



The State of New Hampshire
Department of Environmental Services



Clark B. Freise, Assistant Commissioner

May 18, 2017

His Excellency, Governor Christopher T. Sununu
and The Honorable Council
State House
Concord, NH 03301

REQUESTED ACTION

Authorize the New Hampshire Department of Environmental Services (NHDES) to enter into a **SOLE SOURCE** Cooperative Project Agreement with University of New Hampshire, Sponsored Programs Administration (VC# 177867-B046), Durham, NH, in the amount of \$100,000, to perform data management activities for the NH statewide LiDAR dataset, effective upon Governor and Council approval through June 30, 2019. Funding is 100% Wetland Funds.

Funding is available in the account as follows:

03-44-44-442010-3855-102-500731	<u>FY 2017</u>
Dept. Environmental Services, Wetlands Fees, Contracts for Program Services	\$100,000

EXPLANATION

The statewide LiDAR dataset of high resolution land surface elevations (topography) represents an investment of more than \$2 million of combined state and federal funds. LiDAR elevation data are far superior to any that have previously existed for New Hampshire. This request is to build capacity to support long-term access to and utilization of this unprecedented statewide data resource through an investment in data storage and archiving, data processing, and data distribution services. This agreement is **SOLE SOURCE** because the NH GRANIT project at the University of New Hampshire Earth Systems Research Center (UNH-ESRC) is recognized as New Hampshire's Statewide Geographic Information System (GIS) Clearinghouse and GRANIT currently hosts and distributes the state's LiDAR elevation dataset.

The purpose of this project is to upgrade the GRANIT LiDAR web-based distribution system by adding functionality and making the interface more intuitive so that the full suite of data products is easier to find, access, and use. Availability of accurate, high-resolution data on land surface elevations and detailed topographic contours facilitate the preparation of wetlands permit applications by landowners and their consultants and the review of proposed projects by staff within the NHDES Wetlands Bureau. Conditions at individual sites and surrounding areas can be readily conveyed by referencing the LiDAR-derived topographic contour data. The full potential of the LiDAR elevations to serve the needs and interests of many different end users is dependent on easy access to the datasets in formats that can be readily interpreted and consumed. Municipalities, engineers and others are becoming increasingly aware

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of the efficiencies that can be realized when LiDAR data are available for project sites. However, the large size (6-7 terabytes) and specific formatting of LiDAR requires an upgrade of existing hardware to both improve public access and create a long-term archive to safeguard the data. In addition to storing and serving the source data, a range of products will be derived from the LiDAR, including 2-foot topographic contours or 10-foot contours in mountainous areas. These data will provide much more detail than the existing US Geological topographic quadrangle maps which have long been the standard source of elevation data, and will significantly benefit projects that impact economic development, land resource management, and public safety. New applications for LiDAR data are continuously being developed as the availability of data increases, but greater ease of data discovery and data access are essential to promote widespread and creative uses that lead to cost savings and enhance public safety.

The agreement has been approved as to form, substance, and execution by the Office of the Attorney General.

We respectfully request your approval.


for Clark B. Freise, Assistant Commissioner

COOPERATIVE PROJECT AGREEMENT

between the

STATE OF NEW HAMPSHIRE, Department of Environmental Services

and the

University of New Hampshire of the UNIVERSITY SYSTEM OF NEW HAMPSHIRE

- A. This Cooperative Project Agreement (hereinafter "Project Agreement") is entered into by the State of New Hampshire, **Department of Environmental Services**, (hereinafter "State"), and the University System of New Hampshire, acting through **University of New Hampshire**, (hereinafter "Campus"), for the purpose of undertaking a project of mutual interest. This Cooperative Project shall be carried out under the terms and conditions of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, except as may be modified herein.
- B. This Project Agreement and all obligations of the parties hereunder shall become effective on the date the Governor and Executive Council of the State of New Hampshire approve this Project Agreement ("Effective date") and shall end on **6/30/19**. If the provision of services by Campus precedes the Effective date, all services performed by Campus shall be performed at the sole risk of Campus and in the event that this Project Agreement does not become effective, State shall be under no obligation to pay Campus for costs incurred or services performed; however, if this Project Agreement becomes effective, all costs incurred prior to the Effective date that would otherwise be allowable shall be paid under the terms of this Project Agreement.
- C. The work to be performed under the terms of this Project Agreement is described in the proposal identified below and attached to this document as Exhibit A, the content of which is incorporated herein as a part of this Project Agreement.

