Jeffrey A. Meyers
Commissioner

Lisa Morris
Director

STATE OF NEW HAMPSHIRE

DEPARTMENT OF HEALTH AND HUMAN SERVICES

29 HAZEN DRIVE, CONCORD, NH 03301-6503
603-271-4612   1-800-852-3345 Ext. 4612
Fax: 603-271-4827   TDD Access: 1-800-735-2964

NH DIVISION OF
Public Health Services
Improving health, preventing disease, reducing costs for all

March 22, 2017

His Excellency, Governor Christopher T. Sununu
 and the Honorable Council
State House
Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Health and Human Services to enter into an agreement with the University of New Hampshire (177867 B046), 8 College Road, Morse Hall, Durham, NH 03824, for the provision of a predictive model for Lyme disease and evaluation of environmental risk factors associated with Lyme disease, for an amount not to exceed $62,981, effective upon approval from the Governor & Executive Council through July 31, 2017. 100% Federal and 0% General Funds.

Funds are available in the following account in State Fiscal Year 2017 and anticipated to be available in State Fiscal Year 2018, upon the availability and continued appropriation of funds in the future operating budget with the ability to adjust encumbrances between State Fiscal Years through the Budget Office, if needed and justified.

05-95-90-900510-51730000 HEALTH AND SOCIAL SERVICES, DEPT OF HEALTH AND HUMAN SVS, HHS: DIVISION OF PUBLIC HEALTH, Bureau of Informatics, EPH Tracking

Fiscal Year	Class/Account	Class Title	Activity Code	Total Amount
SFY 2017	102-500731	Contracts for Program Services	90041000	$48,294
SFY 2018	102-500731	Contracts for Program Services	90041000	$14,687
			TOTAL:	$62,981

EXPLANATION

The purpose of this request is for the provision of a predictive model for Lyme disease and evaluation of environmental risk factors associated with Lyme disease. This will be accomplished by gathering, aggregating, analyzing, and displaying relevant data in order to increase understanding of environmental risk factors associated with Lyme disease. Information obtained through the predictive model will be used to support ongoing Department activities related to Lyme disease prevention.

Funds in this agreement will be used by the vendor to obtain data from various publicly available sources and will aggregate, analyze, and display relevant data on the web via the NH Health WISDOM web portal or other sites, in order to develop a statistical model that assesses the risk of Lyme Disease as a function of land cover and meteorology. The vendor will be providing a visualization of the data for the Division of Public Health Services.

Tick-borne diseases, most notably Lyme disease, are a growing public health concern in New Hampshire. Each year there are over one thousand (1,000) reported cases of Lyme Disease in New Hampshire. The statewide incidence is among the highest in the United States and has been steadily growing for the last three (3) decades. This increase could be due to an increase in public awareness, or that the disease is spatially spreading over the landscape.

The benefit of this program is its focus on public health surveillance and understanding disease patterns. The Division is committed to gathering, analyzing, and sharing meaningful information to inform public health action. This program supports Division-level initiatives focused on generating meaningful health statistics, as well as several analytical and data management initiatives. This program plays a significant role in meeting the ten (10) Essential Services of Public Health including: monitoring health, investigating, informing & educating, mobilizing partnerships, developing policies, assuring a competent workforce, and evaluating impact.

This contract was competitively bid. The Department published a Request for Proposals on March 2, 2017. Two applications were received. The applications were evaluated by Division of Public Health Services staff with knowledge of the program requirements. The review included a thorough discussion of the strengths and weaknesses of the proposals/applications. The applicant, University of New Hampshire, was selected. The bid summary score sheet is attached.

The attached agreement is for the provision of these services through July 31, 2017, with no renewal option.

