

SINGLE-ENGINE TURBOPROP AIRPLANE

SPECIFICATIONS

OBJECTIVES:

- A. **General.** The purpose of this project is to solicit bids to provide a single-engine, turboprop airplane to the Commonwealth of Pennsylvania, Office of Attorney (OAG). The specification requirements are provided in this document. OAG is seeking a fully functional, turn-key airplane that will be ready for service upon acceptance by OAG. Any requirements for a Supplemental Type Certificate (STC), shall be defined as having the STC prior to or on the bid opening date.
- B. **Background.** OAG aircraft are used for logistics and transport purposes. The aircraft is used to carry out the OAG Law Enforcement Mission. This procurement will serve to replace the existing OAG fixed wing aircraft.
- 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.
- D. **Small Diverse Business (SDB) and Veteran Business Enterprise (VBE) Participation.** The Issuing Office and the Department of General Services' Bureau of Diversity, Inclusion and Small Business Opportunities (BDISBO) has not set Small Diverse Business (SDB) and/or Veteran Business Enterprise (VBE) participation goals for this procurement. This procurement is either under the \$250,000 threshold for setting SDB and VBE Participation goals, or the Issuing Office and BDISBO have determined that the SDB and/or VBE participation opportunities for the scope of work for this procurement are de minimis.

GENERAL REQUIREMENTS:

1. This is a **No-Substitute** bid for a new Cessna Grand Caravan EX with new components to include the Textron Aviation Standard Warranty. The airplane to be supplied must meet or be customized prior to delivery to meet all the requirements set forth in this document. Proposals taking exception to these requirements, or those not meeting the minimum requirements, may be rejected as non-responsive. Failure to meet all specifications may result in rejection of the proposal.
2. **AIRFRAME SPECIFICATIONS:**
 - 2.1 New Cessna Grand Caravan EX with new components to include the Textron Aviation Standard Warranty. Factory new single turboprop engine powered. New is defined as factory new current production model with a total flight time of fifty (50) flight hours or less. Airframe with retrofitter, remanufactured or assembled from used parts will not be accepted.
 - 2.2 Airplane shall be FAA Certified (Standard Airworthiness Certificate) in the Normal Category. Issued under 14 CFR Part 21.183. (Documents must be provided)

- 2.3** Airplane shall be certified for flight under VFR day and night, IFR day and night, and flight into known icing conditions.
- 2.4** Must be high wing with fixed tricycle landing gear.
- 2.5** Airplane shall be equipped with dual flight controls.
- 2.6** Airplane must be free from all defects and must be current on all maintenance and inspection items.
- 2.7** Airplane shall be certified to be flown by a single pilot with no type certification required.
- 2.8** Airplane shall be equipped with a baggage compartment.
- 2.9** Must not exceed a GTOW of twelve thousand five hundred (12,500) pounds.
- 2.10** Airplane shall be capable of a least (10) passengers total seating capacity, two (2) cockpit and eight (8) cabin seats, prior to mission modification. All seating surfaces shall be leather or leather like and floor covering shall be standard type offered by the factory.
- 2.11** Airplane cockpit seats shall be fully adjustable and have at minimum a four-point restraint system. Mission console seat shall be fully adjustable and have at a minimum four-point restraint system. Cabin seats shall have a least a three- point restraint system.
- 2.12** Shall have a minimum of four doors for egress. To include a separate passenger air stair loading door and separate cargo loading door. It is preferable that the passenger loading door should be on the opposite side of the airframe as cargo loading.
- 2.13** Shall have oxygen available for the cockpit and all cabin seats in accordance with all applicable federal requirements.
- 2.14** Shall have an environmental control system that provides heating and cooling (air-conditioning) for the aircraft cockpit and cabin and shall provide air conditioning for cabin cooling on the ground with the engine off.
- 2.15** Pulsating recognition lights.
- 2.16** Dual heated pitot static system.
- 2.17** Capability and equipment necessary to allow the aircraft to be moved on the ground with a tow bar and tail stand.
- 2.18** Cargo kit which includes a safety barrier net and attachment point for tying down cargo.
- 2.19** Airplane shall have a Single Point Refueling Port System, which gives ground servicing personnel the ability to stay on the ground rather than being on a ladder ten (10) feet in the air twice. (Stock refueling ports are on top of each wing).
- 2.20** Airplane shall have TKS Ice Protection System for propeller, windshield, wing leading edges and tail leading edges. TKS Ice protection tank must be stored in external cargo pod.
- 2.21** Airplane shall have 29" tires.
- 2.22** Airplane shall be equipped with a cargo pod. Configuration in consult with OAG.
- 2.23** Airplane shall have a Single slung side exhaust.

