

Air Camp and Educational Outreach Complex (ACEOC)

Air Camp, Inc. and the Wright-Patterson Air Force Base Educational Outreach Office (WPAFB EO) are collaborating on a co-use education complex, the Air Camp and Educational Outreach Complex (ACEOC), focused to inspire the nation's next generation of aeronautical scientists, engineers and technical workforce.

The idea of an Air Camp in the Dayton region was a vision shared by a small group of community leaders in 2003 following the 100th anniversary celebration of powered flight (Inventing Flight). Over the next six years, this group worked tirelessly to flesh out the concept; then in 2009 working with the regional STEM Fellows, they developed a state-of-the-art STEM-based curriculum conforming with the State of Ohio Department of Education guidelines, which is today at the heart of Air Camp.

Mission: Deliver an exciting and challenging hands-on adventure in aviation and aeronautics to inspire students and teachers to learn more about science, technology, engineering, and mathematics (STEM) while promoting the values of Scholarship, Leadership, and Citizenship.

In 2010, their vision became a reality when an inaugural class of 40 middle school students from 12 states kicked off Air Camp. In 2015 Air Camp held its first Teachers Air Camp, and in 2017 Air Camp hosted its inaugural grade school day camp. Metrics for 2019 show that Air Camp impacted over 33,121 students from 29 states and 218 teachers from 28 States.

Air Camp programming includes three types of camps. The flagship offering is an overnight middle school camp for rising 7th, 8th and 9th grade students, running six days, at approximately 15 contact hours per day. Students are housed at a local major university and transported to event locations. Air Camp also hosts Day Camps for rising 4th, 5th, and 6th grade students; these camps run five days with 8 contact hours per day. The third offering is for teachers in the form of Teachers Camps, which run for three-and-a-half days, with 15 contact hours per day. Two additional types of camps will be offered in 2021: a week-long overnight camp for high school students (rising 10th, 11th, and 12th graders) that will emphasize career opportunities in aviation and aeronautics; and a three day Adult Aviation Adventure. Multiple one-day events for most grade level students are also being planned for 2021.

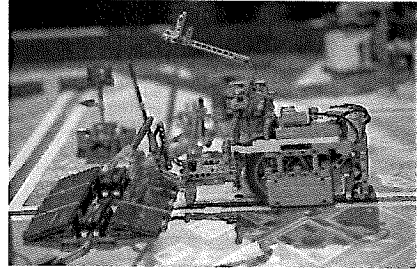
The WPAFB EO has a similarly broad and far reaching impact by facilitating partnerships within the K-12 educational community, specifically focused on increasing students' awareness and excitement in all fields of math, science, aviation, and aerospace. The EO is a partnership between the Air Force Life Cycle Management Center (AFLCMC) and the Air Force Research Laboratory (AFRL), which began in 1998. Across the last 20 years they have directly reached 700,000 local students and 36,000 teachers who have participated in Base EO programs ranging from classroom visits and one-on-one job mentoring, to tutoring young students on reading fundamentals. Offered across 92 Ohio school districts with more than 200 additional schools being provided program information, the program has supplied over \$43.9 million in free educational programs, along with over 750,000 WPAFB member volunteer hours since its inception to support educational programs.

Mission: 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 technological workforce to meet future defense technological challenges.

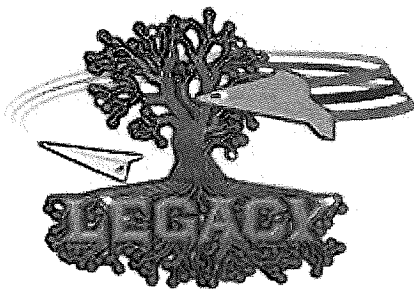
The WPAFB EO programs include *FIRST*[®] Robotics, Department of Defense STARBASE, Wizards of Wright, Department of Defense STARBASE 2.0, Job Shadow Day at WPAFB, Science



Fair Support, Teacher Workshops, and direct support for many community events. As the Affiliate Partner to *FIRST*[®] for *FIRST*[®] LEGO[®] League, *FIRST*[®] LEGO[®] League Jr., and *FIRST*[®] Tech Challenge, WPAFB EO manages the tournament structure for the state, recruits and trains volunteers at every level, provides workshops for teams and coaches, and in partnership with Wright State University, runs the Ohio *FIRST*[®] LEGO[®] League Championship Tournament every February at the Ervin J. Nutter Center. *FIRST*[®] LEGO[®] League in Ohio has grown from twenty teams and over 300 students/mentors in 2001 to over 500 teams and over 8,000 students/mentors across Ohio in 2015-16. In 2012, WPAFB EO became the Ohio Affiliate Partner for *FIRST*[®] LEGO[®] League Jr. Since then, the program has grown to over 125 teams and fifteen Expos throughout the state. In conjunction with the Ohio *FIRST*[®] LEGO[®] League Championship, WPAFB EO runs a twenty team *FIRST*[®] LEGO[®] League Jr. Expo.



