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Procurement Division  
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**Addendum No. 1 for Invitation for Bids**  
**Multipurpose Unit with Interchangeable Snow Blower, Broom Sweeper and Snow Plow**  
**Attachments for the Lynchburg Regional Airport**  
**2017-017**

Date: 08/18/2016  
From: Lisa Moss, Buyer VCA  
RE: Addendum No. 1

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This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Bidder shall indicate receipt of this Addendum and all previously issued Addenda on the Bid Form.

**1. Revised Specifications are attached.**

Company Name: \_\_\_\_\_ Address: \_\_\_\_\_ Date: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Print Name: \_\_\_\_\_ Telephone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

# **LYNCHBURG REGIONAL AIRPORT**

**LYNCHBURG, VIRGINIA**

**TECHNICAL SPECIFICATIONS  
FOR  
SNOW REMOVAL MULTIPURPOSE UNIT  
WITH BLOWER, BROOM SWEEPER,  
& SNOW PLOW ATTACHMENTS**

C&PE Project Number 1403-01

*Revised Specifications dated August 18, 2016*



**CAMPBELL & PARIS ENGINEERS**



**LYNCHBURG REGIONAL AIRPORT**  
*SNOW REMOVAL MULTIPURPOSE UNIT*  
*WITH BLOWER, BROOM,*  
*& SNOW PLOW ATTACHMENTS*

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**TECHNICAL SPECIFICATIONS**

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**EQUIPMENT  
DESCRIPTION**

The snow removal multipurpose unit with blower, broom sweeper, and snow plow attachments must be designed and manufactured in accordance to SAE ARP 5539, in the United States, and for the specific purpose of snow removal. The unit shall be capable to blow, sweep, or plow 2,027,927 square feet of paved area at an anticipated operating speed of 30 MPH. The unit shall be designed and line built by the original manufacturer as a 4 X 4 and shall be all wheel drive.

**Aftermarket conversions of 4 X 2's are not desired and are not acceptable.**

The vehicle is to be equipped with two (2) two-way radios that are compatible with radio equipment currently in use at LYH. Frequency will be provided by the Airport. One radio will be for communication with the air traffic control tower and the second for communication with airport operations. The tower radio shall be an ICOM air band radio or approved equal and the operations radio shall be a kenwood, Motorola or approved equal VHF radio capable of accepting narrow band frequencies. All transceivers shall be installed complete with microphones, antennas, mounting brackets, etc. and ready for use. Radios shall be mounted in a manner that makes them easily accessible to the driver and 1 crew position. Manufacturer shall contact Lynchburg Regional Airport for mounting positions prior to mounting.

A Whelan 800 amber strobe beacon or approved equal shall be center mounted on the forward portion of the cab roof. An additional matching amber strobe beacon shall be installed on the top of the rear engine enclosure. Both beacons shall be activated by a single operator controlled switch in the cab.

The complete vehicle shall be painted with one (1) coat of metal primer and two (2) coats of FAA approved Chrome Yellow acrylic urethane in accordance with the most current update of FAA Advisory Circular AC 150/5210-5 Painting, Marking, and Lighting of Vehicles Used on an Airport. **No exceptions will be allowed.**

Lynchburg Regional Airport will provide all the outside ID's to be affixed to the vehicle.

The complete vehicle shall be treated with Ziebart rustproofing protection or an approved equal. Rust proofing shall be accomplished in compliance with federal specification 297E.

The vehicle may be driven on highways and other public roadways and shall comply with all applicable Federal Motor Carrier Safety Regulations (FMCSR) and Federal Motor Vehicle Safety Standards (FMVSS).

The vehicle shall comply with all applicable requirements of the most current FAA Advisory Circular (AC) 150/5220-20 Airport Snow and Ice Control Equipment and must be in accordance with all applicable Society of Automotive Engineers (SAE) Aerospace Recommended Practices (ARP).

All materials, parts, and components of the unit shall be new and of the size, material and strength to sustain the maximum load limits and severe operating conditions encountered in snow removal operations, while resulting in minimum wear and failure. All materials, parts, and components used shall be heavy duty and manufactured and/or treated to resist rust, corrosion, and wear.

All items of design and equipment not listed in these specifications, but involved in carrying out their intent, are required to be furnished by the bidder, the same as if these items were specifically mentioned and described in these specifications. This includes but is not limited to software.

The unit must be fully assembled and full functionally tested prior to delivery by a qualified factory representative. If any component(s) of the unit is found to be incomplete, missing, or not fully functional then the unit will not be delivered.

**No prototypes shall be permitted**

In accordance with FAA AC 150/5220-20, Chapter 8, General: The manufacturer shall be responsible for conducting tests to ensure that its snow and ice control equipment meets the operational and performance requirements it advertises. Certified records of these compliance tests shall be submitted by the manufacturer with each response to an invitation to bid. Equipment tests shall be conducted on standard production models and not on specially constructed prototypes.

Proof of tests by an operational and component check list with date performed and signature of tester(s) is required with the delivery of the unit(s)

**Bids received without certified records of compliance tests conducted on standard production models and/or without Proof of tests by an operational and component check list with date performed and signature of tester(s) will be considered non-responsive and will not be considered.**

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## TRAINING

The unit must be fully assembled and tested prior to delivery. Shipping cost is the responsibility of the bidder. A qualified factory representative must fully install, start-up, and test the unit prior to training. Training shall be performed by factory trained, authorized and certified technicians. The training shall be performed at the customer's site and shall be a minimum 16 hours for operators training and an additional minimum 8 hours for mechanics training (mechanics shall attend the operating training first). The purpose of the training is to review safe and effective procedures for use and maintenance of the machine, review and test all systems, assure the full foundation of the machine. The successful bidder shall provide a complete breakdown of training cost when request by the owner. All cost associated with startup and training shall be incidental to Item 1 – Multipurpose Unit.

Training shall include as a minimum the following:

- Operating procedures per operating manual
- Break-in procedures
- Equipment limitations
- Operator maintenance
- Safety
- Cold weather operations
- Jump starting
- Welding on equipment
- Instruments and controls
- Equipment operation

Days and hours of training will be determined by the Lynchburg Regional Airport Commission. The airport is open 365 days a year 7 days a week 24 hours a day and the need for late evening or early morning training could be required. No training would be required during nationally recognized holidays.

