalspaceportalliance.com/wp-content/uploads/2023/08/National-Spaceport-Network-Development-Plan.pdf
[21] See https://space.texas.gov/

Recognizing the critical nature of transportation infrastructure for the health of the economy, the federal government invests heavily in airports and seaports through infrastructure grants. The U.S. marine economy accounts for $511 billion of U.S. GDP[22] and seaport infrastructure projects received $580M in funding in FY24[23] (proportional to ~0.1% of sector GDP). The aviation industry accounts for $1.2T of U.S. GDP[24] and received $3.8B in announced FY25 funds for infrastructure[25] (~0.3% of sector GDP). The latest estimate for the U.S. space economy GDP from the Bureau of Economic Analysis is $142B.[26] If spaceport infrastructure grants were invested in at the same proportion of sector GDP as the maritime industry, spaceports would receive $142M in annual federal funding. If federal investments in spaceports were at the same level as airports investments, then there would be ~$400M in annual funds. But over the last 30 years, the FAA has given out less than $1.5M in STIM grants — and no awards have been given out since 2012.

Table 2: The list of all funded STIM programs to date.[27]

Launch Site Authority	State	Value	Year of Award	Purpose
Alaska Aerospace Corporation	Alaska	$227,195	2010	Construction of a solid rocket motor storage facility at Kodiak Launch Complex
East Kern Airport District	California	$125,000	2010	Acquisition of an emergency rescue vehicle based at Mojave Air and Space Port
Jacksonville Aviation Authority	Florida	$104,805	2010	Draft Cecil Field Spaceport Master Plan
New Mexico Spaceport Authority	New Mexico	$43,000	2010	Installation of an Automated Weather Observing System (AWOS) located at Spaceport America
Virginia Commercial Space Flight Authority	Virginia	$125,000	2011	Security and remote monitoring improvements at MARS
East Kern Airport District	California	$125,000	2011	Development of a Supplemental Environmental Assessment
New Mexico Spaceport Authority	New Mexico	$249,378	2011	Construction of a mobile structure to process launch vehicles before lanuch
East Kern Airport District	California	$23,750	2012	Acquisition of specialized firefighting equipment at Mojave Air and Space Port
Front Range Airport Authority	Colorado	$200,000	2012	Environmental assessment to prepare for Front Range Spaceport FAA launch site application
Hawai'i Department of Business, Economic Development and Tourism	Hawai'i	$250,000	2012	Environmental assessment to prepare for Spaceport Kalaeloa FAA launch site application

[22] See https://www.bea.gov/news/2025/marine-economy-satellite-account-2023
[23] See https://www.maritime.dot.gov/newsroom/investing-america-biden-harris-administration-announces-nearly-580-million-ports
[24] See https://www.faa.gov/2024-economic-impact-report.pdf
[25] See https://www.faa.gov/iija/airport-infrastructure
[26] See https://www.bea.gov/data/special-topics/space-economy
[27] See https://www.faa.gov/about/office_org/headquarters_offices/ast/media/The_Annual_Compendium_of_Commercial_Space_Transporation_2012_low_res.pdf

Clearly, a reform of the STIM program is long overdue. One option would be to implement the Spaceport Network Improvement Program (SNIP)[28] proposed by the GSA. The proposed program would be split into three phases:

Phase 1 would release the currently authorized STIM grant funds for urgent, safety-critical infrastructure without the existing fund-matching requirements.

Phase 2 would raise the level of funding $100 million annually, recognizing the costs associated with major spaceport infrastructure projects have risen significantly since the $10 million ceiling was established in 1994. The maximum allowable federal contribution to projects would increase from 50% to 90% and the private investment requirements would be eliminated, bringing the STIM program requirements inline with the requirements of the Airport Improvement Program (AIP).[29]

Phase 3 would maintain the $100 million annual funding level but would shift the source of funding from a general fund to a newly established Spaceport and Spaceway Trust Fund. This fund would raise money through cargo and spaceflight participant ticket taxes, similar to the use of fuel and passenger facility taxes to fund the AIP. The transition into Phase 3 would occur when the space industry has matured enough to sustain these taxes, likely once the global space economy is valued at $1 trillion (estimated to occur by 2032).[30]

The Commercial Space Transportation Advisory Committee (COMSTAC) has also made the recommendation[31] that at least $100 million of appropriated funding be allocated for the STIM program. Meanwhile, the bipartisan and bicameral SPACEPORT Act bill[32] would increase the allowable federal contribution to an infrastructure project from 50% to 90%, would eliminate the requirement for a private contribution, and would allow the FAA to waive the maximum cost limitations if the project is in the national interest.

