

STEM TALENT DEVELOPMENT CENTER

Executive Summary: Over the past several years Wright Patterson AFB and regional Dayton STEM leaders have worked closely together to develop a building complex that would provide a one-stop STEM career pathway support center addressing all elements of workforce development including both degreed and sub-baccalaureate certificates. This center would serve as a nexus of collaboration for all STEM organizations. Air Camp, DO STEM, and the Wright-Patterson Air Force Base Educational Outreach Office organizations have been identified as anchor tenets in this STEM hub facility, known as the STEM Talent Development Center (STDC) which will house the “STEM for All” capability. The STDC will be sited adjacent to Wright-Patterson AFB Area B, to allow for direct engagement with AF personnel and missions. This hub will support the delivery and coordination of programming for K-16 students and teachers; provide resource support for in-demand career areas and will elevate the Air Force, Ohio, and the Dayton Region to a national leadership position in the skilling, reskilling and upskilling of traditional and non-traditional workforce members. Numerous meetings with base, STEM leaders/providers and community leaders have been held, quantifying the need and support for a nexus of collaboration one-stop “STEM for All” focused facility. There is unanimous support across all stakeholders.

A 52,840 sq ft facility (including a dormitory) is in the planning stages of construction to house Air Camp, DO STEM and the Wright Patterson Educational Outreach Office programs as part of “STEM for All”. The STDC once constructed will enable the Air Force to demolish two existing condemned facilities at Wright-Patterson AFB being used by the WPAFB Educational Outreach Office. The operations and sustainment costs for this facility will be shared by the Air Force as part of land lease terms.

Funding Request \$7.0M: Monies will be used to purchase all the equipment (from furniture, displays, to simulators) to outfit the facility; and provide for facility operations and logistics support.

Anchor Partners: The anchor organizations at the Center would be Air Camp, Inc., DO STEM and the Wright-Patterson Air Force Base Educational Outreach Office. At this time, Air Camp has been identified as a potential sole LLC member which owns the facility.

- ⇒ **Air Camp Inc** is a hands-on, educational adventure in aviation and aeronautics. Curriculum inspires students at the intermediate and middle school levels, as well as teachers and educational leaders across all grades, to learn more about science, technology, engineering, and mathematics (STEM) using aviation and aerospace as the medium while promoting the values of scholarship, leadership, and citizenship.
- ⇒ **DO STEM** is a nationally recognized regional ecosystem committed to leveraging resources and opportunities by connecting STEM partnerships throughout the Dayton region. DO STEM’s collaborative network works to address equity, access, and exposure by promoting STEM literacy, education, and career opportunities for all.
- ⇒ **Wright-Patterson Educational Outreach Office’s** purpose is to share the base history, experience, and capabilities with the K-12 educational community through programs, partnerships, and individual involvement. The mission of their office is to attract, inspire, and develop student awareness and excitement in all fields of STEM, aviation, and

aerospace in order to develop our nation's future scientific and technical workforce to meet future defense technological challenges.

Background: The creation of a national talent development center that would house a “STEM for All” capability with emphasis on in-demand career areas, could elevate Ohio and the Dayton Region to a true national leadership position in this critical domain. The complex would deliver programming for traditional and non-traditional K-16+ students and teachers, provide STEM career pathway support for all elements of the workforce including both degree and sub-baccalaureate certificates, and serve as a nexus of collaboration for STEM organizations. Air Camp, Inc., DO STEM, and the Wright-Patterson Air Force Base Educational Outreach Office (WPAFB EO) are collaborating on a co-use center, the STDC, focused to inspire the nation’s next generation of aeronautical scientists, engineers, and technical workforce.

The region being rich in STEM relevance to the needs of the Air Force, industry and academia alike stood up the DO STEM Ecosystem with following three key priorities.

1. Inclusive by developing and executing an inclusive network committed to respectfully developing reciprocal collaborative relationships for the good of the community,
2. Equitable through ensuring equitable access to STEM across the region and,
3. Innovative by being a flexible and nimble network that employs creativity and innovation to address workforce needs and opportunity gaps in STEM.

