

Washington State Department of Transportation (WSDOT)

2024 Air Mobility Aircraft Plan

Packet A





1. Qualifications/Expertise of Firms on Team

Woolpert, Inc. is an international Architecture, Engineering, and Geospatial (AEG) firm committed to serving clients of all sizes and backgrounds with an array of expertise, multidisciplinary capabilities, and technical support. Founded in 1911, our decades in the aviation industry translate to reliable and actionable research, consulting, planning, design, and construction deliverables. Our knowledge and expertise help state clients and individual airports navigate a wide range of requirements: airport design, system and master planning, and air traffic analysis. Furthermore, innovative geospatial services like mobile lidar; subsurface utility engineering; and unmanned aircraft systems (UAS), Advanced Air Mobility (AAM), and advisory and technology consulting provide forward-thinking solutions. Woolpert has successfully performed AEG services at more than 1,400 airports around the world.

Woolpert, through our acquisition of aviation planning firm Aviation, has extensive history and understanding of Washington's aviation system. Our team includes individuals previously involved in Washington's previous State Aviation System Plan. Locally, Woolpert has an office in Port Orchard, WA with 14 employees and varying expertise including hydrographic surveying and marine technology.

The Woolpert Team has led most of the nation's first AAM planning and research project at a federal and state level. The Team has been involved in various statewide AAM planning initiatives over the past four years—we understand how to identify challenges and opportunities specific to the Washington region. Additionally, our experience includes FAA-funded research into vertiport design criteria, infrastructure requirements definition, airspace obstacle analysis, and data standards development. Our team was deeply involved in the development of Engineering Brief 105, Vertiport Design, and we continue to support the FAA in developing guidance through additional research and operational testing with eVTOL original equipment manufacturers (OEMs). **Ultimately, our team will have led the research for the vertiport design advisory circular and the nation's first AAM strategic system plans.**

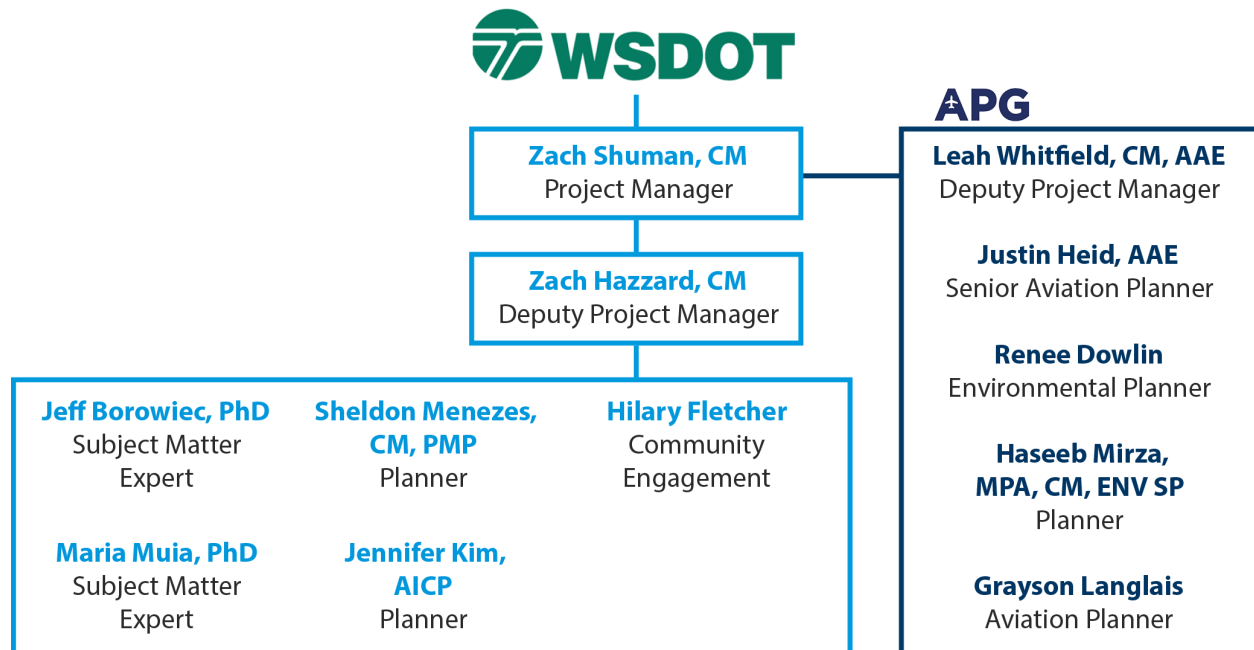
Our diverse team of former FAA air traffic management experts and veteran airport planning staff will conduct holistic planning and stakeholder engagement and ensure the deliverables can be easily understood by internal and external stakeholders. Lastly, our team's continual work with many prominent OEMs and potential operators has fostered strong relationships. Some of these projects included executed Non-Disclosure Agreements (NDAs), thereby ensuring that our consulting services are rooted in a thorough awareness of the entire AAM ecosystem. **Woolpert's comprehensive engagement history and NDAs with many OEMs and detailed understanding of the AAM industry and aircraft capabilities will be leveraged to gather updated information, refine OEM and operator requirements, and measure impacts to WSDOT.** The degree of AAM integration and involvement allow us to best support your goals and objectives in this rapidly evolving environment.

Woolpert leads the industry in preparing relevant and innovative statewide AAM system plans that use forward-thinking approaches and technology to assist our clients. We will deliver a creative, flexible, and phased plan that meets WSDOT objectives, aligns with FAA guidance, and anticipates the needs of a robust AAM system.



The Aviation Planning Group, LLC (APG) is a majority woman-owned collaborative aviation firm experienced in AAM planning studies and vertiport siting, including in WA. Founded in January of 2020 by Justin Heid and Leah Whitfield, APG has incorporated AAM into airport planning from the very beginning. Recent AAM project experience has included the Illinois AAM System Plan forecasting and public involvement; planning studies at the following airports in Washington: Olympia, Chehalis-Centralia, and Tacoma Narrows all which incorporated AAM into their master plans and landside planning studies; Wittman Regional Airport Vertiport siting (OSH); Feasibility Studies for Aerospace Innovation hubs which included a vertiport; and coordination and planning for VIE across the country. APG was also recently selected for a regional AAM study in Michigan. APG now has a staff of over a dozen planners and engineers with experience as airport managers, airport staff, active pilots, and state aeronautics staff who have decades of planning experience across the US. Their staff’s active engagement with their infrastructure partner, in aerospace innovation hub studies, and involvement at the national level with various organizations focused on AAM uniquely position them to ensure Washington is a state of the future. APG is a certified DBE firm in the State of Washington, and they have strong relationships with the WSDOT, the Seattle ADO, and the FAA Northwest Mountain Region staff, with APG staff having worked in the region for many years.

Woolpert and APG have worked together on one project so far: an ACRP study 02-101. Monthly employee availability hours for this project can be found at the end of this packet.





