Restore NASA: The Plan So Far

Why NASA should build its own rocket and satellite network again, what it would cost, and what comes after

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Where things stand

America's access to space now runs through one company. In 2025 SpaceX flew 165 Falcon 9 missions, about half of all the orbital launches in the world.[1] It flew 11 of the 12 national security launches the Pentagon bought that year, and about a fifth of its revenue came from federal agencies.[2] Its Starlink network has about 11,000 satellites in orbit, roughly two-thirds to three-quarters of all the working satellites there are.[3]

The government has stopped trying to build an alternative. In 2026 the Space Force dropped the next tranche of its own satellite data network and gave SpaceX $2.29 billion to build the replacement on its Starshield satellites.[4] Three days later SpaceX won $4.16 billion more to build part of the Golden Dome missile defense system.[5]

What that dependence means became plain in October 2026. Ukraine's soldiers use Starshield terminals, paid for by its allies, to fly the drones that shoot down Russian drones. Around 14 October the terminals were suddenly limited to 160 kilometers an hour, too slow for interceptor drones. Elon Musk said the United States government controls Starshield. The White House said it gave no such order.[6] Nobody would say who had pulled the switch. A country at war lost part of its air defense, and the public could not learn who decided it.

NASA itself now depends on the same few companies for almost everything it does. Its astronauts flew around the Moon in April 2026 on NASA's own rocket, but the landers that are supposed to put them on the surface are being built by SpaceX and Blue Origin, and both are late.[7] The vehicle that will bring the International Space Station down at the end of 2030 is a SpaceX Dragon, and NASA has said it has money for only one of the private stations meant to replace it.[8] In January 2026 Congress let NASA's mission to bring rock samples back from Mars die, leaving China to try it first.[9]

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[1]Jalopnik, "SpaceX was over half of all orbital rocket launches worldwide in 2025," January 2026. https://www.jalopnik.com/2067687/spacex-half-orbital-rocket-launches-2025/

[2]Space Exploration Technologies Corp., Form S-1/A registration statement, Securities and Exchange Commission, June 2026. https://www.sec.gov/Archives/edgar/data/1181412/000162828026039276/spaceexplorationtechnologi.htm

[3]Starlink satellite counts as of October 2026, Wikipedia, "Starlink," and Earthsims, "Starlink statistics." https://en.wikipedia.org/wiki/Starlink ; https://www.earthsims.com/starlink/starlink-statistics/

[4]Breaking Defense, "SpaceX wins $2.29B to speed Space Force's LEO communications backbone," May 2026. https://breakingdefense.com/2026/05/spacex-wins-2-29b-to-speed-space-forces-leo-communications-backbone/ ; Breaking Defense, "Space Force shifts from SDA Transport Layer to new Space Data Network Backbone," April 2026. https://breakingdefense.com/2026/04/space-force-shifts-from-sda-transport-layer-to-new-space-data-network-backbone-for-orbital-relay/

[5]Breaking Defense, "SpaceX wins $4.16B Space Force contract to detect airborne moving targets," May 2026. https://breakingdefense.com/2026/05/spacex-wins-4-16b-space-force-contract-to-detect-airborne-moving-targets/

[6]Al Jazeera, "What is Starshield, and who limited Ukraine's access to it?" 15 October 2026. https://www.aljazeera.com/amp/news/2026/10/15/what-is-starshield-and-who-limited-ukraines-access-to-it ; Kyiv Independent, "US senator Blumenthal opens probe into Ukraine Starshield restrictions," October 2026. https://kyivindependent.com/us-senator-blumenthal-opens-probe-into-ukraine-starshield-restrictions/

[7]Space.com, "Artemis 3 has been pushed to late 2027. Can NASA still land astronauts on the moon in 2028?" 2026. https://space.com/space-exploration/artemis/artemis-3-has-been-pushed-to-late-2027-can-nasa-still-land-astronauts-on-the-moon-in-2028 ; SpacePolicyOnline, "NASA is Full Steam Ahead on Artemis III, IV and V," 2026. https://spacepolicyonline.com/news/nasa-is-full-steam-ahead-on-artemis-iii-iv-and-v/