Some progress has been made in reforming spaceport infrastructure funding through the One Big Beautiful Bill (OBB). The OBB allows for the expansion of tax-exempt private activity bonds (PAB) to spaceports.[33] The spaceport provision in the OBB is tied to the airport PAB provisions that are already in effect. It states that "... spaceports are treated like airports under exempt facility bond rules." This would mean that other provisions that affect airports, such as the Alternative Minimum Tax and volume cap exemptions, will now be in effect for spaceports. Meanwhile, the OBB would also exempt spaceports from certain provisions that affect airports, such as the ban on using PABs to finance manufacturing facilities.[34] While these are positive steps to improving spaceport infrastructure investments, the GSA proposed changes to STIM program requirementsand funding levels through congressional action would allow for even greater progress in spaceport infrastructure development.

[27] See https://www.globalspaceportalliance.com/wp-content/uploads/2023/08/National-Spaceport-Network-Development-Plan.pdf
[28] See https://www.faa.gov/airports/aip
[29] See https://www.spacefoundation.org/2025/07/22/the-space-report-2025-q2/
[30] See https://www.faa.gov/media/78756
[32] See https://www.hickenlooper.senate.gov/press_releases/hickenlooper-cornyn-lujan-wicker-strong-whitesides-fong-reintroduce-bill-to-boost-spaceports/
[33] See https://www.congress.gov/119/bills/hr1/BILLS-119hr1enr.pdf#page=130
[34] See https://www.nixonpeabody.com/insights/articles/2025/07/25/spaceport-projects-can-now-be-financed-with-tax-exempt-bonds

Air and Space Traffic Modernization

Another major barrier to increasing the rate of space launches is the outdated air traffic control system (ATC), which was not designed to accommodate frequent launches. Launches require the shutdown of airspace along the launch corridor during the launch operation to protect aircraft in the event of a mishap. While this is a reasonable safety measure, these closures disrupt large areas of airspace for long periods of time. Additionally, the Notices To Airmen (NOTAM) are sent through a cumbersome, manual process for each launch; only the FAA's Command Center has access to the live telemetry data during launch operations and most of the coordination activity is done through a telephone hotline.[35]

The strain on the air traffic management system was most evident during the October 2025 government shutdown, when the FAA established an emergency order limiting space launch operations to only occur at nighttime to limit interactions with commercial aviation operations.[36] With the absence of a large swath of air traffic controllers due to the shutdown, the strain of coordinating launch operations during times of high air traffic would have overwhelmed the system as it exists.

In recent years, some improvements have been made to the air and space traffic coordination, such as decreasing the size of shutdown areas as better spacecraft safety and trajectory information have become available. Nevertheless, there are still a lot of improvements to be made. The FAA recently began prototyping a system known as Space Data Integration to automate much of the coordination process and allow for more accurate safety prediction zones to minimize disruptions to air traffic.[37] This system is expected to enter into full service by the end of 2026, but the uncertain funding for the program could further delay implementation.

The FAA also recently began massive upgrades to the ATC thanks to provisions in the 2024 FAA Reauthorization bill[38] and a $12.5 billion provision in the OBB.[39] The improvements include replacing outdated copper wire connections with fiber, satellite, and wireless systems and installing modern radar systems. However, neither bill included specific provisions to integrate launch and re-entry operations into the ATC modernization. In order to ensure that both the aviation and space industries can operate at full efficiency, proper funding for ATC modernization, space operation integration, and FAA staffing will be required.