The successful bidder shall provide a minimum of two weeks of advanced operational and maintenance training for two service technicians at the broom and chassis manufacturing facilities or other designated training facilities of the manufacturer. Tuition, travel, meals, lodging, and incidental fees in providing advanced training are the responsibility of the bidder. Lynchburg Regional Airport Commission service technicians can wear their uniforms during training. The advanced training shall be provided within 14 months of the award of bid. Training shall not take place between December 16 and March 14 of the following year. The dates of training must be given to the Lynchburg Regional Airport Commission at least four weeks prior to the day training starts. The advanced training must be of the "hands on" type; classroom instruction followed up by actual shop participation in performing what was discussed. Class size for advanced training should be limited to create an optimal learning environment. Advanced training classes should be no smaller than 6 students to ensure open discussion and an exchange of ideas and no larger than 14 students to assure personalized attention. The advanced training must cover all aspects of equipment purchased and should be conducted in two (2) parts. The first half or week should cover universal maintenance with the second half or week covering electronic maintenance. The universal maintenance portion of the advanced training at a minimum must cover vehicle familiarization including but not limited to cab controls, chassis, attachments, engines, transmission, hydraulic, air, and electrical systems; the technician will learn proper operation, lubrication, adjustments, and troubleshooting of the unit bid. The electronic maintenance portion of the advanced training at a minimum must cover but not be limited to theory, operation and logic of advanced electronic systems, interfacing and diagnostics of the drive engine, transmission, auxiliary engine, and various command systems; the technician will learn to identify the electronic system components, understand component operation, practice component diagnostics and repair, and be introduced to computer-based electronic software used for parameter monitoring, system diagnostics, and troubleshooting.

The successful bidder shall provide the following product support information: two complete sets of manuals (operators, parts, and service) including schematics, CAD drawing, and desktop published photos for each component of the vehicle. One set shall be CD Rom version and one set shall be standard hard copy.

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### QUALITY AND SAFETY STANDARDS

Vehicle manufactures certifies that the vehicle meets or exceeds FMVSS 571-103 (windshield defrosting and defogging systems in accordance with J1944 and J198) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-101 (controls and displays) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-108 (lamps, reflective devices, and associated equipment) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-120 (tire selection and rims for motor vehicles other than passenger cars) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-121 (air brake systems) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-206 (door locks and door retention components) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-207 (seating systems) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMVSS 571-209 (seat belt assemblies) requirements based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMCSR 205 (glazing for windows) based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMCSR 302 (flammability of interior materials) based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMCSR 393-65 (fuel systems and fuel tank) based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds FMCSR 393.94 (vehicle interior noise levels requirements) based on documented test results. Documented test results shall be provided with the bid or prior to delivery of the vehicle.

Vehicle manufacturer certifies that the vehicle meets or exceeds 40 CFR CH.1 (pass by noise levels in accordance with SAE J366) requirements based on documented test results. Documented test results shall be provided with the bid prior to delivery of the vehicle.

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**WARRANTIES**

All keys shall be provided in duplicate

A complete list of all replaceable filters cross referenced to Fleet Guard must be provided at or before delivery of the unit.

One complete set of extra filters shall be provided for the vehicle.

Only components or systems with a minimum guarantee, against defects in material and workmanship, of one year may be bid with this vehicle.

The vehicle itself shall be guaranteed against defects in material and workmanship for a minimum period of two (2) years.

The axles shall be warranted against defects in material and workmanship for a minimum of three (3) years.

The frame rails shall be warranted for 10 years against defects in material and workmanship.

The cab shall be warranted against inside-out penetrating corrosion for 10 years or 100,000 miles, whichever occurs first.

The vehicle and any of its components or systems with an original manufacturer's standard warranty lasting longer than the minimum required will carry the original manufacturer's standard warranty.

Snow blower chassis manufacturer shall supply a statement on their company letterhead. The statement shall contain an affirmation that the snow blower chassis meets all functionality and capacity requirements. The statement shall also contain an affirmation that the snow blower attachment configuration meets the chassis manufacturer's requirements.

Snow blower attachment manufacturer shall supply a statement on their company letterhead. The statement shall contain an affirmation that the snow blower attachments meet all functionality and capacity requirements. The statement shall also contain an affirmation that the snow blower chassis configuration meets the attachment manufacturer's requirements.

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**END OF ITEM EQUIPMENT**

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## MULTIPURPOSE UNIT

### 1.1 - Axle

The front axle shall be drive/steer type and shall provide a minimum 11" ground clearance.

The rear driving axle shall provide a minimum 10" ground clearance. A controlled traction differential is required.

### 1.2 - Backup Alarm

The vehicle backup alarm shall be installed and equipped at the rear. The backup alarm shall be activated whenever the transmission is placed in reverse. The backup alarm shall be a SAE J994, Type B vehicle backup alarm or approved equal. The vehicle shall be equipped with an electric switch to allow the operator to provide an audible warning in an emergency.

### 1.3 - Cab

The vehicle cab shall be a heavy duty two man type, all steel, fully insulated. Floor mat, rubber or vinyl covering the complete cab floor, fastened for easy removal, but securely held to the floor.

The vehicle cab shall have a Tilt/Telescoping steer wheel, left and right outside grab handles and for operator comfort, the engine shall not intrude into the cab envelope.

The vehicle shall have a fully enclosed two person cab thermally and acoustically insulated (less than 85 dB as measured 6 inches from the driver's ear at full engine load). Cabs shall be attached to the chassis with vibration isolating mounts.

