

To:	Document Holders	Date:	September 13,2016
For:	South Portland Municipal Services, Automated Vehicle Wash Equipment, South Portland, ME	SMRT Project:	14128

This addendum forms a part of the bidding documents.

Bidders are required to acknowledge receipt of this addendum on their proposal. Failure to acknowledge all addenda may cause the bid to be considered not responsive to the invitation, which may require rejection of the bid.

PART I – QUESTIONS/ANSWERS/INFORMATION RELATING THE PROJECT:

These items provide supplemental information to the Invitation to Bid without modification.

Part I – Bidder Questions/Clarifications:

1. Question: "Not sure what the meaning of "and a PDF". Does the city want an electronic copy on a thumb drive?"
Response: Yes, an electronic copy, please.
2. Question: "Are there specifications for the pressure washer?"
Response: The pressure washer is under contract to be by the plumber through the general contractor. Do not include.
3. Question: "Are the electrical panels to be supplied by the wash manufacturer to be UL certified or will just following the NFPA 70 rule book be enough? From the spec: D. Electrical Components and Devices: Listed and labeled as defined in NFPA 70 by a qualified testing agency and marked for intended location and application."
Response: The label is required in Spec. Section 11126 part 2.3D as you found. Please see Spec. Section 11126 page 4 part 2.2 where we also ask for a label on all equipment. However, where UL will not license the application of their label on equipment such as on locking cabinet panels, the cabinet panels shall meet UL 508a requirements and documentation of this shall be provided in submittals.
4. Question: "Who is providing the card reader system, and if by the manufacturer, what is the system."
Response: The city has a card reader system and will install the reader. The interface that the bidder is to accommodate will open the door and enable the wash selection panel from which the driver will select the cycle.
5. Question: "Why are there two undercarriage wash trenches? Do both have spinners?"
Response: See revisions attached.
6. Question: "How many spinners are needed on the arches? Four per side or four total?"
Response: See revisions attached.

7. Question: "How would the future air drying equipment be connected in the future?"
Response: From contacts provided within panels of the provided system, through the building wall to the equipment. Line voltage to the equipment will be provided in the future from an existing panel.
8. Question: "Is a surety bond/performance bond required?"
Response: No.
9. Question: "Has the wash bay floor/trench work/reclaim tank been completed at this time?"
Response: No. Foundation walls have begun, but no slabs.
10. Question: "Is the project prevailing wage?"
Response: Yes, if your on-site representative qualifies under Davis-Bacon.
11. Question: "11126-2 How long after award are submittals due?"
Response: Scheduling submittals will be your responsibility but must account for requisite review periods, electrical and mechanical coordination for rough-ins, and provided delivery deadlines are met.
12. Question: "11126-7 Please clarify how many volts and amps are brought to this panel?"
Response: We are not sure what panel you are referring to in the specification. The plan shows two panels. These are for your system's components. Please see the last page in the Invitation to Bid which is a drawing with these electrical panels indicated.
13. Question: "11126-7 Paragraph 2.4A9. Is this a tankless hot water heater? If not, how many gallons hot water is required?"
Response: We expect you to design the system with the components needed. However, the current project includes gas service for a water heater rated at 200,000 BTUH. We will adjust this as needed.

PART II - MODIFICATIONS TO DRAWINGS AND MATERIAL SPECIFICATIONS:

Part II – Attachments.

The following items are attached to and are part of this Addendum. These items replace original items previously issued or are to be added to the Bidding and Construction Documents as indicated.

1. Specification Section 11126 Vehicle Washing Equipment.

END OF ADDENDUM 1

Issued by SMRT, Inc. to all registered document holders.
David Lay

This addendum consists of 12 8.5 x 11 pages.

SECTION 111126

AUTOMATED VEHICLE WASHING EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Refer to drawings and other Division 01 specifications which are part of these bidding documents for additional requirements.

1.2 SUMMARY

A. Section Includes:

1. Automated touchless fixed arch vehicle washing equipment for vehicles up to 13'-6" tall, 14' wide, and 40' length, including public buses, school buses, police vehicles, fire vehicles, plow trucks, etc. (Lawn mowers and other small equipment will be cleaned manually by pressure wash equipment within the bay.)
2. Vehicle guide rails.
3. Vehicle detectors.
4. Installation supervision, testing/inspecting/certification services, owner training.