[8]Government Accountability Office, GAO-26-107805, 2026. https://www.gao.gov/products/gao-26-107805 ; Gizmodo, "NASA told to overhaul its plans to replace the International Space Station." https://gizmodo.com/nasa-told-to-overhaul-its-plans-to-replace-the-international-space-station-2000639959

[9]The Register, "Congress throws NASA a lifeline, leaves Mars sample mission to die in the dust," 16 January 2026. https://www.theregister.com/2026/01/16/nasa_science_budget/ ; Live Science, "NASA's Mars Sample Return is dead, leaving China to retrieve signs of life from the Red Planet." https://www.livescience.com/space/mars/nasas-mars-sample-return-is-dead-leaving-china-to-retrieve-signs-of-life-from-the-red-planet

This plan is about making sure the United States never depends on a few private companies for its access to space. Its answer is to restore what the country once had: a NASA that designs, builds, owns, and flies its own rockets, and now its own satellite network too. With that in hand, the Moon, the asteroids, and Mars come within NASA's own reach again.

What the country gave away

For the first quarter century of the space age, the government built and owned the means of getting to orbit. Army and Air Force engineers designed the early rockets. NASA's Marshall Space Flight Center designed the Saturn V. Its first stage was built in a government-owned factory at Michoud in New Orleans, its big stages were tested on government-owned stands in Mississippi, and it flew from government-owned pads in Florida.

Then the government made a choice. In 1981 President Reagan's directive made the Space Shuttle "the primary space launch system" for military and civil missions alike.[10] NASA ordered no more of the expendable rockets after 1982, and their makers shut down their production lines. When Challenger was lost in 1986, the country had little else to fly, and within months a Titan and a Delta rocket failed too. The lines were restarted, and from then on the government bought launches from companies instead of building rockets itself.

The government still owns much of what a launch program needs. Michoud has 43 acres of factory under one roof and more than 300 acres of land to expand into.[11] NASA still owns its test stands in Mississippi and its pads in Florida, and the Space Force runs the two coastal ranges from which nearly all American orbital launches fly. What it gave up was the rockets and the people who design and build them. In 2025 alone about 4,000 civil servants, a fifth of NASA's workforce, left the agency. In February 2026 NASA's own administrator ordered its centers to bring core engineering work back in-house, saying the agency had become too dependent on outside contractors, and estimated that doing so would save about $1 billion a year.[12] This plan takes that idea all the way.

[10]National Security Decision Directive 8, 13 November 1981, reprinted in John M. Logsdon, ed., *Exploring the Unknown*, Volume IV: *Accessing Space* (NASA SP-4407, 1999), document II-32; on the production lines, p. 181. https://www.nasa.gov/wp-content/uploads/2023/04/sp-4407-etuv4.pdf

[11]NASA, "Michoud Assembly Facility" fact sheet, 2016. https://www.nasa.gov/sites/default/files/atoms/files/michoud_fact_sheet_aug2016.pdf

[12]SpacePolicyOnline, "Isaacman Wants to Restore NASA's Core Competencies," February 2026. https://spacepolicyonline.com/news/isaacman-wants-to-restore-nasas-core-competencies/ ; Payload, "NASA to grow civil servant workforce under Isaacman," 2026. https://payloadspace.com/nasa-to-grow-civil-servant-workforce-under-isaacman/

Public does not have to mean expensive

The case against a public launcher has a name: the Space Launch System, NASA's moon rocket. Built under cost-plus contracts that pay contractors whatever their work turns out to cost, it costs about $4.1 billion a launch, counting the Orion capsule and the ground systems.[13] If public ownership means SLS, nobody should want it.

It does not have to. In 2011 NASA used its own cost model to estimate what the Falcon 9 rocket would have cost to develop the way NASA usually works. The answer was about $4.0 billion. The same model put the cost under commercial practices at about $1.7 billion, and SpaceX reported spending a little over $300 million.[14] The difference was not ownership. It was how the work was contracted and managed.

NASA proved it could do better when it changed the contract. Under its Commercial Orbital Transportation Services program, NASA paid fixed amounts for milestones reached, not costs incurred. It got two working cargo rockets and spacecraft for $788 million of public money.[15] New Consensus has held that program up as a model for how a public development bank should contract.

So the plan joins two things that have each worked: public ownership of the capacity, so the country cannot be held hostage, and fixed-price, milestone contracting, so the public pays for results and not for overruns.