The vehicle cab items include:

- 1) Heat, defrost, and conditioned air – fitted with an integral high-output, fresh air type heater/defroster/air conditioner with multi-speed fan motors. A refrigerant charged air conditioner system shall be incorporated as a device to cool the cab for warm weather pavement maintenance and to control in-cab humidity and to control misting of the interior glass. Side glass defroster ducts shall be required. Cab heater with defroster shall be capable of maintaining a 65°F inside temperature at sea level when the ambient temperature is -20°F. Under all conditions of heating and ventilation, the temperatures measured in the operator's immediate environment should be uniform within 9°F (5°C) (See SAE J1503). Warm weather air conditioning performance shall be capable of maintaining 68°F at sea level with an ambient temperature of 100°F. A screened, louvered vent with replaceable filter element is required for fresh air intake into the required heating and air conditioning unit. After-market/non-integrated roof-mounted air conditioning units are unacceptable. Vent controls or auxiliary fans shall be furnished as needed to provide maximum defrosting effect.
- 2) Doors and hardware doors and hinges shall be bolted or welded to the door(s) and cab frame and provided with proper restraints against high winds. Doors and door locks shall comply with FMVSS 206 Door Locks & Door Retention Components. Door handles shall be positioned for use without bending or stooping.
- 3) Rear view mirrors shall be fitted with dual, heated, motorized (remote controlled) mounted to the exterior of the cab using a pillar with stabilizer bar connecting the mirror frame to the outer door frame. Mirror controls shall be operated from the operator position in the cab. Each primary mirror head shall have a surface area of not less than 100 square inches.
- 4) Multiple interior sun visors, opaque and/or tinted sun-visors for the front and side windows shall be provided at the airport operators request.
- 5) Two coat hooks, one for each seat
- 6) One 2A-10BC interior mounted fire extinguisher that is readily accessible to both seats and two if space requires that extinguishers be mounted away from the middle console area.
- 7) One 20 B: C: Purple K type fire extinguisher installed at a location readily accessible from the ground.
- 8) Seating shall be premium quality 6-way adjustable air ride, fully adjustable in the horizontal (fore and aft) and vertical positions with high or medium rise back, foldable arm rests, adjustable lumbar support, cloth covered, and load adjustable. All vehicle seats shall be furnished with three-point safety belts, certified by the vehicle manufacturer to have been tested and in conformance with FMVSS requirements. Adjustments shall provide for

ease of operation for individuals between the 5<sup>th</sup> and 95<sup>th</sup> percentile.

- 9) All interior controls and displays shall incorporate variable intensity lighting control
- 10) Two auxiliary 12 V power outlets
- 11) Minimum of two cup holders, one each within easy reach of the operator and passenger seats

#### **1.4 - Chassis**

The vehicle chassis shall be designed to permit easy and safe mounting and dismounting of the unit for the operators and service personnel. All sheet metal, cowling, steps, and fenders shall be free of sharp edges and protrusions. All steps or walkways shall be raised lug or expanded metal type construction. Grab bars shall be installed as required for safe mounting and dismounting by personnel. All sheet metal for cowling, shrouds, and fenders shall include ample supports and bracing to prevent distortion and cracking.

#### **1.5 - Cooling System**

The vehicle cooling system shall consist of a vertical flow radiator. The engine cooling system shall be filled with permanent type antifreeze protection the system to -40 degrees Fahrenheit. The system shall be sized to allow full operation of the vehicle without overheating.

#### **1.6 - Electrical System**

The vehicle electrical system shall be 12-volt. Automatic reset circuit breakers on all major circuits are required.

**Fuses are not acceptable.**

#### **1.7 - Engine/Transmission**

The vehicle shall have a current model EPA on-highway compliant four stroke diesel, six (6) cylinders, developing a minimum of 425 horse power at 2,100 rpm, 1,550 lb-ft of torque at 1,200 rpm and shall be equipped with the latest diesel electronic control and management system. The engine shall have any automatic power de-rate system to protect against low oil pressure and high engine temperature.

The vehicle engine shall be enclosed in a housing of weatherproof design, full butterfly or full side opening for access to each side of engine.

The vehicle transmission shall be five-speed electronic control automatic.

#### **1.8 - Fuel**

The vehicle fuel tank(s) shall have a minimum capacity of 200 gallons. The tank shall be constructed of heavy gauge steel and be properly fastened to the frame. A four inch diameter filler neck shall be provided.

#### **1.9 - Hydraulic System**

A central hydraulic system shall be provided, adequate to operate all equipment specified within. The lines shall be of the quick disconnect type.

#### **1.10 - Instrumentation**

The vehicle instrument panel shall be equipped with rocker switches, controls, and instruments that are friendly to operators wearing bulky wither clothing. Frequently used instruments shall be located in direct line-of-sight and within forearm reach of a medium sized person sitting in the operator's position.

Instruments should display urgency-of-action lights, i.e. green for normal operation, amber for warning, and red for emergency. Instruments shall be illuminated by background lighting regulated by dimmer switches capable of providing infinitely variable lighting intensities.

Circuit breakers shall be grouped for easy access and convenience.

Typical instruments that report and track major functions of a multipurpose unit are:

- 1) Air pressure gauge (dual system, physical/mechanical gauge required)
- 2) Clock, (may be incorporated into the AM/FM radio)
- 3) Fuel level with low level indicated by color and flashing visual alarm
- 4) Engine (s) oil pressure
- 5) Engine (s) coolant temperature
- 6) Diesel Exhaust Fluid (DEF) level if applicable
- 7) Diesel Particulate Filter (DPF) service/regen indicator, if applicable
- 8) Transmission temperature
- 9) Hydraulic oil temperature or warning light
- 10) Rear wheel position indicator, if applicable
- 11) Traction drive modes, for transfer case and/or axle interlock

Warning icons required for:

- 1) Low air pressure
- 2) ABS fail (when applicable)
- 3) ABS communication lost (when applicable)
- 4) Engine stop
- 5) Engine fault warning
- 6) Low voltage
- 7) Engine overheat
- 8) Engine low oil pressure
- 9) Engine air intake restriction
- 10) Transmission fault
- 11) Engine communication lost
- 12) Control system node communication lost
- 13) Transmission communication lost
- 14) Parking break applied
- 15) Windshield washer/deluge system fluid low level indicator
- 16) Message center for fault messages affecting operation
- 17) Warning device to indicate, door open, transmission in gear

Switches for electrical accessory controls for items such as lights, signals, HVAC, ignition, etc., shall be located in areas directly related to their frequency of use.

All instruments shall be clearly identified with labels that indicate their function. Control switches shall be identified/labeled and lighted preferable in a bold font for easy identification. For safety purposes, snow removal attachment and transmission controls shall be located to the right had side of the operator.

Instrumentation shall be centered in front of the primary operator and positioned to minimize interruption of operator visibility. In general and to provide clear information, chassis, engine, and system information shall be grouped together with broom, plow, and blower engine information noticeably and meaningfully grouped and displayed to the front of the operator.

