

**DETAILED SPECIFICATIONS**  
 Algonquin Township Highway Department  
 Regenerative Air Street Sweeper

<b>INTENT</b>
<p>It is the intent of this specification to provide for the purchase of one (1) new and unused regenerative air street sweeper having a six-wheeled C.O.E. truck chassis with dual drive, sweeper controls and switches, 8.0 cubic yard hopper, automatic transmission, 240+140 gallon water tank, and left and right side broom with variable down pressure controlled from cab.</p> <p>The following specification is based upon an ELGIN CROSSWIND street sweeper, mounted on an Autocar ACMD 'Xpert' Cabover Chassis. The Algonquin Township Highway Department has evaluated different types of street sweepers and has determined that this product is best suited for their needs in safety, quality, performance, and standardization. This specification is not to be interpreted as restrictive, but rather as a measure of the safety, quality and performance against which all sweepers bid will be compared.</p> <p>In comparing proposals, consideration will not be confined to price only. The successful bidder will be one whose product is judged as best serving the interests of the Algonquin Township Highway Department when price, product performance, safety, quality and delivery are considered. The Algonquin Township Highway Department reserves the right to reject any or all bids or any part thereof, and to waive any minor technicalities. A contract will be awarded to the bidder submitting the lowest responsible bid meeting the requirements of this specification.</p>
<b>EQUIVALENT PRODUCT</b>
<p>Bids will be accepted for consideration on any make or model that is equal or superior to the sweeper specified. Decisions of equivalency will be at the sole interpretation of the Algonquin Township Highway Department. A blanket statement that equipment proposed will meet all requirements will not be sufficient to establish equivalence. Original manufacturer's brochures of the proposed unit are to be submitted with the proposal. All modifications made to the standard production unit described in the manufacturer's brochures must be certified by the manufacturer and submitted with the bid, or the bid will be deemed "non-responsive" and rejected without further review. Bidder must be prepared to demonstrate a unit similar to the one proposed, if requested.</p>
<b>INTERPRETATIONS</b>
<p>In order to be fair to all bidders, no oral interpretations will be given to any bidder as to the meaning of the specification documents or any part thereof. Every request for such a consideration shall be made in writing to the Algonquin Township Highway Department. Based upon such inquiry, the Algonquin Township Highway Department Clerk may choose to issue an Addendum.</p>
<b>GENERAL</b>
<p>The specification herein states the minimum requirements of the Algonquin Township Highway Department. All bids must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. The Algonquin Township Highway Department will consider as "irregular" or "non-responsive" any bid not prepared and submitted in accordance with the bid document and specification, or any bid lacking sufficient technical literature to enable the Algonquin Township Highway Department to make a reasonable determination of compliance to the specification. It shall be the bidder's responsibility to carefully examine each item of the specification. Failure to offer a completed bid or failure to respond to each section of the technical specification (COMPLY: YES or NO) will cause the proposal to be rejected without review as "non-responsive". All variances, exceptions and/or deviations shall be fully described in the appropriate section. Deceit in responding to the specification will be cause for rejection.</p>