3. ENGINE:

- 3.1** Single-engine turbine propeller driven with a minimum of 850 SHP (Shaft Horsepower) Takeoff Power.
- 3.2** Engine shall be new manufacture with performance capability to satisfy the requirements of the aircraft manufacturer minimum specifications.

- 3.3 Engine shall contain a chip detector system.
- 3.4 Engine shall have an emergency power lever
- 3.5 Engine shall use kerosene-based fuel
- 3.6 Shall have Three Hundred (300) Amp starter generator
- 3.7 Shall have a minimum, Seventy-five (75) ampere or greater backup “stand-by” alternator.
- 3.8 Shall have propeller that is constant speed, full feathering, reversible, hydraulically actuated aluminum and four-bladed.

4. MANDATORY PERFORMANCE REQUIREMENTS:

- 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 prior to delivery.
- 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 160 knots True Airspeed (KTAS) utilizing maximum continuous power or less in a basic aircraft configuration at maximum gross weight at 10,000 MSL.
- 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.
- 4.5 Stall speed of Seventy (70) KIAS or less with flaps up and zero (0) degree bank angle.
- 4.6 Minimum cabin cargo volume capacity of three hundred (300) cubic feet.
- 4.7 Cargo door with the ability to load and item with the dimensions of forty-eight (48) inches wide by forty-eight (48) inches wide.
- 4.8 Able to loiter, orbit above a location for a least six (6) hours under max endurance performance criteria, excluding thirty (30) minute fuel reserve.

5. AVIONICS AND FLIGHT SYSTEMS:

- 5.1 Glass avionics package to include separate flight displays for the pilot and co-pilot to include the (Garmin G-1000 NXI) with dual independent AHRS.
- 5.2 Two (2) PFDs and One (1) Multi-function displays with moving map capabilities and must be fully integrate the engine instruments. Displays must be ten inches or larger.
- 5.3 Avionics master switch
- 5.4 Mission master switch
- 5.5 Two (2) VHF-AM communications radios having a minimum of seven hundred sixty (760) channels operating from 118.00 to 136.975 MHz.
- 5.6 Two (2) VOR Localizer, and Glideslope systems
- 5.7 TAWS-B Terrain Awareness Warning System to be displayed on each PFD and MFD as required.
- 5.8 Garmin GTS-825TCAS Traffic Collision Avoidance System
- 5.9 Garmin Synthetic Vision System

- 5.10 Wireless capability to update avionics suite.
- 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 (XM weather/entertainment option)
- 5.14 Jeppesen Chart View Option.
- 5.15 One (1) GLD 69A-XM data link with information displayed on each PFD and MFD as required.
- 5.16 Garmin GWX70 4 Color Digital Weather Radar
- 5.17 406 MHz GPS position reporting Emergency Locator Transmitter (ELT) with remote switch.
- 5.18 Garmin GFC-700 Three (3) Axis auto pilot with yaw damper and coupled VNAV capabilities.
- 5.19 ADS-B Out and in Functionality with single GTX-345R Transponder integrated into the PFD and MFD display systems. Must include Garmin ADS-B Out/Off software.
- 5.20 Dual USB charging ports at pilot, copilot, tactical workstation seats and all passenger seats. One (1) 115 VAC power Outlet in the cockpit and three (3) 115 VAC power outlets in the cabin area location as specified with consultation with OAG.
- 5.21 KRA 405B Radar Altimeter
- 5.22 Garmin Surface Watch
- 5.23 Garmin Search and Rescue System
- 5.24 L3 Communications Storm scope WX-500
- 5.25 Digital Standby Flight Instruments to include: artificial horizon, airspeed, altimeter, magnetic compass each powered by a source other than the main electrical system and certified for IFR flight. Electronic Flight Instrument System (EFIS) standby flight instruments preferred.
- 5.26 The aircraft will have both normal 2-prong headset jacks as well as Bose Powered headset jacks. Jacks should be made available at all passenger seats as well as the two cockpit seats and the tactical work station.
- 5.27 Provide powered Bose Headsets at every seat, ten (10). Bose model A20 with Bluetooth connectivity
- 5.28 Activate MFD video option to display camera video on the MFD in the cockpit.

