

BID PROPOSAL FORM

(SUBMIT AS THE COVER SHEET)

City of Savannah Purchasing Department
1375 Chatham Parkway
2nd floor
Savannah, Georgia 31405
ATTN: Purchasing Director

EVENT NUMBER: 6153

Business Location: (Check One)

- Chatham County
 City of Savannah
 Other

ALL BIDDERS MUST BE REGISTERED VENDORS ON THE CITY'S WEBSITE TO BE AWARDED AN EVENT. PLEASE REGISTER AT WWW.SAVANNAHGA.GOV.

MANUALLY SUBMITTED BIDS MUST BE SUBMITTED ON THIS BID PROPOSAL FORM IN ORDER TO BE CONSIDERED.

Name of Bidder: Wausau Equipment Company, Inc.

Street Address: 1905 South Moorland Road

City, State, Zip Code: New Berlin, WI 53151

Phone: 262-784-6066 Fax: 262-784-6720

Email: markkreutzfeldt@wausauequipment.com

DO YOU HAVE A BUSINESS TAX CERTIFICATE ISSUED IN THE STATE OF GEORGIA? (CHECK ONE) YES: NO:

FROM WHAT CITY/COUNTY _____
TAX CERTIFICATE #: _____ FED TAX ID #: 39-1308715

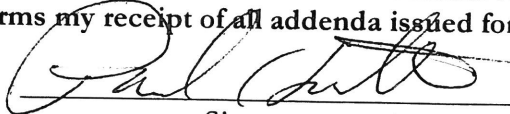
INDICATE LEGAL FORM OF OWNERSHIP OF BIDDER (STATISTICAL PURPOSES ONLY):
CHECK ONE: CORPORATION PARTNERSHIP
 INDIVIDUAL OTHER (SPECIFY: _____)

INDICATE OWNERSHIP STATUS OF BIDDER
(CHECK ONE):
 NON-MINORITY OWNED ASIAN AMERICAN
 AFRICAN AMERICAN AMERICAN INDIAN
 HISPANIC OTHER MINORITY (describe) _____
 WOMAN (non-minority)

Do you plan to subcontract any portion of this project? Yes No
If yes, please complete the attached schedule of DBE participation. Also complete the schedule if you will be using any DBE suppliers.

ADDENDA ACKNOWLEDGEMENT

My signature below confirms my receipt of all addenda issued for this proposal.



Signature

*This acknowledgement is separate from my signature on the fee proposal form. My signature on the fee proposal form will not be deemed as an acknowledgement of addenda.

THE UNDERSIGNED PROPOSES TO FURNISH THE FOLLOWING ITEMS IN STRICT CONFORMANCE TO THE BID SPECIFICATIONS AND BID INVITATION ISSUED BY THE CITY OF SAVANNAH FOR THIS BID. ANY EXCEPTIONS ARE CLEARLY MARKED IN THE ATTACHED COPY OF BID SPECIFICATIONS.

ITEM NO	DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL
1	Runway De-Icer Trailer System	1	47,900.00	\$47,900.00
2	Optional: Cab Controlled Hydraulic Boom System	1	6,600.00	\$6,600.00

TOTAL BID \$ 54,500.00

PAYMENT TERMS: PLEASE CHECK ONE AND FILL IN BLANKS
(Minimum of 10 working days must be allowed for discount to be considered in bid award)

 Less % Days Prompt Payment Discount (if offered) ()

Net - 30 Days (no discount offered) - 0 -

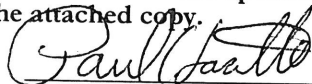
TOTAL NET BID \$ 54,500.00

=====

TIME REQUIRED FOR DELIVERY AFTER RECEIPT OF ORDER: ^{120 -} 200 days ARO

DO YOU HAVE REQUIRED INSURANCE?

I certify this bid complies with the General and Specific Specifications and Conditions issued by the City except as clearly marked in the attached copy.