		COMPLY	
		YES	NO
<b>SECTION A – CHASSIS</b>			
<b>1.00</b>	<b>CHASSIS - NEW 2017 OR 2018 MODEL YEAR AUTOCAR XPRT CABOVER DUAL STEER</b>		
1.10	Chassis shall be 33,000 GVW rating. State chassis make, model and point of manufacture: Autocar ACMD Hagerstown, IN	✓	
1.20	Wheelbase shall not exceed 164 inches.	✓	
1.30	Cab to axle shall be not more than 138 inches.	✓	
1.40	Frame; High Strength 120,000 PSI 10"x3"x.375" 2.13M RBM	✓	
1.50	For safety, the rear of the sweeper shall be equipped with a rear panel to provide under ride protection. When dumping debris, material shall not be discharged on top of the rear panel.	✓	
1.60	Front tow hooks shall be provided	✓	
1.70	One- (1) 50-gallon fuel tank shall be shared by both engines and shall be easily accessible without raising or shifting any components. A fuel gauge, in cab, shall be supplied. Sight tube is not acceptable.	✓	
1.80	Diesel emissions shall be EPA 2013 or greater and have a minimum capacity of 5 U.S. gallons diesel emissions fluid	✓	
<b>2.00</b>	<b>CHASSIS ENGINE</b>		
2.10	Truck engine shall be minimum 2013 Emission Compliant, Cummins ISB 6.7-200 or equivalent, turbocharged diesel, 200 HP @ 2600 RPM, 520ft.-lbs. @ 1600 RPM.	✓	
2.20	Horizontal DPF w/ LH Vertical SCR	✓	
2.30	The cooling system shall be protected to -34° F.	✓	
2.40	Engine shall be equipped with block heater. Receptacle located at cab step.	✓	
2.50	Fuel/Water Separator with probe & dash light.	✓	
2.60	Radiator fan shall be viscous drive type.	✓	
2.70	13" one stage air cleaner with safety element.	✓	
<b>3.00</b>	<b>TRANSMISSION, AXLES, WHEELS &amp; BRAKES</b>		
3.10	An Allison 2500 RDS series (or approved equal) automatic transmission shall be provided.	✓	
3.20	The rear axle ratio shall be approximately 7.17 for proper sweep speed and performance in this application.	✓	
3.30	Front axle shall be 12,000 and be equipped with taperleaf front suspension and shock absorbers.	✓	
3.40	The rear axle shall be a Dana 21060S 21,000 lb. single speed with Hendrickson HTS 21,000 lb. capacity suspension	✓	
3.50	For safety, and to allow the emergency interchange of tires at a job site, the front and rear tires and rims shall be interchangeable.	✓	
3.60	Tires shall be tubeless radial tires 14 ply 11R22.5 "G" load rated. The rear axle shall include dual tires for load capacity; singles will not be acceptable.	✓	
3.70	Rims shall be 10 hole steel hub piloted 22.5 x 8.25	✓	
3.80	Parking brake shall be spring applied rear wheel drum and shoe.	✓	
3.90	Brakes shall be full air brakes S Cam with a 18.7 CFM capacity compressor, with automatic slack adjusters and ABS.	✓	
3.10	Air system shall include an air dryer; Wabco 1200 Plus and pull cords on all air tanks.	✓	

<b>4.00</b>	<b>CAB</b>		
4.10	Maximum visibility, forward line of sight from the chassis front bumper to the point on the ground visible to the operator shall not exceed 8 feet for an SAE 98th percentile size operator.	✓	
4.20	Steering shall be full power with dual operator controls. Two steering gears, one at each side. Only OEM dual steering installed by the chassis manufacturer at the original time of assembly will be deemed acceptable. Dual steering systems composed of a single steering gear box with a cross shaft connecting the gear box to the other side will not be accepted, nor will systems requiring 3rd party modifications to add a second steering position after the cab and chassis have been completed by the OEM. Dual tilt/telescopic steering columns.	✓	
4.30	Both seats shall be air ride, cloth covered for air circulation and include 3 point seat belts.	✓	
4.40	Sweeper shall include two (2) outside heated power west coast type mirrors with lower 8 inch convex lens for easy viewing of the side broom during sweeping.	✓	
4.50	To maximize operator visibility of the curb and sweeping gear, outside mirrors shall be mounted forward of the front wheels.	✓	
4.60	For safety during night sweeping, switches shall be illuminated so that they can be readily identified without the use of the cab dome light.	✓	
4.70	Switches shall be clearly identified by name and symbol.	✓	
4.80	Cab interior environment shall be fully air-conditioned including a fresh air heater/ventilator/defroster.	✓	
4.90	Cab shall have full flow through ventilation for optimal temperature control.	✓	
4.10	Wipers shall have intermittent feature.	✓	
4.11	Interior of cab shall have acoustical insulation for low operating noise, automotive type trim, and center sweeper console.	✓	
4.12	Dash shall be faced with soft molded plastic.	✓	
4.13	All glass shall be tinted safety glass.	✓	
4.14	Each operator position shall have adjustable sun visor.	✓	
4.15	Doors shall be keyed alike ignition.	✓	
4.16	Door windows shall be powered vertical slide type.	✓	
4.17	Side windows shall have defogger.	✓	
4.18	Cab shall include dash mounted cigar lighter.	✓	
4.19	Cab shall include an AM/FM radio with Bluetooth connectivity, (2) speakers, and AM/FM antenna.	✓	
4.20	Electric horn shall be provided.	✓	
<b>5.00</b>	<b>INSTRUMENTS</b>		
5.10	Chassis right and left side operator instrument panel shall be chassis OEM, full vision illuminated with tachometer, speedometer, odometer, trip odometer, hour meter, fuel gauge, water temperature gauge, oil pressure gauge, transmission temperature gauge, air pressure gauge, volt gauge and DEF gauge.	✓	
5.20	Chassis engine instruments shall include warning light and chime for low coolant level and high coolant temperature.	✓	
5.30	Console shall have left/right primary driver switch.	✓	
5.40	Hydraulic functions shall be controlled by rocker switches located in the cab mounted control panel.	✓	
5.50	Truck instruments shall include warning lights for battery and cab latch to make sure the cab is locked in position.	✓	