6. Manuals

- 6.1 Maintenance manuals for the airframe, engine, propeller and any installed equipment and or appliance including avionics.
- 6.2 Complete wiring diagrams for the aircraft, avionics systems and mission equipment to be provided.
- 6.3 Complete equipment list per the weight and balance configuration of the aircraft. This item must be provided in hard copy format.
- 6.4 Parts manual for the aircraft and engine.
- 6.5 Include a FAA Approved MMEL.
- 6.6 Copies of all warranty material.
- 6.7 Check Lists of the OEM Inspection and Maintenance Program to include the ICA of any STC or any modifications.

- 6.8 Contractor must provide complete sets of service bulletins, with regular updates for a period of five (5) years after Acceptance.
- 6.9 Provide POH with regular updates for a period of five (5) years.

7. Aircraft Inspection and Maintenance

- 7.1 The Contractor must have all maintenance and inspections current at the time of delivery and must be in compliance with the requirements of 14 CFR Parts 39, 43, 91 and all additional requirements of this section.
- 7.2 The Contractor must correct all maintenance discrepancies prior to delivery.
- 7.3 The Contractor must assure that all maintenance performed is recorded in the maintenance records.
- 7.4 All inspections must have been performed in accordance with the manufacturers' recommended inspection program applicable prior to delivery. It must comply with aircraft manufacturer's maintenance programs, for the aircraft, aircraft engine, propeller, and all appliances installed. A manufacturer's maintenance program is one which is contained in the maintenance manual or maintenance instruction set forth by the manufacturer for the aircraft, aircraft engine, propeller or appliance installed. A copy of the inspection and maintenance program used by the operator in accordance with the Federal Aviation Regulation (CFR) 14, Part 91.409 (f) (1) through (4) must be delivered.
- 7.5 Aircraft must have had a current annual inspection within the previous one hundred eighty (180) days of delivery.
- 7.6 All additional equipment or modifications must be completed in accordance with 14 CFR <https://www.law.cornell.edu/cfr/text/14/chapter-1> requirements and manufacturer's recommendations or engineering data and FAA Approved by STC.
- 7.7 All Field Approved installations must include FAA Form 8130-3. <https://www.faa.gov/forms/index.cfm?go=document.information/documentID/186171> and include all DER Engineering Data. AERO must be given all rights to any alteration(s) or modification(s).
- 7.8 Any STC or Field Approval must include a FAA Form 337 <https://www.faa.gov/forms/index.cfr/go/document.information/documentID/185675>.

ISR MODIFICATIONS AND SPECIALIZED EQUIPMENT:

- 8.1** Provide and install a Supplemental Type Certificated (STC'd) integrated retractable deployment system for FLIR Star SAFIRE 380X EO/IR sensor. The sensor deployment system shall be controlled automatically from the sensor operator console as well as from the cockpit. Shall be mounted forward or rearward of main gear as not to obstruct sensor view. Installation will be in consult with OAG.
- 8.2** Provide and install Supplemental Type Certificated (STC'd) interior and sensor operator console and operator's seat; seat must be pilot type-high back, to include adjustable arm rest, adjustable lumbar support, four-point restraint system or greater and leather cover surface.
- 8.3** Provide and install a new zero timed FLIR Systems Star SaFire 380X to include all components and wiring as specified:

FLIR Star Safire 380X

(TFU) Stabilized Turret FLIR Unit
(MWIR) Medium Wave Infrared Camera, 1280P Native HD FPA
(HDEO) HD Color Camera w/ 5-FOV Matched Optics (1080P)
(HDLL) HD Low-Light Color Zoom Camera (30x)
(SWIR) Short Wave Infrared Camera (15 μ)
(LP) Laser Pointer, Near-IR (150mW)
(ESLRF) Eye-Safe Laser Rangefinder
(IMU) GeoPoint Package: IMU
(AT) Automatic Video Tracker
Digital Image Blending
Operator Manual
15 Month / 1000 Hour Warranty, Parts and Labor
Color: Black
Video Format: NTSC
(LIU) Laser Interlock Unit (back lit – 28V) Included at no charge
(UHCU) Universal Hand Control Unit
Nitrogen Purge /Fill System Support Kit
Replacement Desiccator Cartridges (6)
Operator & Line Maintenance Training for 8 Students, 3 days at no charge
GPS Antenna
Retractable Camera Mount (RCM) in the cargo pod
Belly fuselage mounted disconnects for the RCM as well as console disconnects
RCM wiring harness and Cockpit control Panel
Laptop Computer Training Simulator with additional Universal Hand Control Unit

- 8.4** Provide and install Mapping System as specified:

Churchill ARS-700C Augmented Reality Mapping System or latest production model,
(ATOM) Mission Computer for use with FLIR 380X, including ATOM-CONN, Mating
Connector Kit
NVIS Keyboard with rack mount
WiFi Router with (5) five ports (Teradek wireless router is preferred)
Ground Control Station ARS-GCS must be included.

8.5 Provide and install Technisonic (TDFM-9300) radio system as specified:

1ea Technisonic TDFM 9300 Radio
4ea Radio Modules (OAG defined)
1ea Technisonic TDFM remote control head installed in Sensor Operators Station
4ea Comant Antenna Systems AR installed on the fuselage and aft Cargo Pod

8.6 Supply and Install Eagle Digital Audio System

(Installation of Eagle Audio system in place of the existing Garmin GMA-1347)

8.6a 1ea Eagle G1300 Digital Audio router with (2) boards
8.6b 4 ea Eagle G13116 Control panels with (16) transceivers. Two control heads will be
mounted in the cockpit, one in the sensor operator station and one at a designated seat.
8.6c 1 ea Eagle G13006 installation kit
8.6d 1 ea PTT foot switch in console floor
8.6e 1 ea PTT switch on console
8.6f 1 ea PTT switch at designated seat

8.7 Supply and Install Airborne 6.5Ghz Downlink System

8.7a Troll SkyLink Transmitter System (Band C)
8.7b Frequency 6400-6500 MHz
8.7c Power: 8Watts linear
8.7d Video Inputs: Composite, SD, HD, SDI – Ethernet
8.7e Power Outputs: Two (2) 28 VDC Switches, Three (3) 12 VDC Switches – 100 Watt
max power
8.7f Six (6) external Ethernet ports including mounting tray
8.7g Remote Interface Protocol Driver and Software for External Mapping System
Control
8.7h TS LinkBox and Mini Antenna Control Software
8.7i Installation Connector Kit, LinkBox and all connectors for Power, Ethernet, Auxiliary,
Link Box Mini and Cable termination instructions.
8.7j SkyLink MINI S Antenna Pod High Performance Directional Antenna as specified:
Standalone antenna with built-in servo drive and controller
Weighing less than 61 pounds
Frequency 4400 to 6500 MHz
Gain @ 18 dBi mid band
Azimuth 360 deg. continuous rotation
Elevation +30, -90 Degrees
Internal INS with Magnetometer and GPS
24 VDC power requirement
Includes larger fiberglass radome

8.7k GPS Antenna and Cable for C100 or Antenna Pod, 20 feet.

8.8 Supply and Install DC Mission Power Modification

8.8a Installation of DC mission power switch in cockpit with remote breakers in the nose for the mission buss.

8.8b Installation of Mission Breaker panel located in the mission console for each LRU CB to be pulled separately

8.9 Supply and Install Cockpit iPad Mounts with USB Chargers

8.9a 2ea MCICO TA202 High Power USB Chargers

8.9b 2 ea Aviation iPad Yoke mounts

8.9c 3 ea iPads will be supplied for pilot, co-pilot and Tactical Flight Officer will be of the latest model available for commercial trade.

8.9 Supply and install Monitors and Video Switching Device

8.9a (1) ea. Airborne 22W" diagonal, PCAP touch screen display with quad video feature, 1920 X 1080 resolution, (2) DVI inputs, (1) DVI output, (4) SMPTE 292 HD inputs, (2) SMPTE 292 HD outputs, (6) RS170 video inputs, (2) RS170 outputs, (2) VGA standard inputs, 2x zoom/freeze, NTSC/PAL.

