

Advanced Air Mobility

In 1904, the Wright Brothers chose one square mile of farmland northeast of Dayton, Ohio to develop and refine the art of controlled powered flight in heavier-than-air flying machines. Today, the Dayton Region's legacy of leading-edge aerospace innovation continues along multiple fronts.

The Dayton Region has long been a national leader in the field of uncrewed aerial systems (UAS). The Dayton Development Coalition (DDC), in partnership with the State of Ohio, hosted an Ohio UAS Midwest Conference annually from 2012 through 2019. This conference was one of the first of its kind and attracted participants from across the nation among government, academia, and industry to share news of technology development, use case/application concepts, and government regulatory progress.

In 2015 Sinclair College, as a partner with the Ohio State University on the FAA's Alliance for System Safety of UAS through Research and Engineering (ASSURE) team, established and hosted the first annual Ohio UAS Academic Summit at which colleges and universities across the nation met to discuss the latest developments in uncrewed systems research, education, and training. The eighth annual Summit will convene in September 2022. Sinclair College also founded the industry benchmark publication: *The Journal of Unmanned Aerial Systems*, established the National UAS Training and Certification Center as well as the nation's first custom-built indoor UAS flying facility. The college offers certificate programs as well as Associate and Bachelor of Applied Sciences degrees in UAS. Its industry partnerships include being a certified pilot training source for PSA Airlines and an international partner with SIMLAT (Israel) for UAS simulator-based training.

In recognition of The Dayton Region's leadership in the field of UAS and Advanced Air Mobility, the Ohio Department of Transportation (ODOT) chose the region to be home to its Ohio UAS Center in the nearby City of Springfield. The UAS Center leads the State's utilization of UAS technologies for road, bridge, and other infrastructure inspections, bringing these technologies into the mainstream, increasing safety and efficiency, and reducing costs.

In 2013 the Dayton Development Coalition, in partnership with the State of Ohio and the Air Force Research Laboratory (AFRL) headquartered at Wright Patterson Air Force Base (WPAFB), Ohio, initiated its Ohio Airspace Strategic Integration (OASIS) Study. The purpose of this effort was to identify airspace in reasonable proximity to AFRL in which the laboratory could explore UAS technologies and applications with its NASA and FAA partners. This study recommended a 225 NM area serviced by Springfield-Beckley Municipal Airport (SGH) due to its location, sparse ground population and coverage by existing FAA radars. The State of Ohio, the Fly Ohio program office, the City of Springfield, and AFRL have also partnered to develop and host a mobile air traffic control capability, dubbed "SkyVision," at the airport to enable a controller to receive integrated radar data and use it to provide situational awareness to support UAS operations in the airspace. In 2019, the FAA granted AFRL the authority to use this ground-based detect and avoid (GBDAA) capability to operate UAS vehicles in this general airspace beyond line-of-sight without any of the typical restrictions of clearing the area of other military or general aviation traffic or providing a chase plane for safety. It is believed that this airspace, supported by SkyVision, is the first – and perhaps still the only – place in the US that this capability exists.

In May of 2020, the USAF launched its AFWERX Agility Prime effort to encourage the commercial development of electric vertical takeoff and landing (eVTOL) aircraft for potential eventual military use. Many industry leaders in the eVTOL industry have taken advantage of the joint AFRL/regional

capabilities of the Springfield-Beckley airport to display and demonstrate their technical capabilities to the Agility Prime program office. Some industry “notables” that have done so include Joby Aviation, BETA Technologies, LIFT Aircraft, Kittyhawk, and Moog. BETA has constructed an office complex at SGH that includes an elevated landing platform and charging station to support their aircraft operations. This August, the Dayton Development Coalition, JobsOhio, and the City of Springfield will host a National Advanced Air Mobility Industry Forum (NAAMIF) at SGH that promises to attract key leaders in the eVTOL industry as well as high-ranking officials from NASA, the FAA, the DoD and USAF.

The State of Ohio and the Dayton Region are working together to ensure that our momentum in the development and practical applications of emerging technologies carries forward far into the future. The Fly Ohio program office of the Ohio Department of Transportation is dedicated to working with the FAA and NASA to pioneer the development, certification and integration of advanced air mobility technologies and products into the overall state transportation system. In partnership with JobsOhio, the program office is exploring numerous avenues including advanced air/ground mobility integration, infrastructure development, and deployment. We plan to be among the very first areas in the nation to “normalize” advanced air mobility. Our Air Force partners at Wright Patterson continue to press the envelope in autonomous air vehicle technologies to enable crewed and uncrewed air vehicles to operate cooperatively in the airspace. Our commercial industry partners are eager to embrace the incorporation of autonomous systems into their vehicles where use cases can benefit from them.

We will soon break ground on our National Advanced Air Mobility Center of Excellence (NAAMCE) facility on the SGH campus that will be home to FlyOhio along with Air Force, FAA, industry partners and others who will work cooperatively to continue the State’s and the Region’s dominance in leading the nation to its advanced air mobility future.