In 2016, the WPAFB EO Office created the Leadership Experience Growing Apprenticeships Committed to Youth (LEGACY) Program which is the premiere student program that employs students from within the STEM pipeline to enhance the nation's future STEM workforce. LEGACY is an Air Force program that changes the game when it comes to identifying and retaining young diverse talent that will make up the future workforce. This three-phase program is designed to propel a middle school student to an Air Force STEM career after college graduation. The three phases of LEGACY are Craftsman (age 11-15), Junior Apprentice (age 16+), and Apprentice (college). Craftsman students are inspired through a series of week-long camps with hands-on experiences and opportunities to engage with their peers. Junior Apprentice students



experience a six to eight-week internship during which they work under the guidance of a mentor, showcasing their projects at the end of the session. Apprentice students build on their experience from the Junior Apprentice phase. Working under the tutelage of a WPAFB mentor, they are expected to be more independent and have more responsibility. These students grow into mentors for younger students in the program. Mentoring plays a vital role in LEGACY. The strength and prestige of LEGACY is a direct result of enthusiastic students, quality mentors and volunteers.

Air Camp and the WPAFB EO Office work together maintaining and promoting educational partnerships with the AFLCMC, AFRL, the National Museum of the United States Air Force (NMUSAF), the 88th Air Base Wing, the 445th Airlift Wing; the Dayton International Airport, Carrilon Park, United Airlines, Sinclair Community College, the University of Dayton, Wright State University, the Dayton Regional STEM School and the STEM Center Dayton Region. Additionally the EO Office maintains and promotes educational partnerships with *FIRST*[®], local school districts, Junior Achievement, and the American Society of Mechanical Engineers.

WPAFB is the most organizationally complex base in the U.S. Air Force. This 8,145-acre military reservation located near Dayton, Ohio, encompasses parts of Greene and Montgomery counties and has over 600 office, laboratory, and support buildings. It employs over 30,000 people with an economic impact of \$15 billion per year. The base is the largest single site employer in the state of Ohio, and the largest employer among Air Force bases worldwide. Its occupants include over 100 on-base associate units. With over 600 structures, many dating from the pre-1946 period, Wright-Patterson may also be the Air Force's most historically significant base. Major military units assigned to the installation are Headquarters Air Force Materiel Command, Headquarters Air Force Life Cycle Management Center, Headquarters Air Force Research Laboratory, the Air Force Institute of Technology, the National Air and Space Intelligence Center, the National Museum of the U.S. Air Force, 445th Airlift Wing (Air Force Reserve Command), a National Park, a regional Department of Defense medical center, and numerous other Air Force, Department of Defense, and government agencies. Dayton also hosts significant research and development industries in the fields of industrial, aeronautical, and astronautical engineering that have led to countless technological innovations, mainly due to WPAFB and its place in the community.

The Air Camp and WPAFB EO programs have successfully incorporated these unparalleled education venues in their unique STEM aviation and aeronautics curriculums. The need for the ACEOC Project originated from the resounding success of both programs, which led them to outgrow their existing facilities. Currently, the two programs combined have reached over 730,000 students along with 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.