8.9b (1) ea Airborne 15W" diagonal, PCAP touch screen display with 1920X 1080 resolution, (2) DVI inputs, (1) DVI output, (4) SMPTE 292 HD inputs, (2) SMPTE 292 HD outputs, (6) RS170 video inputs, (2) RS170 outputs, (2) VGA standard inputs, 2x zoom/freeze, NTSC/PAL.

8.9c (1) ea 8 X 8 Rugged 3-G SDI Video Switch

8.9d (1) ea DZUS Rack Mount S000108-00 Remote Controller

8.10 Supply and install a Sensor Operator Station

The sensor operator's station will be installed behind the pilot and will include a custom compartment on the side of the mission console for storage of manuals and miscellaneous items. The mission console will house all mission equipment as specified and layout will be in consultation with OAG. Provision and installation of one mission chair to be installed on the standard seat rails. Mission seat will require 4-point restraint system or greater. Mission seat will be high back, fully adjustable, adjustable lumbar support, arm rests and leather covered surface. Station will include Two (2) MCICO TA202 High Power USB Chargers, Two (2) USBC Type-B Micro Chargers and Two (2) 115 VAC power outlets.

8.11 Supply and install Flight Cell DXMx Phone System

8.11a 1 ea Flight Cell DZMx IRD/4G Cell (DZP-04-0800)

811.b 1 ea Flight Cell DZMx Remote head (DZP-05-001)
811.c 1 ea Flight Cell Blade Cell Antenna (ANP_00033)
811.d 1 ea Flight Cell GPS/IRD Antenna
Mounting of antennas will be in consult with OAG

9.1 ADDITIONAL REQUIREMENTS

- 9.1a **Supply** and install STC'd APEIII STOL Kit
- 9.1b Removable Blackout window coverings must be installed on all passenger compartment windows.
- 9.1c No center pedestal between pilot and co-pilot seats.
- 9.1d FLIR Star SaFire 380X install must be STC'd for flight into known icing conditions.
- 9.1e Five (5) Pilot Factory Initial training slots must be included.
- 9.1f One (1) Factory Maintenance training slot must be included,
- 9.1g Contractor must provide training at OAG facility for all installed mission equipment within Thirty (30) days after delivery.
- 9.1h Contractor must complete mission integration within ninety (90) days upon delivery of the new aircraft to the integrator.

10.1 SYSTEM SUPPORT FOR TWELVE (12) MONTHS POST DELIVERY

- 10.1a Service and support must 24/7/365 live technical support
- 10.1b Service must include unlimited calls for technical support
- 10.1c Provide an onsite tech within three (3) business days of request
- 10.1d Loaner systems provided within 48 hours after on-site service call if needed
- 10.1e On-site operational training for Agency personnel
- 10.1f Training will be conducted at OAG facilities with OAG equipment
- 10.1g Valid transfers of OEM existing and new warranties upon delivery.
- 10.1h All parts and labor to repair or replace defective components covered by warranty

11. FINANCE PAYMENTS:

The first annual payment will be made when the Commonwealth takes ownership of the aircraft. OAG shall pay the applicable annual payment for the remaining period of time of the elected finance term as set out on the Purchase Order.

The OAG may at any time elect to prepay its remaining Financed Purchase Option payments. The OAG shall provide notice of the intended prepayment date, which shall be at least one month after the date of the notice. Depending on market conditions at the time, the Awarded Supplier/Initial Assignee may reduce the balance of the remaining payments to reflect the requested prepayment and shall advise the OAG of the balance to be paid. There shall be no penalty for early final payment.

12. TRADE-IN:

Vendors are required to provide a trade-in value for the OAG's existing airplane. The OAG reserves the right to refuse that trade-in value and finance the airplane at the quoted price based solely on the specifications required. The trade-in is available for inspection at Capital City Airport, (KCXY). 252 Airport Rd & Taxi-Way-J, New

Cumberland, Pa 17080. A date and time for this inspection has been set for June 22, 2021 at 1:00 PM. While this is not mandatory it is strongly suggested that all bidders attend this inspection. You will need to contact David Nale at 412-589-5165 before attending so he can make arrangements for your entry into the facility.