[35] See https://commercialspace.org/news_events/redshift/
[36] https://www.faa.gov/newsroom/FAA-Emergency-Order-11-6-25.pdf
[37] https://www.faa.gov/newsroom/space-data-integrator-sdi-0
[38] https://www.faa.gov/about/reauthorization
[39] https://www.faa.gov/newsroom/trumps-transportation-secretary-duffy-faa-administrator-bedford-announce-prime-integrator

National Security and Commercial Launch Coordination

The National Security Space Launch (NSSL) program is expected to launch more payloads in 2026 than in the last three years of the program combined — including the first set of NSSL Phase 3 launches. As the number of NSSL missions grows, so too will the congestion in launch scheduling. National security launches take priority over commercial launches in order to fulfill their critical mission requirements,[40] but in doing so, they may cause unintended jams in launch scheduling. This is particularly true in the case of rapid response missions such as the Tactically Responsive Space (TacRS) program,[41] which would have a payload go from a warehouse to operating in orbit in under a week, and could cause significant delays for commercial payloads that have long been in preparation for launch.

Integrating payload processing schedules for commercial and national security payloads, as recommended by a recent GAO report, could resolve scheduling issues.[42] The report states that the Space Force currently does not have insight into commercial payload processing schedules. This creates significant congestion as commercial and national security payloads prepare for launch under shared spaceport infrastructure without adequate coordination. To ensure that launch needs are met in an efficient, economical, and timely manner, the Space Force should implement the GAO recommendation to integrate commercial payload processing schedules into its scheduling, and to centralize its own fragmented national security payload processing schedules.

Additionally, the Space Force should establish a standing coordination mechanism for federal ranges that brings together governmental mission owners, commercial launch providers, and key payload stakeholders to share near-term schedules, delay drivers, and rescheduling impacts. A regular, structured forum would improve transparency, enable proactive planning, and reduce downstream disruption of commercial and national security manifests at federal ranges.

Spaceport Regulatory Modernization

National Environmental Policy Act (NEPA) reviews are a crucial part of the regulatory and oversight process. NEPA reviews create a pathway for the public to comment on effects that may not be initially considered in the review for the Environmental Impact Statement. However, this review process is also the longest part of the licensing process for spaceport construction and launch activities.[43] There are a wide range of federal, state, and local agencies who need to coordinate in order to conduct these reviews, but the rapid developments in the commercial space industry have outpaced the ability to develop standardized, coordinated review methodologies for novel space missions. This leads to significant time and energy spent by the FAA and by the commercial space industry to properly educate the coordinating agencies and the general public during the review. Given the unique challenges and technical knowledge involved in commercial space, there should be a single agency or council with proper authority who can act as the coordinating body to synchronize multi-agency reviews, eliminate duplicative requirements, and coordinate public comment collection.

[40] https://www.spaceforce.mil/Portals/2/Documents/SAF%202025/Commercial_Space_Strategy_Space_Access_Resourcing_Decisions_Annex.pdf
[41] https://www.spaceforce.mil/News/Article-Display/Article/3680689/ussf-successfully-concludes-victus-nox-tactically-responsive-space-mission/
[42] See https://www.gao.gov/products/gao-25-107228
[43] See https://csps.aerospace.org/papers/how-nepa-applies-us-space-activities