B. Related Work Provided as Part of Owner Construction Contract:

1. Required three section water reclamation tank for vehicle washing reclamation quality requirements. Design of piping, provision of pumps and controls shall be provided under this specification.
2. Pipe bollards for access control card reader (card reader by owner) and installation of vehicle guides within bus wash furnished under this Section. Programming for card reader opening of doors and start of wash shall be provided under this Specification.
3. Wash bay doors to be interlocked with controls of bus wash. Programming shall be provided under this Specification.
4. Plumbing service piping to vehicle wash. Piping of vehicle wash equipment will be installed per the requirements of the manufacturer design. Design of plumbing piping for vehicle wash shall be provided under this Specification.
5. Pressure washer to be provided with operator locations at the vehicle wash entrance for pre-cleaning, and at the vehicle wash between wash and rinse stations for detail cleaning.
6. Electrical service and wiring to vehicle washing. Wiring of vehicle wash equipment will be installed per the requirements of the manufacturer design. Design of electrical wiring for vehicle wash shall be provided under this Specification.
7. Concrete sawing for vehicle detection loops. Design of detection loop wiring, and programming shall be provided under this Specification.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
1. Review schedule of system installation, connections, and testing.
 2. Discuss plumbing rough-in and connections, electrical rough-in and connections, equipment bases, and other preparatory work.
 3. Verify that equipment operation is consistent with system description.
 4. Review coordination of interlocked equipment specified in this Section and elsewhere including card reader operation, overhead door operation, vehicle detection loops.
 5. Review required testing, inspecting, and certifying procedures.
 6. Identify training schedule within installation schedule to assure that Owner is able to operate equipment and maintain it upon the date of Substantial Completion.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, dimensions and profiles of individual components, and finishes.
 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties.
- B. Shop Drawings: For vehicle washing equipment.
1. Include plans, elevations, sections, details, and attachments to other work.
 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 3. Indicate concrete equipment curbs, anchor locations, and drain placements if different from plumbing design documents.
 4. Include diagrams for piping systems. Indicate all piping connections.
 5. Include diagrams for power, signal, and control wiring. Indicate all required electrical connections.
 6. Indicate all work which must interface with the work of others within shop drawings and clearly label.
 7. Vehicle Detectors: Layout and method of placement of vehicle loop detector system. (8 required.)
- C. Schedule: Submit schedule of installation showing work of trades as required to complete work by the project schedule. Indicate intended delivery dates for equipment, installation dates with period of time within which electrical and plumbing connections can be made, and when power will be required to the system for testing.
- D. Field quality-control reports.
- E. Operation and Maintenance Data: For equipment to include in emergency, operation, and maintenance manuals. Provide recommended spare parts list to be stocked by owner for each component of system.

1.5 COMPLETE SYSTEM

- A. Scope of Work shall include installation oversight and supervision.
- B. Design shall utilize general layout and utility connections as shown in drawings.
- C. All equipment necessary other than wire, conduit, and piping/ pipe fittings shall be provided by the vehicle washing system manufacturer to provide a complete operating and fully functional system. Ship components with anchor bolts, hangers, and accessories as required to complete installation.
 - 1. Wire, conduit, piping, and pipe fittings provided by others shall include anchor bolts, hangers and accessories by them as required for installation of those items.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify site conditions and storage arrangements prior to shipping. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Sequence delivery of equipment so that completed building openings and spaces as designed will permit equipment to be placed.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver to site prior to building enclosure or before overhead work is completed. Deliver to site in manufacturer packaging and labels. Coordinate for storage under protection until installation is to begin

1.8 WARRANTY

- A. Warrant complete system against equipment failure or defects for 1 year from date of Substantial Completion, when equipment is accepted as completed and ready to provide equipment washing as specified.
- B. Warranty service shall include on-line and telephone consultation services for adjustments or programming adjustments without limitation.
- C. Warranty service shall include emergency service within 48 hours of notice of equipment failure (out-of-service) with an on-site repair crew if repairs cannot be made remotely within 24 hours of notice.

1.9 MAINTENANCE MATERIALS

- A. Provide all supplies and parts necessary for no less than two months of operation of vehicle wash system including detergent, rinse, water softener salt, etc. Assume 20 vehicle washes per day in determining quantities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Provide each product or type of equipment from single manufacturer.
- B. Manufacturer Qualifications: Manufacturer shall have regularly manufactured automated large vehicle wash systems of the type specified for not less than 15 years.
- C. Installation Supervisor Qualifications: Supervisor shall have installed manufacturer's system on no less than 3 large vehicle automated wash systems by manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.
- B. Regulatory Requirements: Install equipment to comply with the following:
 - 1. NFPA 54, "National Fuel Gas Code."
 - 2. NFPA 70, "National Electrical Code."

