



C17 Globemaster III over March Air Reserve Base  
Photo credit: Chad McElroy '26

# SoCal's Aviation Past

by Chad McElroy '26

Southern California's aerospace industry used to be known as the greatest aviation cluster in the world. Originally home to aviation giants such as Lockheed, Douglass, Northrop, and RyanAir, the region pioneered the development of cheap civilian air travel, and by the end of the Second World War, had employed hundreds of thousands of Californians to fuel America's unparalleled industrial might. The Cold War's burgeoning "military-industrial complex" found fertile ground in Southern California. Billions of federal dollars poured into the region's aerospace industry, which by the 1960s had come to expand into the spaceflight industry. Billions more went toward companies supporting both the civilian Apollo moon program and military weapons and space launch programs utilizing America's "Western Launch Range." At its peak in 1987, nearly 25% of all aerospace employment nationwide was in the state of California, with one in ten American aerospace workers employed in Los Angeles County alone.

California's aerospace industry found its niche in advanced scientific research, development, testing, and evaluation (RDT&E). Rather than focusing solely on short-term manufacturing, which could provide high profits during wartime but at the risk of sharp drawdowns in peacetime, RDT&E contracts could continue over long periods of both war and peace, as the American military is always pursuing the next generation technology. Luckily, Southern California is home to some of the best STEM and engineering universities in the world, including the University of Southern California, University of California Los Angeles, California Institute of Technology, California Polytechnic State University at San Luis Obispo, Harvey Mudd College, and many others, providing a consistent pipeline of highly educated workers into the regional aerospace workforce.

The end of the Cold War, however, brought an end to Southern California aerospace's "golden age." The early 1990s saw sharp drawdowns in defense spending, and these cuts hit Southern California hard. More than two hundred thousand aerospace workers lost their jobs, and many major firms consolidated or left the state. By 2014, the regional aerospace industry was but half of what it had been in 1990. By the late 2000s, aerospace companies such as Northrop Grumman were relocating their headquarters out of the state to places like Washington, DC and Maryland, reflecting a continuing outflow of jobs from the Golden State.

Defense dollars continue to pour into California, and aerospace continues to dominate our state's defense industry. Many legacy aviation companies like Northrop Grumman and Lockheed Martin continue to operate in the region, and new ventures such as Anduril Industries seek to kick off a new era of privately funded defense contracting. While these firms may not conduct the large-scale manufacturing that dominated the region throughout the 20th century, they have turned to specializing in research and development, alongside maintaining America's most potent military technologies.

Most significantly, the commercial spaceflight industry has come to dominate the Southern California aerospace sector. While well-known organizations like Boeing and Aerojet Rocketdyne continue their storied legacies in spaceflight excellence, newer giants like SpaceX have come to spark a revolution in spaceflight technology that is centered in the Greater LA region. New space startups have come to find locations like Long Beach and El Segundo to be welcome homes, and Lompoc's Vandenberg Space Force Base has skyrocketed to become the second most popular spaceport in the world.

Ultimately, Southern California has transformed from an aviation hub to a space industry powerhouse, and the region is playing a crucial role in incubating the burgeoning commercial space sector.

**The broad story seems to spell an end to Southern California's aerospace industry. But in reality, it is a transition, not an end.**

## **National Security Funding in the Golden State and Southern California**

California's deep ties to the American military industry helped industrialize and grow the state throughout the 20th century, and while Southern California's aviation industry may never return to its former glory, the corporations that continue to call the Golden State home remain strong contributors to the region's economic prosperity and America's national security.

Despite the end of the Cold War, California remains an invaluable contributor and benefactor of the United States' national security apparatus. The Department of Defense reports that California is the largest recipient of Defense Department spending. In Fiscal Year 2023 (FY23), the state received \$60.8 billion in DoD funding, a total that amounts to nearly 10% of total US defense spending. This funding supports millions of Californians through employment, business contracts, and the broad economic activity that these investments stimulate. The 2024 California Statewide National Security Economic Impacts Study found that national security activity produced \$196.7B in economic activity across the state in 2023, amounting to 5.1% of statewide economic activity. This funding included \$110B in direct activity by agencies and contractors, \$17.9B in supply chain activities, and an estimated \$68.9B in induced economic activity that was spurred by this additional money in the economy.

