

REQUEST FOR INFORMATION (RFI) Colorized Lidar, sUAS

STATE OF NORTH CAROLINA Department of Transportation	REQUEST FOR INFORMATION (RFI) 54-NCDOT-Photogrammetry
	Issue Date: June 6, 2025
Purchasing	Questions Due: June 18, 2025 at 12:00 PM ET
Refer <u>ALL</u> Inquiries to: Thomas Busshart tjbusshart@ncdot.gov	Description: Colorized Lidar, sUAS
Using Agency Name: North Carolina Department of Transportation	Due Date: July 9, 2025 at 12:00 PM ET

MAILING INSTRUCTIONS: Deliver one (1) **signed original executed** Request for Information (RFI) response along with one redacted confidential copy. Address email and insert RFI number as shown below. It is the responsibility of the Vendor to have the response in this office by the specified time and date of opening. **Vendor must return all the pages of this RFI in their response.**

Request for Information Schedule:

The table below shows the intended schedule for this RFI. The Contract Lead will make every effort to adhere to this schedule.

Action	Responsibility	Date and Time
Issue Request for Information (RFI)	State	06/06/25
Submit Written Questions via email	Vendors	06/18/25
Provide Responses to Questions	State	06/25/25
Submit RFI Responses via email	Vendors	07/09/25

EXECUTION

VENDOR NAME:	E-MAIL:	
STREET ADDRESS:	P.O. BOX:	ZIP:
CITY & STATE:	TELEPHONE NUMBER:	
TYPE OR PRINT NAME & TITLE OF PERSON SIGNING:		
AUTHORIZED SIGNATURE:	DATE:	

I. RFI Content

Section 1: Introduction

The North Carolina Department of Transportation Photogrammetry Unit invites OEMs and vendors to participate in a Request for Information (RFI) aimed at exploring and understanding a complete system for acquiring and processing colorized LiDAR primarily from a UAV platform. Secondly, sensors included in this RFI should have ground vehicle and handheld mounting capabilities to ensure detailed scans in areas with dense leaf cover. This RFI represents a preliminary step towards potential future collaborations and is an ideal opportunity for OEMs and vendors to influence and inform the direction of North Carolina Department of Transportation's geospatial data acquisition strategy. Your detailed responses will be instrumental in highlighting the unique benefits, operational efficiencies, and potential cost-effectiveness of your solutions, laying the groundwork for future partnerships and opportunities within the state's evolving transportation landscape. We look forward to your valuable participation and the opportunity to explore how your leading-edge technology can meet the diverse mission needs of NCDOT Photogrammetry.

Section 2: Missions

North Carolina Department of Transportation Photogrammetry Unit requires RFI submissions to be capable of supporting the following missions.

1) Aircraft and Sensor Requirements:

- a. UAVs with high-resolution LiDAR sensors for consistent point clouds and accurate colorization.
- b. Mobile platforms and handheld devices with LiDAR sensors for detailed data capture.
- c. Cameras for orthophoto creation.

2) Types of Missions:

- a. Pre-construction: Ground surface surveys and vectorization of roadway features.
- b. During construction: Temporal change detection, monitoring construction progress, measuring Cut and Fill volumes.
- c. Post-construction: Creating orthophotos and 3D reconstructions.

3) Post-Processing Needs:

- a. Manual and automated vectorization of 3D features.
- b. Temporal data analysis and generation of cut and fill volume reports.
- c. Image stitching, georeferencing, and generating 3D models and Digital Twins.
- d. Automatic extraction of roadway assets.
- e. Automatic extraction of break lines.

4) Advanced:

- a. The ability to use the sensor to collect information on the ground either from a ground vehicle or as a handheld to collect information not accessible by the UAV. (under bridges, culverts, roofs etc.)

Section 3: Response Requirements

Responses are requested to include, but are not limited to, the following information as applicable to the respondent's product. Where applicable provide responses for a 5CM, 3CM and 2CM RMSEz ground classified surface. Responses may omit some of the following information if it is not known or available at time of submission.

5) Vendor Overview

- a. Brief history and background of the company.
- b. Previous experience in LiDAR and drone manufacturing.

6) UAS Specifications

- a. UAV type (Multi-rotor, Fixed-wing, etc.)
- b. Weight at takeoff
- c. Payload capacity
- d. Range (include the number of acreages of coverage for 50, 100 and 200 PPSM)
- e. Environmental tolerance (Wind and Temperature)
- f. Recommended crew for UAS and LiDAR operations

7) Sensor Specifications

- a. Lidar Sensor
 - i. Describe the LiDAR system
 1. Resolution (points per square meter for 50, 100 and 200, include operational altitudes)
 2. Accuracy (vertical and horizontal accuracy specifications)
 3. Colorization Capabilities
 - ii. Provide performance metrics (accuracy, resolution, range) for mobile platform or handheld applications if applicable.
- b. Nadir Camera Sensor Specifications
- c. Oblique Cameras Sensor Specifications (if applicable)
- d. GNSS-IMU Sensor Specifications
- e. RTK Specifications (if applicable)