Should the Governor and Executive Council determine not to approve this request then the Department will be unable to meet expectations set forth in the State of NH's cooperative agreement with the Centers for Disease Control and Prevention for the Environmental Public Health Tracking Program. The Cooperative agreement benefits the State of NH by providing resources which create data backed public health action around key environmental public health problems such as Lyme disease, lead paint, exposure to contaminants in water such as arsenic, radon, and PFCs, social vulnerability, extreme heat injury, and more. The deliverables associated with this contract will require the application of significant resources to spatial analysis problems including spatial joining, analysis of satellite imagery, and interpretation of data with respect to user needs. Because the NH EPHT Program does not have the staff time or expertise to complete this work in a timely and efficient manner, the most cost-effective way to complete this work is through this contract. The outcome of this contract will significantly improve our understanding of the risk factors associated with Lyme Disease.
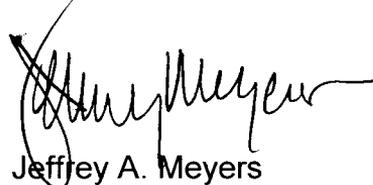
Area served: Statewide

Source of funds: 100% federal and 0% general funds. (CFDA # 93.070; FAIN: U38EH00947-06)

In the event that the federal funds become no longer available, general funds will not be requested.

Respectfully submitted,

Lisa Morris

Director

Approved by: Jeffrey A. Meyers
Commissioner

New Hampshire Department of Health and Human Services
Office of Business Operations
Contracts & Procurement Unit
Summary Scoring Sheet

Lyme Disease Ecology Assessment

RFP Name

RFP_ 2017-DPHS-19-LYMED

RFP Number

Bidder Name	Pass/Fail	Maximum Points	Actual Points
1. Reserve Prism		140	76
2. UNH		140	120
3. 0		140	0

Reviewer Names

1. Katie Bush, Senior Mgt Analyst, Catostrophic Illness DPHS
2. Tom Lambert, Administrator II, Catostrophic Illness DPHS
3. Abby Mathewson, Public Health Prog Mgr, Lab Srvcs DPHS
4. Brook Dupee, Administarotor DPHS
5. Philip Nadeau, Administrator III, Office of Improvement & Integrity

Denis Goulet
Commissioner

April 11, 2017

Jeffrey A. Meyers, Commissioner
Department of Health and Human Services
State of New Hampshire
129 Pleasant Street
Concord, NH 03301

Dear Commissioner Meyers:

This letter represents formal notification that the Department of Information Technology (DoIT) has approved the Department of Health and Human Services' request to enter into a contract with the University System of New Hampshire, Durham, NH as described below and referenced as DoIT No. 2017-055.

> This is a request to enter into a contract for the provision of a predictive model for Lyme disease and evaluation of environmental risk factors associated with Lyme disease. This will be accomplished by gathering, aggregating, analyzing, and displaying relevant data in order to increase understanding of environmental risk factors associated with Lyme disease. Information obtained through the predictive model will be used to support ongoing department activities related to Lyme disease prevention.

> The funding amount is not to exceed $62,981 and the contract shall become effective upon Governor and Council approval through July 31, 2017.

A copy of this letter should accompany the Department of Health and Human Services' submission to the Governor and Executive Council for approval.

Sincerely,

Denis Goulet

DG/kaf
DoIT #2017-055

cc: Bruce Smith, IT Manager, DoIT

COOPERATIVE PROJECT AGREEMENT
between the
STATE OF NEW HAMPSHIRE, **Department of Health and Human 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 Health and Human 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 **7/31/17**. 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: **Lyme Disease Ecology Assessment**

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	**Campus Project Administrator**
Name: Thomas Lambert	Name: Lisa Scigliano
Address: 29 Hazen Drive Concord, NH 03301	Address: 51 College Road Durham, NH 03824
Phone: 603-271-4395	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.
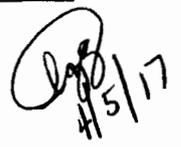
State Project Director	**Campus Project Director**
Name: Kathleen Bush	Name: Michael Palace
Address: 29 Hazen Drive Concord, NH 03301	Address: Earth Systems Research Center 8 College Road Durham, NH 03824
Phone: 603-271-1106	Phone: 603-862-4193

F. Total State funds in the amount of **$62,981** 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. **NU38EH000947** from **Centers for Disease Control and Prevention, Environmental Public Health Tracking Program - Network Implementation** under CFDA**#93.070**. 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 **select USNH campus** and the State of New Hampshire, have executed this Project Agreement.

