

**Town of Milford, New Hampshire
Specifications for:
Town-Wide Photogrammetric Mapping Project
March 18, 2013**



Town of Milford, New Hampshire Request for Proposals Town-Wide Digital Orthoimagery Project

1. General Introduction

The Town of Milford, New Hampshire is seeking proposals from qualified firms for the development of a town-wide digital orthoimagery. Major tasks involved with this project include aerial imagery acquisition, ground control, and digital imagery production. Provided below are detailed specifications related to the project.

All deliverable products of this work will be the property of the Town of Milford. The Town of Milford will have the right to sell or freely distribute the products in accordance with state and federal law.

2. Project Area

The project area includes the entire Town of Milford, New Hampshire 500-feet beyond town borders. Facts about Milford include:

- Approximate Total Area in Square Miles: 25
- Approximate Population: 15,000

3. General Scope of Work

In general, the scope of work for this project will consist of developing digital orthoimagery that meets 1"=100' scale ASPRS mapping standards, for the entire project area. The anticipated scope items for this project include:

- Color aerial imagery acquisition at a suitable resolution that meets 1"=100' scale ASPRS standards and production of 4" orthoimagery.
- Ground Control and Aerotriangulation
- Digital Orthoimagery (4-inch pixel resolution)

Digital Orthoimagery will be delivered in TIFF and SID file format.

An option for mapping that meets 40-scale ASPRS accuracy standards at a 3-inch pixel resolution is also being requested.

These services, as detailed herein, shall be conducted in a manner which meets or exceeds the minimum performance criteria identified in Section 4, below.

4. Minimum Performance Criteria

The work shall conform to the following minimum performance criteria:

1. Orthoimagery shall meet ASPRS and National Map Accuracy standards for 1"=100' mapping (or 40-scale mapping if applicable).
2. Project work will be accomplished under the direct supervision of a photogrammetrist certified by the American Society of Photogrammetry and Remote Sensing (ASPRS). The photogrammetrist shall make maximum utilization of his/her professional experience to select the technique or methods conducive to superior results.
3. Survey work shall conform to the Procedural and Technical Standards for the practice of land surveying in New Hampshire. Ground survey control for the project will be accomplished under the direct supervision of a Professional Land Surveyor registered to practice in the State of New Hampshire.
4. Horizontal datum shall be the New Hampshire State Plane Coordinate System NAD83 (feet). Vertical datum shall be National American Vertical Datum of 1988 (NAVD).
5. Contractor must propose and adhere to an aggressive project schedule.

5. Detailed Specifications

Outlined in this section are detailed specifications related to the project.

5.1. Digital Aerial Imagery Acquisition

Digital aerial imagery shall be acquired for the project area. The contractor shall develop a flight plan that abides by applicable standards of the American Society for Photogrammetry and Remote Sensing (ASPRS). This flight plan, including proposed control points, shall be included in the proposal.

Unacceptable coverage resulting from deviation from the approved flight plan shall be corrected at the contractor's expense. The imagery must meet prescribed specifications of ASPRS for scale, overlap, crab, tilt, and other standard requirements necessary to support the development of mapping that meets 1"=100' scale ASPRS accuracy standards. These specifications must be stated in the contractor's proposal.

The flight shall occur during the Spring of 2013 under optimal conditions of high sun angle (greater than 45 degrees), no snow, no cloud cover, and full defoliation.

Upon completion of the aerial imagery mission, the film (if applicable) shall be inspected for cloud shadow, density and clarity. The photographs will then be checked for sidelap, endlap and crab. A QC summary report shall be provided to the Town.

Deliverable Products

- a. Aerial Camera A copy of the current camera calibration report.
- b. Flight Plan/Boundaries The flight plan and boundaries, including control layout, shall be provided with the proposal on a single sheet plotted to scale.
- c. Digital Products: One set of digital imagery files on a portable hard drive.
- d. Photo QC summary report A quality control report produced during review of the film (if applicable).

5.2. Ground Control and FAAT

The contractor shall be responsible for acquiring or establishing both horizontal and vertical control required to develop mapping that meets Class 1 ASPRS standards for 1"=100' scale mapping. If adequate, Airborne GPS can be used on this project. The contractor shall state the number of ground control points that will be acquired in the proposal.

The Contractor shall provide the Town with a ground control report, control diagrams, and other applicable deliverables as outlined in *Deliverable Products*.