Major aerospace companies have consistently received the bulk of Department of Defense contracts awarded in California. In FY23, Northrop Grumman was the largest recipient (\$3.8B), followed by DoD-supporting healthcare company Centene Corp (\$3.2B), Lockheed Martin (\$2.4B), Boeing (\$2.1B), and the RTX Corporation (\$1.8B). The majority of these top contractors operate in aviation, unmanned aerial systems (UAS), spaceflight, and missile systems, demonstrating the continued success of military aerospace in California. These contractors contribute to the \$6.8B in economic output created by national security-related aerospace manufacturing in 2023, providing many jobs and opportunities for Californians across the state.

The Southern California region, in particular, has been the dominant recipient of Defense Department funding over the past decade. In FY2023, Los Angeles County led the Southern California region with \$12.0B in defense contracts, followed by San Diego (\$10.9B), Orange County (\$2.0B), Ventura (\$1.5B), San Bernardino (\$993.1M), Kern (\$918.8M) and Santa Barbara (\$754.2M). Ten years prior, Navy-related spending propelled San Diego County to the top spot (\$16.3B), with LA County receiving \$10.1B in FY2013, and the other Southern California counties following a similar pattern.

## Continuing the Legacy: Regional Aviation and New Defense Entrants

Since the end of the Cold War, the Southern California military aerospace sector has narrowed its operations towards more aviation-supporting sectors, such as RDT&E and aircraft maintenance.

Northrop Grumman is one of the largest and most successful aerospace companies operating in the Southern California region. Founded in Hawthorne in 1939, the company supported America's aviation manufacturing industry in World War II and throughout the Cold War, specializing in fighter jets, bombers, and military space systems. Following the post-Cold War drawdown, Northrop Grumman relocated its headquarters from Los Angeles to Washington D.C. in 2011, becoming the last of Southern California's major aerospace firms to leave the state. Despite this move, Northrop retains a strong presence in the state and maintains facilities in six cities in the Greater LA region: Azusa, Northridge, Palmdale, LA's South Bay, Ventura, and Woodland Hills. The most significant of these operations is at Northrop's Antelope Valley factory, based at US Air Force Plant 42. This facility employs more than 7,000 people in the Palmdale area, and is host to operations in support of the F-35 Lightning II stealth strike jet (partial production), the Global Hawk and Triton unmanned aerial vehicle family (support), the B-2 Spirit stealth bomber (maintenance), and the upcoming B-21 Raider next-generation stealth bomber (development and testing). Northrop also works with local colleges through the Aeronautics Systems Training for Advanced Refinement (ASTAR) academy at Plant 42, as well as providing training and partnerships with Antelope Valley College and local high schools.