By An Authorized Official of: **University of New Hampshire**	By An Authorized Official of: **Department of Health and Human Services**
Name: Louise Griffin	Name: Lisa Morris
Title: Director	Title: Director
Signature and Date: _4/5/17_	Signature and Date: _4/7/17_
By An Authorized Official of: the New Hampshire Office of the Attorney General	**By An Authorized Official of:** the New Hampshire Governor & Executive Council
Name:	Name:
Title:	Title:
Signature and Date: _4/14/17_	Signature and Date:

EXHIBIT A

A. Project Title: Lyme Disease Ecology Assessment

B. Project Period: Upon Governor and Executive Council approval through 7/31/17

C. Objectives: The Lyme Disease Ecology Assessment is for the provision of a predictive model for Lyme disease and evaluation of environmental risk factors associated with Lyme disease. This will be accomplished by gathering, aggregating, analyzing, and displaying relevant data in order to increase understanding of environmental risk factors associated with Lyme disease. Information obtained through the predictive model will be used to support ongoing Department activities related to Lyme disease prevention.

D. Scope of Work: See attached Exhibit A, Item D

E. Deliverables Schedule: See attached Exhibit A, Item D

F. Budget and Invoicing Instructions:

1. This contract is funded with funds from the Catalog of Federal Domestic Assistance (CFDA) # 93.070, US Department of Health and Human Services, Centers for Disease Control and Prevention, Environmental Public Health Tracking Program - Network Implementation, Federal Award Identification Number (FAIN) # NU35EH000947.

2. Invoicing Instructions:

Campus will submit invoices to the 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, shall show current and cumulative expenses by major cost categories, shall document cumulative cost sharing through the end of the invoicing period and will certify that the match was not derived from federal funds or used as match against any other state contract or federal program. The State will pay Campus within thirty (30) days of receipt of each approved invoice. Campus will submit its final invoice no later than seventy-five (75) days after the Project end date.

3. Unspent contract funds encumbered before State Fiscal Year End 6/30/17, will be rolled forward into State Fiscal Year 2018 to be available for services rendered prior to the end of the contract 7/31/2017. Any invoices received for those services rendered during the contract period, prior to 7/31/17, can be paid against the encumbrance as soon as possible after the contract end.

4. Budget attached as Exhibit A, Item F

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   .

Scope of Services

1. Provisions Applicable to All Services

1.1. The Contractor agrees that, to the extent future legislative action by the New Hampshire General Court or federal or state court orders may have an impact on the Services described herein, the State Agency has the right to modify Service priorities and expenditure requirements under this Agreement so as to achieve compliance therewith.

1.2. Notwithstanding any other provision of the Contract to the contrary, no services shall continue after June 30, 2017, and the Department shall not be liable for any payments for services provided after June 30,2017, unless and until an appropriation for these services has been received from the state legislature and funds encumbered for the SFY 2018-2019 biennia.

2. Scope of Services

2.1. The Contractor shall attend three (3) project planning meetings, which shall be held at the start, middle, and end of the project.

2.2. The Contractor shall develop an analysis plan that outlines the statistical analysis and documents protocols so that the analysis is reproducible for the following tasks:

2.2.1. Compiling existing tick locations into geospatial database into three seasons, May-June, July-August, and September-October.

2.2.2. Generating environmental and geospatial layers, including meteorological data, sum or average all data into the same three time periods for each year.