Across the last several years through various regional organizations that now are embodied in DO STEM they have been able to develop a sustained collaborative network of reciprocal partners committed to leveraging community assets that enhance STEM learning and awareness. DO STEM has been able to expand equitable access to STEM education, experiences, opportunities, and careers, along with providing support for support for regional economic prosperity by encouraging a STEM prepared workforce. With a large bow wave of retirements pending, the increased national threats from Russia and China, the CHIPS Act, Honda Ohio’s E-vehicle production it is now time to grow DO STEM from a regional to a national model, which is why DO STEM has joined forces with Air Camp and the WPAFB EO Office on this project.

Vision: Inspire and equip successive generations to pursue education and training pathways for STEM-based careers.

Mission: Create an environment to inspire and equip a diverse pipeline of students and teachers to learn more about Science, Technology, Engineering, and Mathematics (STEM) with emphasis on real world challenges while providing the values of Scholarship, Leadership, and Citizenship.

Strategic Goals

1. Grow the STEM technical workforce in the region, the state, and the nation.
2. Facilitate partners in a global center of excellence to develop, attract and retain the top students, faculty, and researchers in the region and among its institutions and communities
3. Create cutting edge sustainable, effective ready access to STEM learning opportunities for learners of all ages

4. Facilitate and maintain a complete and comprehensive asset map filling current gaps including talent programs, and pathways for tomorrow's workforce
5. Create and develop a physical space and building for innovative STEM work, events, presentations, and research learning year round
6. Engender moments of learning which provide career opportunities for diverse learners from all backgrounds and cultures

Why Do Ohioian's Care? The Dayton Region and the State of Ohio already have many pockets of STEM activity, such as STEM schools (e.g., the Dayton Regional STEM School), STEM enrichment camps (e.g., Air Camp, Inc.), the WPAFB Educational Outreach Office, and STEM exploration centers (e.g., COSI in Columbus and the Boonshoft Museum of Natural History in Dayton). Even so, there are few educational resources at the K-16 level that are focused primarily on creating viable pathways for young people and non-traditional learners from diverse social and economic backgrounds to explore their STEM interests relative to future workforce needs.

The STEM talent development center will focus heavily on aviation and aeronautics but will also be the first center of its type in Ohio and the United States to emphasize the connection for people between STEM career development opportunities and next generation STEM workforce possibilities. Working with key regional partners such as the Dayton Regional STEM Center (and the Montgomery County Educational Service Center), Sinclair Community College and its unmanned aerial vehicle programming, Learn to Earn Dayton, regional universities, K12 STEM schools, and others, the Center will focus on:

1. Identifying pathways for STEM careers that allow students from diverse backgrounds to fully explore their interests and abilities. All students accessing and using the resources of the Center for STEM-related programming will be required to participate in YouScience to better match their interests and aptitudes with their career interests: <https://www.youscience.com/>
2. Identifying and implementing pathways for students to follow in a variety of in-demand career choices (e.g., Aviation and Aeronautics).
3. Creating a best-practice talent exploration and development center for aviation and aeronautics.
4. Serving as a hub for STEM efforts that connect career exploration activities for students with current and next generation STEM workforce needs, locally and nationally.
5. Helping build collaborations to create internship and work-based experiences for young people interested in in-demand STEM careers.
6. Develop and deliver programs that "fill the gaps" identified by an on-going regional STEM asset map being conducted by DO STEM.

Value Proposition: This STEM Talent Development Center will close the opportunity gap advancing the workforce and economic vitality of the Air Force and the region cradle to grave for students, workers, institutions, and communities of the state and federal government. The STEM Talent Development Center will provide a stable partnership infrastructure of collaboration and excellence among STEM-based organizations in the regions with a unified voice. Additionally, the STDC facility will centralize all Air Camp, WPAFB EO and DO STEM program administration and operations at one facility, enabling them to provide an unparalleled education venue for delivery of their unique STEM aviation and aeronautics curriculums. The program outlines for Air Camp and the WPAFB EO Office contain a number of common program elements: both have state-of-