Paul Sacotte/President  6/22/2018
Please Print Name Authorization Signature Date

**SECTION 01310
DISADVANTAGED BUSINESS EMPLOYMENT PROVISIONS**

The City of Savannah actively encourages employment and participation of small and disadvantaged businesses in all City contracts. Attention of the bidders is called to contract conditions contained herein pertaining to non-discrimination, equal employment opportunity, subcontracts, and opportunities for project area residents.

It is the policy of the City of Savannah that disadvantaged business enterprises (DBEs) be given fair opportunity to participate in the performance of services for the City, and that prime contractors utilize DBE subcontractors and suppliers to the fullest extent possible consistent with the efficient performance of the contract. The City of Savannah has established an XX% DBE goal for this project.

In order to determine compliance, bidders shall **submit the following completed documents in a separate sealed envelope** clearly marked with the bid number, project name and number and marked (**Section 1310 Disadvantaged Business Employment Provisions**) with their bid:

1. Non-discrimination statement (Sec. 01310-3) and;
2. Proposed schedule of disadvantaged business enterprise participation (Sec. 01310-4) and;
3. Documentation of Good Faith Efforts [**Submit only if the goals are not met.**]

Failure to submit the required documents shall result in the bid not being read or considered.

Suggestions to help meet the goal:

- ✓ Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation of DBEs.
- ✓ Advertising in general circulation media, trade association publications, or disadvantaged business enterprise media to solicit bids from DBE subcontractors or suppliers. [**Advertisement should appear at least 10 days prior to bid due date, unless the City's solicitation period is shortened.**]
- ✓ Designating portions of the work for DBE subcontracting in trades with established availability of DBE subcontractors.
- ✓ Providing a minimum of 10 days notice prior to the Bid due date to DBEs when requesting bids or proposals for furnishing material or services as a subcontractor or supplier.

Any attempt to submit false information, will result in a recommendation that the bidder be debarred from participating in future City contracts.

The contractor is required to fulfill any DBE utilization commitments made unless good cause is demonstrated for any failure to fulfill such commitment. **Written approval is required prior to**

any substitution.

The contractor will maintain records and information necessary to document compliance with Good Faith Effort requirements, and the City shall have the right to inspect such records.

Any DBE listed in the completed form entitled "Proposed Schedule of DBE Participation" (Section 01310-4) must be certified by an approved agency such as USDOT, GDOT, or SBA 8(a) prior to the due date of this bid. Proof of DBE certification such as a certificate or letter from the certifying agency is required to accompany the bid. A firm that has submitted an application for DBE certification or an application for DBE certification under review but has not been certified is not qualified as a certified DBE and will not be recognized as such during the City's evaluation process.

No bidder shall enter into an agreement with any DBE that would in any way limit the DBE's opportunities to sell to, or act as subcontractor for, any other party. Violation of this requirement would be grounds to deem the bidder non-responsive to this bid solicitation.

The following resources are available to aid bidders in complying with this section:

The State of Georgia Department of Transportation maintains a website listing of Disadvantaged Business Enterprises located at www.dot.ga.gov/PS/Business/DBE

Chatham County Purchasing Department maintains a listing of Disadvantaged Business Enterprises to include Contractors, Consultants and Suppliers. Contact (912) 652-7860.

GA Tech Procurement Assistance Center maintains a listing of Disadvantaged Business Enterprises to include Contractors, Consultants and Suppliers. Contact (912) 963-2524.


Savannah/Hilton Head International Airport Commission maintains a listing of Disadvantaged Business Enterprises to include Contractors, Consultants and Suppliers. Contact (912) 964-0514 or visit the website at www.savannahairport.com

Small Business Assistance Corporation maintains a listing of Disadvantaged Business Enterprises to include Contractors, Consultants and Suppliers. Contact (912) 232-4700 or visit the website at www.sbacsav.com.