Licensing Process: Vehicle/Site

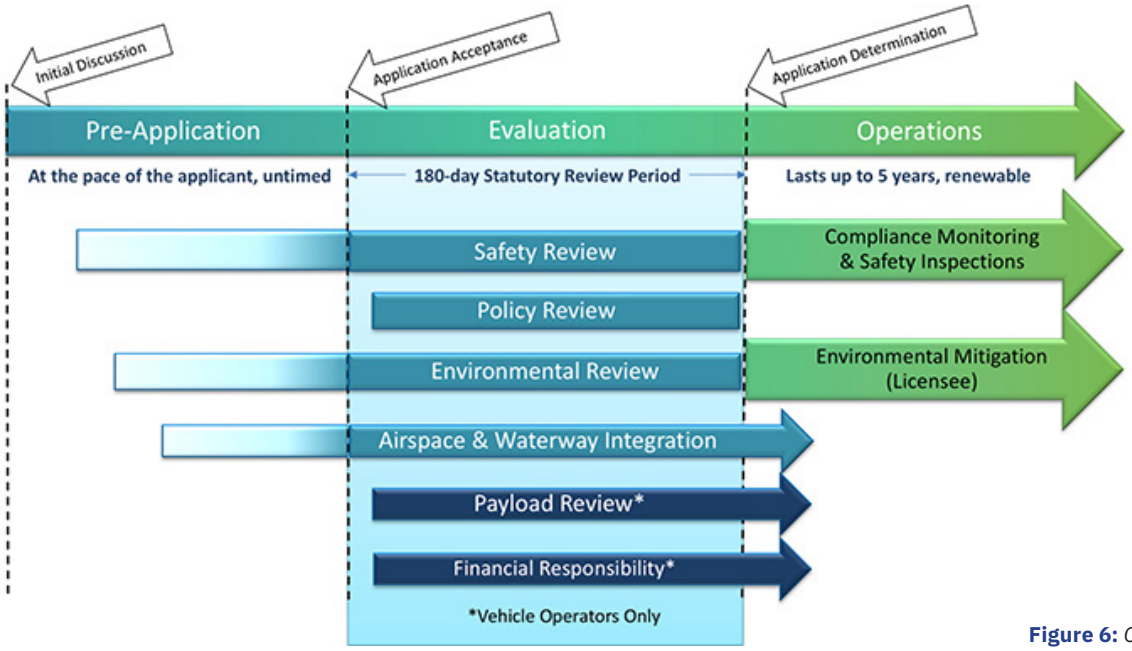


Figure 6: *Credit: FAA*

The NEPA review process must also be repeated whenever there are modifications to the launch or re-entry license, despite most of the modifications being minor in nature. A 2023 GAO analysis found that of the 22 NEPA reviews conducted for active launch and re-entry licenses, 19 were based on previous environmental assessments or impact statements. In all cases, the review concluded that the potential environmental impacts were either below significant levels or were mitigated to be below significant levels.[44]

One way to make the review process more efficient is through the use of categorical exclusions. Historically, the FAA considered airport-related construction, such as runways and passenger terminals, to qualify as categorical exclusions under NEPA.[45] Expanding this to include space infrastructure construction and launch operations that have been proven to have minimal environmental impact and to be repeated, routine operations will greatly reduce the regulatory friction for launch operations. The amended 2023 Commercial Space Act included a provision that would allow for categorical exclusions for space activities related to the national interest,[46] but that bill was not sent to the House floor for a vote. In August 2025, President Trump issued an Executive Order on commercial space launch[47] that directed the Secretary of Transportation to eliminate or expedite environmental reviews for spaceport infrastructure and launch/re-entry licensing, including deploying categorical exclusions to NEPA as appropriate. This is a step in the right direction — as officials review the process, they should look to ensure the environmental reviews are kept efficient and timely by excluding repeated activities that have been proven to be low-impact.

[44] See https://www.gao.gov/products/gao-24-106193
[45] See https://www.faa.gov/airports/environmental/nepa
[46] See https://science.house.gov/2023/11/markup-h-r-6213-h-r-6131
[47] See https://www.whitehouse.gov/presidential-actions/2025/08/enabling-competition-in-the-commercial-space-industry/

Launch Authorization and Regulation

In 2020, the FAA's Office of Commercial Space Transportation (AST) reformed its launch/re-entry licensing process by combining the four previous licensing regimes (Part 415, 417, 431, and 435) into a single process known as Part 450. The reasoning at the time was to move away from overly prescriptive licensing requirements that were often not compatible or made redundant with newer technologies. Instead, the new regime would use a streamlined, performance-based process for licensing. But in practice, the guidelines, processes, and criteria for the evaluations under Part 450 were often unclear, resulting in differing (and often conflicting) interpretations of performance data and would occasionally lead to even longer licensing timelines than the original ruleset.

Recognizing that reforms to Part 450 were needed, AST created an Aerospace Rulemaking Committee (SpARC) in 2024 to solicit industry feedback.[48] As part of the SpARC charter, the committee is meant to release a report on their findings with recommendations to AST within eight months of their first meeting, although nothing has been publicly released as of writing. Once the committee releases their report, AST should immediately review the report and look to enact as many of the recommendations as possible to ensure that the Part 450 process remains streamlined and efficient.

Additionally, AST should refocus the Part 450 process on its intended goal of ensuring public safety during launch operations with simplified, consistent technical reviews. AST should regularly communicate with the industry on the interpretation of regulations and the expected level technical detail required for compliance, for instance through the practice of advisory circulars as used in other parts of the FAA. To ensure that the licensing process is managed for maximum effectiveness, steps must be taken to ensure that AST has the resources and staffing required to implement and enforce its regulatory statute in pace with industry growth.