Project Descriptions

Georgia Department of Transportation (GDOT) Advanced Air Mobility Study

The GDOT AAM Study was a comprehensive effort to research, analyze, and advance AAM in Georgia. The Study consisted of five primary efforts:

- A technical report covering many AAM topics focused on Georgia, including an overview of state actions regarding AAM; AAM use cases in Georgia; best practices for landing area regulation and safety; initiatives to advance AAM in Georgia; an assessment of the potential economic impact of AAM; an overview of heliports in Georgia, and their adaptability to AAM; an overview of airports and AAM; and an overview of charging infrastructure and cost estimates to install chargers at Georgia airports.
- Concepts of Operations: The AAM Study Concepts of Operations (CONOPS) document details four CONOPS for AAM operations in Georgia, including an air taxi operation in the Atlanta metro area, a special event (Augusta Masters Golf Tournament) operation, an air rural commuter operation, and a regional air mobility operation between the Atlanta metro area and Hartsfield-Jackson Atlanta International Airport. The document provides theoretical locations and routes for AAM aircraft and the potential impacts to ground congestion.
- Heliport and Airport Analysis: The Heliport Analysis contains tables detailing each of the state's heliports and why they may or may not be adaptable for AAM operations and an analysis of any with the potential to be adapted. The airport analysis detailed ten airports' compatibility for AAM based on the airport's capacity, airfield design and landing infrastructure, electric aircraft charging, electric fire safety, and supporting infrastructure.
- Community Guidebook: The AAM Study Community Guidebook is a resource developed in the study for local governments. The Community Guidebook provides a wide range of information on AAM with a focus on what AAM is for a non-aviation audience, as well as best practices that local governments can take to prepare for AAM in their communities. aBlueprint and Action Plan: The AAM Study Blueprint and Action Plan is the state's roadmap to prepare for AAM in the coming years. It describes actions that can be taken to engage stakeholders, support local governments, develop an AAM workforce, and expand economic development efforts. These actions are then organized into three phases in order of actions that are occurring already, immediate next steps, and medium-term steps.
- Administrative Updates: The AAM Study Administrative Updates document contains a variety of legislative considerations that can be taken to advance AAM in Georgia and draft language that would update the Georgia Administrative Code to account for AAM.

Project Details



- Services included statewide AAM planning, concepts of operations documents, inventory of existing infrastructure, airport AAM analysis, community guidebook, and an action plan.
- Fee: \$432,479

Florida Department of Transportation Advanced Air Mobility Planning

The Florida Department of Transportation (FDOT) Aviation Office (AO) initiated this planning project in response to the rapid growth of advanced AAM and urban air mobility (UAM). Woolpert was selected to engage with FDOT AO for multiple phases and help them become one of the first agencies at the state level to develop a welcoming but thoughtful plan for new entrants and innovation.

AAM integrations present challenges that require innovation, regulation, planning, and significant infrastructure improvements. This effort defined FDOT AO's goals, identified areas where AAM development is likely, and highlighted the actions required for successful implementation.

Woolpert's first two tasks were to develop a Florida AAM Roadmap and a Florida Airports Compatibility Report. The Woolpert team studied 30 airports and the surrounding land use and airspace to determine locations for potential AAM infrastructure, specifically full vertiport facilities and minimum standards for them. Since the Federal Aviation Administration's own guidance on this topic is in development, this state-level planning effort provided interim standards for vertiport operations. This baselining was supported by an inventory of Florida General Aviation airports and their facilities to determine a minimum threshold for AAM operations.

The Woolpert team ultimately created an interim roadmap to allow the AAM market to emerge before it embarks on the traditional planning elements familiar to a FAA-guided aviation system plan. This roadmap detailed AAM's entry, evolution, and eventual integration into the state's transportation infrastructure. It also includes best practices for communities integrating AAM operations. The reports included many air traffic considerations that may limit capacity at existing facilities in an effort to avoid undesired outcomes of AAM integration.

Woolpert's UAS/AAM experts ensured FDOT understood the basic needs of an AAM operator, where those operations might likely first appear, the gaps in infrastructure, and how to strategically plan and regulate the new entrants. This phase was completed on time and within budget.

Woolpert then worked with FDOT on a second phase of the project, to assemble an AAM working group filled with eVTOL manufacturers, airports, local governments, planning organizations, and state and federal officials. Woolpert facilitated four working group sessions and utilized the comments and discussion from the group to develop a working group report that detailed nearly twenty recommendations across four areas of focus. These recommendations led to FDOT tasking Woolpert with developing an Implementation Plan to organize the recommendations into actionable phases.



The ongoing third phase of the project is the implementation of the first recommendations from the prior phase. Woolpert continues to work with FDOT hosting an advisory committee that oversee FDOT's action on AAM and is hosting tabletop exercises with local, state, and federal government entities to test guidance on vertiport development and the integration of AAM at existing facilities. Woolpert is writing an AAM Land Use Guidebook and will work with FDOT to conduct a statewide outreach campaign to prepare local governments for AAM.

Woolpert's work on AAM in Florida has been lauded by industry, state officials, and federal officials alike, and demonstrates Woolpert's leadership in the AAM industry. Woolpert can bring this level of expertise to Washington and leverage the extensive work and relationships developed to add additional value to our project approach.

Project Details

- Services included land use and airspace studies, AAM planning, Interim vertiport standards development, assembling and facilitating a working group, developing an implementation plan, and writing an AAM land use guidebook
- Fee: \$2.15M

State of Alaska Advanced Air Mobility Infrastructure Study

The State of Alaska, Department of Transportation and Public Facilities (DOT&PF) manages and operates the state airports and the aviation programs throughout the state of Alaska. Woolpert was selected to evaluate the state's current aviation infrastructure and existing plans, consider enhancements based on current operating needs, and incorporate UAS and AAM concepts into the state's planned aviation outlook.

The inventory of existing infrastructure used the most recent Alaska State Aviation System Plan as the foundation. Woolpert's tasks include reviewing the goals of the FAA Alaska Aviation Safety Initiative (FAASI) and the recent U.S. Government Accountability Report "Transforming Aviation-Stakeholder Identified Issues to Address for 'Advanced Air Mobility.'" This study also considers planning enterprises currently being developed by other states and the FAA.

The notional plan to achieve AAM capabilities will consider known trends and FAA processes. Per guidance from DOT&PF, the report will be formulated to begin with a gap analysis of the current system and legacy operations, leading to recommendations formulated to enable AAM operations.

The Woolpert team has created a GIS dashboard application to depict current assets and the ranges of the different types of equipment. It also contains layers to give personnel access to funding and projects within the state's system.

As a result of Woolpert's work, the Alaska DOT&PF has a document that capture the existing aviation infrastructure state, give officials a graphics tool to inform stakeholders, and provide a strategic framework for future investments. These plans have a two-pronged focus, to address important shortfalls that may exist, and to work towards a comprehensive vision of legacy operations and an effective AAM network. The ultimate system goals incorporate appropriate levels of redundancy, equitable transportation of people and goods across the state and increasing modality options.

Project Details

- Services included Aviation System Planning, Infrastructure Inventory, FAA/State DOT Coordination, AAM Integration Assessment
- Fee: \$120,000

2. Qualifications of Proposed PM

Zach Shuman, CM | Project Manager



Experience 10 years

Education

BS Political Science, Minor in Economics

Certificate, Application of Unmanned Aircraft Systems

Certificate, Emergency Management and Homeland Security

Professional Registration Remote Pilot License, National #4167981; Certified Member (CM), American Association of Airport Executives

Professional Membership American Association of Airport Executives

Relevant Experience

- ✓ Lead the first AAM state system planning projects across the country
- ✓ Program Director on FAA Vertiport Design Research
- ✓ Former state government employment experience
- ✓ Subject Matter Expert consulting eVTOL manufacturers
- ✓ Extensive policy and technology background

As the National Aviation Practice Leader, Zach Shuman manages Woolpert's aviation national business development, research and development and strategic planning. Beyond traditional planning, Zach specializes in the exploration of UAS applications and AAM. Along with UAS integration for operational efforts, Zach assists clients with navigating their aviation policies, helping them ensure compliance with service guidance, state and local policy and procedures, and FAA regulations.

As UAS and AAM emerge as an important new frontier, Zach has kept his finger on the pulse of their growth in the aviation industry. In a little over five years, he has seen the significant increase of Woolpert's capabilities as both a data collection and consulting firm and has taken the program from an early concept to the de facto leader in emerging aviation topics at airports and in the NAS. Zach is also the principal investigator on research and planning projects for federal and state clients on topics such as airport master planning, airports response to UAS and FAA research on wrong surface landings and autonomous vehicles. In the AAM research space, Zach leads the development of the new vertiport design AC and regularly consults on planning for this era of aviation for six state DOTs.

