

**CONSENT AGREEMENT BETWEEN
MARICOPA ASSOCIATION OF GOVERNMENTS
AND THE CITY OF CHANDLER**

UNCREWED AIRCRAFT SYSTEM (UAS) PACKAGE DELIVERY PILOT

This Consent Agreement ("Agreement") is between the Maricopa Association of Governments ("MAG"), an Arizona non-profit corporation and the City of Chandler, an Arizona municipal corporation ("CITY"), collectively referred to as the "Parties," or individually as a "Party."

This Agreement shall become effective as of the last date of execution below and shall continue in full force and effect until the expiration or earlier termination of MAG's Task Order No. 1 (Uncrewed Aircraft System (UAS) Package Delivery Pilot Project) with Airspace Link, Inc. ("Task Order"). MAG and CITY view this Agreement as a mutually beneficial relationship.

RECITALS

A. MAG has entered into agreements with various consultants as part of MAG's Emerging Technology Field Pilots On-Call program.

B. MAG and Airspace Link, Inc. ("Consultant") entered into the Task Order to provide the Scope of Services ("Services") to MAG and CITY, as further described therein. The Task Order is attached hereto as Exhibit A and incorporated herein by this reference.

C. The provision of the Services requires MAG and CITY to coordinate performance under the Task Order.

D. The Parties desire to memorialize CITY's consent to the terms and conditions in the Task Order, as they may be applicable to CITY.

AGREEMENT

NOW THEREFORE, the Parties agree as follows:

1. Consent. CITY agrees that it has been provided the opportunity to review the Task Order attached hereto as Exhibit A, and agrees to perform the obligations and responsibilities of CITY as specified in the Task Order.

2. Communications. CITY acknowledges that Consultant may contact CITY directly concerning the Services, including, but not limited to, for permitting inquiries and submittals, right-of-way and traffic issues, utility details, etc. In the event that CITY requires additional information from MAG in order to respond to the Consultant or complete CITY's performance under the Task Order, CITY shall timely notify MAG of Consultant's inquiry and/or information needed from MAG.

3. Point of Contact. The Parties identify the following individuals as the primary points of contact to coordinate the Parties' performance under the Task Order:

MAG: Shuyao Hong, SHong@azmag.gov, 602-759-1847

CITY: Ryan Kaup, ryan.kaup@chandleraz.gov, 480-782-3032

4. Recitals. The Recitals to this Agreement are incorporated into and shall constitute a part of this Agreement.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement.

City of Chandler, an Arizona municipal corporation

By: _____

Name: _____

Its: _____

Date: _____

Approved as to form:

By: _____

City Attorney



Attest:

By: _____

City Clerk

Maricopa Association of Governments, an Arizona non-profit corporation

By: _____

Name: _____

Its: _____

Date: _____

EXHIBIT A

Task Order

(See following pages.)

**MARICOPA ASSOCIATION OF GOVERNMENTS ("MAG")
TASK ORDER NO. 131031**

**ON-CALL CONTRACT NO. 1197-0L, Airspace Link, Inc.
FY 2022-2023 Emerging Technology Pilots**

**Uncrewed Aircraft System (UAS) Package Delivery Pilot
MAG PROJECT NO. 0600-0172-22-E001-1197-0L.131031**

TASK ORDER SUMMARY

Urban transportation, mobility, and cargo delivery systems are critical components of life, impacting the economy, the habitability of populations, and community equity. Though, the mass use of these conventional modes of transportation and the reliance on internal combustion engines (ICE) emitting high amounts of greenhouse gas (GHG) is antiquated and unsustainable to the wellness of our communities and the environment. For example, first and last-mile household deliveries create approximately 158.4 g of CO₂ per km per order when delivered by light commercial vehicles, cars, and motorbikes. This value is substantially higher than the widely accepted emission target of 0.147 g of CO₂ per km per delivery¹. The use of innovative, fully electric, last, and middle-mile delivery transportation solutions operating uncrewed aerial systems (UAS, aka "drones") has the potential to alter the landscape of delivery and services to businesses, residents, and underserved populations.

The pilot project will execute the first stage of a comprehensive, phased strategy, for the Maricopa Association of Governments to observe real-world drone deliveries and study the economic, social, and environmental impacts of UAS transportation. UAS transportation can supplement existing ground transportation networks for final and middle-mile applications. The project will evaluate the benefits of using UAS or drones as an alternative mode of transport compared to using large combustion vehicles for current delivery models. The investigated operations focus on supplementing ground transportation involving medical couriers that run fixed routes and fulfill on-demand delivery orders.

This project will be hosted in the City of Chandler ("Chandler"). Chandler has hosted several innovative pilot programs, including the first autonomous vehicle testing in the greater Phoenix area, and even promotes the tagline "Community of Innovation."