International Launch Partnerships

There are a growing number of international spaceports that host American and foreign rocket companies.[49] But export control restrictions can create unnecessary barriers to launch opportunities as the export of space technology remains highly controlled.[50] These restrictions are generally important to protect technologies that are critical to our national security and economy. However, the rest of the world has greatly advanced in space technology development to the point that the U.S. still restricts goods from export that are now widely available on the global market. While the U.S. government occasionally enters into Technology Safeguard Agreements (TSA) with other countries to facilitate the transfer of protected technologies, such as the recent agreement with Sweden for commercial space launch,[51] these agreements are far and few between, and only allow access to a single nation.

While some measure of technology control is necessary for economic and security protections, reducing restrictions on trade with close allies more broadly would greatly increase the opportunities for international partnerships and propel further growth in the space economy. For instance, the U.S. recently lifted many of the export restrictions to the U.K. and Australia for some launch and satellite related technologies, recognizing the strong economic and

[48] See https://www.faa.gov/regulationspolicies/rulemaking/committees/documents/launch-and-reentry-license-requirements
[49] See https://rocketlaunch.org/rocket-launch-sites
[50] See https://www.akingump.com/en/insights/alerts/first-significant-changes-in-over-a-decade-to-us-export-controls-on-space-related-items-and-activities
[51] See https://www.state.gov/releases/office-of-the-spokesperson/2025/06/u-s-sweden-technology-safeguards-agreement

security ties of the AUKUS alliance.[52] Creating further agreements with close allies, coupled with broader export control reforms, would allow for the global launch partnerships that are critical to unleashing the full potential of LEO broadband and other space-based services.

Additionally, U.S. companies are required to be licensed by both the FAA and the relevant foreign authority when launching from foreign spaceports. Proper licensing is a necessary step to ensure safe and sustainable space operations and to comply with the Outer Space Treaty's requirements for supervision and authorization.[53] But requiring companies to obtain licenses from multiple international authorities for the same operation creates unnecessary barriers.

Efforts have been made to enact equivalence structures that cut down on these barriers. For instance, in 2024, the FAA entered into an agreement with the New Zealand Ministry of Business, Innovation, and Employment (MBIE) which allows the MBIE to recognize and accept FAA commercial space transportation licenses for launches out of New Zealand.[54] Still, these agreements are rare, which limits the available international launch opportunities for U.S. companies.

Conclusion

The market for satellite services is growing rapidly, far outpacing the growth in launch opportunities. High-capacity, high-cadence launch is required for a robust LEO broadband market, which in turn would support a new age of global connectivity and would significantly boost the digital and space economies. To ensure more access to launch, the U.S. government will need to:

1. **Reform the Space Transportation Infrastructure Matching Grants (STIM) program.**
   - Reduce the non-federal matching requirement.
   - Appropriate $100 million annually to address the spaceport infrastructure backlog.
2. **Modernize air and space traffic control.**
   - Fund more modernization efforts, such as the ones provided in the One Big Beautiful Bill.
   - Fully integrate space launch and re-entry operations into air traffic control systems.
3. **Improve coordination between commercial and national security missions at federal ranges.**
   - Integrate commercial and national security payload processing schedules.
   - Establish a coordination mechanism between commercial and national security operators at federal ranges.
4. **Reform spaceport environmental reviews.**
   - Grant authority to a single agency or council act as the coordinating body to synchronize multi-agency reviews, eliminate duplicative requirements, and ensure collaboration.
   - Provide categorical exceptions for repeated, low-impact activities.
5. **Reform launch licensing.**
   - Implement recommendations of the Aerospace Rulemaking Committee (SpARC) report as soon as possible.
   - Ensure application reviews are technically consistent and are focused solely on public safety.
6. **Support international partnerships.**
   - Reduce export control restrictions to close allies for widely available space technologies.
   - Pursue license equivalency agreements with nations and blocs such as the EU.

[52] See https://www.globaltradelawblog.com/2024/09/16/a-raukus-discussion-in-the-space-industry/
[53] See https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html
[54] See https://www.faa.gov/media/78546