NON-DISCRIMINATION STATEMENT

The prime contractor / bidder certifies that:

- (1) No person shall be excluded from participation in, denied the benefit of, or otherwise discriminated against on the basis of race, color, national origin, or gender in connection with any bid submitted to the City of Savannah or the performance of any contract resulting therefrom;
- (2) That it is and shall be the policy of this Company to provide equal opportunity to all business persons seeking to contract or otherwise interested in contracting with this Company, including those companies owned and controlled by racial minorities, cultural minorities, women, and individuals belonging to other socially and economically disadvantaged groups;
- (3) In connection herewith, we acknowledge and warrant that this Company has been made aware of, understands and agrees to take affirmative action to provide such companies with the maximum practicable opportunities to do business with this Company;
- (4) That this promise of non-discrimination as made and set forth herein shall be continuing in nature and shall remain in full force and effect without interruption;
- (5) That the promises of non-discrimination as made and set forth herein shall be and are hereby deemed to be made as part of and incorporated by reference into any contract or portion thereof which this Company may hereafter obtain and;
- (6) That the failure of this Company to satisfactorily discharge any of the promises of non-discrimination as made and set forth herein shall constitute a material breach of contract entitling the City of Savannah to declare the contract in default and to exercise any and all applicable rights and remedies including but not limited to cancellation of the contract, termination of the contract, suspension and debarment from future contracting opportunities, and withholding and or forfeiture of compensation due and owing on a contract.



Signature

Paul Sacotte/President

Title

PROPOSED SCHEDULE OF DBE PARTICIPATION

Any DBE listed in this completed form must be certified by an approved agency such as USDOT, GDOT, or SBA 8(a) prior to the due date of this bid. Proof of DBE certification such as a certificate or letter from the certifying agency is required to accompany the bid. A firm that has submitted an application for DBE certification or an application for DBE certification under review but has not been certified is not qualified as a certified DBE and will not be recognized as such during the City's evaluation process.

Name of Bidder/Proposer: Wausau Equipment Company, Inc. Bid No. 6153

Project Title: Runway De-Icer Trailer System

NOTE: Proof of DBE certification must be attached to this completed form for all firms listed in the table below.

Name of DBE Participant	Telephone	Email	Address (City, State)	DBE? (Y/N)	Type of Work Sub-Contracted	Sub-contract Value (%)	Sub-contract Value (\$)
						%	
						%	
						%	
						%	
						%	
						%	
Total Base Bid							\$47,900.00
Total Proposed DBE Subcontracts							\$ 0
Bidder's Proposed DBE Participation							0 %

The undersigned will enter into a formal agreement with the DBE Subcontractors/Proposers identified herein for work listed in this schedule conditioned upon executing of a contract with the Mayor and Aldermen of the City of Savannah. The Prime's subcontractors' subcontractors must enter into a formal agreement with the tier subcontractor identified herein for work listed in this schedule. It is the responsibility of the Prime contractor to ensure compliance by all subcontractors.

Joint Venture Disclosure

If the prime bidder is a joint venture, please describe below the nature of the joint venture and level of work and financial participation to be provided by the disadvantaged joint venture firm.

Joint Venture Firms	Level of Work	Financial Participation

Printed name (company officer or representative): _____

Signature: _____

Title: _____ Email: _____

Telephone: _____ Fax: _____

Disadvantaged Business Enterprise

GOOD FAITH EFFORT

Wausau Equipment Company, Inc.	6/26/2018
Prime Company Name	Bid Date
Runwya De-Icer Trailer System	6153
Project Name	Event Number

If you have failed to secure DBE participation or if your DBE participation is less than the City's project goal, you MUST complete this form.

If the bidder's method of compliance with the DBE goal is based upon demonstration of a good faith effort, the bidder will have the burden of correctly and accurately preparing and submitting the documentation required by the City. Compliance with each item, 1 through 4 below, shall satisfy the Good Faith Effort requirement absent proof of fraud, intentional and/or knowing misrepresentation of the facts or intentional discrimination by the bidder.