On every project Zach has managed, scope, schedule, and budget were met. Zach has extensive project management experience, specifically with AAM related material. He has regularly met



the constant industry changes and advancements by building extensive relationships with AAM industry leaders. All deliverables are built to be resilient and useful beyond the confines of the project schedule. On projects managed under Zach’s leadership, changes are well documented and met with innovative solutions that fit within the project schedule and budget.

Zach is an active part of the industry dialog and volunteers on an FAA-funded National Safe Skies Alliance airport safety board. He is also a regular speaker at national conferences on UAS implementation and safety. Prior to joining Woolpert, Zach worked at the Executive Office of the Governor and has earned multiple degrees from Florida State University.

Project Experience

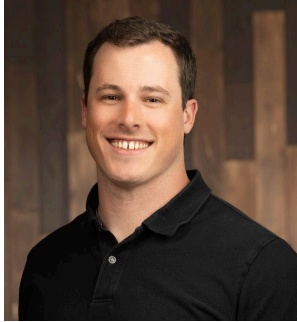
Advanced Air Mobility Planning , Florida Department of Transportation (FDOT)—Various Locations, Florida. November 2021-Ongoing. Program Director responsible for the overall execution of the project. Woolpert is engaged with FDOT Aviation Division on all planning for AAM project. The team is helping to create a long-term plans that allow the AAM market to emerge. Woolpert has developed the AAM Working Group, roadmap strategic plan and now is updating the land use compatibility guidebook to incorporate AAM. Woolpert continues to manage the engagement with nearly 75 entities across the state.

Vertiport Design for eVTOL, Federal Aviation Administration, Atlantic City, NJ. September 2020-September 2023. Program Director responsible for overseeing all research efforts and the development of the new advisory circular. Woolpert was selected to study and develop recommendations for vertiport design standards for vertical takeoff and landing aircraft, optionally piloted aircraft and unmanned aircraft. Woolpert leads all field testing as it relates to eVTOL interaction with the ground including landing precision, downwash and outwash and taxi-turn radius. Additionally, Woolpert has developed capacity models, modeling and simulation and supported the development of Engineering Brief 105.

Advanced Air Mobility Infrastructure Study, State of Alaska, Department of Transportation and Public Facilities (DOT&PF) — Various Locations, Alaska. October 2022-Ongoing. AAM Integration Subject Matter Expert for this project. Woolpert was selected to provide a gap analysis for determining infrastructure needs to support AAM in Alaska. The scope of work of this contract is to conduct an inventory of existing infrastructure, beginning with the previous Alaska State Aviation System Plan as the foundational environment. Woolpert is also incorporating goals from the FAA Alaska Aviation Safety Initiative (FAASI) and recent U.S. Government Accountability Report, “Transforming Aviation-Stakeholder Identified Issues to Address for ‘Advanced Air Mobility.’”



3. Key Team Members Qualifications



Zach Hazzard, CM | Deputy Project Manager

Currently based in Colorado, Zach Hazzard began his aviation planning career in 2018, focusing on airport statewide system planning and economic impact studies. He has experience in mapping software, remote and in-field data collection, and data analysis. In recent years, Zach has become a leader in planning efforts for AAM at the state and airport levels. He has led statewide planning efforts for AAM in Florida and Georgia (FDOT, GDOT), and airport planning efforts for the Miami-

Dade Aviation Department, the Broward County Aviation Department, the Wayne County Airport Authority, and Miami University Airport in Oxford, Ohio. Zach also participates in the National Association of State Aviation Officials (NASAO) and in 2023 spoke on a NASAO panel where he presented findings from statewide AAM studies

Project Experience

Advanced Air Mobility Roadmap, Working Group, and AAM Implementation, Florida Department of Transportation. November 2022 – Ongoing. Planner and researcher on the Florida DOT Aviation Office’s AAM efforts, including a Roadmap, Policy Framework, and Best Practices for Local Governments. Lead author of the FDOT AAM Working Group Report, which includes legislative, regulatory, and advisory recommendations for the State of Florida to support the integration of AAM. Current project manager and lead planner for the implementation of FDOT AAM Working Group report, which includes an AAM Land Use Guidebook, tabletop planning exercises, and hosting the FDOT AAM Advisory Committee.

Advanced Air Mobility Study, Georgia Department of Transportation March 2023 – March 2024. Lead planner for the Georgia Department of Transportation’s Study on Advanced Air Mobility. The study was a comprehensive effort on AAM that researched nationwide efforts on AAM; use cases for AAM in Georgia; best practices for landing area safety and regulation; initiatives to advance AAM in Georgia; an assessment of the potential economic impact of AAM; an inventory of heliports in Georgia and their adaptability to AAM; an overview of airports and AAM; and an overview of charging infrastructure and cost estimates to install chargers at Georgia airports.

Strategic Plan for Advanced Air Mobility and Site Selection Analysis, Miami-Dade Aviation Department—Miami-Dade County, Florida. June 2022 – March 2023. Planner on the Strategic Plan, which included identifying use cases, timelines, milestones, and goals for MDAD airports as they relate to AAM. Zach also supported the concurrent site selection study for Miami International Airport, which identified six potential vertiport site locations and measured their merits against a host of airport design, airspace, wake turbulence, and practical considerations to identify top candidates for siting.

Phase 2. November 2023 - Ongoing

Current project manager and lead planner for Phase 2 of this project, which includes site selection analysis for MDAD’s four general aviation airports and an in-depth vertiport site development plan for MIA.



Jeff Borowiec, PhD | Subject Matter Expert

Jeff is an experienced aviation planner and researcher who has served as project manager and principal investigator on dozens of aviation studies pertaining to all facets of airports. Over the last 31 years, he has been actively engaged in supporting TxDOT Aviation Division’s continuous planning program and has visited more than 250 airports included in the Texas Airport System Plan. Jeff is nationally known for his work chairing the Transportation Research Board’s Standing Committee on Aviation

System Planning and is the incoming Chair of the TRB Aviation Group. He is also involved in NASAO. Jeff is an instrument-rated private pilot who also holds a remote pilot certificate with a sUAS rating.

Project Experience

Advanced Air Mobility Study, Georgia Department of Transportation March 2023 – March 2024. Subject Matter Expert for the Georgia Department of Transportation’s Study on Advanced Air Mobility. The study was a comprehensive effort on AAM that researched nationwide efforts on AAM; use cases for AAM in Georgia; best practices for landing area safety and regulation; initiatives to advance AAM in Georgia; an assessment of the potential economic impact of AAM; an inventory of heliports in Georgia and their adaptability to AAM; an overview of airports and AAM; and an overview of charging infrastructure and cost estimates to install chargers at Georgia airports.

Urban Air Mobility Advisory Committee Project Support, Texas Senate (SB763)/Texas Department of Transportation, Aviation Division and Strategy and Innovation Division—Statewide, Texas.* Principal Investigator/Project Manager who supported research and participated in committee discussions on urban air mobility operations and infrastructure in Texas. The [final report](#) assessed current state law and identified potential changes to state law with specific recommendations to facilitate the development of urban air mobility in Texas. **This effort was completed in prior association.*



Sheldon Menezes, CM, PMP | Planner

Sheldon is an UAS Specialist and AAM subject matter expert who provides consulting and guidance to aviation clients. He is heavily involved with Research and Development (R&D) for the FAA on UAS use and AAM implementation. Sheldon’s AAM experience spans the development of vertiport design standards for eVTOL aircraft; ACRP research assessing the impact of large UAS on existing airfield design standards; and FAA funded National Safe Skies Alliance research

focused on airport response to UAS threats. He also consults federal, state, and local entities on the implementation and infrastructure challenges of emerging technologies in the AAM market.