### **1.11 - Lighting**

The vehicle lighting system, including reflectors, markers, identification, and clearance lights, shall conform to FMVSS 108 as though the vehicle were an on-highway vehicle. Task oriented lights shall be furnished to help the operator identify the overall width and to project a light pattern on the ground in front of the blower, broom, or plow to assist the operator in determining those areas to be cleared and to provide adequate illumination for the operator and service personnel when the unit is on darkened aeronautical areas.

The vehicle shall be equipped with two or more sealed-beam quartz-halogen or LED headlights with upper and lower driving beams and a switch for beam selection.

The vehicle shall be provided with three (3) sets (6 total units) of LED auxiliary lights to overcome the proposed attachments. Two (2) sets shall be manual adjustable from outside the cab and mounted on the mirror supports. One (1)

set shall be mounted on the side of the cab with an interior handle to allow for adjustment while inside the cab. Care shall be taken to ensure that all beams have a clear path. Final locations shall be coordinated with the Airport staff prior to installation. A control to select each set of secondary lights shall be provided in the operator cab.

The vehicle shall have at least two LED backup lights installed at the rear of and at either side of the vehicle that will automatically be activated when the vehicle is shifted into reverse gear.

#### **1.12 - Suspension**

The vehicle suspension shall include alloy steel springs of the semi-elliptical type. The spring hangers, pins, and supports shall be heavy duty to insure long life. The pins shall be of the grease type with substantial bronze bushings.

#### **1.13 - Transfer Case**

The transfer case shall be a two speed type with an automatic locking/unlocking differential to control the torque between front and rear axles. The Hi-Lo range selection shall be accomplished through air shift linkage to assure positive engagement with operational speed lock out. The case shall have a torque transmission capacity exceeding the maximum torque developed by the engine and transmission, and shall be approved for the application and be manufactured by the chassis builder.

#### **1.14 - Windows, Windshields, and Mirrors**

The vehicle windshields shall be electronically heated. The cab shall maximize the use of glass, including the placement of panels if possible in the lower sections of door panels, to increase the operator's view of operational areas and ground surfaces. The location and size of the windshield shall minimize visual obstructions to the operator.

The vehicle windshield shall be reverse slope design to avoid snow buildup and be equipped with four variable speed intermittent operating wipers, wet arm type. The windshield wiper system shall be capable of sweeping a clear view for all occupants.

The windshield washer reservoir shall have a capacity of at least 10 gallons. The fluid applicators shall be located to provide at least 75% coverage of the windshield.

The cab shall be equipped with sun visors inside the vehicle cab used in the operation of the cab's heating system.

The standard circulating air type defroster shall be complimented by two electric auxiliary fans. Two (2) electrically heated exterior rear view mirrors of the extension arm type shall be mounted one on each side of the vehicle cab. Rear view mirrors are to be powered and remotely controlled. Each mirror shall have an area of not less than 100 square inches.

All installed glass shall be laminated, safety rated, and shall conform to all FMVSS requirements.

#### **1.15 - Wheels and Tires**

The vehicle shall have single 395/85 R20 XZL tires or approved equal required on all axles. Front tires shall be equipped with fenders. Rear tires shall have mud flaps.

The wheels shall be of the steel disc type.

The vehicle shall be delivered with a spare tire and rim assembly.

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**END OF ITEM MULTIPURPOSE UNIT**

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## HIGH SPEED ROTARY PLOW

The high speed rotary plow attachment shall meet the requirements of a Very Large, Class V, High-Speed Rotary Plow with a minimum casting distance of 100 feet and a minimum capacity of 4,000 tons/hour.

Measure the casting distance from the longitudinal centerline of the snow removal unit to the center of mass within the perimeter of the cast pattern. Conduct the test when there is no wind.

High-speed rotary plow must be in accordance with SAE ARP 5539. For multipurpose vehicle controllability, all-wheel drive must be provided.

The rotary plow shall be rigidly built of new material suited for continuous work under extreme conditions of snow removal, at a speed of up to 30 mph.

### 1.16 - Auger

The vehicle auger shall be “ribbon” style auger approximately 55 inches in diameter with a hydraulic override. The drive must be reversible.

### 1.17 - Controls and Instrumentation

All controls and instruments shall be labeled in a manner to remain legible for the life of the unit and shall be illuminated. All wiring shall be either harness, cable, split loomed, or shrink-wrapped and shall be watertight and weatherproof. All wiring shall be color-coded, wire numbered matching drawing schematics, and terminal strip, and labeled every 3 inches as to what it is used for. The gauge wire and processes shall be in accordance with common wiring practices.

All junction boxes shall be watertight and weatherproof. Wiring shall be secured every 18 inches by means of clips and/or hangars.

Monitor display:

- 1) Blower engine operating screen
  - a. Auger operation condition display
  - b. Oil pressure with visual and audible warning alarms
  - c. Coolant temperature with visual and audible warning alarms
  - d. Hydraulic oil temperature with visual and audible warning alarms
  - e. Engine tachometer
  - f. Voltmeter and warning indicators
  - g. Air filter restriction warning alarm
  - h. Alarms for engine diagnostics and visual warning indicators and displayed faults
  - i. Mode selector: auto/manual
- 2) Engine diagnostics screen
  - a. Display active faults
  - b. Active fault codes
- 3) Setup screen: this screen allows authorized personnel to change the vital settings without the use of a notebook computer and is password protected.

### 1.18 - Head Box

The rotary plow head shall include a cutting edge, minimum 30” discharge chute, skid shoes, and rubber tire casters with weight transfer system. The loading shoot shall be capable of spot casting snow.

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### **1.19 - Hydraulic System**

All hoses for all systems shall be properly sized and strength to work with the pressure and volume of oil required. All hydraulic positioning functions shall be equipped with a hydraulic position locking system. Connectors to the solenoids shall be interlocking type to provide a secure connection, which can withstand normal pressure washing procedures.

Proper filtering shall be done on both the high pressure and low pressure circuits and shall conform to SAE J931. There shall be a 5-micron absolute rating on the hydrostatic pumps' filters and placed in the charge pressure lines. There shall be a clogged filter indicator light on the cab control panel indicating filter replacement.

### **1.20 - Impeller**

The impeller shall be high strength steel, including a liner and be specifically designed to work with the auger and plow head box.

