



The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

FEB23'22 AM 10:04 RCUR



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February 15, 2022

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 the University of New Hampshire (UNH), Office of Sponsored Research (VC #315187-B083) Durham, New Hampshire, in an amount not to exceed \$68,083 to support efforts to improve wetland connectivity for wildlife vulnerable to wetland loss, effective upon Governor and Council approval through September 30, 2023. 100% Federal Funds.

03-44-44-442010-1882-072-500573
Dept. Environmental Services, Wetland Protection/ Development, Grants - Federal

FY'22
\$68,083

EXPLANATION

A **sole source** contract is necessary because UNH is a recognized contractor that has provided this type of service for NHDES and other state agencies and has extensive experience in developing methods to assess road crossings, develop conceptual engineering designs, and restoration plans. The attached Cooperative Project Agreement outlines the scope of work for UNH to utilize the portion of grant funds identified above.

New Hampshire's wetlands and stream systems provide important functions; including flood control, fish and wildlife habitat, water purification, water storage and recharge for both ground and surface waters. The information that is collected on the wetlands, and spatial analysis performed will be used to develop a data-driven prioritization scheme to identify key road crossing projects to improve aquatic connectivity for aquatic and semi-aquatic wildlife, with a focus on state-endangered turtles (i.e. Blanding's turtle, *Emydoidea blandingii*). Because Blanding's turtles require large mosaics of connected wetland habitats, they are an ideal umbrella species for wetland condition, and restoration plans developed for this species will directly benefit other semi-aquatic wildlife conservation efforts in the Northeast.

The UNH expertise will assist in the assessment of road crossings that disrupt wetland connectivity for aquatic and semi-aquatic wildlife and deliver outcomes as outlined in the attached Table 1. The work includes assisting in the development of the framework for

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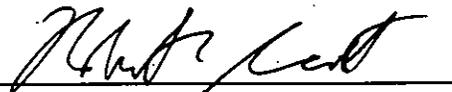
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prioritizing road crossings for restoration efforts, develop conceptual engineering designs and restoration plans, and assist in development of outreach materials and design guidance to educate regulatory and restoration practitioners to support future projects that will enhance wetland connectivity.

Total project costs are budgeted at \$106,979. NHDES will provide \$68,083 (64%) of project costs through a Federal grant. UNH will provide \$38,896 (36%) in matching funds. In the event Federal funds become unavailable, General funds will not be requested to support the project.

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

We respectfully request your approval.



Robert R. Scott, Commissioner

COOPERATIVE PROJECT AGREEMENT

between the

STATE OF NEW HAMPSHIRE, NH Department of Environmental Services (NHDES)

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, **NH Department of Environmental Services (NHDES)**, (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 **9/30/23**. 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: Assessments and Prioritization of Road Crossings in Critical Wildlife Corridors to Advance Restoration for Wetland Connectivity in New Hampshire

- 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: Mary Ann Tilton

Address: 29 Hazen Drive
PO Box 95
Concord, NH 03302-0095

Phone: (603) 271-2929

Campus Project Administrator

Name: Kimberly Becker

Address: University of New Hampshire
Sponsored Programs Administration
51 College Road
Durham, NH 03824-2620

Phone: (603) 358-2443

- 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: Lori Sommer

Address: 29 Hazen Drive
PO Box 95
Concord, NH 03302-0095

Phone: (603) 271-4059

Campus Project Director

Name: Thomas Ballestero

Address: University of New Hampshire
Civil and Environmental Engineering
Gregg Hall Rm 238
Durham, NH 03824

Phone: (603) 862-1405

F. Total State funds in the amount of \$68,083 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 36 % 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. 00A01007 from US EPA Regional Wetland Program Development Grant under CFDA# 66.461. 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, _____ have executed this Project Agreement.

By An Authorized Official of:
University of New Hampshire
Name: Karen M. Jensen
Title: Director, Pre-Award Compliance
Signature and Date:
Karen Jensen Digitally signed by Karen Jensen
Date: 2021.12.08 14:45:02 -05'00'

By An Authorized Official of:
Name: Robert R. Scott
Title: Commissioner, NHDES
Signature and Date:
[Signature] 2/17/22

By An Authorized Official of: the New Hampshire Office of the Attorney General
Name: Joshua Harrison
Title: Assistant Attorney General
Signature and Date:
[Signature] 2/24/2022

By An Authorized Official of: the New Hampshire Governor & Executive Council
Name: _____
Title: _____
Signature and Date: _____