Project Experience

Strategic Plan for Advanced Air Mobility and Site Selection Analysis, Miami-Dade Aviation Department (MDAD)—Miami-Dade County, Florida. September 2022-Present. Deputy Project



Manager who helped facilitate the working group sessions with the airport and key stakeholders in addition to supporting the strategic planning initiatives. Woolpert was selected to develop a strategic plan identifying use cases, timelines, milestones, and goals for MDAD. The concurrent site selection study for Miami International Airport identified six potential vertiport site locations and measured their merits against a host of airport design, airspace, wake turbulence, and practical considerations to identify top candidates for siting.

FAA ATRD Vertiport Design for eVTOL, Federal Aviation Administration—Atlantic City, New Jersey. September 2020-September 2023. Project Manager who led research efforts and provided support from a UAS operations and aviation planning perspective to assist with the development of Vertiport design standards for eVTOL aircraft. Woolpert was selected to study and develop recommendations for vertiport design standards for vertical takeoff and landing aircraft including standard category aircraft (<7,000 lbs and <9 passengers), optionally piloted aircraft and unmanned aircraft. Woolpert will model new recommendations after the heliport design AC 150/5390-2C, which was updated in 2012, and review new and emerging technological, infrastructure, and operating models for inclusion, as appropriate. The resulting analysis and design recommendations from the study will be summarized in a draft Engineering Brief to supplement the heliport design AC 150/5390-2C, and ultimately become the foundation for and updated vertiport specific series of safety and design standards.



Maria Muia, PhD | Subject Matter Expert

As a senior aviation research specialist with a background in aviation planning and public sector administration, Maria offers a unique blend of experience to Woolpert’s clients. Coupled with nearly 1,000 hours of flight and a private pilot certificate with instrument rating, her comprehensive aviation knowledge base informs every project she works on. Maria has spent nearly twenty years working on airport master plans, airport layout plans, aviation forecasts, environmental assessments, and airport management issues, and is now focusing on various aviation

research projects. Maria is the lead researcher on the Federal Aviation Administration’s vertiport design research project and is an undisputed leader in advanced air mobility. She has an analytical mind, and her aptitude for critical thinking combined with a process-oriented approach to problem solving allows her to turn complex problems into detailed, functional tasks that result in successful projects with usable, validated findings. Her work as Principal Investigator for Airport Cooperative Research Report 129 resulted in the aviation industry’s first comprehensive evaluation of the most common traffic estimation methods and is especially valuable to practitioners seeking to develop a statistically defensible estimate of aircraft activity at non-towered airports.

Project Experience

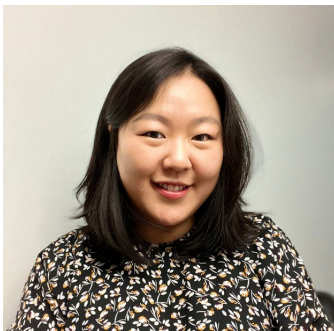
Strategic Plan for a Strategic Plan for Advanced Air Mobility and Site Selection Analysis, Miami-Dade Aviation Department—Miami-Dade County, Florida. September 2022-Present. Lead Planner responsible for developing the Strategic Plan for AAM for the Miami-Dade County Aviation Department (MDAD). This included identifying the challenges to implementing AAM at



MDAD airports and potential business cases for each facility. She provided AAM strategies for the Department along with system-wide and airport-specific goal recommendations. For Miami International, she led the effort for evaluating specific sites on the airport for a vertiport location, including studying the impacts of airspace, traffic flow, instrument approach procedures, wake turbulence separation standards, simultaneous operation issues, and capacity. Ultimately, she developed a site compatibility matrix for the evaluation of each site for safety, access, expansion, environmental issues, and capacity.

Advanced Air Mobility Planning Phase 1, Florida Department of Transportation (FDOT)—Various Locations, Florida. November 2022 – Ongoing. Lead Planner responsible for developing FDOT’s Advanced Air Mobility Roadmap. This included identifying the current state of the AAM industry related to Florida, researching concepts of operation for AAM, business use cases, federal policy and ground infrastructure requirements, and challenges in implementing AAM. From there a State AAM Policy Framework was developed that included land use compatibility, equity, connectivity, security, and safety. Maria also developed the methodology for Airport Compatibility Considerations to be used in developing compatibility reports and maps for 31 of Florida’s airports. These reports were developed to assist communities in identifying incompatible locations for vertiports relative to legacy airports. The analysis includes five areas or uses around airports that are incompatible for siting an off-airport vertiport including airport traffic patterns, instrument approach procedures, controlled airspace, tall structures, and landfills.

FAA ATRD Vertiport Design for eVTOL, Federal Aviation Administration—Atlantic City, New Jersey. September 2020-September 2023. Lead Researcher responsible for collecting, organizing, and analyzing data, writing reports, and presenting results to the client. Woolpert was selected to study and develop recommendations for vertiport design standards for vertical takeoff and landing aircraft including standard category aircraft (<7,000 lbs and <9 passengers), optionally piloted aircraft, and unmanned aircraft. Woolpert will model new recommendations after the heliport design AC 150/5390-2C, which was updated in 2012, and review new and emerging technological, infrastructure, and operating models for inclusion, as appropriate. The resulting analysis and design recommendations from the study will be summarized in a draft Engineering Brief to supplement the heliport design AC 150/5390-2C, and ultimately become the foundation for and updated vertiport specific series of safety and design standards.



Jennifer Kim, AICP | Planner

Jennifer is a project manager and senior airport planner at Woolpert. In her role, she works on airport master plans, statewide airport system plans, facility siting, and planning studies, bringing a deep understanding of the airport planning process to projects. Jennifer seeks opportunities to improve workflows and find new ways to approach projects. She applies her knowledge in aviation planning to revitalize traditional airport planning practices and identifies opportunities to innovate how her team undertakes

master plans and state airport system plans. She applies emerging technologies to help airport clients in making data-driven decisions and aid with effective public outreach.



She works with a variety of clients, including corporate entities, airports, state aviation agencies, and the FAA. In addition, she has worked on various aviation projects for airports, airlines, and state DOT clients in the U.S. Jennifer is also a committee member on the Transportation Research Board’s Aviation System Planning Committee (AV020) and an active participant in the industry, including NASAO. With her background in urban and transportation planning and policy, she brings a multi-disciplinary approach to solving complex issues in aviation.

Project Experience

Advanced Air Mobility Roadmap, Working Group, and AAM Implementation, Florida

Department of Transportation. November 2022 – Ongoing. Planner on the Florida DOT Aviation Office’s AAM efforts, including a Roadmap, Policy Framework, and Best Practices for Local Governments, supporting the implementation of FDOT AAM Working Group report, which includes an AAM Land Use Guidebook, tabletop planning exercises, and hosting the FDOT AAM Advisory Committee.

Intermodal Center Vertiport Study, Broward County Aviation Department (BCAD)—Broward County, Florida.

Jennifer is leading a vertiport layout planning study for Fort Lauderdale-Hollywood International Airport (FLL). Her responsibilities include reviewing industry guidance on vertiport design and planning, developing layout concept alternatives, and coordinating with other disciplines to develop preliminary site plans.

Maryland Airport System Plan Update, Maryland Department of Transportation (MDOT)—Various Locations, Maryland.*

Jennifer conducted an airport system planning study for 35 public-use airports in the state of Maryland. Her responsibilities included developing goals and performance measures, analyzing airport trends, developing an inventory of existing airport facilities, identifying facility requirements, and developing recommendations for Maryland state’s airport system. In addition, Jennifer developed an electronic questionnaire that dynamically evaluated inventory data to identify facility, service, and equipment objectives for the study.

**completed in prior association*



Hilary Fletcher | Community Engagement

Hilary’s career has included numerous community facilitation projects, mediation of land use issues and community collaboration projects at regional, state-wide, and national levels. She has been active in assisting local governments, special districts, and local non-profits to address organizational issues, develop strategic plans, and conduct community outreach initiatives. Hilary is currently the Director of Community and Governmental Affairs at Woolpert. In her role, she assists airports in public engagement efforts including focus groups, citizen committees, and civic briefings. Hilary also has led Florida’s Advanced Air Mobility Outreach Program. As the founding member, Hilary has worked with the Colorado Airport Operators Association and the Colorado Division of



Aeronautics to establish the Colorado Airports Recovery Support Team (CARST) which responds to and assists communities in recovery from aviation incidents and accidents.