5.60	All console switches including transmission controls and all gauges shall be illuminated.	✓	
5.70	Intake mounted air restriction indicator with graduations.	✓	
<b>6.00</b>	<b>ELECTRICAL</b>		
6.10	Batteries should be located in an enclosed accessible environment for long life and ease of service. Electrical system shall be 12 volt only. Electrical systems that are split 12V/24V are not acceptable.	✓	
6.20	Chassis shall have two (2) maintenance free batteries rated at not less than 1500 CCA total, 12 volt.	✓	
6.30	Chassis engine shall have a 130 amp alternator.	✓	
<b>7.00</b>	<b>CHASSIS LIGHTING</b>		
7.10	Chassis lighting shall include sealed multi-beam halogen head-lights.	✓	
	LED rear brake, turn, and tail lamps provide a high degree of lamp visibility as well as significantly longer service life. These LED lamps are designed to have a usable life of up to 100,000 hours.	✓	
7.20	License plate lights, clearance lights, signal lights, illuminated gauges and instrument panel, and directional lights with hazard switch shall be included.	✓	
7.30	A 70" Federal Signal Legend lightbar shall be mounted to the cab roof, with a controller mounted inside the cab.	✓	
<b>SECTION B - SWEEPER MODULE</b>			
<b>8.00</b>	<b>SWEEPER ENGINE</b>		
8.01	Shared power (patent # 9,010,467) is defined as a sweeper system that is power-driven by a combination of chassis and auxiliary engine horsepower. For gained economy, the sweeper system shall utilize horsepower captured by chassis regenerative braking.		✓
8.02	At sweeping vehicle speed, the chassis engine shall be capable of propelling the vehicle and providing additional horsepower for sweeping functions via the shared power system. The chassis typically has a minimum of 50 hp (37 kW) available while at idle. Please refer to Chassis section 2.0 for type of chassis engine listed.		✓
8.03	Auxiliary diesel engine shall be 4 cylinder, turbocharged, dynamically counter balanced 276 CID (John Deere 4045T or equal). Engine must be EPA Tier 4 "final" and CARB emission compliant. Engine must be EPA Tier 4i Emission compliant but subject to change based on EPA emission compliant engine availability and future emission regulatory changes.	✓	
8.04	Auxiliary engine horsepower rating shall be 74 (55 kW) @ 2400 RPM, torque 224 lb-ft @ 1600 RPM.	✓	Exceed 115hp
8.05	Auxiliary engine shall drive the blower "fan" by a heavy-duty five (5) "V" groove power belt for simplicity and ease of maintenance.	✓	
8.06	Auxiliary engine shall have ECU for throttle control and management of aftertreatment system.	✓	
8.07	Auxiliary engine shall be protected by a dual safety element dry type air cleaner & restriction indicator that indicates it is time to service the filter element.	✓	
8.08	Auxiliary engine shall be filled with 50/50 mixture anti-freeze/water for cold weather storage and or operation.	✓	
8.09	For greater heat dissipation, less noise and lower cost of maintenance, auxiliary engine shall have individually replaceable wet sleeve cylinder liners.	✓	