8) Software

- a. Flight Planning Software Specifications and Requirements
- b. Data Processing Software
 - i. LiDAR Data Processing Description, Specifications and Requirements
 - ii. LiDAR Colorization Capabilities
 - iii. Image Processing Description, Specifications and Requirements
 - iv. Temporal Data Analysis for Cut and Fill Calculation Capabilities
 - v. Automatic Feature Extraction Capabilities

9) Customer Support

- a. What are the hours and channels (phone, email, live chat, ticketing system) available for customer support? Are there dedicated support teams?
- b. Describe the technical support provided for LiDAR drone integration, troubleshooting, and maintenance. Do you offer on-site support, remote diagnostics, or training for teams?
- c. What resources (manuals, FAQs, knowledge bases, or API documentation) are provided to support using and integrating your systems?
- d. Outline your warranty policies, repair processes, and any service-level agreements (SLAs) for defective or malfunctioning equipment.

10) Pricing and Contracting

- a. Describe pricing related to the initial platform, sensors, and software packages.
- b. Provide expected timelines and backorder status.

11) Security and Legal

- a. Describe the legal precautions and protections afforded to:
 - i. Users accessing the platform, and the
 - ii. State in managing the platform.
- b. Describe how security risks to users of the platform are mitigated.
 - i. What guidance is offered to users regarding security risks?
- c. Describe the processes or procedures used for utilization of the UAS system.
- d. NCDOT's IT Department requires that all software licenses, updates, and patches have servers based within the United States.
 - i. NCDOT follows the current federal US DOD Blue List.

12) References

- a. Provide references of any current operators or customers using your system or other products.
- b. If available Include any references of operators using BVLOS waivers using the proposed system.

Section 4: Optional Presentation

Upon receipt and review of the responses, NCDOT may opt to invite select respondents for a presentation or demo. Please indicate in your response whether your organization would be interested in providing a presentation that includes an opportunity for questions and answers.

II) RFI Procedures

A) Schedule

Responses to this RFI must be received by the date, time, and the location specified on the cover sheet. Respondents may be contacted for clarifications or additional information regarding their response to this RFI.

All Respondents should be aware that your Response will be open to all interested parties and therefore any content presented will be publicly available unless marked confidential and determined to be confidential. Mark all pages confidential that is determined to be confidential. (See Section F)

B) Clarification Questions

Questions will be accepted until the date and time as specified on the cover sheet of this RFI. All questions must be submitted in writing to tjbusshart@ncdot.gov. Questions should be limited to the overall scope of the RFI. An addendum containing any general clarification questions and their answers will be issued.

C) Response

The state recognizes that considerable effort will be required in preparing a response to this RFI. **However, please note this is a request for information only and not a request for goods or services. No award will result from this RFI.** Furthermore, NCDOT is not legally bound to issue a Request for Proposal (RFP) for goods or services but may elect to do so. Respondents submitting to this RFI will not be precluded from submitting a response to an RFP if NCDOT issues one in the future. The Respondent must bear all costs associated with the compilation and submission of a Response to this RFI.

- The response should define all services that would be required by the proposed solution. The response should also include:
- The vendor's understanding of the project and services by addressing the State's business requirements.

• Multiple Responses

Multiple responses will be accepted from a single vendor provided that each response is comprehensive, meets all of the state's requirements, and is truly unique. Please send in a separate email and clearly mark responses as "Response #1," "Response #2," etc.

D) Content and Format

The state expects concise, detailed, point-by-point responses to each of the RFI response items of this RFI. The State is not interested in brochures or "boilerplate" responses. Any issues or exceptions to NCDOT's desired functional requirements should also be identified and explained. Where appropriate, the response should also include diagrams to clarify components of the response. The response should also specify all services that would be required by the proposed solution.

E) Format and Copies

Each response should be submitted in the form of one electronic copy. Electronic responses delivered via email should be in Portable Document Format (PDF).

F) Proprietary Information

Trade secrets or similar proprietary data which the Respondent does not wish disclosed to persons other than personnel involved with this RFI will be kept confidential to the extent permitted by 01 NCAC 05B.1501 and N.C.G.S. § 132-1.3 if identified as follows: Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL". Any section of the RFI that is to remain confidential shall also be marked in boldface on the title page of that section. Cost information may not be deemed confidential. In spite of what is labeled as confidential, the determination as to whether or not it is shall be determined by North Carolina law.

http://www.ncga.state.nc.us/enactedlegislation/statutes/html/bysection/chapter_132/gs_132-1.3.html

G) RFI Conditions

The state will not be bound by any RFI procedure qualifications, or any additional conditions included by a Respondent in a response.

H) Communication

All communication regarding this RFI is to be addressed to Thomas Busshart tjbusshart@ncdot.gov the contact person identified on the RFI Cover sheet, page one (1).

I) Vendor Information

- Name of company.
- Contact person and title/position.
- Address, telephone number and email address.
- Overview of your product. Brief history of the company (length of time in business) including a listing of government agencies that have successfully implemented the company's services.