2.3 SYSTEM DESCRIPTION

A. Sequence of Operation:

1. Start-up and access to the vehicle wash bay will be by vehicle detection loop when system is unlocked, and by card reader access when locked. In either operation, the system shall permit the user, once card access provides control, to select from basic program options prior to entry and shall control access overhead door.
2. A control panel will allow the vehicle operator to indicate the wash cycle required, including or not including a manual pressure-wash period (detail wash) after the wash cycle and prior to rinse.
3. Street-light styled signal lights shall indicate Red – Wait, Yellow – Approach to activate, and Green – Enter the wash bay. Signage will provide additional operational information to the vehicle operator. Pace lights on the bay wall will help the driver maintain a 1 foot per second rate.
4. The cycle will begin when all components are in-ready, and when the vehicle triggers the first loop sensor.
5. The initial wash, utilizing a 60 HP stainless steel pump will rinse debris off of the chassis and undercarriage of the vehicle.
6. Once the vehicle has cleared the entry door, the system will close the entry door.
7. Sensors will determine which oscillating side manifolds are appropriate to the vehicle by height. The loop detector will initiate Arch #1 operation applying acidic detergent with the appropriate height oscillating side manifolds followed by caustic detergent in Arch #2. Detergent piping shall be Schedule 80 PVC for corrosion resistance. A 7.5 HP pump will maintain pressure in the detergent system at up to 80 psi. **ADD 1**

8. Oscillating side manifolds on Arches #1 and #2, driven by pneumatic actuators, will pivot to wash the front, sides, and rear of the vehicle, automatically adjusting for short and tall vehicles utilizing separate manifolds for each height range and triggered by height sensors. Detergent will be applied at a higher concentration to the rear of the vehicle by both Arch #1 and #2 to aid in cleaning this surface.
9. Between wash and rinse, a pause position will allow time for applied detergent to clean the vehicle surfaces, and permit hand washing by pressure washer wand if this is selected from the wash options. System shall not start while the vehicle is stopped within this area.
10. Upon notification, the vehicle will continue to the rinse cycle where a loop sensor will initiate an undercarriage rinse and Arch #3 front, side, top and rear rinse utilizing the appropriate height sections of oscillating manifolds which pivot to apply recycled water to the vehicle front, side and rear. A 60 HP stainless steel pump will provide 230 GPM at 330 PSI.
11. A loop sensor will initiate the fresh water rinse cycle in Arch #4, applying low pressure rinse water to all surfaces of the vehicle from a 2 HP pump fed from a 500 gallon storage tank.
12. As the vehicle approaches, the overhead door will raise and upon exit of the vehicle the door will close and the system reset itself for the next cycle.

ADD 1

B. Performance Criteria

1. Vehicle wash system will provide automated fixed-arch washing of vehicles which will include, but not be limited to:
 - a. City buses.
 - b. School buses.
 - c. Plow trucks with plow wings.
 - d. Fire trucks.
 - e. Pick-up trucks and other similar city service vehicles.
 - f. Police vehicles.
2. Vehicle wash system will permit operation/use to clean other vehicles manually:
 - a. Lawn maintenance equipment such as mowers.
 - b. Sidewalk plow equipment.
 - c. Small utility vehicles.
3. All washing operations except for optional wand-pressure wash station shall be automatic. Doors shall be controlled automatically by the sequence program, however, an over-ride shall be available to hold doors open set by operator.
4. Upon entry with a selected automatic program the system shall detect the vehicle type, provide washing by undercarriage, side, and top sprayers, shall provide the option of manual pressure cleaning between wash and rinse (detail wash option), and shall provide a final rinse. Vehicles shall be washed and rinsed on all six nominal surfaces.
5. Cleaning shall successfully clean vehicles.

C. Vehicle Washing System:

1. Detail Requirements:
 - a. Wash Duration: 3 minutes or less.
 - b. Type: Automatic, touchless.
 - c. Sprayers: PVC nozzles for low pressure, stainless steel for high pressure. Approximately 6 gallons/min nozzle volume.

