

TOWN OF LAKE PARK

PUBLIC WORKS DEPARTMENT

VACUUM TRUCK

Minimum Chassis and Body Technical Requirements

DOCUMENT TYPE	Technical Specification
DIVISION	Stormwater Division
DOCUMENT CODE	PW-STW-SPEC-VAC
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PURPOSE

Define the minimum technical configuration the Town requires for a complete vacuum truck, including the chassis, vacuum body, water system, safety equipment, warranties, and completed-unit engineering requirements.

1. Intended Use

The Town requires a complete vacuum truck for routine and emergency stormwater maintenance. The unit shall be capable of cleaning catch basins, manholes, culverts, drainage structures, and stormwater piping; removing wet sediment, sand, leaves, vegetation, sludge, standing water, and typical stormwater debris; and supporting work on municipal streets and rights-of-way.

The chassis and body shall be engineered as one integrated completed unit. The completed vehicle shall provide adequate legal payload and axle capacity under realistic operating conditions and shall be suitable for long-term municipal service, maintenance, and operator use.

2. Completed Unit Requirements

- 2.1** The unit shall be new, current-production, complete, assembled, tested, and ready for municipal operation.
- 2.2** The chassis, body, power take-off and hydraulic systems, vacuum system, debris tank, boom, water system, controls, electrical equipment, cameras, lighting, and safety systems shall be fully compatible and integrated.
- 2.3** The completed vehicle shall remain within Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Ratings (GAWRs), tire and wheel ratings, and applicable roadway weight limits under realistic loading conditions.
- 2.4** Completed-unit weight documentation shall identify front and rear axle curb weights, remaining payload by axle and total vehicle, the assumed debris density used for payload calculations, and any operating restrictions necessary to remain within applicable ratings.
- 2.5** Final completed-unit height, length, width, center of gravity, turning characteristics, axle loading, and body-to-chassis clearances shall be documented before final acceptance.

3. Chassis Requirements

3.1 Configuration, Frame, and Ratings

Item	Minimum Technical Requirement
C1	Heavy-duty tandem 6x4 vocational chassis configured for a completed vacuum-truck body and municipal stormwater service.
C2	Gross Vehicle Weight Rating shall be not less than 66,000 pounds.
C3	Front Gross Axle Weight Rating shall be not less than 20,000 pounds.
C4	Rear tandem Gross Axle Weight Rating shall be not less than 46,000 pounds.
C5	Front suspension shall be rated not less than 20,000 pounds; rear suspension shall be rated not less than 46,000 pounds.
C6	Rear tandem axle spacing shall be approximately 50 inches unless completed-unit engineering requires an alternate configuration.
C7	Wheelbase shall be approximately 268 inches and shall provide the body-builder dimensions needed for the required vacuum body.
C8	Front frame extension shall be approximately 20 inches and rear overhang approximately 73 inches, subject to final completed-unit engineering.

Item	Minimum Technical Requirement
C9	Frame shall be heavy-duty steel with full reinforcement liner and a minimum resisting bending moment of approximately 3,920,000 pound-inches, or equivalent strength suitable for the completed body and duty cycle.
C10	Front tow hooks shall be provided.

3.2 Engine, Cooling, and Exhaust

Item	Minimum Technical Requirement
C11	Diesel engine shall provide not less than 425 horsepower and 1,550 pound-feet of peak torque.
C12	Engine brake shall be provided.
C13	Cooling system shall be sized for heavy vocational vacuum-truck operation in South Florida ambient conditions, including sustained low-speed and stationary power take-off operation.
C14	Include fuel-water separation, engine-protection shutdowns, and heavy-duty cooling provisions.
C15	Engine and emissions system shall comply with applicable federal requirements for the model year and Florida registration.
C16	Diesel exhaust fluid capacity shall be approximately 8.7 gallons or greater where required by the offered emissions system.