Project Title: **NH GRANIT LIDAR Data Management**

- D. The Following Individuals are designated as Project Administrators. These Project Administrators shall be responsible for the business aspects of this Project Agreement and all invoices, payments, project amendments and related correspondence shall be directed to the individuals so designated.

State Project Administrator

Name: Rene J. Pelletier
 Address: NH Dept. of Environmental Services
29 Hazen Drive
PO Box 95 Concord, NH 03302-0095

Phone: 603-271-2951

Campus Project Administrator

Name: Lisa Scigliano
 Address: University of New Hampshire
Sponsored Programs Administration
51 College Rd., Rm 116
Durham, NH 03824

Phone: 603-862-0529

- E. The Following Individuals are designated as Project Directors. These Project Directors shall be responsible for the technical leadership and conduct of the project. All progress reports, completion reports and related correspondence shall be directed to the individuals so designated.

State Project Director

Name: Frederick Chormann
 Address: NH Dept. of Environmental Services
29 Hazen Drive
PO Box 95
Concord, NH 03302-0095

Phone: 603-271-1975

Campus Project Director

Name: Fay Rubin
 Address: UNH Earth Systems Research Center
Morse Hall
39 College Road
Durham, NH 03824

Phone: 603-862-4240

Campus Authorized Official KJ
Date 5/17/17

F. Total State funds in the amount of \$100,000 have been allotted and are available for payment of allowable costs incurred under this Project Agreement. State will not reimburse Campus for costs exceeding the amount specified in this paragraph.

Check if applicable

Campus will cost-share _____ % of total costs during the term of this Project Agreement.

Federal funds paid to Campus under this Project Agreement are from Grant/Contract/Cooperative Agreement No. _____ from _____ under CFDA# _____. Federal regulations required to be passed through to Campus as part of this Project Agreement, and in accordance with the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, are attached to this document as Exhibit B, the content of which is incorporated herein as a part of this Project Agreement.

G. Check if applicable

Article(s) _____ of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002 is/are hereby amended to read:

H. State has chosen **not to take** possession of equipment purchased under this Project Agreement.
 State has chosen **to take** possession of equipment purchased under this Project Agreement and will issue instructions for the disposition of such equipment within 90 days of the Project Agreement's end-date. Any expenses incurred by Campus in carrying out State's requested disposition will be fully reimbursed by State.

This Project Agreement and the Master Agreement constitute the entire agreement between State and Campus regarding this Cooperative Project, and supersede and replace any previously existing arrangements, oral or written; all changes herein must be made by written amendment and executed for the parties by their authorized officials.

IN WITNESS WHEREOF, the University System of New Hampshire, acting through the **University of New Hampshire** and the State of New Hampshire, **Department of Environmental Services** have executed this Project Agreement.

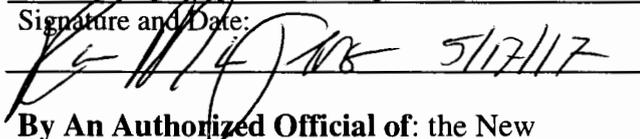
By An Authorized Official of:

University of New Hampshire

Name: Karen M. Jensen

Title: Manager, Sponsored Programs Administration

Signature and Date:

 5/17/17

By An Authorized Official of: the New Hampshire Office of the Attorney General

Name: Christopher G. Aslin

Title: Assistant Attorney General

Signature and Date:

 5/22/17

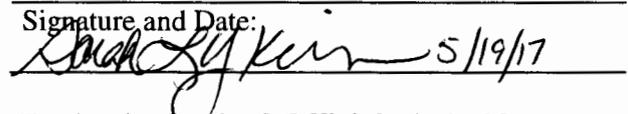
By An Authorized Official of:

NH Department of Environmental Services

Name: Clark Freise

Title: Assistant Commissioner

Signature and Date:

 5/19/17

By An Authorized Official of: the New Hampshire Governor & Executive Council

Name: _____

Title: _____

Signature and Date: _____

EXHIBIT A

A. Project Title: NH GRANIT LIDAR Data Management

B. Project Period: Date of Governor and Executive Council approval - June 30, 2019

C. Objectives: To conduct data management activities for the NH statewide LIDAR dataset that will accomplish three objectives: 1) obtain, archive, and ensure the longterm security of available NH statewide LIDAR datasets; 2) develop derivative products to increase the utility and applicability of the LIDAR datasets; and 3) develop and /or enhance mechanisms to provide broad public access to the LIDAR datasets..