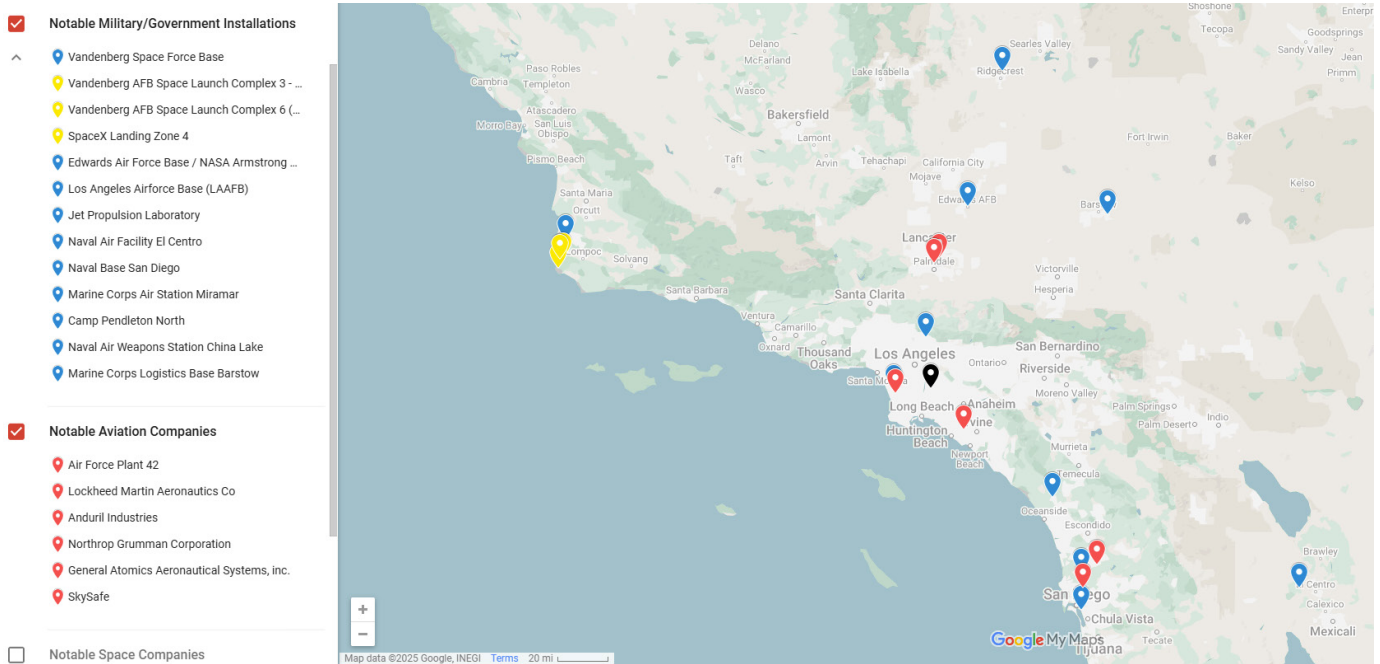
Over the past decade, Northrop Grumman has enjoyed notable success in the defense industry, much of which benefits its operations in Southern California. In 2015, it was awarded a \$21.4B engineering and manufacturing contract for the B-21 Raider program, which will be developed and tested out of its Palmdale facility at Plant 42. The program has proceeded with great success after a successful first flight in November 2023 and subsequent flight tests. The Air Force awarded Northrop a second low-rate production contract in late 2024 in anticipation of a full 100-aircraft fleet by the mid-2030s. Additionally, Northrop won a \$7B contract in May 2023 for continued maintenance and repair of the B-2 bomber fleet out of its Palmdale facility through 2029, reflecting the enduring strength of its Southern California operations. Moreover, Poland announced in January 2025 the purchase of \$745M of Northrop Grumman's AARGM-ER anti-radiation



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# Aerospace Facilities in Southern California



Map by Quinten Carney '26

missile systems, a system designed out of Northrop's Northridge facility. While Northrop no longer conducts large-scale manufacturing operations as it had during the Cold War, RDT&E and maintenance operations mean that the company will continue to prosper even in peacetime. This focus on RDT&E can also be found among the other legacy aviation operations that have chosen to stay in the region.

Lockheed Martin, once a signature California military contractor, continues to play a noteworthy role in the Southern California aerospace industry. Originally called The Lockheed Corporation, the Burbank-based company produced some of America's most successful aircraft, such as America's mainline submarine-launched ballistic missile systems during World War II and beyond. While the company relocated most manufacturing operations out of the state after merging with Martin Marietta in 1994, it most prominently maintains its secretive "Skunk Works" research, development, and testing facility in Palmdale. The Skunk Works facility has been home to many legendary feats in aviation history, such as the fastest acknowledged crewed air-breathing aircraft (SR-71) and the first operational stealth aircraft (F-117 Nighthawk). It continues to support many classified military developments from its facilities within the Air Force's Plant 42. In addition to its Palmdale facility, Lockheed Martin's Santa Barbara Focalplane designs infrared sensor platforms in support of aviation and space-based systems.

Boeing's influence in the Southern California aerospace industry has faded over time. It closed its 717 civilian jetliner production line in 2005, making it the last major commercial airline production facility to close in Southern California. Eight years later, Boeing announced the closure of its C-17 Globemaster III military cargo jet production line and the ultimate closure of its Long Beach facility in 2015, marking the end of large aircraft production in the region. While the company still maintains aircraft maintenance facilities in Victorville, its other Southern California facilities specialize in space and space-supporting systems.