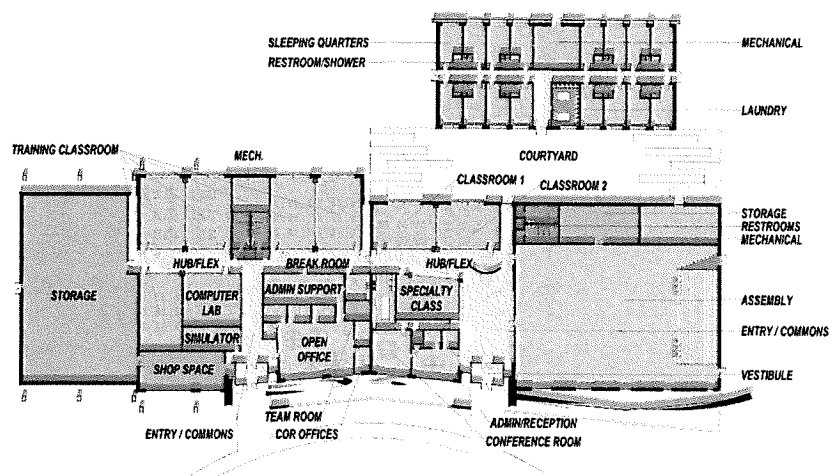
The STDC provides:

- ***Dedicated co-use educational spaces***
- ***Growth Capacity***
- ***Expedited educational content delivery; and a***
- ***Platform for broader regional and national outreach***

the-art curriculum aligned with science and math content standards; both are dependent upon and employ Dayton's rich aviation and aeronautics assets; and both utilize a hub-and-spoke mode of operations.

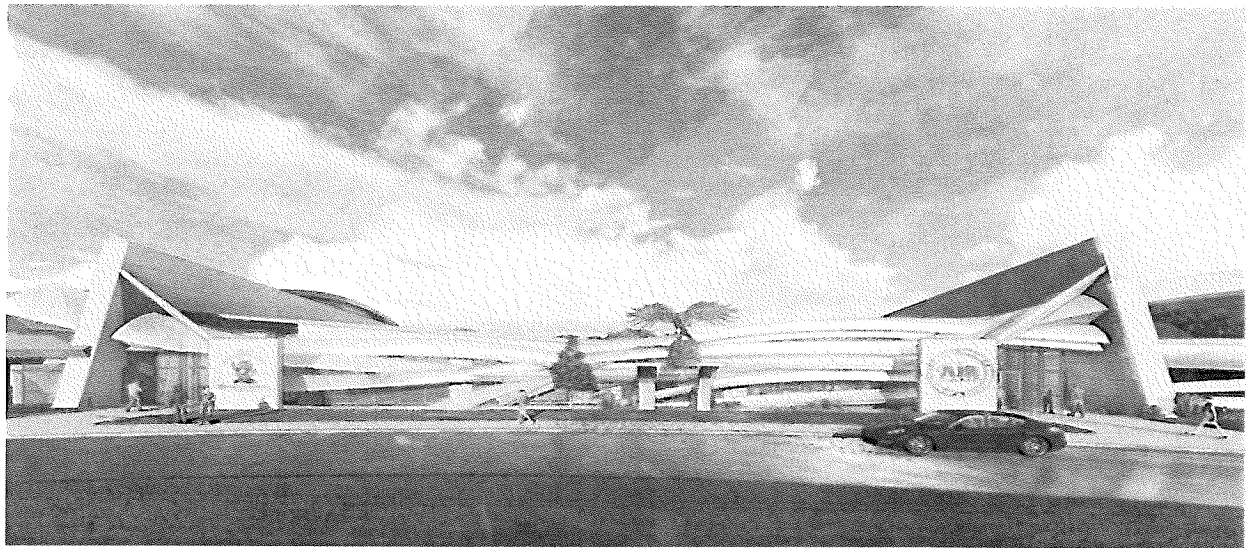
Both Air Camp and the EO Office transport large amounts of infrastructure and curriculum materials around Ohio to accomplish their engagements. Air Camp employs motor coach transportation to and from venues which, based on motor coach capacity, limits class size to 44 students. Air Camp also utilizes several facilities operated by other organizations, again limiting class size and schedule flexibility. All learning modules have been created to provide an authentic opportunity to engage with people and material resources at a broad variety of public and private STEM aviation and aeronautics sites throughout the year. Being permitted access to those sites in advance is rarely accommodated which impacts the staff's ability to train the teachers and volunteers in the environments they are going to teach in. The current training process for new and existing staff members and volunteers each year falls short without a dedicated facility, keeping the teaching staff from being as prepared as possible. The logistics complexity, size limitations, storage challenges, last minute venue cancellations, along with the time the teaching staff has to dedicate to addressing logistics, takes away from their time to focus on the delivery of quality aviation and aeronautics STEM curricula to the students. All of these issues would be eliminated with a dedicated center. At last count, the three programs combined have reached over 750,000 students, over 36,000 teachers from 29 states, with growing staffs, little to no storage capacity, and a geographically dispersed workforce. This creates significant stress in delivering quality educational content and deters the joint team from achieving its true potential.