This form must be submitted in its entirety with supporting documentation in a separate sealed envelope with your bid prior to the time of bid opening. Failure to comply will result in the bid being considered non-responsive and the bid will not be read or considered.

1.) Please list each and every subcontracting and/or supplier opportunity (DO NOT LIST NAMES OF FIRMS) which will be used in completion of this project, regardless of whether it is to be provided by a DBE or non DBE.

(Use additional sheets, if necessary)

List of:
Subcontracting Opportunities

List of:
Supplier Opportunities

2.) Did you obtain a current list of DBE firms?

_____ Yes

Date of Listing ____/____/

_____ No

Source _____

3.) Please indicate subcontract or supplier list categories for which potential DBE bidder lists were provided?
Provide detail of how these DBEs were solicited.

_____	_____
_____	_____
_____	_____

4.) Please attach the following:

(1) Completed Good Faith Effort Log see: 1310-7 Log

(2) Evidence of solicitation to prospective DBE firms, such as advertisements, copies of solicitation letters, faxes, emails and other to substantiate efforts.

DEMONSTRATION OF GOOD FAITH EFFORTS MUST INCLUDE ALL ITEMS OUTLINED IN THIS SECTION.

INSTRUCTIONS TO CONTRACTOR/CONSULTANT

To receive credit toward contracted DBE goals, the Prime Contractor/Consultant must complete and submit this form with each Request for Periodic Payment, beginning with the first payment request. An additional copy of this section must be submitted to the **SBO Compliance Coordinator**. The Office of Business Opportunity may be contacted by phone at (912) 652-3582 or by fax at (912) 651-3175. **Failure to submit this form may result in no credit toward the contract DBE requirements and a delay in monthly progress payment.**

1. Project Name: The official name of the project as stated on the contract
2. Date: Date Report is being submitted
3. Report Number: Reports must be consecutively numbered.
4. Contract Amount: Total amount of the contract to be paid to the Prime Contractor/Consultant by the City of Savannah for completion of the project.
5. DBE Goals: Enter the contracted DBE Goals per the signed agreement.
6. Final Project Report: Place an "X" or checkmark in this box when the project has been completed and the report submitted is the final payment report. Enter the date of project completion.
7. DBE Information: ONLY DBEs that have been verified and approved by the City of Savannah DBE Office, from the Prime Contractor's/Consultant's "Proposed Schedule of DBE Participation" may be included on the payment report. NO SUBSTITUTIONS OR CHANGES IN GOALS MAY BE MADE without prior written approval by the City.
8. DBE Payments: Enter the actual amount of the subcontract agreement for each approved DBE, the date of any payments occurring within the report period, the amount of the payments to each DBE during this period and the total each DBE has been paid-to-date.
9. Earnings-to-date: Enter the total amount paid to date to all DBE subcontractors.
10. Contractor Certification: The contractor or his authorized representative must sign this form prior to submittal. Signature indicates that all information is true and correct and documented proof of all information is on file and available for City of Savannah review at any time.

GENERAL INFORMATION

The prime contractor/consultant may not change DBE firms without prior written approval of the City of Savannah Office of Business Opportunity. Approval cannot be obtained from the City's Project Manager, Contract Analyst or other City of Savannah employees. Contractors/Consultants must use the Add/Change of DBE Subcontractor Form (Section 01438) to request changes to the Proposed Schedule of DBE Participation (Section 01310). Any proposed changes must meet established DBE goals and conform to contract regulations and DBE Program Requirements.

If the prime contractor/consultant in its bid/proposal included any second or lower tier subcontractor/sub-consultant/supplier towards meeting the goal, it is the sole responsibility of the prime contractor/consultant to ensure all DBE firms have been reviewed and approved by the City of Savannah and to document all subcontracting/sub-consulting and/or supplier participation dollars counted towards the goal, irrespective of tier level. Upon completion of the work, a final "DBE Participation Report" will be required and submitted with the final pay request.