Project Experience

Advanced Air Mobility Planning , Florida Department of Transportation (FDOT)—Various Locations, Florida. November 2021-Ongoing. Community Engagement. Woolpert is engaged with the Florida Department of Transportation (FDOT) Aviation Division on all planning for Advanced Air Mobility (AAM) project. The team is helping to create a long-term plans that allow the AAM market to emerge. Woolpert has developed the AAM Working Group, roadmap strategic plan and now is updating the land use compatibility guidebook to incorporate AAM. Woolpert continues to manage the engagement with nearly 75 entities across the state.

Continuous Aviation System Plan and Economic Impact Study, Utah Department of Transportation (UDOT)—Utah. March 2019-April 2021. Community Engagement. The central component of Utah’s 2020 planning effort was a system plan and economic impact study. The study included visits to more than 35 Utah airports, allowing the team to collect data, assess the airport’s economic synergy with neighboring communities, and collect information on unique economic benefits and airport stories. The project team worked with a diverse advisory committee throughout the process. A detailed market assessment and strengths, weaknesses, opportunities, and threats (SWOT) analysis was prepared for key system airports as part of the economic analysis.



Leah Whitfield, CM, AAE | Deputy Project Manager

Leah is the majority owner of APG and leads APG’s AAM services. Leah’s planning and project management experience includes on-call planning contracts and a variety of planning studies such as vertiport siting and AAM planning, economic impacts, airport master plans, aviation system planning, regional transportation plans, airport siting studies, airport land use studies, and security projects at general aviation and commercial services airports across the country. Leah has spent the last decade working in Washington on a variety of planning projects. She has good relationships with WSDOT and Seattle ADO staff and understands community needs across the state and land use planning. Leah has served as project manager or assistant project manager on more than fifteen airport plans and as planner on more than an additional ten within the last five years.

Following many planning studies Leah has led the implementation of the projects determined by the planning study. Leah has often overseen design and construction phases of the project. With experience implementing projects Leah takes an integrated approach to planning facility needs to minimize impacts to operations. Leah applies FAA and local design standards on all projects she completes ensuring that applying these standards does not result in operational issues with the aircraft utilizing the space and does not create future expansion constraints. Each study she completes requires significant coordination with stakeholders to understand their current and future needs and impacts of changes to the airport environment to their



operation. Leah typically leads stakeholder engagement and develops a communications plan or engagement plan for each project. Engaging stakeholders early in the process of any project or transition is key to success.

Project Experience

Chehalis-Centralia Airport (CLS) Master Plan Update—Chehalis, Washington. Leah is the project manager for this fast-paced master plan in Washington. The project is at the implementation stage and recently held the final public outreach of the study. Leah has coordinated with WSDOT staff, through the Technical Advisory Committee, on the preferred development including a significant AAM component on the northeast side of the airport. The AAM forecast approval by the FAA was likely one of the first in the country. The development includes two eVTOL landing areas, an AAM terminal, parking for both fixed wing and VTOL aircraft, charging apron, parking apron for Group I and Group II aircraft, and associated hangar facilities for testing, development, training, and maintenance of AAM aircraft. Leah leads public outreach on the study including public open houses, technical and public advisory committees, and presentations to Council. Leah also built the Airport’s website. In addition, the master plan Leah leads the engineering on-call for the airport and is participating in a regional hydrogen work group, of which WSDOT is a member. This work group is looking at the overall hydrogen requirements of the multi-modal system.

Illinois AAM Aviation System Plan—Illinois. Leah is APG’s project manager for this statewide study. Leah provides client coordination and project administration, as well as quality control and overall direction of her team. APG is providing forecasting and outreach.

Olympia Regional Airport (OLM) Master Plan Update—Tumwater, Washington. Leah is the Project Manager and Principal-in-Charge for this master plan, Part 139 feasibility study, and emerging technology project. Leah oversaw development of the forecast and provided quality control. Working with Haseeb and Justin, Leah is preparing an emerging technology section of the master plan that focuses on sustainability initiatives such as SAF and solar, as well as integration of electric aircraft. The team has examined the existing power grid and requirements for future AAM aircraft. The Part 139 study prepared an AAM aviation forecast, facility requirements for vertiports and fixed wing electric aircraft and alternatives. Leah also leads the stakeholder engagement coordinating with a variety of agencies and the general public through the Technical Advisory Committee and public open houses (virtual and in person). Leah presented the preferred alternative and Part 139 study to the public in a series of open houses.



Justin Heid, AAE | Senior Aviation Planner

Justin is a Principal and Senior Aviation Planner at APG. He is an Air Force Veteran and active pilot, with a strong airport management background. His experience includes management of multiple general aviation airports, AAM forecasting and planning, airfield and vertiport planning, emerging technologies, forecasting, public outreach, land use planning, and WSDOT/ FAA/Seattle ADO coordination. Justin’s knowledge of FAA regulations, policies, and procedures, coupled with his past experiences, help him understand the needs and issues stakeholders are working



through and allow him to identify issues and provide solutions with a full understanding of each stakeholder's desires and requirements.

Project Experience

Illinois AAM Aviation System Plan—Illinois. Justin prepared the AAM Aviation Forecast for the AAM Aviation System Plan for the State of Illinois as a sub-consultant. Justin performed an analysis of current, existing OEM, and industry forecasts to prepare a summary of forecasts that best represents the outlook for the state and the industry. The results of the summary forecast identify areas of opportunity for the state.

Alaska Aviation System Plan (AASP), Phase II—Alaska. Justin prepared technical documents, presented to stakeholder groups, and led the backcountry airport work group which introduced a path forward for a volunteer workforce to maintain critical rural airports. The AASP focused on the overall aviation system including inventory, classifications, performance measures, critical aviation issues, and implementation.

Chehalis-Centralia Airport (CLS) Master Plan Update—Chehalis, Washington. As Assistant Project Manager/Lead Planner for the project, Justin led the development of the forecast including AAM operations forecasting, and has aided in land use planning with AAM development alternatives.



Renee Dowlin | Environmental Planner

Renee is the Aviation Environmental Manager at APG. Renee has more than 25+ years of aviation planning, land use planning and environmental experience including as a consultant and as staff at Portland International Airport (PDX) and Oakland International Airport (OAK).

Her experience includes, FAA/Seattle ADO coordination and environmental compliance and permitting, airport master planning, grant preparation, section 163 coordination, land use planning, sustainable management plans and public outreach. During her years at the Port of Portland, she managed several environmental assessments including for a new parallel runway and taxiway, complex planning studies and prepared scopes of work and associated fees. As a consultant, she has prepared CATEXs and EAs for airport development projects.

Project Experience

ACRP 02-101. Renee is Principal Investigator for ACRP 02-101, developing environmental stewardship and compliance training modules for Airport employees. This project is providing airports with the tools necessary to implement a meaningful and effective environmental training program, regardless of airport size, location, or status.

Olympia Regional Airport (OLM) Master Plan Update—Tumwater, Washington. Led the environmental elements of the Olympia Master Plan Update and coordinated with FAA and other state and regional stakeholders to incorporate the Brush Prairie Habitat Conservation Plan (HCP) process and obligations into the master plan alternatives. The Airport has both



prairie gophers and streaked horn larks within the airport boundary. The AAM elements of the study were examined for environmental impacts.

Orcas Island Airport Land Acquisition—Eastsound, Washington. Managed a land acquisition for Orcas Island Airport. The land acquisition involved coordinating with FAA, managing appraisals, public outreach for purchasing a single-family residence and hangar for the Airport.