The design itself creates an open, collaborative environment to facilitate the Air Camp's, DO STEM's and WPAFB EO's curricular needs. Large, flexible classrooms open to each other with sound-rated, operable partitions. Adjacent to the classrooms is a large, high-volume space that is designated for a wide variety of activities, from project experiments to large group functions. These rooms, along with dedicated administrative areas, all radiate from the heart of the building, designated the Commons space. Visual elements in the Commons combine different shapes, materials, and lighting to guide students through the space and highlight areas of interest. These elements are influenced by notional, abstract themes of flight.



In closing, Wright-Patterson Air Force Base and the Dayton region industries and educational institutions have been a leader in aviation and aeronautics development from the time of the Wright Brothers to Neil Armstrong and John Glenn leadership in the Apollo Program to today's aerospace age, where we stand on the cusp of routine hypersonic flight, Advanced Air Mobility (think - flying cars) and UAS capabilities. Every step of the way, through a deep knowledge of the fundamentals

of science, technology, engineering and mathematics, men and women of the region have taken on and overcome some of the world's most vexing technical challenges. However, their ability to impact students and teachers, regionally and nationally, is constrained by lack of suitable facilities. It is estimated that this proposed complex could at least double annual throughput of the combined organizations. The STEM Talent Development Center consolidates a truly remarkable capability under one roof and guarantees the delivery of unique and engaging aviation and aeronautical STEM learning experiences for decades to come. The STDC will become a national icon that further solidifies our region as the birthplace, home, and just as important, the future of Aerospace.





NATIONAL AVIATION
HERITAGE AREA

November 2, 2022

Come. Discover. Fly!

Air Camp

Armstrong Air & Space Museum

Aviation Trail, Inc. Visitor Center
& Parachute Museum

Dayton Aviation Heritage
National Historical Park

Hawthorn Hill

Huffman Prairie Flying Field

*Huffman Prairie Flying Field
Interpretive Center*

*John W. Berry, Sr.
Wright Brothers National Museum
at Carillon Historical Park*

Paul Lawrence Dunbar State Memorial

Wright Company Factory

*Wright-Dunbar Interpretive Center and
the Wright Cycle Company*

Dayton Convention & Visitors Bureau

Dayton History

Greene County Historical Society

Greene County Convention
& Visitors Bureau

Historic Grimes Field
*Champaign Aviation Museum
Grimes Flying Lab Foundation*

Historic WACO Field

National Aviation Hall of Fame

National Museum of the
United States Air Force®
& Air Force Museum Foundation

Ohio History Connection

Vectren Dayton Air Show

Woodland Historic Cemetery
& Arboretum

Wright B Flyer, Inc.

The Wright Brothers Family Foundation

Wright Image Group

Wright-Patterson Air Force Base

Wright State University
Special Collections and Archives

Priority Development & Advocacy Committee
Dayton Development Coalition
1401 S Main St Suite 200,
Dayton, OH 45409

Dear PDAC Committee Members:

The STEM Talent Development Center project is a unique private-public partnership between Wright Patterson AFB, Air Camp, and a new group called DO STEM. With Air Camp as the project lead, this partnership will create a new 52,000+ sq ft building with dormitory at Wright-Patterson AFB. This facility will serve as the home base and educational center for the "STEM for All" programs. I ask that this PDAC committee provide a priority ranking for their \$7 million request for equipment.

The new facility will deliver and coordinate programming for K-16 students and teachers, provide a STEM career pathway support for all elements of the workforce including both degree and sub-baccalaureate certificates, and serve as a nexus of collaboration for STEM organizations. The collaboration seeks to inspire and equip successive generations to pursue education and training pathways for STEM-based careers. In turn, the collaboration will address workforce development challenges in our region. The idea is to create dedicated co-use educational space that will in turn increase growth capacity of all the partner organizations. The Center will provide expedited education delivery and serve as a platform for broader regional and national outreach.

While the partnership has developed a plan for the physical structure and use of the STEM Talent Development Center, this request will support the interior equipment. I encourage you to read their proposal thoroughly and lend your support to this project.

Sincerely yours,

Mackensie Wittmer

Mackensie Wittmer
Executive Director