While larger aerospace contracts are shifting focus in the region, new private ventures are beginning to make their presence known in the local and national defense industries. Anduril Industries, founded in 2017 by Palmer Luckey and backed by prominent Silicon Valley investor Peter Thiel, is headquartered in the city of Costa Mesa. Anduril aims to develop cutting-edge technologies faster and cheaper than traditional contractors through the integration of AI and machine learning

into next-generation military products such as drones, counter-UAS systems, advanced sensors, and general networking systems. Anduril began to win Defense Department contracts in 2019, beginning with an AI-enabled base surveillance system for the US Marines, a \$25M contract for border surveillance towers for the Department of Homeland Security, and the purchase of multiple reconnaissance and attack drone systems that have been supplied to Ukraine since 2023. Most notably, Anduril and San Diego-based General Atomics won a contract for the first iteration of the Air Force's new Collaborative Combat Aircraft (CCA) initiative, defeating traditional defense industry giants Lockheed Martin, Northrop Grumman, and Boeing for the first increment of the program. The CCA initiative aims to field an AI-powered drone "wingman" for the Air Force's Next Generation Air Dominance program, a family of systems that the USAF requested \$2.75B for in their FY2025 budget request. Anduril's growing success underscores a disruptive shift in the defense industry toward new entrants rather than traditional "prime" contractors who have dominated DoD contracts over the past three decades. While giants such as Northrop Grumman and Lockheed Martin are likely to continue to attract billions of dollars in Defense Department contracts, Anduril's success suggests that the Greater LA region will remain a thriving home for the military aerospace industry for years to come. ♦



MQ-9 Reaper Drone landing at March Air Reserve Base

Photo credit: Chad McElroy '26

## Bibliography

- "A New Military-Industrial Complex Arises," February 10, 2025. <https://scheerpost.com/2025/02/10/a-new-military-industrial-complex-arises/>.
- "Anduril." Accessed March 28, 2025. <https://www.anduril.com/mission/>.
- Bedi, Sumeet, Devin Lavelle, and Ethan Nash. "California Statewide National Security Economic Impacts, 2024 Update," n.d.
- Carey, Bill. "GAO: Air Force Was 'Reasonable' in Awarding B-21 Contract | AIN." Aviation International News. Accessed March 28, 2025. <https://www.ainonline.com/aviation-news/defense/2016-11-06/gao-air-force-was-reasonable-awarding-b-21-contract>.
- Cooper, Christine, Shannon Sedgwick, and Wesley DeWitt. "AN INDUSTRY CLUSTER STUDY," n.d.
- "Defense Spending: Key to California's Growth on JSTOR." Accessed March 28, 2025. <https://www.jstor.org/stable/445307?seq=1>.
- Easley, Mikayla. "Anduril, General Atomics Move into next Phase of Air Force CCA Drone Program." DefenseScoop (blog), April 24, 2024. <https://defensescoop.com/2024/04/24/anduril-general-atomics-air-force-cca-program/>.
- Głowacki, Bartosz, and Aaron Mehta. "Poland Adds Long-Range Strike to Its F-35 Fleet with AARGM-ER Missiles." Breaking Defense, January 29, 2025. <https://breakingdefense.com/2025/01/poland-adds-long-range-strike-to-its-f-35-fleet-with-aargm-er-missiles/>.
- Hersch, Matthew H. "Equitable Growth and Southern California's Aerospace Industry," n.d.
- Lockheed Martin. "Santa Barbara, CA." Accessed March 28, 2025. <https://www.lockheedmartin.com/en-us/who-we-are/business-areas/missiles-and-fire-control/santa-barbara.html>.
- Lockheed Martin. "The Skunk Works® Legacy." Accessed March 28, 2025. <https://www.lockheedmartin.com/en-us/who-we-are/business-areas/aeronautics/skunkworks/skunk-works-origin-story.html>.
- Los Angeles Times. "Lockheed's Long Stay in Valley May Be Ending," August 30, 1994. <https://www.latimes.com/archives/la-xpm-1994-08-30-mn-32901-story.html>.
- Miller, Kenneth P., 'Economy', Texas vs. California: A History of Their Struggle for the Future of America '(New York, 2020; online edn, Oxford Academic, 20 Aug. 2020), <https://doi-org.ccl.idm.oclc.org/10.1093/oso/9780190077365.003.0004>, accessed 1 Mar. 2025.
- Northrop Grumman. "Northrop Grumman Careers in California." Accessed March 28, 2025. <https://www.northropgrumman.com/careers/https://www.northropgrumman.com/careers/northrop-grumman-in-california>.
- "Northrop Grumman to Move Corporate Office to Washington, D.C. Region - Northrop Grumman." Accessed March 28, 2025. <https://investor.northropgrumman.com/news-releases/news-release-details/northrop-grumman-move-corporate-office-washington-dc-region>.
- Pae, Peter. "Boeing Is Closing an Era in Aviation." Los Angeles Times, January 15, 2005. <https://www.latimes.com/archives/la-xpm-2005-jan-15-fi-boeing15-story.html>.