Haseeb Mirza, MPA, CM, ENV SP | Planner

Haseeb is an aviation planner with over 7 years of experience leading deliverables for GA, small, medium, and large hub airport clients. He has contributed as a planner on projects such as vertiport planning, gate planning, master plans, airport layout plans, construction safety phasing plans, demand capacity analysis, environmental assessments, re-evaluation memorandums, and categorical exclusion documents.

Haseeb’s experience ranges from Part 77 analysis, airport layout plans, and developing terminal simulation models at airports as part of demand capacity analysis to creating gating layout plans using AviPLAN Airside Pro for terminal expansion projects. He has also conducted vertiport siting studies, including for ALP updates, and drafted public-use exhibits for proposed projects.

With his knowledge of FAA regulations and background experience, Haseeb endeavors to grasp the situations that stakeholders encounter. He focuses on identifying problems and proposing solutions, aiming to align closely with the expectations and needs of each stakeholder.

Project Experience

Illinois AAM Aviation System Plan—Illinois. Haseeb assisted with project administration, participated in the kick-off meeting, and is facilitating talking points and keeping notes for meetings. Haseeb will be assisting with the Illinois AAM System Plan Project Advisory Committee, facilitating break-out opportunities and threats and recommendations group discussions.

Olympia Regional Airport (OLM) Master Plan Update—Tumwater, Washington. Haseeb helped write the Facility Requirements and Alternative chapters. Haseeb also researched and developed the emerging technologies appendix, which focuses on substantial initiatives, analysis of electrical infrastructure, sustainable aviation fuels, and AAM, including hybrid-electric aircraft and eVTOL aircraft. Additionally, Haseeb drafted alternative hangar and taxiway layout concepts and the vertiport layouts, including the terminal area. Haseeb served as a quality control reviewer on the ALP, inclu

ing Part 77 drawings.

Chehalis Centralia Airport (CLS) Master Plan Update—Chehalis, Washington. Haseeb is a planner for this project, assisting with developing the Alternatives chapter, which includes future development for advanced air mobility. Haseeb is currently leading efforts to draft the Airport Layout Plan set for the Master Plan Update.



Grayson Langlais | Aviation Planner

Grayson is an aviation planner with approximately 2 years of planning experience at small- to medium-size airports. He has contributed to projects such as airport master plans, AAM planning, airport layout plans, and Part 77 analyses.

Grayson’s professional experience includes various types of aviation facilities across the country including Part 139 non-hub airports, busy general aviation airfields, hospital heliports, seaplane bases, and on-airport vertiports.

Grayson’s graduate-level academic research at Arizona State University included a defended thesis titled "Integration of Advanced Air Mobility Corridors into the National Airspace System" and further investigations into the impact of advanced and urban air mobility on both aviation and urban planning policy.

Project Experience

Illinois AAM Aviation System Plan—Illinois. Grayson performed extensive literature review and quality assurance for the AAM Aviation Forecast for the AAM Aviation System Plan for the State of Illinois. He also assisted the prime consultant in conducting Public Advisory Committee meetings which engaged local, state, and federal agencies and the AAM industry.

Chehalis Centralia Airport (CLS) Master Plan Update—Chehalis, Washington. Grayson was primarily responsible for the development of Advanced Air Mobility apron alternatives as part of the larger CLS Master Plan Update. Facilities planning for the area included multiple eVTOL landing sites, a small terminal, electric and hydrogen facilities, and terminal-style aircraft parking for AAM aircraft. The development of this site was crafted with integration into the landside and commercial developments that would be sharing that side of the airport property for a seamless customer and community interaction with vertiport facilities. Consideration was given for land uses and airspace around the site.

Kissimmee Gateway Airport (ISM) Master Plan Update—Kissimmee, Florida. With his previous firm, Grayson was responsible for the drafting of development alternatives for the Kissimmee Gateway Airport Master Plan Update. The alternatives included and emphasized a vertiport facility capable of supporting multiple AAM aircraft for commercial use. As a large general aviation facility, this airport was seeking to become a hub for eVTOL operations in the Central Florida situated south of Orlando, connecting the city to the rest of the state and opening the airport to passenger traffic with proximity to the nearby Disney theme parks.

4. Firm’s Project Management System

Woolpert’s comprehensive and proven approach to managing the services performed under this contract provides project management control, clear lines of authority/accountability, and the flexibility to quickly initiate and successfully implement task orders for the airport while ensuring consistency across the program. For this contract, Project Manager Zach Shuman will be available as necessary, acting as an extension of your staff, and responsible for program management functions.



Multiple Task Orders. Woolpert will concurrently execute overlapping and/or multiple task order assignments because our management approach provides both a project manager—responsible for the business, coordination, and programmatic functions of WSDOT task orders—and discipline leaders who are responsible for planning and technical execution of task orders.

Quality Assurance and Control (QA/QC). Woolpert’s commitment to quality enables us to achieve results that keep our clients coming back to us again and again. By measuring against project milestones (e.g., schedule and budget) established through collaboration with our clients, Woolpert successfully controls schedules to meet project requirements, thereby achieving a greater than 95% rate of success in meeting or exceeding contracted schedules.

Program Financial Tracking. Our program management process utilizes AEG 365 to oversee and control financial tracking and reporting. It supports cost tracking, resource planning, and integration with various progress tracking tools. It provides a mechanism for direct communication and reporting between the program management functions and the project’s largest focus—airport improvements.

Project Workflows. Key aspects of Woolpert’s project workflows include communication, project scheduling, budgeting, and quality control, and are applied throughout the task/project lifecycle. Woolpert establishes clear milestones for updating electronic data and performing QA/QC reviews, and understands that effective data tracking is a critical aspect of QA/QC and schedule management. QA/QC reviews take place at each project milestone and at completion prior to final submittals and client review. In addition, independent reviews occur throughout the lifecycle of a project to ensure accuracy and completeness of data and avoid time-consuming rework.

Effective Management. Effective project management begins with the understanding that team leadership must possess the qualities of planning, organizing, and managing resources to ensure successful project execution. Woolpert has an on-going, in-house training program called Project Fundamentals. These are guidelines developed so team members know the expectations for a project: setup phases, project plan, mitigation of risks, project execution, and monitoring and controlling the key performance indicators (KPI). This knowledge ensures that each project task will be delivered in a clear and consistent manner, with strong communication and collaboration between Woolpert and WSDOT. It also will ensure a project execution process with controls in place to monitor project success through design and construction.

Schedule Management. Our team will work with WSDOT to establish milestones at the onset of a project and develop the appropriate schedule. Detailed project schedules will be developed for each work authorization using Microsoft Project (or equal). We use this software for most of our projects to make sure everyone is in agreement at the onset of the project. Each schedule will be developed to align with your goals and expectations and ensure the project will be completed within the time frame designated. Our staff’s scheduling capabilities include major project milestones schedules, Gantt charts, resource-loaded schedules, critical path method methodology, as well as labor and resource reporting and allocations. Program schedules, outlining all work authorizations, can also be developed to show the big picture. All project



schedules will be developed and tracked throughout the project and regular schedule updates will be sent throughout the project to WSDOT.

Communications. The Woolpert team recognizes that communication planning is one of the most important functions in a successful project, and with this essential structure in place, Woolpert will assist WSDOT in further defining the scope of each task to deliver the maximize potential funding, define key project components, maximize life cycle and maintainability of the airport’s assets, and share valuable lessons learned from our team experts. Woolpert also recognizes that follow-up reports and scheduled calls/meetings with the WSDOT team will ensure timely dissemination of project status.

Conflict Resolution. Woolpert’s philosophy for conflict resolution is simple and straightforward. Once a conflict is identified, we immediately develop solutions and make recommendations, based on our experience, on the best way to proceed. Our experience shows that the more quickly a conflict is resolved, the more advantageous it is for all parties concerned.