### **1.21 - Mounting Bracket**

The rotary plow mounting bracket shall be manufactured to be directly mounted to the multipurpose unit chassis. The bracket shall provide low friction, free flotation, and shock absorbing for the rotary plow so that it is independent of the chassis. Any pins, shall have greaseable low friction bushings, DX pre-lubricated type (no metal on metal).

### **1.22 - Power systems**

Engineering hydraulic power calculations confirming the plow speed and rating must be supplied with the bid. This includes sizes and specifications of all components from the engine to the rotary plow including specification sheets for the plow, clutch, auger, impeller, head, and cooling system.

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**END OF ITEM ROTARY PLOW**

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## DISPLACEMENT PLOW

### 2.1 - General

These specifications describe a Power Reversible Plow with either smooth rolled or brake formed steel, manufactured expressly for airport runway high speed and ramp plowing. This plow shall be rigidly built of new material suited for continuous work under extreme conditions of snow removal.

The overall width of the plow assembly in the folded position (wings retracted) with required casters must be allowed to enter the federally funded snow removal building (AC 150/5200-18, Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials) that houses the snow plow and other such equipment. Doors are 26' wide.

The reversing assembly shall be hydraulically activated and be capable of operating in both raised and lowered positions. The assembly shall provide a minimum of five (5) moldboard positions, two (2) each for the left and right side of the bulldozing position. The maximum left/right plow angle shall be no less than 32°. Pusher vehicle shall have adequate horsepower and durability to work with plow at this shallow angle. Large snowplows with moldboards longer than 15 feet shall have a maximum cutting edge angle of no less than 65° measured from the vertical. The unit can be equipped with an automatic moldboard locking and unlocking feature, i.e. lock latch for different angles to relieve pressure from hydraulic cylinders.

### 2.2 - Automatic Locking Device

Automatic plow locking devices shall be installed, where they are needed to relieve hydraulic or pneumatic pressures on lifting cylinders. No hydraulic, pneumatic, or mechanical loads shall be placed on reversing mechanisms. Acceptable positive plow locking designs may include worm and sector, hydrostatic, and ratchet/detent devices. The automatic positive engagement and release mechanisms shall be designed so that low temperatures, sand, chemicals, snow, slush, and ice do not adversely effect their operation.

### 2.3 - Color

Moldboard= Safety Yellow for high visibility on airfield

Drive Frame= Flat Black

### 2.4 - Cutting Edge/Steel Moldboard

The cutting edge shall be tungsten carbon-tipped steel and shall be punched in accordance with AASHTO standard hole spacing requirements. The edges shall have an installation alignment guide to allow adjustments to within 1/16 inch (2mm) of the desired setting.

The moldboard shall not be less than 32 inches high. Moldboards shall be detachable from the drive frame. The moldboard vertical plane adjustment assembly shall be ruggedly designed, and be equipped with rubber recoil bumpers to absorb shocks.

The moldboard shall consist of the following features:

- 1) Horizontal stringers
- 2) Vertical ribs
- 3) Paneling
- 4) Bracing
- 5) Backup plates
- 6) Horizontal and vertical ribs at each hookup point.

Other suitable methods of reinforcement are satisfactory providing the manufacturer adheres to acceptable construction techniques and standard engineering practices. Lifting grab-link areas and drive frame attachment points should be made of heavy welded construction with maximum reinforcing and backup plates. The use of metal castings shall be kept to a minimum on all plow load points to facilitate ease of field repairs and to reduce parts inventories.

A spare cutting edge must be included

## **2.5 - Drive Frame**

The drive frame shall be of either oscillating or floating design, readily detachable from the push frame of the multipurpose vehicle. A drive frame equipped with adjustable oscillating bars allows the plow to follow surface contours without putting excessive strain on the multipurpose vehicle chassis. Floating drive frames must be capable of supporting the weight of the displacement plow, and not have it transferred to the multipurpose vehicle's lift device. Where possible, drive frames shall be provided with a reversing mechanism that can easily be detached from the multipurpose vehicle's push frame. The use of metal castings should be kept to a minimum.

## **2.6 - Extension and Leveling Wing Plow Posts and Side Braces**

All post members and side brace assemblies shall be made of steel construction. The minimum clearance between the plow and vehicle cab, while the moldboard is in the raised and folded position, shall be no less than 3 inches (8 cm).

## **2.7 - Front Posts**

The front posts are mounted to the push frame or attached to the sides of the chassis frame. They shall be adequately reinforced to accommodate loads that may be transmitted by side braces. Short front posts shall be capable of raising the plow moldboard, either hydraulically or pneumatically, at least 36 inches (91 cm) above the ground surface while long posts shall be capable of lifting it at least 60 inches (152 cm) above the ground surface. The posts shall incorporate shock absorbing safety devices and adjustable safety chains to secure the plow moldboard during transit.

## **2.8 - Hitch**

The front attachment hitch between the plow and chassis shall be a quick hitch type or approved equal. It shall allow easy interchange of the plow and other attachments. It shall be hydraulically operated (plow lift and swing) and designed for power reversible runway plows. The plow moldboard, push frame, swing, and lift must be capable of being completely removed and reattached to the chassis as a unit. The entire process of hitching or unhitching shall be possible by one man in not more than 10 minutes and shall be positively connected. All hydraulics and structure for plow lift, swing, oscillation, and lock shall be on the plow side of the coupling.

## **2.9 - Lift**

Lifting devices shall be attached and adequately braced to the push frame or the multipurpose vehicle's chassis frame. The lifting mechanism may be either hydraulic or pneumatic and capable of raising the displacement plow at least 12 inches (30 cm) from the ground surface.

## **2.10 - Oscillation**

The plow oscillation system shall incorporate a drive frame that allows oscillation of the plow with respect to the chassis in order to follow the pavement contour. The plow shall oscillate a minimum of 2 degrees overall. When the plow is carried in the raised position and angled right or left the plow shall remain approximately level to the pavement.

## **2.11 - Plow Shoes**

Replaceable shoe assemblies or shoe assemblies equipped with replaceable wear plates are acceptable support for the drive frame. Both types of shoe assemblies shall be highly resistant to shock and abrasion. The design shall provide easy and positive vertical adjustment.

Adjustable shoes shall be provided. These shoes shall be easily adjustable and mounted on the drive frame.