3.3 Transmission, Driveline, and Power Take-Off

Item	Minimum Technical Requirement
C17	Heavy-duty six-speed automatic transmission suitable for the specified engine torque and completed vehicle weight shall be provided.
C18	Transmission shall include prognostic capability and the provisions necessary for body power take-off operation.
C19	Transmission programming shall support high-inertia vacuum-system operation, including controlled or soft-start engagement where required by the body system.
C20	Transmission cooling and lubricant shall be suitable for continuous heavy vocational service.
C21	Rear axle ratio shall be approximately 4.50, or an equivalent ratio demonstrated to be compatible with the engine, transmission, tire size, operating speeds, grades, and power take-off duty.
C22	Interwheel differential lock and interaxle power-divider lockout shall be provided.
C23	Front-engine and transmission power take-off provisions, controls, wiring, and body-builder interface shall be provided as necessary for the completed vacuum body.

3.4 Axles, Brakes, Tires, and Wheels

Item	Minimum Technical Requirement
C24	Front axle shall be rated not less than 20,000 pounds.
C25	Rear tandem axle shall be rated not less than 46,000 pounds.
C26	Front service brakes shall be heavy-duty air disc type.

Item	Minimum Technical Requirement
C27	Rear service brakes shall be heavy-duty air-operated drum or disc type rated for the rear tandem axle and completed unit.
C28	Antilock braking, automatic traction control, and vehicle stability/yaw control shall be provided.
C29	Parking-brake warning shall sound when the driver door is opened while the parking brake is not applied.
C30	Front tires shall be 425/65R22.5 Load Range L or equivalent with combined capacity adequate for the front axle rating.
C31	Rear tires shall be 11R22.5 Load Range G or equivalent with combined capacity adequate for the rear tandem rating.
C32	Heavy-duty steel wheels shall be provided and rated for the specified axle and tire capacities.

3.5 Fuel, Electrical, Cab, and Operator Equipment

Item	Minimum Technical Requirement
C33	Fuel capacity shall be not less than 72 gallons and shall be arranged so that the body and accessory systems can be installed without interference.
C34	Electrical system shall be 12 volt with alternator capacity not less than 160 amperes.
C35	Starting system shall include three heavy-duty batteries providing approximately 2,280 cold-cranking amperes total, or equivalent starting capacity.
C36	Battery disconnect switch shall be provided.
C37	Audible backup alarm shall be provided.
C38	LED headlamps, daytime running lights, and chassis-mounted LED step/ground work lights shall be provided.
C39	At least six assignable body-builder dash switches shall be provided, including momentary switching where required by the body.
C40	Factory air conditioning with electronic controls shall be provided.
C41	Driver seat shall be high-back air-suspension type; passenger seat shall be high-back fixed or better.
C42	Lap-and-shoulder seat belts with audible/visual reminder shall be provided.
C43	Heated powered exterior mirrors and heated convex mirrors shall be provided.
C44	Cab shall be white. Chassis running gear shall have a durable black finish.
C45	Diagnostic/telematics capability shall be provided where available for the chassis, with access to vehicle location, fault information, and service data during the included service period.

3.6 Chassis Warranty

Item	Minimum Technical Requirement
C46	Basic chassis coverage shall be not less than 12 months or 100,000 miles.
C47	Engine coverage shall be not less than 60 months or 250,000 miles.

Item	Minimum Technical Requirement
C48	Engine aftertreatment coverage shall be not less than 60 months or 250,000 miles where available for the specified emissions system.
C49	Carrier and axle housing coverage shall be not less than 60 months or 500,000 miles.
C50	Heating, ventilation, and air-conditioning coverage should be not less than 60 months where available.
C51	Transmission warranty coverage shall be identified in the completed-unit documentation and shall be appropriate for heavy vocational and power take-off service.