2.2.3. Modeling tick presence and absence for each year and each season, for a total of 9 maps.

2.2.4. Modeling Lyme presence for a total of 9 maps (including aggregation, analysis, and display).

2.2.5. Preparing data for use on a web-hosted application or site, such as ArcGIS Online.

2.3. The Contractor shall obtain data from various sources, including but not limited to:

2.3.1. Land cover data (e.g., NLDC Land Cover Database) – Land cover data is publicly available.

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University of New Hampshire

Exhibit A, Item D

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Contractor Initials _____

Date _____

2.3.2. Meteorological data (e.g., NCEI or PRISM) - Meteorological data is publicly available.

2.3.3. Lyme Disease Data (e.g., NH DPHS) - Lyme Disease Data will be shared as an Excel or CSV file via the State FTP site, or will be transferred using approved devices and methods.

2.3.4. Three (3) years of tick population sampling and Lyme disease incidence data provided by the Contractor.

2.4. The Contractor shall access, aggregate, analyze, model, and display relevant data using geographic information system (GIS) software, that is compatible with ArcGIS, or open source statistical software and tools including, but not limited to:

2.4.1. R and open source R packages/libraries.

2.4.2. Python and open source Python packages/libraries.

2.4.3. GDAL.

2.4.4. Google Earth Engine (satellite image analysis tool).

2.4.5. MaxEnt (a spatial modeling tool that is open source).

2.4.6. FRAGSTATS.

2.4.7. MaxEnt.

2.5. The Contractor shall provide a self-contained package of data and code which can reproduce all work performed throughout the Analysis Plan.

2.6. The Contractor shall develop a statistical model that assesses the risk of Lyme Disease as a function of land cover, habitat, and meteorology. The model shall include, but not be limited to:

2.6.1. Maximum Entropy Modeling methods.

2.6.2. A three (3) year data set of tick locations collected at thirty-six (36) sites chosen for reducing spatial autocorrelation.

2.6.3. Land cover.

2.6.4. Habitats of species relevant to Lyme Disease exposure.

2.6.5. Human dimension attributes.

2.6.6. Meteorological parameters.

2.7. The Contractor shall provide a package of data and documentation for all model outputs including, but not limited to:

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Contractor Initials _____

Date __4 5 17__

2.7.1.   Basic model outputs, equations, parameters, factors.

2.7.2.   Tuning parameters.

2.7.3.   Model performance statistics.

2.7.4.   Resultant map layers.

2.8.   The Contractor shall provide visualizations of the data that integrate the raw data layers that are collected, intermediate data layers that are created, and composite data layers that are generated from the statistical analysis and model. The visualization will be spatial maps that visualize data from multiple sources including, but not limited to:

2.8.1.   Lyme disease incidence and risk.

2.8.2.   Land cover.

2.8.3.   Habitat data.

2.8.4.   Climate data on meteorological conditions.

2.8.5.   Vector data on tick abundance.

2.8.6.   Model statistics (e.g., spatial uncertainty).

2.9.   The Contractor shall provide data and documentation for original data layers and any intermediate or derived products to the State in formats which may include, but are not limited to:

2.9.1.   GeoTIFF.

2.9.2.   Shapefiles.

2.9.3.   KMLs.

2.9.4.   CSVs.

2.9.5.   PNG.

2.9.6.   SVG.

2.10.   The Contractor shall make data accessible via the web by download from a secure University-hosted FTP server in a compressed ZIP format or, where applicable, by a University-hosted web interface such as the EOS Earth System Science data archive system.

2.11.   The Contractor shall share raw and intermediate data files, as well as code, with the Department in order for the Department to reproduce the results.

2.12.   The Contractor shall ensure that file and data formats will be open and accessible in accordance with State of New Hampshire RSA 21-R:13.

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Exhibit A, Item D

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Contractor Initials _____

Date _____

2.13. The Contractor shall use either ArcGIS Desktop V. 10.2.2, ArcGIS Online V. 10.2.2, or an open source GIS software, and transfer the data and files from their own system to the Department's system by the final date of the project.

3. Additional Security and Privacy Requirements

3.1. The Contractor shall not collect, retain, or exchange confidential, protected health information (PHI), or personal information (PI).