As per the City's contract, the City's SBO policy, and signed participation reports: the prime contractor/consultant certifies all DBE payment information to be true and correct, to have all supporting documentation on file and to make copies of this documentation available to the City of Savannah. **Prime contractors/consultants will periodically be required to provide copies of payment documentation for DBEs being counted toward the DBE goal (including the prime contractor/consultant, if it is a DBE and being counted toward the goal).** Failure to comply with the City's request to provide the required documentation may cause the City to withhold payments due the prime contractor/consultant until compliance is attained. Payment documentation includes but is not limited to:

- signed sub-contracts with DBEs being utilized in meeting the project's DBE goals
- DBE invoices for payment related to the project
- proof of payment of DBE invoices related to the project

CONTRACTOR AFFIDAVIT AND AGREEMENT
Employment Eligibility Verification

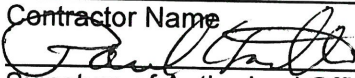
By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with the City of Savannah has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with the City of Savannah, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the City of Savannah at the time the subcontractor(s) is retained to perform such service.

EEV / Basic Pilot Program* User Identification Number

BY: Wausau Equipment Company, Inc.

6/22/2018

Contractor Name


Signature of Authorized Officer or Agent
President

Date
Paul Sacotte

Printed Name of Authorized Officer or Agent

Title of Authorized Officer or Agent of Contractor

*As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

Instructions for Completing Contractor Affidavit and Agreement Form

As required under Senate Bill 529 – “Georgia Security and Immigration Compliance Act” of 2006, O.C.G.A. Section 2, Article 3 13-10-91, public employers, their contractors and subcontractors are required to verify the work eligibility of all newly hired employees through an electronic federal work authorization program. The Georgia Department of Labor has added a new Chapter 300-10-1, entitled “Public Employers, Their Contractors and Subcontractors Required to Verify New Employee Work Eligibility Through a Federal Work Authorization Program,” to the Rules and Regulations of the State of Georgia. (See website: http://www.dol.state.ga.us/pdf/rules/300_10_1.pdf.) The new rules designate the “Employment Eligibility Verification (EEV) Basic Pilot Program” operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security as the electronic federal work authorization program to be utilized for these purposes. The EEV/Basic Pilot Program can be accessed at: <https://verify.uscis.gov/enroll/StartPage.aspx?JS=YES>. Bidders shall comply with this new rule and submit with your bid the attached “Contractor Affidavit and Agreement.”

Affidavit Verifying Status for City of Savannah Benefit Application

By executing this affidavit under oath, as an applicant for a City of Savannah, Georgia Business License or Occupation Tax Certificate, Alcohol License, Taxi Permit, Contract or other public benefit as reference in O.C.G.A. Section 50-36-1, I am stating the following with respect to my bid for a City of Savannah contract for _____ . [Name of natural person applying on behalf of individual, business, corporation, partnership, or other private entity]

1.) _____ I am a citizen of the United States.

OR

2.) _____ I am a legal permanent resident 18 years of age or older.

OR

3.) _____ I am an otherwise qualified alien (8 § USC 1641) or nonimmigrant under the Federal Immigration and Nationality Act (8 USC 1101 *et seq.*) 18 years of age or older and lawfully present in the United States.*

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of Code Section 16-10-20 of the Official Code of Georgia.

Signature of Applicant: _____ Date _____

Printed Name: _____

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
____ DAY OF _____, 20 ____

* _____
Alien Registration number for non-citizens.

Notary Public
My Commission Expires:

***Instruction for Completing Systematic Alien Verification
for Entitlement (SAVE) Form***

O.C.G.A. § 50-36-1, requires Georgia's cities to comply with the federal **Systematic Alien Verification for Entitlements (SAVE) Program**. SAVE is a federal program used to verify that applicants for certain "public benefits" are legally present in the United States. Contracts with the City are considered "public benefits." Therefore, the successful bidder will be required to provide the Affidavit Verifying Status for City of Savannah Benefit Application prior to receiving any City contract. The affidavit is included as part of this bid package but is only required of the successful bidder.