EXHIBIT A

- A. Project Title:** Assessments and Prioritization of Road Crossings in Critical Wildlife Corridors to Advance Restoration for Wetland Connectivity in New Hampshire
- B. Project Period:** 10/1/21 - 09/30/23
- C. Objectives:** The NHDES, working with partners, will develop methods to evaluate and prioritize key road crossings to focus restoration activities to improve wetland connectivity and migration corridors for semi-aquatic wildlife, such as turtles, vulnerable to wetland loss. The information that is collected on the road crossings from field surveys and spatial analyses will be used to develop a data-driven prioritization scheme to identify key restoration projects to improve aquatic connectivity for aquatic and semi-aquatic wildlife, with a focus on state-endangered turtles (i.e. Blanding's turtle, *Emydoidea blandingii*). Because Blanding's turtles require large mosaics of connected wetland habitats, they are an ideal umbrella species for wetland condition, and restoration plans developed for this species will directly benefit other semi-aquatic wildlife conservation efforts in the Northeast. A Technical Advisory Committee (TAC) consisting of experts, will develop a model based on the field-collected parameters to classify road crossings on their passability for turtles and wetland connectedness (i.e. fully passable, moderately passable, not passable). The passability scores will be used in combination with, turtle population distributions and movement data, wildlife corridors and roadkill hotspots, a barrier analysis, and wetland functions (NWI+ GIS layers) to create a priority list. The TAC will select 3-5 road crossings that rank in the top 10% of the prioritization to develop conceptual designs plans. The final outcome of this project will be the tools organizations can use to implement strategic wetland/stream crossing replacements, apply for funding, and improve aquatic habitat connectivity and support a more resilient landscape.

D. Scope of Work:

(1) Develop methods to assess road crossings that disrupt wetland connectivity within focal areas and key movement corridors for a state-endangered turtle.

A Technical Advisory Committee will be formed to include the key staff listed under the tasks in Table 1, and additional members including wildlife biologists, hydraulic engineers, wetland scientists, and landscape ecologists to ensure the full breadth of expertise needed to complete this project is captured. The TAC will review the current literature on turtle passage and wetland connectivity issues at road crossings. A Geographic Information Systems (GIS) intersection analysis will be performed to identify the potential road crossings that lie within Blanding's turtle focal areas. An overlay analysis of these potential road crossing will be done using additional spatial data such as: 1) modeled wildlife corridors, 2) roadkill data, 3) NHFG telemetry data on turtle movements, 4) wetland functions (NWI +), 5) unfragmented blocks of land, and 6) locations of conservation and mitigation sites to identify 200-250 road crossings to focus survey efforts. The TAC will identify parameters needed to assess a road crossing for turtle passage and wetland connectivity to develop the field methods and an associated protocol for data collection. The TAC will develop a Quality Assurance Project Plan (QAPP) to establish the standard operating procedures by which data will be stored, managed, and reviewed for consistency and accuracy.

(2) Assess road crossings that lie within Blanding's turtle focal areas and identified as critical wildlife corridors.

In the summer of 2022, the NHDES Wetlands Bureau will hire two interns to conduct field surveys at the 200-250 high-priority crossings identified in Task 1. Data will be collected using the protocol and methods established in Task 1. An online geodatabase using Arc GIS Online (ESRI, Redlands, CA)

will be created to store and display survey data in real-time and facilitate Quality Control and Quality Assurance (QA/QC) of the survey data. Based on the current science and knowledge base on the effects of road crossings on wetland ecology, the TAC will develop a scoring model using the field-collected parameters to classify road crossings on their passability for semi-aquatic turtles and wetland connectedness. The NHDES Wetlands Mitigation Program Specialist and UNH will perform QA/QC of collected data, rank the crossings on their passability, and conduct statistical analyses.

(3) Develop the framework for prioritizing road crossings for restoration efforts to improve wetland connectivity for critical turtle habitats.

The TAC will develop a model based on the field-collected parameters to classify road crossings on their passability for turtles and wetland connectedness (i.e. fully passable, moderately passable, not passable). The TAC will review the data and passability scores for the 200-250 road crossings and develop a prioritization method to identify potential projects for restoration. The prioritization scheme will incorporate the passability scores, as well as metrics on wetland connectivity, habitat gain, flood mitigation, wetland function, and conservation/mitigation lands. The NHFG GIS analyst from NHDOiT will perform a spatial analysis on the surveyed road crossings and run the data through the new prioritization scheme.

(4) Select the highest-priority road crossing locations to develop conceptual engineering designs and restoration plans.

From the list of prioritization scores developed in Task 3, the TAC will review and select 3-5 high-priority sites to develop engineering designs and restoration plans. Engineers from the UNH Center Coastal Habitat Research Team (CHaRT) will develop conceptual designs that address the structural and site requirements to facilitate semi-aquatic turtle passage and wetland connectivity. The designs will incorporate the geomorphic and hydraulic processes of the site and include features to sustain aquatic connectivity, riparian wildlife corridors, and wetland functions. The UNH engineering team will consult with the TAC on-site to collaboratively develop design solutions and a holistic restoration plan to improve wetland connectivity and wildlife passage.