## **2.12 - Push Frame**

Rear posts are mounted to the sides of the chassis frame with adequate reinforcement for the attachment of side braces. The design and installation of the rear post mountings shall comply with the requirements of the vehicle manufacturer. Rear posts shall be fixed, hydraulic, or pneumatic depending on requirements to lift side-mounted plows. Rear posts shall incorporate shock absorbing safety devices. Adjustable safety chains shall be installed on rear posts to secure the moldboard in a safe folded position during transit.

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### **2.13 - Pilot Valve Controls**

Operation of the plow is accomplished through pilot valve controls of either electrical/hydraulic, air/hydraulic or cable/hydraulic design. Selector controls, located in the vehicle cab, shall be actuated easily under severe winter conditions.

### **2.14 - Rear Posts**

The push frame shall be mounted on the front of the vehicle chassis frame with minimum overhang. Adequate reinforcement and bracing of steel side plates shall meet the design requirements of the multipurpose vehicle manufacturer.

### **2.15 - Safety Trip Devices**

An automatic safety trip device shall be installed on a displacement plow assembly to prevent damage to the moldboard, cutting edge, and vehicle and to ensure driver safety. Acceptable tripping systems include springs, torsion mechanisms, hydraulic cushion type devices, cutting edge tilt devices, and high-lift safety tripping devices. They shall be positioned and designed to be easily adjustable. Ramp dozers which operate at low speeds need not have a safety trip device.

### **2.16 - Side Braces**

The side braces are adjustable to allow manipulation of the extension plow moldboard. Side brace designs shall feature shock absorbing safety devices.

### **2.17 - Spray Guard/Deflector**

A spray guard/deflector shall bolt to the top of the moldboard flange or reinforcement to direct snow forward, down and toward the trailing edge of the plow. The hardware must be of the locking type to minimize opportunity for loss on the aircraft operating areas of the airport.

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**END OF ITEM DISPLACEMENT PLOW**

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## **BROOM SWEEPER**

### **3.1 - Air Blower**

The forced air blower shall be dual centrifugal impeller type with dual inlets and dual outlets. It shall be mounted between the chassis engine and the broom engine. It shall produce at least 14,000 CFM total at 350-mph velocity air out both sides at the same time. Both nozzles shall blow in the same direction at any given time. Deflectors at the nozzle ends shall direct the flow to one side or the other. The nozzle deflector's control shall be hydraulic and interlocked with the broom head angle to blow in the direction of broom casting thus controlled by the operator's joystick. The nozzle deflectors change direction as the broom swings. A separate control shall allow the nozzle deflector's direction opposite of the broom angle by choice. An additional control shall permit blowing without broom operation. The velocity and CFM at each nozzle shall be certified by an independent test facility and included with the delivered unit.

The air ducts shall rise with the width of the tires of the chassis for transport and storage. There shall be a minimum 12 inches of ground clearance when raised.

The centrifugal impellers shall be independently driven via hydrostatic motors. The two motors, one for each impeller, shall be mounted directly to the impeller shaft. Power to the motors shall be supplied from a variable displacement hydrostatic pump mounted on the engine's gearbox allowing incremental control of blower speed from 0% to 100%.

Both impeller/shaft assemblies shall be dynamically balanced at the rated RPM. All controls for the air blower shall be remotely operated from within the cab.

### **3.2 - Angle**

The broom head shall be capable of swinging a minimum of 35 to a maximum of 45 degrees left or right, selectable from the operator's joystick. The swing shall be a smooth, low friction motion.

The broom pattern shall not vary more than 0.5 inches end to end for the whole width of the broom whether swung left or right. Using a longer broom than specified to accommodate swept path for larger swing angles are unacceptable due to storage and maneuverability reasons.

### **3.3 - Brush Pattern Adjustment and Elevation**

The broom head lift shall be controlled by the operator's joystick. The lift cylinders shall be equipped with a counterbalance valve, which prevents the broom head from creeping down. The pivoting action shall have adequate stroke to achieve ground clearance during transport when not in use.

A linkage attached to the broom lift cylinders shall also provide the brush pattern adjustment mechanism. The adjustment mechanism shall be the manufacturer's standard component to limit the down travel of the brush head. A rubber latched, weather proof control box housing the linkage shall be located behind the broom head allowing easy, repeatable pattern adjustment from a standing position. Returning to operator's cab to confirm pattern adjustment is unacceptable.

For safety reasons the operator cannot be positioned under or near the broom head to make the pattern adjustment. The brush pattern adjustment process shall be accomplished without the use of tools.

### **3.4 - Casters**

The radial pneumatic tires shall be required. Spring-loaded adjustable automotive type disk brakes shall be supplied per caster to prevent caster shimmy at all sweeping speeds. The caster assembly shall be non-suspension type allowing the brush to follow the ground contours as close as possible. The broom head caster support shall be mounted to the main broom frame by means of welded brackets. The steel caster assembly shall be attached to the broom head caster support by means of a minimum of four bolts for serviceability. The caster axle shall be supported by the caster mounting body.

### **3.5 - Controls and Instrumentation**

The operator's control in the chassis cab shall have a Monitor, Diagnostic, and Control (MDC) station for the broom. As stated the MDC station must incorporate diagnostics which displays what is wrong with a particular system. All systems for the broom and broom engine must be part of the diagnostics. All functions and displays must be in easy reach of the operator and integrated into the chassis instrumentation.

