SINGLE-ENGINE, TURBOPROP AIRPLANE
SPECIFICATION

OBJECTIVES:

a. **General.** The purpose of this project is to solicit bids to provide a single-engine, turboprop airplane to the Pennsylvania State Police (PSP). The specification requirements are provided in this document. PSP is seeking a fully functional, turn-key airplane that will be ready for service upon acceptance by PSP. Any requirement for a Supplemental Type Certificate (STC), shall be defined as having the STC prior to or on the bid opening date.

b. **Background.** PSP aircraft are used for transport and logistics purposes. They are used to carry out the PSP Mission, “To Seek Justice, Preserve Peace and Improve the Quality of Life for All.” This procurement will serve to augment the fixed wing fleet.

c. **Award.** The purchase order will be awarded to the responsive and responsible bidder offering the lowest price for the specified aircraft and specified specialized equipment.

SPECIFICATIONS:

1. The airplane to be supplied must meet or be customized prior to delivery to meet all the requirements set forth in this Section. Proposals taking exception to these requirements, or those not meeting the minimum requirements, may be rejected as non-responsive. If any item offered is different from the specification listed, such difference must be explained in detail. Failure to meet all specifications may result in rejection of the proposal.

2. **GENERAL REQUIREMENTS:**

2.1 Airplane shall be zero time, no previous owner, factory new, single turboprop engine powered, the latest improved models in current production as offered to commercial trade.
2.2 Airplane shall be certified to be flown by a single pilot with no type certification required.
2.3 Airplane shall be certified (Standard Airworthiness Certificate) in the Normal Category.
2.4 Airplane must be certified for flight under VFR day and night, IFR day and night, and flight into known icing conditions.
2.5 Minimum of three (3) bladed metal propeller.
2.6 Pressurized cabin and cockpit.
2.7 Retractable tricycle landing gear.
2.8 Airplane shall be equipped with dual flight controls.
2.9 Airplane shall be equipped with lead acid batteries.
2.10 Airplane shall be equipped with a baggage compartment.
2.11 Capable of at least nine (9) passenger total seating capacity, two (2) cockpit and seven (7) cabin. Cabin seating shall include at least two executive style seats. All seating surfaces shall be leather.
2.12 Airplane cockpit seats shall be fully adjustable and have a four point restraint system. Cabin seats shall have at least a three point restraint system.
2.13 Airplane shall have a fully enclosed lavatory.
2.14 Airplane shall include a pilot passenger air stair loading door and separate cargo loading door.
2.15 Airplane shall have oxygen available for the cockpit and all cabin seats. Cockpit oxygen system shall include quick-donning diluter demand type masks with built in microphones.
2.16 Environmental control systems that provides heating and cooling (air conditioning) for the aircraft cockpit and cabin to include an air conditioning for cabin cooling on the ground with engine off.
2.17 Pulsating recognition lights.
2.18 Dual pitot static system.
2.19 Capability and equipment necessary to allow the aircraft to be moved on the ground with a tow bar.
2.20 Cargo kit which includes a safety barrier net and attachment points for tying down cargo loads.

3. ENGINE:

3.1 Single-engine turbine propeller driven with a minimum 1000 SHP (Shaft Horsepower) Takeoff Power.
3.2 Engine shall be of new manufacture with performance capability to satisfy the requirements of the aircraft manufacturer minimum specifications.
3.3 Engine shall contain a chip detector system.