19.03	Sweeper instruments shall include diagnostic information for the sweeper engine and sweeper functional information to include water level, sweeping mode and transport mode.	✓	
19.04	Sweeper instruments shall include a "raised" hopper indicator, an "open" hopper door indicator and a "full" hopper indicator to notify the operator.	✓	
<b>20.00</b>	<b>ADDITIONAL EQUIPMENT</b>		
20.01	Sweeper shall include an additional 140 gal water tank (in addition to the standard-capacity tank). Both tanks shall be filled via the same water fill location as the main tank and also include appropriate anti-siphon provisions		Additional 100 or 350 gallon. See notes ✓
20.02	A retractable high pressure washdown reel shall be provided and mounted conveniently for machine washdown purposes	✓	
20.03	A Midwest-brand Autolube system shall be provided which encompasses both sweeper and chassis	✓	
20.04	The sweeper shall be equipped with a factory designed and installed hopper vibrator to assist in debris removal from the hopper	✓	
20.05	The sweeper shall have a factory designed and installed system to adjust the pickup head curtain position, one position shall position the curtain so that it does not block large debris/leaves from entering the pickup head, the other shall place the curtain in the standard location for typical municipal sweeping. Controls for this curtain position shall be located in the cab.		✓
20.06	A toolbox shall be installed behind the cab that extends the width of the body	✓	
<b>21.00</b>	<b>MANUALS</b>		
21.01	A sweeper operation manual shall be provided.	✓	
21.02	A sweeper parts manual shall be provided.	✓	
21.03	A service manual is supplied with the sweeper.	✓	
<b>22.00</b>	<b>WARRANTY</b>		
22.01	Manufacturer's warranty shall be not less than four (4) years on entire sweeper.	✓	
22.02	Manufacturer's warranty shall be not less than four (4) years on the chassis.	✓	
22.03	Manufacturer's warranty shall be not less than four (4) years on the chassis engine.	✓	
22.04	Manufacturer's warranty shall be not less than five (5) years on the transmission.	✓	
22.05	Manufacturer's warranty shall be lifetime protection against rust-through of the water tank.	✓	
22.06	Manufacturer's warranty shall be lifetime for the original owner on the hopper with LifeLiner coating. Exceed specification stainless steel lifetime hopper warranty with no need to maintain a LifeLiner coating which requires annual maintenance	✓	
22.07	Bidders submitting literature stating warranties which do not fully comply with warranty requirements of this specification, must submit a letter from the manufacturer certifying warranty compliance as an integral part of their proposal. Failure to comply may cause the proposal shall be deemed "non-responsive" and rejected without further review.	✓	
<b>23.00</b>	<b>SERVICE AND TRAINING</b>		
23.01	Vendors shall have a full parts and service facility within a reasonable distance from the Algonquin Township Highway Department Garage. State location and distance of facility and local parts inventory value: We are located at 8636R W. National Avenue West Allis, WI 53217 which is 1 hour and 20 minutes from your location Elgin dealer is 1 hour 9 mins from your location 8200W Schaefer Sweeper parts inventory is current value is in excess of \$250,000.00	✓	
23.02	A qualified technician shall provide complete training to Algonquin Township Highway Department personnel at the Algonquin Township Highway Department Garage. Training shall include safety, operation, maintenance and service. Exceed - in addition full training for one mechanic at factory is included all transportation, meals and lodging for mechanic is included	✓	
<b>24.00</b>	<b>DELIVERY</b>		
24.01	Sweeper shall be delivered F.O.B. Algonquin Township Highway Department.	✓	