Runway De-Icer Trailer System

EVENT NO. 6153

SPECIFICATIONS AND SPECIAL CONDITIONS

- 4.0 The purpose of these specifications is to describe the requirements for one (1) current year model or most current year model Runway De-Icer Trailer System available from a manufacturer meeting or exceeding the specifications of this bid document. The runway de-icer trailer system will meet the criteria to automatically dispense material with application rate controls and a tank capacity of 1,100 gallons. The self-contained trailer unit shall be capable of operating under varying weather conditions, and be equipped to be completely road legal. The completed unit must meet all FAA 503C specifications for airfield de-icing equipment. The De-Icer Trailer System will be utilized as a pull behind piece of equipment by the Savannah Airport Commission during winter operations.

To submit pricing electronically for this event, enter pricing for each line item shown under the lines tab on the event summary. To enter pricing manually, complete the attached bid proposal form. Manually submitted bids must be submitted on the bid proposal forms contained in these specifications in order to be considered.

A pre-bid conference has been scheduled to be conducted at the Savannah Airport Commission Purchasing Department locate at 640 Gulfstream Road, Savannah, GA 31408, Operations Conference Room on June 20, 2018 at 11 A.M. This meeting will allow contractors to discuss the specifications and resolve any questions and/or misunderstandings that may arise with City staff. You are invited to attend.

- 4.1 Detailed Specifications: Trailer
- 4.1.1 Pull behind trailer meeting all FAA 503C specifications for airfield de-icing equipment with a 1,100 gallon capacity tank.
 - 4.1.2 At a minimum the trailer frame must be constructed of two inch (2") by six inch (6") structural tubing with .250-inch wall thickness.
 - 4.1.3 Front one-third of the trailer deck shall be covered with diamond plate steel for work surface and mounting of auxiliary equipment.

- 4.1.4 Completely painted to inhibit rust.
- 4.1.5 Tires shall be 7.50 by 16 inch with compatible steel wheels that are all designed to support the maximum GVW of the fully loaded deicer unit.
- 4.1.6 Trailer shall have dual, Henschen Dura-Flex suspension axles, or equal.
- 4.1.7 Trailer shall be equipped with surge brakes.
- 4.1.8 Trailer shall be equipped with Pintle type hitch rated for maximum capacity.
- 4.1.9 Trailer shall be equipped with tongue jack of sufficient capacity to support the fully loaded de-icer unit.
- 4.1.10 Trailer will have fenders covering both sets of wheels including inside of tires to prevent spraying onto trailer de-ice system.
- 4.1.11 Heavy-duty rubber mud flaps will be mounted in front of the front tires and behind rear tires.

4.2 Detailed Specifications: Boom System

- 4.2.1 Boom rack to be constructed of two inches (2") by three inches (3") by 1-gauge square structural steel tubing.
- 4.2.2 Boom wings to be constructed of two inch (2") square high-yield aluminum tubing. Boom wings to be designed with a break-back clutch device that allows the booms to break-away/swing-away if they should hit an object. Booms must return to normal position by their own weight when object is clear.
- 4.2.3 Booms to be rear-mounted; consisting of one (1) center section and two (2) swing out sections.
- 4.2.4 Both wings to be folded along the side of vehicle independently to facilitate ease in storing or spraying close areas.
- 4.2.5 Boom shall have coverage area of 50 feet.
- 4.2.6 Spray boom will feature a positive locking device that will ensure the booms cannot accidentally come loose during transportation.

4.3 Detailed Specifications: Spray System

- 4.3.1 Unit must have nozzle system at 30 inch spacing.