ADD 1

- d. Spinners: Four air-jet nozzles per spinner.
- e. Capacity: up to 20 vehicles per hour.
- f. Detergent Use: No more than 0.40 gallons/vehicle.
- g. Detergent Type: Low pH and high pH (NaOH and HCL) based detergent solutions. No phenols, phosphates, butyls, HF or ABF shall be permitted.
- h. Detergent Tanks: 275 gallon each with digital injection control of dilution ratios for detergents.
- i. Rate of vehicle: 1 foot per second.
- j. Stages: 2 step detergent cleaning, recycled water rinse, fresh water rinse.
- k. System Components: Non-proprietary. Parts shall be available on the commercial supply market without being through manufacturer or manufacturer-dealer network.
- l. Vehicle Driver Pace Notification: No less than 11 pace signals with LED lamps spaced approximately 10' along path of vehicles on wall.
- m. Vehicle Driver Signals and Signs: Low voltage street (Red-Yellow-Green) lights to instruct drivers entering, and at manual wash station to signal stop/start to next stage.
- n. Wash and Rinse Pumps: Vertical stainless steel impellers with stainless steel base. 60 HP x 2 pumps.
- o. Undercarriage and Lower Detail Wash: Separate pump supplied system floor-recess-mounted in trench grating for full width of vehicle with no moving parts with 100 GPM flow. Two side wheel spinners each side (four nozzles per spinner) will deliver 25 GPM each.
- p. Prewash Arch 1: Low pressure acidic wash fluid application with dual oscillating side manifolds for tall and short vehicles and top nozzles to apply cleaning fluid to front, top, and rear surfaces. Oscillating manifolds shall pivot towards the vehicle front and rear. Manifold movement shall be by pneumatic actuation. Provide separate rear detergent manifold. Nozzles will be configured to apply fluid to odd vehicle shapes such as dump trucks.
- q. Detergent Wash Arch 2: Same as Arch 1 with alkaline wash.
- r. Undercarriage and Lower Detail Rinse: Same as undercarriage and lower detail wash.
- s. Recycled Water Rinse Arch: Dual arches to provide oscillating front and side blast rinses and a rear blast rinse as the vehicle passes through the section. Arch-mounted dual oscillating side manifolds which rotate to rinse the vehicle sides, front and rear. 3 top spinners and 2 side spinners will rinse the roof, front, and lower detail vehicle areas. Provide 2000 psi rated stainless steel swivels.
- t. Fresh Water Rinse: Low pressure flood rinse with 3 HP pump to rinse all surfaces using fixed sprayers applying fresh water at a rate of 25 GPM.
- u. Air Control Panel: Control panel to control oscillation of manifolds by pneumatic cylinders.
- v. Tall/Short Vehicle Design: Dual manifolds for short and tall vehicles. Height adjustment: Automatic.
- w. Water Reclamation: 220 gpm, automatic purge valving for removing settled solids, VFD controller and motor on process pump, filter to 15 microns - skid mounted. 1490 gallon rinse water tank with cone bottom.
- x. Reclamation Tank (by others): Three section below-grade concrete tank to collect water from wash bay drain for reclamation to wash. 3000/2000/2000 gallon capacity with drain to sewer. Other required equipment provided under this specification.
- y. Door Control: Electro-pneumatic.

ADD 1

- z. Vehicle size Sensors: Photo-eyes.
 - aa. Vehicle Loop Detectors: Approximately 8 in-slab induction loops. **ADD 1**
2. Controller
- a. NEC 70, 430 and 670 compliant.
 - b. Programmed logic controller (PLC) based system. A Windows or LinX based system not permitted.
 - c. Low voltage utilizing protective extra-low voltage for panel outputs.
 - d. Ethernet modem for remote troubleshooting.
 - e. Monitoring of wash count, run time for pumps, trouble logging.
 - f. Touch screen video user-interface.
 - g. Password protected access.
 - h. Pace notification control.
 - i. Vehicle sensor detection inputs for adjustments to wash automatically.
 - j. Door control.
3. Air drying shall be a future option which can be added without new control equipment. Future equipment will be placed at the exterior of the exit overhead door.
4. System shall include all components for a complete operational system with wiring and piping by others as described.
- D. Electrical Components and Devices: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.4 MATERIALS