(5) Develop outreach materials and design guidance to educate regulatory and restoration practitioners to support future projects that will enhance wetland connectivity.

Based upon the design solutions developed on the 3-5 road crossings in Task 4, the UNH CHaRT will develop educational materials for restoration practitioners. The TAC will organize and host a webinar at the end of Year 2 that will be open to engineers, wetland consultants, conservation groups, and municipalities. The webinar will introduce the assessments and prioritization methods, and provide training on how to develop restoration plans to address wetland connectivity and wildlife passage issues at road crossings. The new information will be shared with conservation groups that provide funding for aquatic restoration projects, such as the NHDES ARM Fund, conservation commissions, and local watershed groups. In addition, the TAC and the UNH CHaRT engineers will hold a one-day field training session for the regulatory community and practitioners (NHDES, Army Corps of Engineers, US Environmental Protection Agency, Natural Heritage Bureau, and NHFG) and NHDOT to educate environmental permit reviewers on the restoration approaches.

E. Deliverables Schedule: Please see Scope of Work

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	Cost Sharing (if required)	Total
1. Salaries & Wages	39,962	20,920	60,882
2. Employee Fringe Benefits	3,158	4,830	7,988
3. Travel	600	0	600
4. Supplies and Services	1,000	0	1,000
5. Equipment	0	0	0
6. Facilities & Admin Costs	23,363	13,454	36,817
Total	68,083	39,204	107,287

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.**

Table 1: Task Description, Outputs, Outcomes and Schedule.

Task Description	Outputs & Outcomes and Schedule
<p>(1) Develop methods to assess road crossings that disrupt wetland connectivity within focal areas and key movement corridors for a state-endangered turtle.</p> <ul style="list-style-type: none"> • Review methods from the primary literature. • Develop survey methods and spatial analyses needed to evaluate road crossings for wetland connectivity with guidance from the TAC. • Participate in the development of a field manual for data collection. • Participate in TAC meetings. 	<p>Outputs: Methods to identify road crossing that are critical for wetland connectivity and turtle passage and how to assess them.</p> <p>Outcome: Increased understanding of turtle passage issues and fragmentation of wetlands from roads and development.</p> <p>Schedule: <i>March 2022- April 2022</i></p>
<p>(2) Assess road crossings that lie within turtle focal areas and identified as critical wildlife corridors.</p> <ul style="list-style-type: none"> • Develop a new model to classify road crossings on their passability for semi-aquatic turtles and wetland connectedness based upon data collected on 200-250 crossings. 	<p>Outputs: Analyze data and assist in model development.</p> <p>Outcome: Improved inventory of wetland condition and wildlife condition assessments to inform aquatic habitat restoration</p> <p>Schedule: <i>April 2022- October 2022</i></p>
<p>(3) Develop the framework for prioritizing road crossings for restoration efforts to improve wetland connectivity for critical turtle habitats</p> <ul style="list-style-type: none"> • Work with the TAC to determine criteria for prioritizing road crossing projects for restoration based on literature review and data analyses. • Prioritize the road crossings assessed in Task 2. 	<p>Outputs: A list of high priority restoration opportunities to support wildlife and wetland connectivity.</p> <p>Outcome: Support technical, data driven wetland-crossing prioritization criteria for the DES Mitigation Program in support of aquatic ecosystem restoration.</p> <p>Schedule: <i>November 2022- March 2023</i></p>
<p>(4) Select the highest-priority road crossing locations and develop conceptual engineer and restoration plans.</p> <ul style="list-style-type: none"> • The TAC will review prioritization list produced in Task 3 and select 3-5 road crossings for restoration design. • Develop conceptual engineering designs for 3-5 road crossings. 	<p>Outputs: Design plans for the highest priority road crossings to restore wetland connectivity for Blanding's turtle.</p> <p>Outcome: Improved understanding of restoration approaches to restore wetland connectivity.</p> <p>Schedule: <i>March 2023- September 2023</i></p>
<p>5: Develop outreach materials and design guidance to educate regulatory and restoration practitioners to support future projects to enhance wetland connectivity.</p> <ul style="list-style-type: none"> • Develop a design guidance manual and fact sheets with review/input from the TAC. • Hold one webinar on findings and design guidance. • Organize and host one field training for regulatory community and NHDOT. 	<p>Outputs: Educational materials for practitioners & engineers to implement design features in road crossing projects.</p> <p>Outcome: Increase in knowledge of the regulatory community, designers, and conservation practitioners to support future wetland restoration.</p> <p>Schedule: <i>March 2023- September 2023</i></p>