The pilot project will investigate drone delivery flights between a pharmaceutical distributor and an assisted living facility, specifically the efficacy of transporting urgent medical supplies and complementing existing courier routes with more efficient modes of transportation. Within Chandler, the distributor conducts over 1,000 deliveries a month; across the greater Phoenix area, there are over 12,500 unique deliveries for one individual customer. This project will create a foundation required for developing and implementing a business-to-business and business-to-consumer infrastructure network to support advanced UAS operations, leading to a reduction in traffic, congestion, CO₂ emissions, and other benefits.

The collected data will be analyzed against the established existing performance metrics (ground courier delivery), measuring time savings, cost savings, impact on patient care, reduction in CO₂ emissions, and impact on traffic. Findings will be delivered in a final report, along with key insights and recommendations. The final report will be published as a ESRI Story Map and will be used to inform subsequent phases of adoption for scalability with UAS delivery operations.

The Scope of Services described below shall not be modified except at MAG's request or with MAG's concurrence. Any services rendered by Airspace Link ("CONSULTANT") that MAG considers to be outside the Scope of Services of this Task Order shall not be the responsibility of MAG.

¹ Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0631>

TOTAL TASK ORDER BUDGET

The CONSULTANT budget is attached. The total amount of this Task Order shall not exceed \$97,500.

SCOPE OF SERVICES

Task 1. Planning

The CONSULTANT will secure commitments with and coordinate across all key project participants, which includes the UAS operator, the healthcare facilities, the end user of the UAS delivery system, and the City of Chandler (e.g., Task One (1) requires defining roles and responsibilities, developing the concept of operations (ConOps)) in conjunction with project stakeholders and obtaining any necessary waivers or authorizations from the FAA. Task 1 includes a full assessment of air and ground risks and route planning. Task 1 also includes an operational risk assessment conducted by the UAS operator using an FAA-accepted process. Finally, the planning stage includes the development of key performance metrics. Four quantifiable sections have been identified as focus areas that will support the deliverables and goals for data collection across a series of continuous drone delivery operations.

Subtasks:

1. Identify the roles and responsibilities of each team member for operations
2. Identify all regulations, policies, and constraints relevant to the area of operations.
3. Reestablish the area of operations based on limitations presented by the previous step
4. Identify all participating vehicles and equipment, including – aircraft, communication networks, charging stations, generators if needed, etc.
5. Decide on hours of operation – based on other activities happening in the area, daylight, and so on.
6. A kick-off meeting with all stakeholders to review and agree upon planned operations, requirements, etc.
7. Complete risk data analysis and operational risk assessment. Generate risk analysis for site location and flight plan evaluation and prepare supply chain analysis review of potential data models for comparison with success metrics.

Task 1 Deliverables

1. **Concept of Operations:** A document defining the use case(s), the roles of the participants, the aircraft capabilities, the package carrier, the types of packages to be delivered, the pick-up, drop-off points, and routes in between the safety and FAA compliance procedures, and approach to regulatory approvals, if required. The document also includes the definition of key success metrics, including time in transport, participant and key stakeholder satisfaction with processes, and projected reduction in VMTs based on data collected.
2. **Risk Analysis and Operational Assessment:** A document and an interactive visualization dashboard that describes potential air, ground, and operational risks and how these will be mitigated. MAG will be granted a 12-month license of the FlySafe Premium program, powered by the AirHub® platform. The license covers access to the interactive visualization dashboard and analytics that will be made available to MAG as a final deliverable. (Note: The license also includes the optional deployment of the FlySafe Standard program on two (2) select community websites.)
3. **Project Plan:** A document describing the work breakdown of tasks, key deliverables, milestones, timelines, and responsibilities for each task defined.
4. **Key Performance Metrics:** A document explaining the key performance metrics and how they will be measured. These metrics will be summarized in a final report that can be used to inform strategies and investment decisions to scale advanced UAS operations.

Task 2. Stakeholder and Regulatory Approvals

The CONSULTANT and the sub-contractor (Spright) will conduct, apply for, and obtain any necessary regulatory approvals through the FAA that are required to support the Concept of Operations. The CONSULTANT will also meet with local stakeholders, including residents and businesses to ensure awareness and incorporate any needed feedback into the ConOps. The CONSULTANT will also meet with the City of Chandler on a regular basis to ensure compliance with any local ordinances.