5. Project Delivery Approach

Project Delivery Approach

Woolpert understands Washington State DOT (WSDOT)’s intent to develop an Air Mobility Aircraft Plan, which is a statewide plan and roadmap for integrating Advanced Air Mobility (AAM) into the state’s transportation system. While novel, AAM planning has taken place in select states, and Woolpert has assisted many of these early entrants with **policy review and development, community and stakeholder outreach, and conceptual planning**. Additionally, Woolpert is on the forefront of **conducting AAM research** with the Federal Aviation Administration (FAA), working closely with Original Equipment Manufacturers (OEMs) of Electric Vertical Takeoff and Landing (eVTOL) **aircraft performance. Combined with The Aviation Planning Group’s (APG) extensive working relationships with WSDOT and FAA’s Seattle Airports District Office (ADO), the Woolpert Team brings a full suite of technical resources, subject matter experts, and capabilities to partner with WSDOT in realizing an effective, actionable, and user-friendly Air Mobility Aircraft Plan.**

The Woolpert Team proposes **Zach Shuman, CM**, as our Project Manager to lead this effort. Zach not only led the first of many statewide AAM planning studies across the country, but also continues to shape the AAM industry’s integration into fruition through his experience as



Program Director on the FAA Vertiport Design Research, Subject Matter Expert Consultant with various eVTOL manufacturers, and extensive policy development and state government experience.

The Woolpert Team and approach will be built around the changing landscape of AAM and potential issues and opportunities with stakeholders. We have a trained community outreach team who can handle working group conflicts and facilitation. Additionally, we have extensive non-disclosure agreements with eVTOL OEMs, meaning we will not be limited to publicly available data which can inhibit project development.

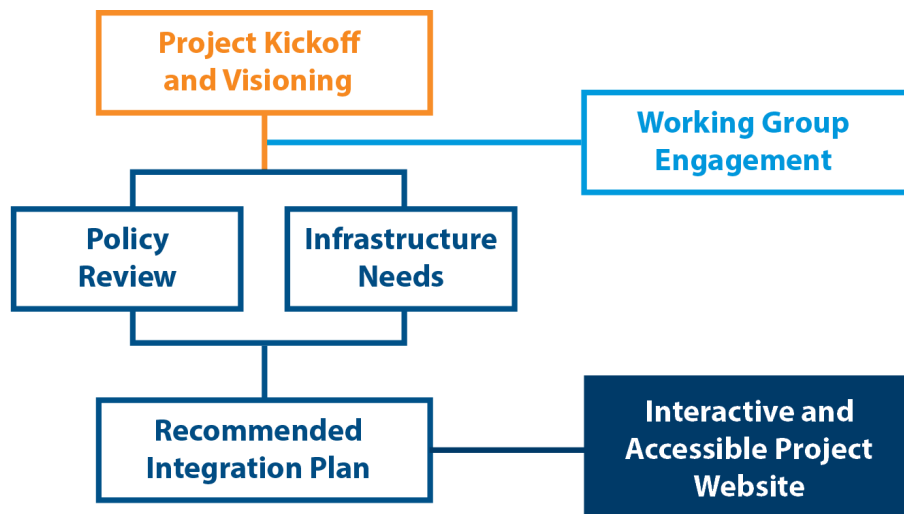
In the last five years, AAM developments and advancements have outpaced available regulations and planning guidance. The landscape of AAM is changing rapidly as agencies continue to publish new and/or updated guidance for vertiport design standards, electrical charging needs, and fire and life safety. One of the Woolpert Team's key differentiators is our ability to address these changes and proactively engage with each of the key stakeholders in the AAM industry to ensure WSDOT's Air Mobility Aircraft Plan integrates the latest and greatest best practices.

Zach is supported by a team of seasoned professionals, including aviation planners and subject matter experts in state airport system planning, Unmanned Aircraft Systems (UAS), AAM, and community and stakeholder outreach. Each of our key staff members have extensive experience working with FAA guidance, including but not limited to FAA Advisory Circular (AC) 150/5070-7, The Airport System Planning Process, and FAA Engineering Brief (EB) No. 105, Vertiport Design. In fact, the Woolpert staff have shaped the development and publishing of both federal guidance documents. The Woolpert Team will ensure WSDOT is equipped with a reasonable and actionable Air Mobility Aircraft Plan by leveraging best practices and lessons learned from Woolpert's six former state directors, who have first-hand experience on planning for and implementing statewide aviation projects.

To develop a scope of work based on the requirements defined in the RFQ, the Woolpert Team, consisting of Woolpert and APG, have created a five-task approach that comprehensively addresses WSDOT's objectives for the AAM statewide integration plan and developmental roadmap. Individual technical memorandums to the WSDOT Air Mobility Aircraft Plan are developed as the project follows through the work breakdown structure, which will ultimately be consolidated in the Final Technical Report. The WSDOT Air Mobility Aircraft Plan Final Technical Report will be submitted to the Office of Financial Management and Transportation Committees of the Legislature. Support resources and tools for WSDOT will also be developed to equip the DOT to engage with applicable stakeholders on AAM.

The following project delivery approach provides a breakdown of each element of the project, assumptions for work breakdown structure, and outlines key deliverables and milestones throughout the project duration. The below table provides a summary of the key deliverable(s) for each task. Tasks are discussed in more detail in subsequent sections.

Task	Key Deliverable(s)
Task 1: Kickoff and Visioning	One in-person Project Kickoff and Visioning meeting, and a documentation of WSDOT Vision and Goals.
Task 2: Working Group Engagement	Two Working Group meetings (the first one is held in-person; the second is virtually hosted), and periodic virtual small-group workshops.
Task 3: Policy Review	Technical Memorandum – Policy (in PDF format), with key findings detailed on ArcGIS StoryMap Website.
Task 4: Infrastructure Needs	Technical Memorandum – Infrastructure (in PDF format), with key findings detailed on ArcGIS StoryMap Website.
Task 5: Recommended Integration Plan and Final Documentation	Final Technical Report (in PDF format), and Final ArcGIS StoryMap Website.



Task 1: Project Kickoff & Visioning

Every successful project begins with a collaborative Project Kickoff and Visioning meeting. The Woolpert Team will hold a Project Kickoff and Visioning meeting with WSDOT to walk through each of the elements of the project, and gain an understanding of WSDOT’s primary goals and priorities for this project. The goals and priorities set during this meeting will be documented and serve as the foundation for subsequent analyses and stakeholder engagement.

Deliverable:	One in-person Project Kickoff and Visioning meeting, and a documentation of WSDOT Vision and Goals.
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Task 2: Working Group Engagement

Once the project has begun, one of the first steps is to assemble a group of critical stakeholders as a Working Group for the study, including Original Equipment Manufacturers (OEMs), airports, community groups, local governments, planning organizations, economic development agencies, other modal managers, and other relevant stakeholders. Woolpert and APG will collaborate with WSDOT to develop a list of these individuals and establish a Working Group for the project. The purpose of the working group is to keep stakeholders informed and engaged with state actions for AAM and to provide subject matter expertise to inform study deliverables.

The Working Group will be consulted throughout the project duration, specifically at three key junctures:

- An initial in-person Working Group meeting to provide an overview of the project scope and timeline, and to garner initial feedback about opportunities and challenges for AAM in the state.
- Periodic, small-group virtual workshops to garner feedback on specific subjects (i.e., a workshop with OEMs and utility providers to gather information for electric infrastructure requirements).
- A final virtual Working Group meeting to review draft project deliverables and provide feedback as final revisions are made.

Stakeholder engagement ensures project deliverables are vetted against those who are leading AAM forward in the state, as well as those who are tasked with integrating AAM into their communities. Woolpert is uniquely positioned to assemble an AAM working group because of our extensive ties to key players in the AAM industry and our successful statewide AAM working group experience in both Florida and Georgia. These factors mean that Woolpert's efforts to assemble and work with such a group will be clear-cut and efficient, and more time can be spent on collaborating with the group, instead of piecing it together.