3.2. The Contractor shall comply with appropriate security standards to include procedures defined in HIPAA and the Health Information Technology for Economic and Clinical Health Act, and any other applicable federal or state regulations, in the event the Contractor is exposed to, either intended or unintended, confidential, protected health information (PHI), or personal information (PI).

3.3. Any change in scope that conflicts with requirements in Paragraphs 3.1 and 3.2 that is either intended or unintended, will be assumed to change the security and privacy footprint and will require an additional security and privacy review, which may result in additional protective requirements, measures, controls, and subsequent actions by the Contractor.

3.4. The Contractor shall preserve the confidentiality, integrity, and accessibility of State of NH data, intellectual property, and deliverables of this scope of work with administrative, technical, and physical information security controls and measures that conform to all applicable federal, state, industry standards and best practices.

3.5. The Contractor shall maintain a Breach Notification process for the purpose of notifying the Department immediately upon discovery or knowledge of a potential breach to State owned confidential, protected, sensitive, personal data, and or intellectual property included in and as a result of this scope work.

3.6. The Contractor shall provide a documented process for securely disposing of data, data storage hardware, and media, or intellectual property created for the Department; and will obtain and provide written certification for any State data or intellectual property destroyed by the vendor or any subcontractors as a part of ongoing, emergency, and or disaster recovery operations.

4. Definitions

4.1. ArcGIS – A geographic information system (GIS) software that can be used to manage, analyze, and display geographic information in both desktop and online services.

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Exhibit A, Item D

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Contractor Initials _____

Date _____

4.2. FTP Site – File transfer protocol website. This operates as a file storage/transfer website, but meets State requirements for security.

4.3. NLDC Land Cover Database – The National Land Cover Database (NLCD) provides spatial reference and descriptive data at thirty (30)-meter resolution nationally. Data are categorized in specific thematic classes such as: urban, agriculture, and forest.

4.4. R (Open source software) – R is an open-source software (OSS), which is computer software with its source code made available by the copyright holder who provides the rights to study, change, and distribute the software to anyone and for any purpose. It is used for statistical computing and graphics.

4.5. Risk Factor Data Set – Datasets that represent different environmental risk factors that can be classified as environmental exposures that may increase or decrease the risk of disease.

4.6. Vector Data – A type of spatial data that uses a coordinate system to represent a point, line or polygon (area).

5. Deliverables

5.1. The Contractor shall attend three (3) project planning meetings, which shall be held at the start, middle, and end of the project.

5.2. The Contractor shall provide a project schedule, including the Analysis Plan, within ten (10) days of the start of this contract.

5.3. The Contractor shall compile tick and Lyme disease incidence data within thirty (30) days from the start of the project.

5.4. The Contractor shall provide visualizations of the data to the Department within forty-five (45) days from the start of the project.

5.5. The Contractor shall provide new risk factor data sets built on land cover and meteorological data within sixty (60) days from the start of the project.

5.6. The Contractor shall generate and compile geospatial data within sixty (60) days from the start of the project.

5.7. The Contractor shall model disease incidence risk factors within ninety (90) days from the start of the project.

5.8. The Contractor shall prepare data for use with the web application within ninety (90) days from the start of the project.

5.9. The Contractor shall transfer the data and files from their own system to the Department's system by the final day of the project.

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University of New Hampshire

Exhibit A, Item D

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Contractor Initials _____

Date __4/5/17__

University of New Hampshire
Lyme Disease Ecology Assessment
Exhibit A, Item F

Budget Items	SFY 2017 Budget		SFY 2018 Budget		Total	
1. Salaries & Wages	$	22,019	$	7,900	$	29,919
2. Employee Fringe Benefits	$	6,788	$	1,820	$	8,608
3. Travel	$	247	$	71	$	318
4. Supplies and Services	$	3,250	$	-	$	3,250
5. Equipment					$	-
6. Facilities & Admin Costs	$	15,990	$	4,896	$	20,886
Totals	$	48,294	$	14,687	$	62,981

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Exhibit A, Item F
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Campus Authorized Official
Date 4/5/17