D. Scope of Work:

Scope of Work

I. Hardware Acquisition - acquire, install, and manage a server configured with significant RAM and disk storage capacity to host the statewide LIDAR archive.

II. Data Archiving- obtain available source LIDAR data from federal sources, transfer files to local drives, and create long-term archives of the source data as well as any derivative products generated.

III. Data Processing - generate derivative products to increase the utility of the LIDAR data, including the following:

a) produce geographic footprints to accommodate searching for non-tiled data, e.g. the raw point cloud swath data;

b) generate contours by HUC-8 or by HUC10, whichever is most efficient and can be accommodated by the processing environment. Contours will be 2' in most areas of the state, with 10' or greater contour intervals in the high terrain areas. Index contours will be flagged in the data sets. For each footprint, two versions of the contours will be generated - raw and smoothed. This activity will include performing the required topologic checks to eliminate post-smoothing crossing contours within each footprint, and creating associated metadata suitable for distribution. HUCs will be buffered by an appropriate distance prior to generating contours in order to minimize edgematching issues between footprints, but edgematching issues will likely remain between geographies.

c) generate First Return Digital Elevation Models (DEMs) and Difference DEMs (between First Return and Last Return) based on an appropriate geographic footprint. Also produce accompanying metadata records for distribution.

c) update statewide topographic mosaic to incorporate new LIDAR-based DEMs.

IV. Data Distribution - enhance mechanisms to facilitate data access, including the following:

a) upgrade the GRANIT LIDAR web-based data distribution site (lidar.unh.edu) to add functionality, noting that web-based distribution is feasible only for selected data types, e.g. DEMs, and for limited geographics.

b) develop scripts to accommodate custom data distribution on external drives

c) publish topographic map service(s) based on statewide mosaic

d) incorporate statewide DEM mosaic into existing web-based viewing tools (including GRANITView, NH Coastal Viewer, DES and OneStop)

E. Deliverables Schedule:

Reports: Campus Project Director shall provide three (3) semi-annual progress reports and one (1) final report that summarize the project activities. The semi-annual reports will cover the period of a) project start date through December 31, 2017, b) January 1, 2018 through June 30, 2018, and c) July 1, 2018 through December 31, 2018. The final report will summarize all project activities and will be due on June 30, 2019. All reports will be due 30 days after the period of coverage.

F. Budget and Invoicing Instructions:

Campus will submit invoices to State on regular Campus invoice forms no more frequently than monthly and no less frequently than quarterly. Invoices will be based on actual project expenses incurred during the invoicing period, and shall show current and cumulative expenses by major cost categories as shown below. State will pay Campus within 30 days of receipt of each invoice. Campus will submit its final invoice not later than 60 days after the Project Period end date.

Budget Items	State Funding - Year 1	State Funding - Year 2	Total
1. Salaries & Wages	25,598	21,272	46,870
2. Employee Fringe Benefits	9,306	8,913	18,219
3. Travel	0	0	0
4. Supplies and Services	0	0	0
5. Equipment	12,000	0	12,000
6. Facilities & Admin Costs	12,287	10,625	22,912
Subtotals	59,190	40,810	100,000
Total Project Costs:		100,000	

EXHIBIT B

This Project Agreement is funded under a Grant/Contract/Cooperative Agreement to State from the Federal sponsor specified in Project Agreement article F. All applicable requirements, regulations, provisions, terms and conditions of this Federal Grant/Contract/Cooperative Agreement are hereby adopted in full force and effect to the relationship between State and Campus, except that wherever such requirements, regulations, provisions and terms and conditions differ for INSTITUTIONS OF HIGHER EDUCATION, the appropriate requirements should be substituted (e.g., OMB Circulars A-21 and A-110, rather than OMB Circulars A-87 and A-102). References to Contractor or Recipient in the Federal language will be taken to mean Campus; references to the Government or Federal Awarding Agency will be taken to mean Government/Federal Awarding Agency or State or both, as appropriate.

Special Federal provisions are listed here: None or **Uniform Guidance issued by the Office of Management and Budget (OMB) in lieu of Circulars listed in paragraph above.**