Subtasks:

1. Secure licensing and regulatory approvals for the area of operations
 - a. Current Part 107 Certificates
 - b. FAA aircraft registrations
 - c. LAANC approvals
 - d. Property owner permissions for take-off and landing
 - e. Local government business or use permits
 - f. Other needed approvals

Deliverables:

1. Registry of approving stakeholders and their responses
2. Finalized regulatory analysis and secured regulatory authorizations
3. FAA Approval Document

Task 3. Community Outreach

The CONSULTANT, in coordination with the project partners, will work with the City of Chandler to inform residents and businesses in the area about the proposed project, solicit feedback, and integrate community input into the final concept of operations as feasible to complete the proposed objectives. The CONSULTANT will also meet with residents and businesses in the area during and after the project to better understand any potential impact on their daily routine.

Subtasks:

1. Create Public Outreach Strategy
2. Meet with local businesses and residents to discuss the project
3. Attend or host a local workshop, *if needed*
4. Develop an FAQ for the Chandler Public Affairs team
5. Deliver notices to all commercial and residential properties ahead of the project
6. After-action outreach to understand community impacts

Deliverables:

1. **A registry of community stakeholders**, with whom the project has been discussed, including any relevant details of said communication
2. **A FAQ document** for the Chandler Public Affairs team, listing and answering questions related to drone operations, their challenges, and their benefits to the area
3. **A summary of community outreach efforts**, including feedback collected from community members prior to operations

Task 4. Operations

The CONSULTANT will work with the UAS operator (subcontractor) and key stakeholders to conduct seven days of flight operations in accordance with the concept of operations. During this period, data will be collected to inform performance against key success metrics agreed between parties and MAG as defined in Task 1.

Subtasks:

1. Deliver pre-operation inspection and testing requirements via an Operational Procedures Document Training – ensure all participants underwent the proper training to load payload, interact with the vehicles, and so on.
2. Systems Integration between operator, logistics provider, and airspace manager
3. Coordination with public safety organizations

Deliverables:

1. **UAS package delivery pilot operations** will be conducted in real-world UAS package delivery operations. The objective is to conduct 7-days of operations. The official route, use case, and participants will be developed and agreed upon during the planning phase. There will be one day for non-operation participants to watch the operations with the option of MAG and the key community stakeholders involved. This may include city officials and management staff, members of the MAG staff, and other community stakeholders.
2. **Safety analysis of pilot operations** detailing all safety concerns and their mitigation and safety benefits as identified during the pilot operations

Task 5. Final Report

The CONSULTANT will produce a final report showing results against the success metrics agreed upon in Task 1. The final report will include key findings and feedback from operation participants, including the community and primary users of the UAS delivery service. The report will include recommendations to MAG to help form strategic decision-making regarding the integration of UAS into the existing transportation network. In addition to the report, CONSULTANT will produce an Esri Story Map that can be easily shared with other key stakeholders.

Subtasks:

1. Identify characteristics of the study area that were critical for success and summarize the physical, operational, and community elements most likely to contribute to the success of multimodal zero-emission transportation operations.
2. Gather community feedback about the demonstration and describe the positive and negative impacts.
3. Inventory locations across the region that are well-suited for replication to create a map and site list for future replication
4. Outline the necessary work required to scale operations within the existing delivery area and how to transfer the lessons learned to other communities with similar characteristics across the region.

Deliverables:

1. **A final ESRI Story Map Report**, including a detailed review of the planning, approvals, operations, safety measures, and data analysis taken or performed as part of the pilot project. The final report will also showcase the data metrics, learned lessons, challenges, and benefits to the community and environment, summarizing data collected from the pilot project.

TASK ORDER SCHEDULE

This task order will begin on or about April 3, 2023, and will end on December 31, 2023.

TASK ORDER PROJECT TEAM

Chris Mitton – Director of Business Development
Alice Griffith – UAS Operator Coordinator
Tyler Dicks – Senior Solutions Architect

Kelley Lindish - Director of Data & Solutions
 Mary Seidell – Sr. Solutions Engineer
 Mike Munizzi – Product Manager

TASK ORDER FEES

See attached budget spreadsheet. The total funding required for this project is \$97,500. This includes all expenses in addition to labor fees, such as travel and materials as well.

Note, in addition to the fees stated in the budget spreadsheet, the following in-kind matching is being provided to support this project, making the total program value \$203,500.

Summary of in-kind contributions from the project team (subject to change)		
Company	Deliverables	Value
Airspace Link	AirHub Connect Premium	\$51,000
	Program Management expenses not covered by available funding	\$15,000
MercuryGate (Key Stakeholder providing logistics solutions to Omnicare of Chandler)	Personnel, software, and logistical support	\$25,000
Drone Operating Company	Operation expenses not covered by available funding	\$15,000
TOTAL IN-KIND CONTRIBUTIONS		\$106,000

This TASK ORDER agreement is effective once signed by both PARTIES.

Maricopa Association of Governments

Date

Eric J. Anderson
MAG Executive Director

Airspace Link

Date

Michael Healander
President & CEO