

Unmanned Aerial Vehicle - VTOL

1.0) Bid Purpose

Shelby County is issuing this bid in order to purchase a specialized Unmanned Aerial Vehicle (UAV) system capable of Vertical Take-Off and Landing (VTOL) to support:

- County GIS mapping and orthophotography
- Property tax assessment and parcel mapping
- Landfill monitoring and volumetric analysis
- Search and Rescue (SAR) operations
- General business/tourism aerial operations

The selected vendor shall provide a turnkey UAV solution that includes, aircraft and payload(s) in bid specification, ground control system, software licenses and all necessary accessories.

2.0) Technical Specifications

Below are the aircraft and payload specifications that should be included in the proposal;

2.1 Aircraft Specifications

- Fixed-wing UAV with VTOL capability
- 45–60 minute minimum flight time
- 300–1,000 acres coverage per flight
- ≥ 25 mph wind tolerance
- Autonomous flight planning

2.2 Positioning & Accuracy

- GNSS: GPS, GLONASS, Galileo, BeiDou
- RTK/PPK required
- Horizontal accuracy ≤ 2 cm
- Vertical accuracy ≤ 3 cm

2.3 Payload Requirements

Primary (Required):

- Min: 60 MP RGB camera, GSD 1.2 cm/px, full frame
- Min: up to 660 pts/m² (triple return) LiDAR
- PRS system with FAA Category 3 OOP certification

Optional Items:

- Multispectral payload

2.4 Required Export Formats:

- 2D Outputs Orthomosaics: .tif
- 3D Outputs Point Clouds: .laz
- 3D Mesh Models: .obj
- 2.5D digital surface models (DSM) .tif
- Flight records: .ulg
- Base files (rinex): .o,.b,.p
- Checkpoints: .csv
- Raw images: .jpg

3.0) Required Equipment Package

3.1 UAV System

- UAV VTOL aircraft
- Ground control tablet
- Telemetry system

3.2 Power & Accessories

- Minimum 3 battery sets
- Charging system (field capable)

3.3 Payload(s)

- RGB camera
- LiDAR
- PRS System

3.4 Field Equipment

- Rugged case
- Storage media
- Field tools
- GNSS base station/receivers, tripods, checkpoints

3.5 Software

- Flight planning
- Photogrammetry processing
- LiDAR processing
- GIS integration with ESRI
- 1–3 year licensing

4.0) Bid Submission:

Bidders shall provide unit/package pricing. County reserves the right to purchase none, one or several of any items quoted based upon the bid unit prices.

5.0) Evaluation Criteria:

Evaluation will be based on the County's sole judgment of the compatibility, quality and features of the hardware/software offered, support capabilities of the firm and unit prices.