Deliverable Products

- a. Ground Control and Aerotriangulation Report
- b. Control diagram
- c. 8 ½" X 11" sketches of all control points.
- d. FAAT Solution Tables

5.3. Digital Orthoimagery

Color digital orthoimagery shall be developed for the project area. Digital orthoimagery must meet ASPRS mapping accuracy requirements for 1"=100' scale mapping and must be configured in the tile units provided by the Town. The Contractor shall abide by applicable standards for developing digital orthoimagery, reducing shadows and building lean, and correction of errors.

Digital orthoimagery will be generated with at least a 4-inch foot pixel resolution and delivered to the Town in georeferenced TIFF and SID file formats. Tile layout must be configured in the tile units provided by the Town.

Proposer shall state the proposed scanning resolution for each orthoimage option in the proposal.

Deliverable Products

- a. Pilot project consisting of two map sheets.
- b. Digital Data Files – 4-inch pixel resolution orthophotos delivered in TIFF and SID file format.

5.4. 40-Scale Mapping Option

The Town may consider a 40-scale mapping alternative at a 3-inch pixel resolution. A cost sheet is provided to support this alternative. The proposing firm shall detail costs for a 40-scale mapping (at 3-inch pixel resolution) option and briefly list of general specifications (photography specification, number of control points, feature capture, etc.) on the cost form.

6. Format of Proposals

The Town is seeking proposals for this effort. The proposals shall be no longer than 12 pages and include the following, as well as the documents required elsewhere in this RFP:

a. Introduction

- i. Introduction to the firm and statement of Firm's financial status.
- ii. Agreement to incorporate both this RFP and the proposal into an Agreement to be negotiated in good faith.
- iii. Statement that the firm will commence with aerial imagery acquisition upon notice-to proceed.
- iv. Statement of any proposed subcontractors.

b. Scope of Services

- i. Concise Scope of Work
- ii. Statement detailing any exceptions to the RFP.
- iii. Statement of aerial imagery acquisition process including type of camera, anticipated number of exposures, photo scale/resolution, flight altitude, number of bands, forward and sidelap percentage, maximum crab and tilt, minimum sun angle, and pixel resolution.
- iv. Include map of proposed flight plan labeled with proposed ground control points.
- v. Statement of ground control and FAAT process and standards including number of anticipated ABGPS and ground control points.
- vi. Statement of digital orthoimagery deliverables including pixel resolution.
- vii. Statement of accuracy standards that will be adhered to.
- viii. Statement of where work will be completed.
- ix. Statement of proposed schedule for all phases.

c. Related Experience

- i. Brief descriptions of and references for four similar projects.
- ii. Brief Qualifications Statement

d. Staffing Plan

i. Brief description of staffing plan including project manager, key staff, and sub contractors.

e. Alternatives

i. Descriptions of alternatives.

f. Price Proposal

i. Price proposal for 100-scale mapping, and 40-scale alternative, using provided price forms.

PLEASE SUBMIT ONE (1) HARDCOPY AND ONE (1) ELECTRONIC COPY OF YOUR PROPOSAL. DEADLINE FOR PROPOSALS TO BE RECEIVED BY THE OFFICE OF COMMUNITY DEVELOPMENT IS 4 PM, MONDAY, APRIL 1, 2013.

**Community Development Office, 1 Union Square, Milford, NH 03055
Contact: Bill Parker, Community Development Director at bparker@milford.nh.gov**

<http://www.milford.nh.gov/departments/community-development>

**Town of Milford, New Hampshire
Town-Wide Digital Orthoimagery Project
Price Proposal - 100-Scale**

Prices include services as specified in RFP.
Task numbers are coordinated with RFP scope items.

Digital Orthoimagery Price Proposal

5.1 Digital Aerial Imagery Acquisition \$ _____

5.2 Ground Control and FAAT \$ _____

5.3 Digital Orthoimagery \$ _____

Project Total Cost: \$ _____

Comments:

Name of Firm: _____

Authorized Signature: _____

Printed Name: _____

Date: _____

**Town of Milford, New Hampshire
Town-Wide Digital Orthoimagery Project
Price Proposal – 40-Scale Option**

Digital Orthoimagery Price Proposal – 40-Scale Option

5.1 Digital Aerial Imagery Acquisition \$ _____

5.2 Ground Control and FAAT \$ _____

5.3 Digital Orthoimagery \$ _____

Project Total Cost: \$ _____

General Specifications for Each Task (Use 1 Extra Page if Necessary)

Name of Firm: _____

Authorized Signature: _____

Printed Name: _____

Date: _____

END OF SPECIFICATION