4. Vacuum Truck Body Requirements

4.1 Vacuum and Debris System

Item	Minimum Technical Requirement
B1	Vacuum system shall use a three-stage centrifugal compressor and shall be rated not less than 3,500 cubic feet per minute at 14.5 inches of mercury.
B2	Vacuum system shall include a cyclone or centrifugal separator with cleanout provisions.
B3	Vacuum drive shall be hydrostatic and fully compatible with the chassis power take-off arrangement.
B4	Debris tank capacity shall be not less than 12 cubic yards.
B5	Debris tank shall be constructed of not less than 1/4-inch heavy-duty corrosion-resistant weathering steel or equivalent material suitable for municipal vacuum service.
B6	Rear door shall be full-opening/flat style with hydraulic open/close function, hydraulic locking, and positive safety latch or equivalent retention system.
B7	Debris tank shall include a 5-inch butterfly drain valve with not less than 10 feet of lay-flat hose.
B8	Debris tank dumping angle shall be not less than 50 degrees using a hydraulic scissors-lift or equivalent power-up/power-down hoist system.
B9	Dump height shall be approximately 60 inches or greater, subject to completed-unit stability and body design.
B10	A permanently mounted body prop or equivalent positive mechanical support shall be provided for safe maintenance under the raised debris body.
B11	Debris-body flushout system shall include not less than eight internal jets.
B12	Automatic vacuum breaker, tank level indication, and overfill protection shall be provided.
B13	Vacuum relief protection shall be provided as required by the system design.
B14	Vacuum intake hose shall be not less than 8 inches nominal diameter.
B15	Rear-mounted hydraulic pump-off system shall be rated approximately 200 gallons per minute and include not less than 20 feet of lay-flat discharge hose.

4.2 Boom, Intake, and Access

Item	Minimum Technical Requirement
B16	Vacuum boom shall be four-way hydraulic with cleanout capability, approximately 270-degree rotation, and operator controls suitable for municipal drainage structures.
B17	Boom shall include a 10-foot telescoping tube-in-tube assembly with pendant control station in addition to the primary controls.
B18	Boom transport support/docking system shall be provided for secure road travel.
B19	Provide approximately 20.5 feet of 8-inch aluminum intake tubes, including nominal 3-foot, 5-foot, 6-foot, and 6.5-foot sections or an equivalent functional set.

4.3 High-Pressure Water System

Item	Minimum Technical Requirement
B20	Water pump system shall provide not less than 60 gallons per minute at 2,000 pounds per square inch and shall be hydrostatically driven through the body power system.
B21	Water pump remote oil drain shall be provided.
B22	Water capacity shall be not less than 1,300 gallons using cross-linked polyethylene tanks or equivalent corrosion-resistant tanks suitable for the completed vehicle.
B23	Lower water-tank arrangement shall include full-length maintenance-access steps and a positive quarter-turn or equivalent drain valve.
B24	Front-mounted high-pressure hose reel shall provide not less than 600 feet of 1-inch hose capacity and shall use an articulating/rotating arrangement suitable for municipal pipe-cleaning operations.
B25	Provide not less than 500 feet of 1-inch high-pressure rodder hose rated for the full operating pressure of the water system.
B26	Hose handling system shall include a footage counter, heavy-duty manual rewind guide with dual rollers, flexible hose guide, and 10-foot leader hose.
B27	Washdown system shall include a hand gun rated approximately 20 gallons per minute at 750 pounds per square inch and a retractable hose reel with approximately 100 feet of hose.
B28	Provide one sanitary nozzle and one penetrator nozzle suitable for municipal pipe cleaning.
B29	Low-water alarm with visual warning light shall be provided.
B30	Centrifugal compressor fan flushout system shall be provided.

4.4 Cooling, Lubrication, Storage, and Serviceability

Item	Minimum Technical Requirement
B31	Cooling package shall include an air-to-oil heat exchanger for hydraulics and transfer-case components, or an equivalent cooling system sized for the required duty cycle.
B32	Remote lubrication provisions shall be provided for the boom rotator/lift cylinders and other high-maintenance grease points, including boom, debris tank, and articulating hose-reel components where applicable.
B33	Provide a behind-cab storage box approximately 16 inches by 42 inches by 96 inches, or equivalent storage volume compatible with the completed body.