What the plan proposes

Put it back in NASA, the way NASA used to do everything, starting with the two things the country now depends on one company for: getting to orbit, and the satellite network in orbit. The plan is still being researched. Its outline so far:

- **NASA builds and flies its own rocket.** A reusable rocket in the class of the Falcon 9, which NASA designs and owns, built in its own factory at Michoud, tested on its own stands in Mississippi and flown from its own pads. Companies build parts to NASA's designs under fixed-price contracts that pay for milestones reached, as they built much of the Saturn V. NASA keeps the designs, the factories, and the people who know how it all works.
- **NASA runs its own satellite network.** A Starlink-class network of 3,500 satellites, built in a NASA factory and launched on NASA's rocket. Satellites like these are written off over about five years,[16]

[13]NASA Office of Inspector General, "NASA's Management of the Artemis Missions" (IG-22-003), November 2021. https://oig.nasa.gov/docs/IG-22-003.pdf

[14]NASA, "Falcon 9 Launch Vehicle NAFCOM Cost Estimates," August 2011 (figures in 2010 dollars). https://www.nasa.gov/wp-content/uploads/2015/01/586023main_8-3-11_NAFCOM.pdf

[15]NASA, *Commercial Orbital Transportation Services: A New Era in Spaceflight* (NASA SP-2014-617), 2014. https://www.nasa.gov/sites/default/files/files/SP-2014-617.pdf

[16]Space Exploration Technologies Corp., Form S-1/A, June 2026: Starlink broadband satellites are depreciated over a five-year useful life. https://www.sec.gov/Archives/edgar/data/1181412/000162828026039276/spaceexplorationtechnologi.htm

so NASA builds and launches about 700 a year, some 32 launches of 22 satellites each, first to put the network up and then to keep it new.

- **It serves everyone.** Government, the public, and private business can all buy NASA's launches and its satellite service. NASA competes as a regular provider with SpaceX, Blue Origin and the rest, and does not replace them. Rural America, schools, tribal governments, and public agencies come first, with the terminals given to them.
- **Room on the ranges.** The two coastal ranges supported about 180 launches in 2025 and expect more than 700 a year within 10 years, and the Space Force has warned it may have to cap its support.[17] NASA needs its own guaranteed place on them.
- **A plan for when a company fails.** If SpaceX, Blue Origin or any other space company that has taken large amounts of public money goes under, its rockets, satellites, and factories go to NASA. The companion document, *If a Space Company Fails*, sets out how.

The plan does not propose breaking up SpaceX or any other company. That is a separate question. This plan is about rebuilding NASA.

What comes after

A NASA that builds and flies its own rockets every week, and runs its own network in orbit, has what it needs to go further on its own terms. It can build its own Moon landers instead of renting them, its own station to follow the International Space Station, and the machines to mine the asteroids. It can send people to Mars and bring back the samples its rover has already collected. Those missions are not part of this plan and are not costed here. This plan builds the capacity that makes them possible.

What it might cost

A first cost model puts the rocket and the network at about **$35 billion over 10 years**, in today's dollars, with a range of about $18 billion to $73 billion.[18] That covers developing the rocket and building its factory and pads, about 220 NASA launches, nearly 5,000 satellites, 100 ground stations, two million terminals given to the people and places that need them, and 10 years of running it all. Subscribers and government customers would pay back about $12 billion of that within the 10 years, leaving a net cost of about $23 billion.

[17] Air & Space Forces Magazine, "Space Force Could Cap Launch Support Without Extra Funding." https://www.airandspaceforces.com/space-force-could-cap-launch-support-without-extra-funding/

[18] New Consensus cost model, November 2026, in 2026 dollars, with low, central and high cases. Its main anchors: NASA's 2011 estimate of Falcon 9 development; SpaceX's reported spending of about $1 billion on reusability; published estimates of the cost of a reused Falcon 9 flight, from $15 million to $37 million; Starlink's more than 100 United States gateway sites; and Starlink's 2026 revenue per user of $66 a month. Several inputs, including the cost of ground stations and the number of subscribers, are stand-ins until the research replaces them.