4. PERFORMANCE:

4.1 Sea level, International Standard Atmosphere (ISA) performance of airplane must meet the specifications as demonstrated in the aircraft certification documents and subject to verification during flight test.
4.2 Using standard internal battery system have the ability to perform standard start and run-up to flight ready status.
4.3 Airplane shall be capable of a minimum cruise speed of 200 Knots True Airspeed (KTAS) utilizing maximum continues power or less in a basic aircraft configuration at maximum gross weight.
4.4 Aircraft weight at or below maximum gross weight shall be within normal center of gravity limitations carrying personnel, equipment, and fuel as listed in the Preliminary Weight and Balance Calculation. In addition to the Preliminary Weight Calculation spreadsheet, Contractors shall provide a sample weight and balance based on data in this proposal.
5. AVIONICS AND FLIGHT SYSTEMS:

5.1 Glass avionics package to include separate flight displays for the pilot and co-pilot.
5.2 Multi-function display with moving map capabilities.
5.3 Avionics master switch.
5.4 Mission master switch.
5.5 Pilot and co-pilot audio/marker panels with two (2) communication, two (2) navigation and 1 DME.
5.6 TAWS Class B Terrain Awareness Warning System.
5.7 TCAS Traffic Collision Avoidance System.
5.8 Synthetic Vision System.
5.9 Wireless capability to update avionics suite.
5.10 Second Mode S Transponder.
5.11 GPS WAAS/LPV functionality with dual GPS systems for redundancy.
5.12 Dual VOR/NAV receivers with DME.
5.13 Satellite Graphical Weather Stormscope.
5.14 RVSM certification for flight above 29,000 feet.
5.15 Ability to utilize Jeppesen ChartView products on avionics displays to include graphical displays of aeronautical charts, including airports, SIDS, STARS, enroute and approach charts.
5.16 Weather radar.
5.17 406 MHz GPS position reporting Emergency Locator Transmitter (ELT) with remote switch.
5.18 Three (3) Axis auto pilot with coupled VNAV capabilities.
5.19 Iridium antenna and port in cabin.
5.20 ADS-B out capability.
5.21 One (1) 110V AC power outlet in cockpit and three (3) 110V AC power outlets in cabin area located as specified with consultation with PSP.
5.22 Crew call button.

6. SPECIALIZED EQUIPMENT:

6.1 Provide and install a Supplemental Type Certificate (STC’d) integrated retractable deployment system for Wescam MX-15 HDi EO/IR sensor. The sensor deployment system shall be controlled automatically from the sensor operator console as well as from the cockpit.
6.2 Provide and install Supplemental Type Certificate (STC’d) interior and sensor operator console.
6.3 Churchill ARS 600C Navigation Augmented Reality Mission Management System for use and slaving with the Wescam MX-15 sensor. The system shall include a stowable backlit NVIS keyboard (ARS-KB-R) located for easy access by the crewmember seated in the sensor operator seat and integration with the Wescam MX-15 sensor and other surveillance equipment. Equipment shall conform to specifications in Churchill bid specification sheet #012042014.
6.4 Airborne Displays 17” HD touch screen monitor AB-17-W-HD-SDI-T-CBO mounted into the sensor operator console and capable of displaying inputs from the Churchill system and the Wescam MX-15 sensor. The monitor shall conform to the specifications in Airborne Displays bid specification #574.

6.5 Technisonic police radio model: TDFM-9300 w/Type A Digital Modules, TiL Part No. 101267-2-93-A1D-A40-T1-P93059 and all provisions installed in the cockpit and sensor operator console. The pilot, co-pilot, front and aft observer stations shall have the ability to listen and communicate on the system. The radio shall conform to specifications in Technisonic bid spec sheet project #93059.

6.6 Becker audio panel model: 6101-2-8301 for pilot/co-pilot and sensor operator console station. The audio control panels shall be installed in a manner as to allow the pilot, co-pilot, sensor console operator station to function as independent stations for the transmission and reception of aural communications. The pilot, co-pilot, and sensor operator console station shall be able to isolate their respective station from aural communications.

6.7 Digital video recording capability including a port for thumb drive or removable SD card within the operator console.

6.8 Install and integrate the IMT microwave downlink system consisting of transmitter, Omni antenna and cockpit remote controller as specified in IMT specification sheet quotation number T204405/1.