Item	Minimum Technical Requirement
B34	Provide pipe and tool storage. A rotating pipe rack is preferred where space and completed-unit engineering permit.
B35	Centrifugal compressor silencer shall be stainless-steel construction or equivalent corrosion-resistant construction.

4.5 Lighting, Cameras, Alarms, and Safety

Item	Minimum Technical Requirement
B36	Provide at least two emergency-stop button locations: one at the operator station and one at mid-body.
B37	Provide a rear camera system with a color monitor and an additional camera positioned to provide clear visibility of the front hose-reel/work area.
B38	Provide body-load-limit alarm with level indicator.
B39	Warning and work lighting shall include, at minimum, two LED flood lights with protective guards at boom/mid-body locations, one guarded rear-tank LED strobe, LED arrow stick, four-corner LED strobe system, and two frame-mounted mid-body LED strobes.
B40	Body shall include applicable LED clearance/identification lighting and adequate work-area illumination.
B41	Provide a 5-pound ABC fire extinguisher and one set of emergency warning triangles on the completed unit.
B42	Rear tow hooks shall be provided.

4.6 Body Finish and Warranty

Item	Minimum Technical Requirement
B43	Body finish shall be polyurethane paint with a textured finish in high-wear or designated areas. Final body color shall be coordinated with the Town-approved white chassis color.
B44	Standard body warranty shall be not less than 12 months.
B45	Debris tank warranty shall be not less than 5 years.
B46	Water tank warranty shall be not less than 10 years.

5. Documentation, Training, and Final Acceptance

- 5.1** The completed unit shall be delivered clean, fueled, fully assembled, tested, and ready for municipal operation.
- 5.2** Operator manuals, service information, parts information, warranty documents, wiring and hydraulic diagrams, keys, remotes, adapters, specialty tools, hoses, nozzles, intake tubes, and loose equipment included with the unit shall be provided at delivery.
- 5.3** Operator orientation and basic maintenance training shall cover safe operation, vacuum system operation, debris-body operation, high-pressure water system, daily inspections, routine maintenance, emergency controls, and warranty/service procedures.
- 5.4** No material substitution of the chassis, body, major system, component, or specified performance requirement shall be made without prior written Town approval.

5.5 Physical delivery does not constitute final acceptance. Final acceptance is subject to inspection and functional testing by the Town and correction of identified deficiencies.

5.1 Acceptance Verification

✓	Acceptance Verification	Status
☐	Verify vehicle identification number, body serial number, final chassis/body configuration, and completed-unit documentation.	Pass / Def.
☐	Confirm all specified chassis, body, accessory, camera, lighting, hose, nozzle, tube, tool, key, and loose-equipment items are present.	Pass / Def.
☐	Inspect the completed unit for damage, leaks, missing hardware, corrosion, or finish defects.	Pass / Def.
☐	Confirm completed-unit weight and axle-loading documentation and verify compliance with vehicle, axle, tire, and wheel ratings.	Pass / Def.
☐	Operate the vacuum system under load and verify the separator, vacuum breaker, level indication, overfill protection, and related protection devices.	Pass / Def.
☐	Cycle the debris body, rear door/locks, body prop, dump system, drain valve, debris flushout, and hydraulic pump-off system.	Pass / Def.
☐	Cycle the telescoping boom through its operating range and verify controls, docking system, intake hose, and tube set.	Pass / Def.
☐	Operate the high-pressure water system and verify pump performance, hose reel, footage counter, hose guides, low-water alarm, washdown system, and nozzles.	Pass / Def.
☐	Verify cameras, body-load alarm, emergency stops, arrow stick, flood lights, strobes, clearance/identification lighting, and work-area safety lighting.	Pass / Def.
☐	Confirm manuals, warranties, training, lubrication provisions, storage equipment, title/registration documents, and Town asset information are complete.	Pass / Def.

**Acceptance
Status**

☐ Accepted ☐ Accepted with Deficiencies ☐ Not Accepted

Town Inspector

Date