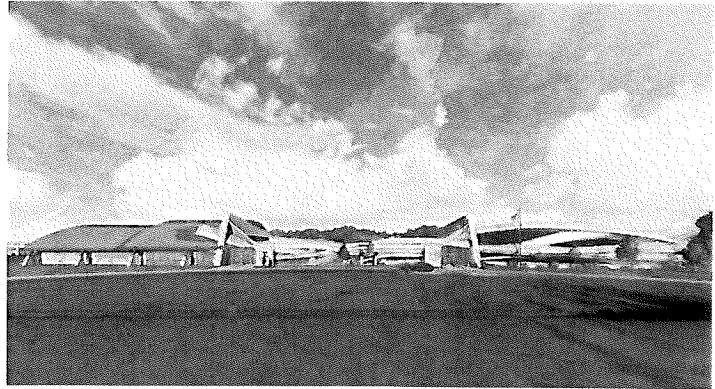
The program outlines for Air Camp and the WPAFB EO Office contain a number of common program elements: both have state-of-the-art curriculum aligned with science and math content standards; both are dependent upon and employ Dayton's rich aviation and aeronautics assets; and both utilize a hub-and-spoke 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 ACEOC provides:

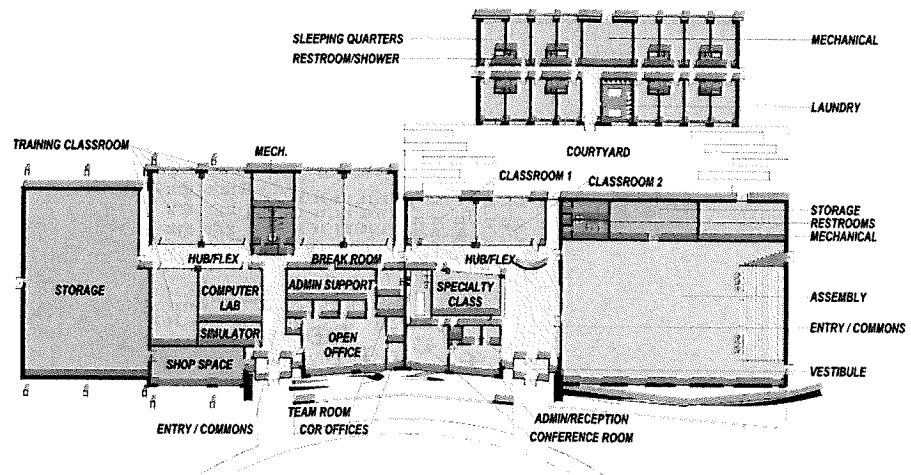
- ***Dedicated co-use educational spaces***
- ***Growth capacity***
- ***Expedited educational content delivery; and a***
- ***Platform for broader regional and national outreach***

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 complex.

An architectural rendering shows how the facility would appear, optimized to address the needs of both programs. Two core abstract concepts of aviation, in general, are movement and airflow. These ideas are expressed by the external appearance of the Air Camp portion of the building with unique materials and structural shapes. In the study of aerodynamics, movement and airflow are visualized through the use of wind tunnel smoke streamlines. These are the inspiration for the building's exterior façade, evoking a sense of speed, lift, and vertical velocity. The metal and glass used in construction reinforce the aura of modern flight vehicles. In addition, a tie to the history of flight is achieved through the World War II hanger-like portion of the building that would house the WPAFB EO Office.