The control in the chassis cab shall have all the necessary functions to operate the broom and air blower and shall have the

following:

- 1) System on/off: 1.5 inch diameter e-stop type push button (twist for on, push for off)
- 2) Multifunction controlled joystick for broom head lift/lower and left/right swing. It shall also incorporate the snow shed hood lift/stow, deflector angle and the joystick control and incorporate and functions that are hydraulically operated such as broom, air blower duct, or both. The broom swing, lift, and blower nozzle shall be microprocessor controlled (no relays) and have automatic one touch for cycle complete control. This allows the operator to have hands free operation during cycle movement. Moving the joystick in the opposite direction can reverse the cycle. A switch shall allow the operator to use the automatic control or disengage the system.
- 3) Monitor display:
  - a. Broom engine main operating screen
    - i. Engine, broom and air blower speed control and display
    - ii. Oil pressure with visual and audible warning alarms
    - iii. Coolant temperature with visual and audible warning alarms
    - iv. Hydraulic oil temperature with visual and audible warning alarms
    - v. Engine tachometer
    - vi. Voltmeter and warning indicators
    - vii. Air filter restriction warning and alarm
    - viii. Alarms for engine diagnostics and visual warning indicators and displayed faults
    - ix. Mode selector: auto / manual
    - x. Broom rotational speed tachometer
    - xi. Status display for:
      1. Broom / air duct coordination
      2. Weight transfer system
  - b. Engine diagnostics screen
    - i. Display active faults
    - ii. Active fault codes
  - c. Output diagnostics: this screen is for display only and shows the controller output diagnostics
    - i. Individual system output test function
    - ii. Output diagnostics last 100 fault history
  - d. Setup screen: this screen allows authorized personnel to change the vital settings without the use of a notebook computer and is password protected.

Controls located in the broom engine enclosure shall be the following:

- 1) Single circuit breaker with master battery disconnect
- 2) Snow shed hood. Hydraulic pivot tilt to remove snow that has deposited on top during sweeping operations. Snow shed hood is in addition to the standard hood. Skeletal steel framework construction with a black polyethylene cover bolted in place. Positive prevention of any operator error damage to bristles or other components. Tilt operational while the broom is rotating...no stopping. Tilt rotate forward in excess of 100 degrees. Positive stowed position against poly supports. The snow shed hood shall cover the entire length of the broom hood without interruptions for the most efficient snow removing capabilities. When in the automatic control mode, the hood shall lift and lower with one touch of the control switch

- 3) Broom head vibrator: attached to the broom head shall be a dump truck body vibrator to shake snow and ice accumulation off the broom head, 12 volt "Cougar" type or equivalent. 3000 pounds thrust impact force minimum. The vibrator shall be cab controlled with on/off rocker style switch.
- 4) LED marker lights at ends of broom head
- 5) Central remote drain lines with valves for broom portion
- 6) Broom speed tachometer with broom hydrostatic pressure gage, both in cab.
- 7) One replacement caster wheel, tire, bearings, and axle assembly

### **3.6 - Cores**

The two core sections must be split core design for easy handling and efficient (tight) wafer stacking and sustain the loads imposed by the snow removal capacity of the unit. The drive sprockets shall be replaceable hardened steel. Each core shall be individually dynamically balanced to acceptable values at rated RPM.

The brush on the cores shall be full width and designed for runway operation and shall be field replaceable with maximum ease without the use of special tools. The wafers shall be a 50/50 combination of polypropylene and wire. The bristles shall be fastened to the steel ring by fusing their base to form a solid loop about the circumference of the ring, then mechanically holding them in place by wrapping the top of the ring over the fused bristle ends to form a dovetail. Wire bristles shall be fastened to the steel ring with wire. The polypropylene bristles shall be oval shaped with an 8 pounds total wafer minimum. The wire bristles shall be 13 pounds total wafer weight minimum. All wafers shall be within 50 oz-in static balance and marked at the heavy location.

### **3.7 - Head**

The broom head shall provide a minimum sweep path of 16 feet. It shall be 46 inches in diameter and be capable of producing a minimum of 4,800 ft-lbs of torque and a minimum of 500 RPM, with an air blower system capable of producing 14,000 CFM at 350 MPH. The broom head and air blower shall be hydrostatic drive with infinitely variable speed hydraulic pumps and fixed displacement motors. The broom shall have the ability to remove snow, ice, slush, sand, and other debris at rated speeds depending on conditions.

To confirm this, the following must be supplied with the bid:

- 1) The brush itself shall be 46 inches in diameter and 22 feet long comprised of two 11 foot sections. The broom head frame must sustain the loads imposed by the snow removal capacity of the unit. The hydrostatic broom drive shall be dual end drive. Power shall be supplied from two variable displacement hydrostatic pumps mounted on the engine's gearbox. The gearbox shall be a parallel shaft pump drive with precision gears, AGMA 10 rating and a dipstick for oil level measurement.
- 2) Two high-speed hydrostatic motors, each connected to a planetary reduction gearbox shall be mounted within the inner diameter of the broom cores outer ends to minimize overall width. The motor gearbox connections shall utilize a static O-ring seal, wet spline type. No dynamic seal shall be used for reliability purposes. The motors shall not support the broom core loads and the planetary gear box shall be hydraulic oil bath lubricated (case flushing type). The broom cores shall be balanced independently to eliminate vibration. Certification to demonstrate the balance procedure shall be included with the unit upon delivery. Speed of broom shall be infinitely variable from 0 to a minimum of 500 RPM. Available torque at the broom shaft shall be a minimum of 4,800 ft-lbs at maximum hydraulic pressure of 5100 psi for maximum snow moving capabilities. Engineer hydraulic power calculations confirming these values must be provided with the bid.
- 3) A maximum 2 inch gap between broom core sections shall be obtained by using a center bearing assembly utilizing the same components as the drive ends. The center bearings shall be encased in a sealed housing and be provided with oil bath lubrication; manually greased bearings are also acceptable. The left and right side core sections shall be connected to each other by a center shaft so the two sections rotate at the same speed, and that the power produced by each of the end drive assemblies is transmitted across the full length of the core assembly.

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### **3.8 - Hitch**

The broom hitch shall be a dedicated front mount hitch manufactured to be directly mounted to the multipurpose unit chassis. The broom hitch shall provide low friction, free flotation, and shock absorbing for the broom head that it is independent of the broom chassis. Any pin, shall have greaseable low friction bushings, DX pre-lubricated type (no metal on metal). All cylinders used for control shall be hydraulic.

### **3.9 - Hood**

The broom hood shall shield the top half of the brush completely and fabricated from heavy-duty 10-gauge or heavier sheet steel securely bolted to the broom frame. It shall be non-clog design to prevent ice buildup during freezing slush removal operations at rated speeds. It shall provide the necessary quick access to the brush for replacement of bristles and for inspection. There shall be an adjustable and replaceable stripper bar across the front of the broom to prevent snow carryover. The stripper bar shall be near tangential to the broom outside diameter.