6.9 All antennae for the avionics and communications systems must be supplied and installed in appropriate locations for safety and functionality. Ensure that all antennae required by a specific piece of equipment are appropriate for the operating frequency and power requirements of the equipment. All antennas shall be marked with an antenna designation number that corresponds to the same designation number listed upon the wiring diagram.

6.10 Integrate an aft observer station in the aircraft to include a removable Airborne Displays 12” HD touchscreen monitor AB-12-W-HD-SDI-T on a retractable articulating boom which can display Wescam MX-15 sensor images as well as Churchill mapping information. Install a cannon plug to control the Wescam MX-15 sensor through a second hand controller. Integrate intercom capabilities and a transmit push-to-talk floor switch with the capability to transmit on the Technisonic police radio. The monitor shall conform to the specifications in Airborne Displays bid specification #574.

6.11 Install Bose headset jack at sensor operator console, aft observer station, plus 2 additional Bose headset jacks in cabin area located as per consultation with PSP.

6.12 All communications systems, including avionics, intercom, and police radios will be verified to be free from electrical noise following installation by performing a ground EMI-RFI interference test.

6.13 Ability to view Wescam MX-15 sensor information and video picture displayed on an MFD located in the cockpit to include Churchill mapping information.

6.14 Wescam MX-15 HDi EO/IR system with additional hand controller configured as per the attached Wescam specification sheet.

6.15 All installed equipment and accessories must have Federal Aviation Administration (FAA) approval.
7. TRAINING:

7.1 Factory Initial Flight Training for five (5) pilots including simulator training according to a schedule agreed upon by PSP and the contractor. Initial flight training shall include two (2) hours of competency flight training per pilot with factory Certified Flight Instructor (CFI), maximum of ten (10) hours total. Competency flight training may be conducted within the accepted/purchased airplane.

7.2 Factory engine and airframe maintenance training for three (3) mechanics according to a schedule agreed upon by PSP and contractor.

8. WARRANTY AND MAINTENANCE:

8.1 No component overhaul or retirement times of less than 1,000 hours.

8.3 Contractor must provide one set of all required specialty airframe tools to complete all airframe maintenance functions for a typical interval inspection (i.e. 50, 100, 150, or 200 hour inspection) specified by manufacturer.

8.4 New airplane warranty: 2 years non-prorated at no additional cost. The warranty per airplane shall start on the date the airplane is placed into service. Date in service will be the date the airplane is placed into service by the PSP, not the date of delivery. Any applications to facilitate delayed warranty start are to be completed by the Contractor. It is the Contractor's responsibility to ensure delayed warranty start is registered with the manufacturer. Warranty service shall be available at any authorized service facility for the duration of the warranty period. Contractor shall identify those facilities capable of providing warranty services as well as those facilities that are approved to provide engine and component overhaul services.

9. INSPECTION AND DELIVERY:

9.1 The Contractor shall accommodate visits and inspections by representatives of the Commonwealth at any point during aircraft production or customization. There shall be three scheduled visits by 2 representatives at specific times during the production and customization process.

9.2 PSP reserves the right to modify or change the configurations during the production stage as necessary to aid maintenance function or crew operations. The type of equipment will not be modified or changed and will remain as specified or as submitted by the Contractor.

9.3 Final inspection and acceptance of the airplane shall be at the final assembly location. Any discrepancies or non-conformity to contract specifications shall result in the Contractor taking the airplane for repair and/or modification with all work accomplished and the airplane returned within thirty (30) days.

9.4 Delivery of the airplane shall be within twelve (12) months of issuance of contract.

9.5 The following manuals shall be supplied (with lifetime revisions) at no cost to PSP (both printed and internet based):

1. Component Repair and Overhaul manual
2. Structural Repair Manual
5. Component Repair and Overhaul Vendor Data Publications
8. Illustrated Parts Catalogue (for engine and airframe)
9. All service bulletins, service instructions, etc.