- 4.3.2 The center section shall be capable of spraying roadways while the booms are in the transport position.
 - 4.3.3 Nozzles to be positioned for uniform coverage.
 - 4.3.4 Nozzles will be switched on and off by switches on the rate control device.
 - 4.3.5 Manual valves: All butterfly, gate, and shut-off valves to be of good quality, easily repairable, and corrosion resistant to all product standard in aviation de-icing operations.
 - 4.3.6 Select a Spray Nozzle System: The select spray system consists of two flood jet nozzle for different application rates, and one (1) de-icing streamer nozzle. The multiple nozzles turrets located on thirty-inch spacing and have a streamer. The small and large flood jet nozzles are to be mounted at the preferred 45-degree angle. All three types of nozzles must be attached to the rotary nozzle turret to allow for quick selection of proper nozzle size. All turrets are equipped with built-in check valves to eliminate dripping when the spray system is shut off. Check valve must have external spring-loaded check release valve to allow for flushing of the check valve without taking the valve apart. All nozzles are color coded for easy identification and the selection spray nozzle system must allow for triple overlap of all sprayed surfaces.
- 4.4 De-Icer Fluid Pump System
- 4.4.1 Unit to be equipped with a 16 HP Honda gasoline-powered engine. Engine will be electric start. Provide a gas tank that when full will be of sufficient quantity to adequately disperse an entire tank of de-icing fluid at its lowest dispersing rate.
 - 4.4.2 Pumping system to be designed to permit loading and unloading of spray as well as transfer and circulation capabilities.
 - 4.4.3 De-icer pump shall be 300-gpm minimum.
 - 4.4.4 All plumbing shall be constructed of non-corrosive materials and be compatible with all types of de-icing chemicals commonly used on airfield pavement surfaces.
 - 4.4.5 Pump system shall allow for self-loading/unloading, spray and recirculate.
- 4.5 Liquid De-icing Distribution
- 4.5.1 Liquid sprayer control system shall be a Raven DCS400 that will provide automatic synchronization of the application rate of liquid product regardless of travel speed.
 - 4.5.2 The liquid control system shall be infinitely adjustable.

- 4.5.3 The liquid control system shall be flow based utilizing an RFM-100 Raven flow meter.
- 4.5.4 System will retain use of a Raven motorized bypass valve to ensure constant delivery of chemical to spray system.
- 4.5.5 The rate of application shall be equal at all nozzles over the entire length of the spray boom.
- 4.5.6 The portable control panel system will have a minimum 25-foot control cord from the trailer hitch to permit the control panel to be operated from inside of the tow vehicle cab.
- 4.5.7 When control panel and cord is not in use the control system will be stored in sealed cabinet located at the front of the trailer unit.
- 4.5.8 The liquid control system shall allow independent control for each of the 3 boom sections on the de-icer.
- 4.5.9 Speed signal shall be obtained from an onboard GPS sensor and relayed to the controller.
- 4.6 Tank
 - 4.6.1 Tank Configuration and Material: To be 1,100 gallon twelve (12) gauge. 304 stainless shell and heads and securely mounted onto the trailer.
 - 4.6.2 Tank Dimensions: 71inch OAL, 78 inch OAW and 72 inch OAH.
 - 4.6.3 Manhole: Minimum 16-inch diameter manhole with ten inch (10") fill access and cover.
 - 4.6.4 Lift Hooks: Tank shall have lift hoops on each end.
 - 4.6.5 Bolsters: Bolsters shall be ten (10) gauge and five inches (5") wide on each end.
 - 4.6.6 Sight gauge: Located on the driver's side, to extend from top to bottom of tank with capacity chart calibrated in minimum 250 gallon increments on a stainless-steel gauge with a poly hose for visual check.
 - 4.6.7 Filling: Tank filling through two inch (2") cam lock female fittings, compatible with top and bottom loading systems.
 - 4.6.8 Sump: Tank shall have seven inch (7") by seven inch (7") sump with three inch (3") NPT outlet for pump.
 - 4.6.9 Anti-vortexing: Tank shall be equipped with anti-vortexing insert in sump.