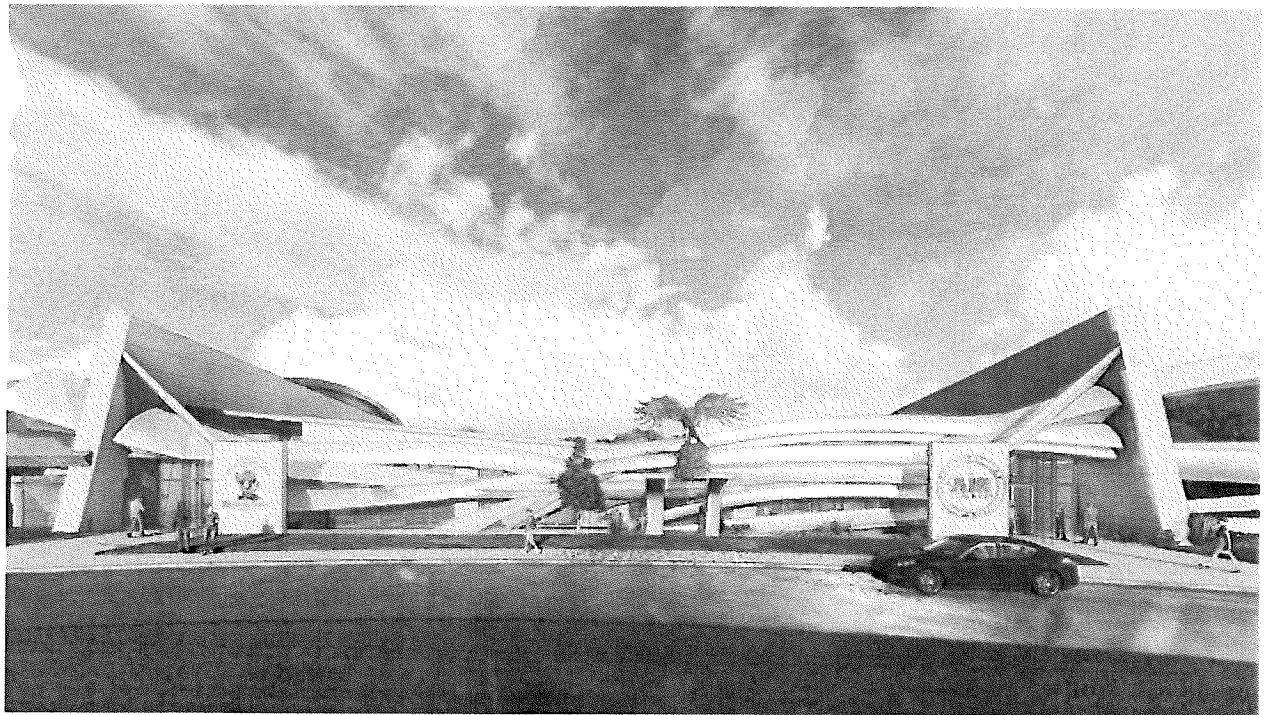
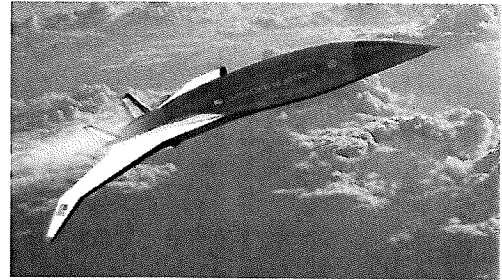


The design itself creates an open, collaborative environment to facilitate the Air Camp's and WPAFB EO's curricular needs. Large, flexible classrooms open to each other with sound-rated, operable partitions. Adjacent to the classrooms is a large, high-volume space that is designated for a wide variety 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 particular areas of interest. These elements are influenced by notional, abstract themes of flight.



The Air Camp and Educational Outreach Complex consists two buildings with a total of 52,840 sq-ft made up of the following square footages; Air Camp at 19,450 sq-ft; the Educational Outreach at 25,655 sq-ft, and the Sleeping Quarters at 7,735 sq-ft (\$2.3M of the total costs). The project is envisioned to be sited on at least 7 acres through an Enhanced Use Lease with access from Springfield Street between the entrance to WPAFB Area B and the NMUSAF. Excluding the land cost and program specific costs, \$17.2M is estimated to be required to build the facilities as described and rendered above. The sleeping quarters could be part of a phased construction plan.

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 today's aerospace age, where we stand on the cusp of routine hypersonic flight. 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 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 Air Camp and Educational Outreach Complex 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 ACEOC can become a national icon that further solidifies our region as the Birthplace, Home, and Future of Aerospace.





**DEPARTMENT OF THE AIR FORCE
AIR FORCE RESEARCH LABORATORY
WRIGHT-PATTERSON AIR FORCE BASE OHIO**

5 November 2020

AFRL/CA
1864 Fourth Street
Wright-Patterson AFB OH 45433-7130

Dr. Vincent Russo
Air Camp, Incorporated
Dayton OH 45475

Dear Dr. Russo

I am encouraged and excited with the opportunities and potential of a partnership described in the joint application made to the Dayton Development Coalition Public Development & Advocacy Committee (PDAC). The synergies that can be realized between the Wright-Patterson Air Force Base Educational Outreach Office (WPAFB EO), the AF Science, Technology, Engineering, and Mathematics (STEM) program and Air Camp, Incorporated, could be boundless by the joint use of the proposed Air Camp and Educational Outreach Complex (ACEOC). The facility proposed in the application will provide immeasurable value to the United States Air Force, South Western Ohio, and the Nation, by delivering top quality STEM education for K-12 students, faculty, and staff.