A smooth curved scoop hood shall be incorporated across the full length of the broom. The stripper bar shall be attached to this scoop hood. It shall be connected to but move independent of the stationary hood. A snow deflector shall be mounted on the front of the scoop or an equivalent hood deflector/stripper system is also acceptable. Two hydraulic cylinders spaced appropriately along the length of the deflector shall adjust the angle of the deflector with respect to the scoop. The deflector angle shall be controlled and adjusted from the operator's cab. The result is a smooth, efficient, and controlled flow of the snow leaving the bristle. The stripper bar, the scoop hood, and the deflector structure shall have no abruptness to a smooth flow at any broom/bristle diameter or at any deflector angle.

The adjustment to the bristle diameter wear shall be performed using two hydraulic cylinders or mechanical acme thread jacks, one each end of the scoop and broom frame. The adjustment shall position the stripper bar to the bristle diameter.

This scoop design is required for efficient stripping of the snow off the bristles to prevent carryover, especially with the high performance snow moving capacity specifications of the bid. No substitutes are allowed.

### **3.10 - Hydraulic System**

All hoses for all systems shall be properly sized and strength to work with the pressure and volume of oil required. All hydraulic positioning functions (broom head lift, broom head swing, deflector, and air nozzle lift) shall be equipped with a hydraulic position locking system. A counterbalance valve shall be used for the broom lift and a pilot operated check valve for the other functions. All hydraulic functions of the broom shall be electric over hydraulic valving. Connectors to the solenoids shall be interlocking type to provide secure connections, which can withstand normal pressure washing procedures. Piloted operated check valves shall be installed for the broom swing left and right, deflector up and down, air ducts up and down, and air nozzles left and right. Fluid and components shall be designed for temperatures to -20 degrees Fahrenheit ambient cold start. The hydraulic fluid reservoir shall be 50-gallon minimum. Shut off valves for all filters below tank fluid level shall be installed to allow filter changes without loss of oil.

Proper filtering shall be done on both the high pressure and low pressure circuits and shall conform to SAE J931. There shall be a 5-micron absolute rating on the hydrostatic pumps' filters and placed in the charge pressure lines. There shall be a clogged filter indicator light on the cab control panel indicating filter replacement.

A hydraulic oil cooler shall be provided to maintain maximum efficiency. The dedicated fan for the hydraulic oil cooler shall be hydraulically driven with automatic thermostat (high/low) control for correct temperature under all conditions, winter and summer. It shall be controlled by a thermostatic switch to avoid excessively cold oil operation and designed such that thermostatic failure results in the cooling fan being engaged. A pressure relief shall allow cold hydraulic oil to bypass the cooler for shorter warm up times. A hydrostatic oil temperature gauge and warning light for low hydrostatic oil level shall also be supplied.

### **3.11 - Oscillation**

The broom oscillation shall provide true flotation left to right for the broom head so that it is independent of broom chassis to accommodate surface irregularities and thus minimize brush pattern variation during operation.

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**END OF ITEM BROOM SWEEPER**

**APPENDIX A**  
**ACCESS TO RECORDS AND REPORTS**

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**ACCESS TO RECORDS AND REPORTS**

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

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**APPENDIX B**  
**BUY AMERICAN PREFERENCES**

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**BUY AMERICAN CERTIFICATION**

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

**CERTIFICATE OF BUY AMERICAN COMPLIANCE FOR MANUFACTURED PRODUCTS**

(Non-building construction projects, equipment acquisition projects)

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

1. Only installing steel and manufactured products produced in the United States, or;
2. Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing, or;
3. Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing US domestic product
3. To furnish US domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

The bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing US domestic products at or above the approved US domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

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**Required Documentation**

**Type 3 Waiver** - The cost of the item components and subcomponents produced in the United States is more than 60% of the cost of all components and subcomponents of the “item”. The required documentation for a type 3 waiver is:

Listing of all product components and subcomponents that are not comprised of 100% US domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety)

Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.

Percentage of non-domestic component and subcomponent cost as compared to total “item” component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

**Type 4 Waiver** – Total cost of project using US domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a type 4 waiver is:

Detailed cost information for total project using US domestic product

Detailed cost information for total project using non-domestic product

**False Statements:** Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

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Date

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Signature

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Company Name

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Title

**APPENDIX C**  
**CIVIL RIGHTS**

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## GENERAL CIVIL RIGHTS PROVISIONS

The contractor agrees that it will comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

This provision also obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport through the Airport Improvement Program, except where Federal assistance is to provide, or is in the form of personal property; real property or interest therein; structures or improvements thereon.

In these cases the provision obligates the party or any transferee for the longer of the following periods:

1. the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits; or
2. The period during which the airport sponsor or any transferee retains ownership or possession of the property.

### **Title VI Solicitation Notice:**

The **Lynchburg Airport Commission**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

### **Compliance with Nondiscrimination Requirements**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the **Title VI List of Pertinent Nondiscrimination Statutes and Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

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5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    - a. Withholding payments to the contractor under the contract until the contractor complies; and/or
    - b. Cancelling, terminating, or suspending a contract, in whole or in part.
  6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

**APPENDIX D**  
**ENERGY CONSERVATION REQUIREMENTS**

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**ENERGY CONSERVATION REQUIREMENTS**

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

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**APPENDIX E**  
**FEDERAL FAIR LABOR STANDARDS ACT**

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All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

<b>Requirement</b>	<b>Federal Agency with Enforcement Responsibilities</b>
Federal Fair Labor Standards Act (29 USC 201)	U.S. Department of Labor – Wage and Hour Division

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**APPENDIX F**  
**LOBBYING AND INFLUENCING FEDERAL EMPLOYEES**

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**LOBBYING AND INFLUENCING FEDERAL EMPLOYEES**

The bidder or offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the bidder or offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

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**APPENDIX G**  
**OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

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All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

<b>Requirement</b>	<b>Federal Agency with Enforcement Responsibilities</b>
Occupational Safety and Health Act of 1970 (20 CFR Part 1910)	U.S. Department of Labor – Occupational Safety and Health Administration

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**APPENDIX H**  
**RIGHTS TO INVENTIONS**

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**RIGHTS TO INVENTIONS**

All rights to inventions and materials generated under this contract are subject to requirements and regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

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**APPENDIX I**  
**TRADE RESTRICTION CLAUSE**

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**TRADE RESTRICTION CLAUSE**

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

- a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

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