Deliverable:	Two Working Group meetings (the first one is held in-person; second is virtually hosted), and periodic virtual small-group workshops.
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Task 3: Policy Review

This task is the foundation of the technical report for the project. As a starting point, a policy review will be conducted to gain a deep understanding of the existing policy framework, including land use and zoning laws and regulations at the local-level, processes for regulating heliports and airports at the state-level, and infrastructure and airspace requirements set forth at the federal-level.

The report will contain the following items:

- **State of the Industry in Washington:** Provides a brief overview of AAM, prior AAM studies conducted by WSDOT, related industry activity in the state, and potential use cases for AAM in Washington.
- **AAM Land Use Considerations:** Explores current airport land use compatibility planning methods, considerations for AAM unique to Washington, equitable access, and best practices for local governments to plan for AAM. Local government, planning organizations, and modal managers from the working group will be engaged to identify gaps and to inform best practices. This will take into account tempo increases and the short- to long-term effects on land use planning AAM will have.
- **State Regulatory Framework for AAM:** Documents existing Washington State governance structures and regulatory mechanisms for aviation facilities and identifies gaps in these regulations for AAM. This framework will leverage the initial visioning session to ensure the deliverable aligns with WSDOT goals for AAM.



Woolpert has extensive experience researching and analyzing AAM at the state level and is already developing land use guidance unique to AAM in Florida. Woolpert will leverage members of the working group who represent local governments and planning organizations to garner feedback about the gaps in guidance that local governments may face when planning for AAM in their communities.

Deliverable:	Technical Memorandum – Policy (in PDF format), with key findings detailed on ArcGIS StoryMap Website.
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Task 4: Infrastructure Needs

Task 3’s policy review sets the stage for WSDOT to consider AAM infrastructure and facility requirements in Task 4. AAM is unique in that it will require consideration for a network of eVTOL aircraft landing facilities, electric aircraft charging stations, and eVTOL aircraft storage and maintenance.

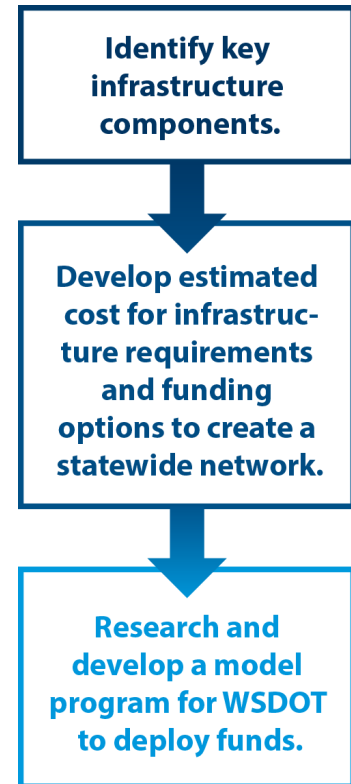
It is also unique in that the industry is primarily market-driven and will rely not only on existing airports and heliports but also on privately and publicly developed vertiports. Identifying how these vertiports can fit into a state transportation system that ensures open access and equitable distribution across the state is an important part of this task.

This task is an analysis that aids WSDOT in comprehending what type of infrastructure is necessary, a rough order of magnitude cost estimate for different types of vertiport and supporting infrastructure, and suggestions for the cost and financing options that can be employed to create a statewide network.

There are three main components to this task:

- Identifying the key components of AAM infrastructure, both at traditional aviation facilities (i.e., airports and heliports) and at new, dedicated vertiport infrastructure.
- Liaising with key stakeholders to estimate the associated costs for the minimum required infrastructure (e.g., working with electricity providers in Washington and AAM OEMs to estimate utility needs).
- Conducting a review of funding mechanisms for financing the development of these facilities (e.g., electric charging stations) and developing a model program for WSDOT to deploy funds to local governments.

The outcome of this task is to identify the statewide infrastructure and facility requirements and associated costs necessary for AAM and to develop a recommended funding program for WSDOT to implement across the state.



Deliverable:	Technical Memorandum – Infrastructure (in PDF format), with key findings detailed on ArcGIS StoryMap Website.
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Task 5: Recommended Integration Plan and Final Documentation

The Woolpert Team will take the findings from prior tasks and working group engagement to outline the actions for WSDOT to integrate AAM into the state’s transportation system. An emphasis will be placed on how WSDOT can incorporate AAM into existing plans and ensure AAM and its associated infrastructure align with the values of open access and equitable distribution across the state.

The Integration Plan will contain the following information, derived from research undertaken during the study and through the collaboration with the Working Group throughout the study:

- Using WSDOT Vision and Goals identified during the Project Kickoff and Visioning meeting and subsequent Working Group engagement, organize the findings from the Policy Review and Infrastructure Needs tasks into tangible recommendations to advance AAM in the state.
- Identify the mechanism needed to implement each objective, whether it be legislative action, updates to administrative code, or strategic initiatives that require neither.
- Opportunities for subsequent outreach to stakeholders including state legislators, WSDOT personnel, and the public.

The recommendations will be sorted by priority over five years, starting with the highest priority recommendations and ending with longer-term objectives.

The Final Technical Report will incorporate the documentation of WSDOT Vision and Goals from Task 1, detail the process and findings from the Working Group throughout the tasks, incorporate content from the Technical Memorandums prepared in Tasks 3 and Task 4, and will include the Integration Plan developed in Task 5.

Ultimately, a study is only useful if it reaches its intended audience in a way that’s accessible and informative. While the Final Technical Report will provide significant detail of the study’s findings, a StoryMap serves as a supplementary deliverable to the Final Technical Report that is interactive and accessible, and available for WSDOT even after the study has concluded.

Woolpert will develop the ArcGIS StoryMap with dedicated material for legislators, WSDOT, and the public at large. A StoryMap allows for the visual presentation of a PowerPoint or study website, but with the added functionality of mapping and spatial data layers that can demonstrate study findings in a visually appealing way.

Woolpert has successfully deployed StoryMaps as project websites that are resources for stakeholders and the public throughout the project lifecycle. An example StoryMap use case is





the Airport Master Plan produced for Big Spring McMahon-Wrinkle Airport, accessible through the following link: www.BPGMasterPlan.com.

Deliverable:	Final Technical Report (in PDF format), with key findings detailed on ArcGIS StoryMap Website.
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Available Hours Per Month by Employee

APG	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	
Leah Whitfield	40	40	20	40	50	50	60	60	60	60	60	60	60	
Justin Heid	30	30	40	40	40	60	60	60	60	80	80	80	80	
Renee Dowlin	40	40	40	40	40	60	60	60	60	60	60	60	60	
Haseeb Mirza	15	15	15	25	25	25	30	30	30	40	40	40	40	
Grayson Langlais	60	60	60	60	60	60	75	75	75	75	80	80	80	
Codi Panush	80	80	80	80	100	100	100	100	100	100	100	100	100	GRAND TOTAL
Total Hours Per Month	265	265	255	285	315	355	385	385	385	415	420	420	420	4570

Woolpert	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	
Zach Shuman- Project Manager	30	30	30	30	30	30	30	35	35	35	35	35	35	
Zach Hazzard- Deputy Project Manager	60	60	60	60	30	60	30	60	60	60	60	60	60	
Jeff Borowiec- SME	10	10	10	10	10	10	10	10	10	10	10	10	10	
Sheldon Menezes- Planner	40	40	40	40	40	40	40	40	40	30	30	30	30	
Maria Muia- SME	25	25	25	25	30	30	30	25	25	25	25	25	25	
Jennifer Kim- Planner	76	88	88	80	88	76	84	84	80	84	88	88	76	
Hilary Fletcher- Community Engagement	16	16	16	16	16	16	16	16	16	16	16	16	16	GRAND TOTAL
Total Hours Per Month	257	269	269	261	244	262	240	270	266	260	264	264	252	3378