SHAPING THE FUTURE OF AEROSPACE

MITRE works to ensure that our National Airspace System (NAS) is safe, efficient, and adaptable to an ever-evolving future.

MITRE was selected as the operator of the Center for Advanced Aviation System Development (CAASD), the FAA's federally funded R&D center. MITRE performs the advanced research and development needed to continually elevate the safety and efficiency of the NAS and meet the needs of our increasingly crowded and complex skies, from Earth's surface to space.

As an independent, not-for-profit partner, we combine our technical and operational expertise with outreach across government and industry to bring knowledge and innovation to the FAA's toughest challenges.

> "
> It is our responsibility to be a mission partner in creating a safe and optimized aerospace system, and—together with the FAA and industry—chart a path forward to identify necessary accountabilities and drive to the best possible outcomes.
> "

Kerry Buckley, vice president of MITRE's Center for Advanced Aviation System Development

MITRE

Preparing the NAS for What's to Come

Our engineers, scientists, and operational experts are working to achieve the FAA's next-level safety goals, promote the efficient use of airspace to accommodate both new and traditional users, and advance operations to drive change—from the expansion of unmanned aircraft and commercial space operations to the introduction of supersonic aircraft and advanced air mobility (AAM) vehicles.

Taking Safety and Resiliency to the Next Level. Our data analytics experts continue to proactively identify potential safety issues before serious incidents occur, and our Aviation Risk Identification and Assessment is enabling FAA personnel to focus on the highest-risk events for deeper investigation. Today, MITRE is exploring how advances in communication systems can enhance information exchange to increase situational awareness for all airspace stakeholders. We're researching pilot performance to gain insights to enhance safety. And, to safeguard operations against GPS degradation events, we've developed a prototype capability to detect these events and point pilots to alternate available navigation modes.

Integrating New Entrants. We're collaborating with government and industry to seamlessly integrate new aerospace vehicles, such as UAS and AAM, into the NAS. This involves testing UAS operations, speeding up certification processes, and creating a communication system for uncrewed aircraft. We're also researching microscale weather patterns that could affect UAS and AAM operations and developing a test bed for high-speed flight technologies to pave the way for future supersonic and hypersonic jets.

Accelerating Operational Advancements. To enable new traffic management efficiencies, MITRE is supporting the FAA's implementation of Trajectory-Based Operations. We're helping the FAA bring new automation to air traffic control towers across the NAS. At the same time, we're providing strategic direction for enterprise divestment of outmoded capabilities in the NAS, shifting to new investments to optimize resources and performance.

Harmonizing Global Operations. To enable aviation's complex array of operations to occur safely and seamlessly across the globe, MITRE is lending expertise and state-of-the-art laboratories to an international effort to plan flights and manage air traffic flows more efficiently. Our experts are also actively working with international partners to promote standardization, interoperability, and the adoption of best practices across national borders.

As we look to the future, MITRE will continue to play a critical role in anticipating, innovating, and solving hard challenges that come with increasing congestion and complexity in our skies—creating the next chapter in the history of the ever-evolving field of aerospace.

An Enduring Record of Innovation

Our partnership with the FAA began with the creation of a civilian airspace that evolved into today's NAS, considered the safest and most efficient airspace in the world. MITRE's contributions include:

Revolutionizing Air Traffic Control
Pioneered the shift from radar-based systems to satellite networks, enabling real-time transmission and reception of aircraft movement data—an essential advancement for modern aviation operations.

Transportation System Efficiency
Key to America's economy and security is our ability to move people and goods efficiently across the country. MITRE is developing a capability that will give decision-makers the insights needed to keep our transportation infrastructure strong.

NextGen Partnership
As a strategic partner in the FAA's Next Generation Air Transportation System (NextGen), we worked over two decades to enhance aviation safety, reduce flight times, lower fuel consumption, cut emissions, and increase national airspace capacity.

Traffic Collision Avoidance System (TCAS)
Developed as the world's standard system for collision avoidance on commercial aircraft.

Learn more at mitre.org/CAASD

MITRE