- A. Refer to drawings for additional information. Provide materials as follows:
- 1. Arches: 4x 4" aluminum with support legs.
 - 2. Chassis Wheel Spinners (4): Stainless steel with 1" inlet and 3000 psi rating.
 - 3. Undercarriage Assemblies: 1.5" pipe with stainless steel nozzles.
 - 4. Arches: Stainless steel or aluminum anchored to concrete floor with stainless steel anchors. Protect dissimilar metals from contact with gaskets or other material to prevent galvanic corrosion.
 - 5. Detergent Manifolds: Schedule 80 PVC, with nozzles manufactured of chemically coupled, glass reinforced engineering grade polypropylene with O-ring seals. Nozzle shall have a pressure check device to stop detergent at low pressure.
 - 6. Booster Pump: Stainless steel multi-stage centrifugal TEFC, 480 V, three phase, 7.5 HP, 80 psi.
 - 7. Rinse Pumps: Stainless steel multi-stage centrifugal, 480 V, three phase, 60 HP, ODP, 230 gpm at 330 psi, soft starting variable frequency drives.
 - 8. Water Softening: 31 gpm nominal, with a peak flow rate of 41 gpm, 80,000 grain tanks, poly-glass resin, with HDPE brine tank. Resin tank shall be long life cation exchange material. Provide salt for softener as required per manufacturer's requirements. Water softening shall be provided for all detergent water.
 - 9. Water Heater: 199,000 BTUH, natural gas, full modulating to 20% and 95% efficient, steel jacketed, sealed combustion chamber, stainless steel burner, variable speed blower. Provide dielectric nipples, spark to pilot ignition, hand-hole clean-out, full flow drain valve, and temperature/pressure relief valve.

10. Detergent Piping: Schedule 80 PVC.
11. Rinse Piping: Schedule 40 galvanized steel.
12. Truck Guide Rails: Manufacturer's standard detail for trucks, but no less than 3" steel pipe with welded risers of 1/4" plate steel at 10' on center, hot dip galvanized after fabrication.

2.5 ANCHORAGES

- A. Anchor bolts; hot-dip galvanized according to ASTM A 153/A 153M and ASTM F 2329.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, including equipment bases; accurate placement, pattern, and orientation of anchor bolts; critical dimensions; and other conditions affecting performance of the Work.
- B. Examine roughing-in for electrical and plumbing systems to verify actual locations of connections before equipment installation.
- C. Notify Owner's installation contractor of any unsatisfactory conditions. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION SUPERVISION

- A. General: Owner's installation contractor will install vehicle washing equipment under supervision of equipment manufacturer's on-site representation.
 1. Manufacturer's on-site representative shall be on-site full-time during the performance of the work of equipment placement and installation.
 2. Manufacturer's representative shall not be responsible for managing installation workers other than to identify the schedule and sequence of the work to be done.
- B. Manufacturer's on-site representative shall direct the installation of equipment as required for complete and integrated installation including:
 1. Unloading and un-packaging of delivered equipment.
 2. Verification of delivered components prior to the start of installation.
 3. Equipment placement and anchoring.
 4. Review of plumbing and electrical connections to services with Owner's installation contractor to identify questions relating to wiring and piping.
 5. Manufacturer's representative shall be available for questions electronically, or by conference call as needed once off-site while equipment connections are in progress.

- C. Vehicle Loop Detectors: Coordinate placement of vehicle loop saw cuts with contractor performing work. Install and seal wire loops at locations at required locations according to manufacturer's written instructions. Connect to control equipment.

3.3 SYSTEM START-UP

- A. Manufacturer's on-site representative will provide full system start-up services.
 - 1. Manufacturer's on-site representative shall be responsible for verifying that the installation of work is consistent with approved manufacturer shop drawings and appropriate for proper operation of the completed vehicle washing system. Any deficiencies shall be identified to the Owner's installation contractor for action. Proceeding with installation shall indicate acceptance of the work as acceptable for operation and warranty.
 - 2. Manufacturer's on-site representative shall install initial quantities of chemicals for operation.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Provide a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections per proposal including all options and excluding all deduct alternatives.
- B. Perform the following tests and inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation, spray nozzles, sequence of operation, etc.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Prepare test and inspection reports and submit to architect/engineer.

3.5 ADJUSTING

- A. Adjust equipment to function smoothly, and lubricate as recommended by manufacturer.
- B. After completing installation of exposed, factory-finished equipment, inspect exposed finishes and repair damaged finishes.
- C. Warranty Period Services: Provide on-site system adjustment during 1 year warranty period after three months of use. Provide telephone assistance and internet diagnostics for full duration of warranty period. Provide emergency service indicated.

3.6 DEMONSTRATION AND TRAINING

- A. Provide a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and perform routine maintenance tasks of vehicle wash equipment. Refer to Division 1 Sections for additional requirements.

END OF SECTION 11126