- Pentagon, W. J. Hennigan, "Northrop Grumman Moving Headquarters from L.A. to Washington, D.C., Area." *Los Angeles Times*, January 5, 2010. <https://www.latimes.com/archives/la-xpm-2010-jan-05-la-fi-northrop5-2010jan05-story.html>.
- Prabhu, Abhinaya. "Anduril: Oculus Founder's Defense Tech Unicorn Backed by Peter Thiel Nabs \$1.5B Funding for Major Manufacturing Expansion — TFN." Tech Funding News (blog), August 14, 2024. <https://techfundingnews.com/peter-thiel-backed-oculus-founders-defence-tech-unicorn-anduril-raises-1-5b-for-new-manufacturing-facility/>.
- Schoeni, Robert F., Michael Dardia, Kevin F. McCarthy, and Georges Vernez. "Life After Cutbacks: Tracking California's Aerospace Workers." RAND Corporation, January 1, 1996. [https://www.rand.org/pubs/research\\_briefs/RB7510.html](https://www.rand.org/pubs/research_briefs/RB7510.html).
- Scully, Janene. "Falcon Rocket on Starlink Satellite Mission Launches at Twilight From Vandenberg | Local News." Noozhawk, June 19, 2024. <http://www.noozhawk.com/falcon-rocket-on-starlink-satellite-mission-launches-at-twilight-from-vandenberg-afb/>.
- Shah, Deepa. "Greater Los Angeles Aerospace & Defense Report," CBRE Research, 2024. <https://www.cbre.com/insights/reports/greater-los-angeles-aerospace-defense-report-mid-year-2024>.
- Tirpak, John. "Northrop Reveals Another B-21 Contract, in Talks with USAF About Faster Production." Air & Space Forces Magazine, January 31, 2025. <https://www.airandspaceforces.com/northrop-another-b-21-contract-faster-production/>.
- "U.S. Air Force Collaborative Combat Aircraft (CCA)." Legislation. Accessed March 28, 2025. <https://www.congress.gov/crs-product/IF12740>.
- U.S. Department of Defense. "DOD Releases Report on Defense Spending by State in Fiscal Year 2023." Accessed March 28, 2025. <https://www.defense.gov/News/Releases/Release/Article/3935678/dod-releases-report-on-defense-spending-by-state-in-fiscal-year-2023/>.
- Waldie, D.J. "End of an Era: Boeing Announces Closure of Last Aircraft Manufacturing Plant in Southern California." Accessed March 28, 2025. <https://laist.com/shows/airtalk/end-of-an-era-boeing-announces-closure-of-last-aircraft-manufacturing-plant-in-southern-california>.
- Welk, Hannah Madans. "Aerospace: Rocket Engines, Fighter Jets and Drones Are Vital to the Valley Economy." Inside The Valley | Los Angeles Business Journal (blog), January 2, 2023. <https://valleylabusinessjournal.com/special-report/aerospace-rocket-engines-fighter-jets-and-drones-are-vital-to-the-valley-economy/>.