Once the network is up, it roughly pays its own way. In the central case it costs about $3.4 billion a year to keep launching and replacing satellites and to run the network, and it earns about $3.2 billion a year from some three million subscribers, at a little less than Starlink charges, and from the government agencies that buy service from it.

The biggest uncertainty is the price of a satellite. SpaceX is thought to build Starlink satellites for well under $1 million each.[19] The Space Development Agency's contracts for its first three batches of satellites work out to about $22 million to $24 million a satellite.[20] Bought that way, the satellites alone would cost more than $100 billion. The central case assumes NASA builds them for $2 million each, in its own factory at a steady rate of 700 a year. SpaceX's factory turns out about 70 a week.[21] How the satellites are made and bought decides most of the cost.

For scale: NASA's whole budget for 2026 is about $24.4 billion, and the White House has asked to cut it to $18.8 billion for 2027.[22] Over the last 15 years the federal government has obligated about $27 billion to SpaceX alone, and about $23 billion to United Launch Alliance.[23]

The obstacles

Federal law tells agencies to buy launch services from commercial providers whenever they are available, and defines a commercial provider as one not controlled by any government.[24] The law does not forbid the government from building a rocket, and it already allows exceptions for national security and for government-owned vehicles. But a public launch service will need Congress to write a standing exception.

Current policy points the other way. A presidential memorandum signed in August 2026 tells agencies to favor commercial launch and not to compete with it.[25] It is policy, not law, and a new president can replace it on the first day.

The public is on the plan's side. In 2023, 65 percent of Americans said NASA's continued involvement in space is essential, and only 32 percent thought private companies would make enough progress without

[19] No figure has been published by SpaceX. Third-party estimates for the current Starlink satellite run from about $250,000 to $800,000: Space Odyssey Hub, "Starlink unit economics 2026," https://spaceodysseyhub.com/articles/starlink-unit-economics-2026 ; NewSpace Economy, "The Satellite Manufacturing Market After Starlink," April 2026, https://newspaceeconomy.ca/2026/04/13/the-satellite-manufacturing-market-after-starlink-how-mass-production-changed-the-economics-of-building-spacecraft/

[20] Government Accountability Office, "Laser Communications: Space Development Agency Should Create Links Between Development Phases" (GAO-25-106838), 26 February 2025: 457 satellites in Tranches 0 to 2 for $10.6 billion. https://files.gao.gov/reports/GAO-25-106838/index.html

[21] GeekWire, "SpaceX is churning out 70 Starlink satellites a week in Redmond, and other tidbits from its IPO filing," 2026. https://www.geekwire.com/2026/spacex-is-churning-out-70-starlink-satellites-a-week-in-redmond-and-other-tidbits-from-its-ipo-filing/

[22] The Planetary Society, "NASA is funded. Now what?" 2026. https://www.planetary.org/articles/nasa-is-funded-now-what ; Payload, "White House requests $18.8B FY27 budget for NASA," 2026. https://payloadspace.com/white-house-requests-18-8b-fy27-budget-for-nasa

[23] USAspending.gov, federal obligations by recipient, fiscal years 2012 to 2026, all award types, pulled 18 November 2026: Space Exploration Technologies Corp. $26.9 billion; United Launch Alliance and United Launch Services $23.5 billion. https://www.usaspending.gov

[24] 51 U.S.C. 50131 and 50101. https://www.law.cornell.edu/uscode/text/51/50131 ; https://www.law.cornell.edu/uscode/text/51/50101

[25] The White House, National Security Presidential Memorandum 17, National Space Transportation Policy, 20 August 2026. https://www.whitehouse.gov/presidential-actions/2026/08/national-security-presidential-memorandum-nspm-17/

it.[26]

What we are working on

The research is under way on six fronts: the history of how NASA built and gave up its capacity; the cost of the rocket, the satellites, and the ground network; the dependence on SpaceX and what it means for national security; how China, Europe, India, and Japan run their launchers and satellite networks; the law and the politics; and the factories, engines, ranges, and workers NASA would need. Still to be decided are how NASA is financed for it, what its network sells and to whom first, and how NASA competes fairly with companies whose assets it may one day take over.

[26]Pew Research Center, "Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies," 20 July 2023. https://www.pewresearch.org/science/2023/07/20/americans-views-of-space-u-s-role-nasa-priorities-and-impact-of-private-companies/