The Air Force Research Laboratory recognizes that the WPAFB EO and Air Camp have been energetic and effective regional and national leaders in working with government, industry, colleges and universities, and K-12 educational institutions to create and deliver quality educational content setting the foundation for our nation's future technical workforce. The direct, measurable impacts these programs have had is most impressive; however, those impacts have been constrained by the lack of suitable facilities from which to operate. As stated in the PDAC application, the ACEOC will provide dedicated co-use educational spaces. It will also provide both programs the capacity to grow their programs, train teachers, staff and volunteers; while expanding the delivery of educational content to a diverse audience, and providing a platform to impact the Miami Valley, Ohio, and national educational outreach.

An important benefit of this initiative will be the strengthening of the collaboration between the WPAFB EO and Air Camp. I believe joint efforts will ensure that the pipeline of a well-educated and technically capable workforce will strengthen and grow as the needs of the Air Force, our other national security institutions, and our economy evolve. We believe the proposed facility could well become an icon for the type of partnerships needed to guarantee our collective security and economic well-being, while reinforcing this region's reputation as the Birthplace, Home, and Future of Aerospace.

The PDAC application for the ACEOC will build excitement and enthusiasm in the technical capabilities of the Miami Valley and I am encouraged by the prospects. Please consider us a wingman in this effort and keep us informed as the project progresses.

Sincerely

BLACKHURST.JA Digitally signed by
BLACKHURST.JACK.L.1033098
CK.L.1033098266 266
Date: 2020.11.05 14:39:09 -05'00'

JACK L. BLACKHURST, SES
Executive Director



NATIONAL AVIATION
HERITAGE AREA

October 30, 2020

Come. Discover. Fly!

Elaine Bryant, Chair
PDAC Defense Review Panel
c/o Dayton Development Coalition
1401 S. Main St. Suite 200
Dayton, OH 45409

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 Laurence 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

Dear Elaine,

On behalf of the National Aviation Heritage Alliance, the management entity of the heritage area, it is my pleasure to endorse the Air Camp and WPAFB Educational Outreach Complex proposal in the 2020 Dayton Region Priority Development and Advocacy Committee process.

Air Camp has been a heritage area partner since 2012 and is currently co-located at the Heritage Area offices. Air Camp, an elementary day and residential middle school and teacher camp, has grown to serve tens of thousands of students and teachers each year. Air Camp needs a dedicated facility to expand their national and international impact. Likewise, the WPAFB Educational Outreach Office is our region's leader in K-12 competitive robotics teams and serves our community through the Wizards of Wright STEM program which is free to all teachers.

Both Air Camp and the WPAFB Educational Outreach office are outstanding elements of our community's STEM ecosystem. A dedicated facility easily accessible to the public will increase both organizations' ability to serve their audience, expand their programs, and leverage a unique private-public partnership for greater creativity and collaboration. The proposed building complex will continue to expand our region's STEM pipeline and increase our region's identity as being the birthplace, home, and future of aerospace.

Sincerely yours,

Mackensie Wittmer

Mackensie Wittmer
Executive Director



NATIONAL AVIATION
HERITAGE AREA

October 30, 2020

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 Laurence 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

Stephanie Keinath, Chair
PDAC Quality of Life Review Panel
c/o Dayton Development Coalition
1401 S. Main St. Suite 200
Dayton, OH 45409

Dear Stephanie,

On behalf of the National Aviation Heritage Alliance, the management entity of the heritage area, it is my pleasure to endorse the Air Camp and WPAFB Educational Outreach Complex proposal in the 2020 Dayton Region Priority Development and Advocacy Committee process.

Air Camp has been a heritage area partner since 2012 and is currently co-located at the Heritage Area offices. Air Camp, an elementary day and residential middle school and teacher camp, has grown to serve tens of thousands of students and teachers each year. Air Camp needs a dedicated facility to expand their national and international impact. Likewise, the WPAFB Educational Outreach Office is our region's leader in K-12 competitive robotics teams and serves our community through the Wizards of Wright STEM program which is free to all teachers.

Both Air Camp and the WPAFB Educational Outreach office are outstanding elements of our community's STEM ecosystem. A dedicated facility easily accessible to the public will increase both organizations' ability to serve their audience, expand their programs, and leverage a unique private-public partnership for greater creativity and collaboration. The proposed building complex will continue to expand our region's STEM pipeline and increase our region's identity as being the birthplace, home, and future of aerospace.

Sincerely yours,

Mackensie Wittmer

Mackensie Wittmer
Executive Director