24.02	Acceptance shall be subject to the inspection and approval of the Algonquin Township Highway Department.	✓	
24.03	Bidder shall state delivery time after receipt of order: 150-210 days ARO	✓	
25.00	<b>QUALITY</b>		
25.01	Sweeper shall be manufacturer registered quality standard no less than ISO 9001.		✓
26.00	<b>PAINT</b>		
26.01	All visible exterior metallic surfaces shall be coated prior to assembly with polyester powder coat. The paint must be a minimum of 2 mils thick. The uses of acrylic enamels and/or polyurethanes are not acceptable. <small>Note: Unit is stainless steel hopper will NOT rust</small>		✓ <small>Painted with DuPont Incon Beam Process</small>
26.02	Vehicle shall have an accent color of Grey on the components and lower portions of the unit.		✓ <small>Painted Black</small>
26.03	The sweeper body is painted RAL 1037 Yellow.	✓	
26.04	The cab is painted RAL 1037 Yellow.	✓	
27.00	<b>OPTIONAL ITEMS</b>		
27.01	The Algonquin Township Highway Department may choose, at its sole discretion, to add any or all of the following optional items to this purchase. Insert pricing for each option.		
	1.) Omit Tier 4F Emissions; sweeper module emissions shall still be equal to or cleaner than EPA – off highway – Tier 4 Final PM and NOx levels. \$ Not Available		
	Additional upgrades and/or options not listed above that the Dealer submitting a bid would like to include in their proposal.		
	1.) Remote drop down hopper screens ADD \$6,825.00 screen in machine are stainless steel, remote screens are also stainless steel		
	2.) Dual GEO Broom function ADD \$2,475.00		
	3.)		
	4.)		
	5.)		
	6.)		
28.00	<b>EXCEPTIONS AND DEVIATIONS</b>		
28.01	Bidder shall fully describe every variance, exception and/or deviation. Additional sheets may be used if required.		
	1.) 8.01 Not a shared power system. Our design is a sweeper powered auxiliary engine system which does not cross control the sweeper and chassis engine. Our system exceeds the shared power system for maintenance and operation as we do not create unnecessary chassis and body conflict. We do not need to add additional hydraulic PTO and pump to the chassis transmission which can create other problems in sweeper operations such as excessive heat.		
	2.) 8.02 is not required with our design. This further illustrates the issues with shared power systems having to demand chassis horsepower to run the sweeper when already running an auxiliary engine defeats the purpose of running the PTO.		
	3.) 20.01 Our standard water tank is 250 gallon. We offer an additional 100 gallon tank total = 350 gallon. Or we will include an additional 350 gallon tank at no additional cost, however we would need to install a different tool box as the 350 gallon tank is located behind the cab.		
	4.) 20.05 We run a leaf bleeder style system which allows us to adjust our vacuum applied to the road way surface. Also with large debris items we can pick the entire head up to meet clearance requirements. Also our machine fully sweeps in reverse with no need to pick up the head.		
	5.) 25.01 ISO 9001 is an export based quality control standard, which was established for companies exporting products to other countries. This standard is met or exceed in the Schwarze production process.		
	6.) 26.01 We utilize a DuPont paint process which meets or exceeds the same painting process on the cab of the sweeper itself. Powder coating is a great painting process, but does not prevent rust. Only stainless steel construction does that, and that is why our hoppers are stainless steel.		

26.02 Our understructure and accents are painted black for easy touch up and cleaning.

## BIDDING INSTRUCTIONS

1. The attached form must be completed along with this form.
2. Bid form must be inserted in an envelope, sealed and marked "Sweeper Bid".
3. All exceptions to listed options must be noted on a separate sheet of paper with appropriate item # and suggested alternatives. If the item is unavailable, state not available.
4. Any questions regarding bid procedures, submittals and specifications should be directed to Robert J. Miller, Highway Commissioner. (8:00 am to 4:30 pm Monday thru Friday at (847)639-2700 ext. 6)
5. The Highway Commissioner, hereby states that bid consideration will not be confined to price only. The successful bidder will be the bidder whose product is judged to best serve the interests of the Highway Department when price, product, safety, quality and delivery are considered. The Algonquin Township Highway Commissioner reserves the right to reject any or all bids or any part thereof, and to waive any minor technicalities. A contract will be awarded to the bidder submitting the lowest responsible bid meeting the requirements of this specification.

Bid Item Autocar ACMD with a  
Schwarze A7 Tornado Bid Price \$267,622.00

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Bid submitted by:

Steven Krall  
Name

Date April 25, 2017

R.N.O.W., Inc.  
Company

8636R W. National Avenue  
Address

West Allis, WI 53227  
City, State, Zip Code

414-541-5700  
Phone Number

  
Signature