

Release Date: March 29th, 2012

Lake Champlain Basin Program Announcement

Request for Proposals

Impervious Area Mapping for the Lake Champlain Basin – New York and Québec Sectors

The Lake Champlain Basin Program (LCBP) is pleased to announce a Request for Proposals (RFP) for technical services to map impervious surfaces within the New York and Québec sectors of the Lake Champlain Basin. Up to \$70,000 is available for this study. This project will support the management of phosphorus loadings and contaminants generated from developed lands by aiding planning and prioritization efforts as outlined in the LCBP's long-term management plan: *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*. This RFP is supported by US EPA funds provided to the Lake Champlain Basin Program.

This project seeks to develop and execute a repeatable methodology for identifying and mapping all impervious surfaces with the New York and Québec portions of the Lake Champlain Basin using recently developed high-resolution orthophotography in concert with other available datasets.

This Request for Proposals is available from the Lake Champlain Basin Program website. Look for the link on our homepage at www.lcbp.org. To receive a copy of the RFP via US Postal Service, contact the Lake Champlain Basin Program office at (802) 372-3213 or toll free at (800) 468-LCBP in New York and Vermont.

To facilitate the review process, applicants must submit proposals in both paper and electronic format. Please see the RFP and the attached proposal format information for complete details.

DEADLINE NOTICE:

Hardcopy (10 copies) and electronic versions (no facsimiles) of proposals must be RECEIVED by the Lake Champlain Basin Program office by 4:30pm on:

May 16th, 2012

LATE OR INCOMPLETE PROPOSALS WILL NOT BE CONSIDERED.

The successful applicant will be notified by late June 2012.

Lake Champlain Basin Program Announcement

Request for Proposals

Impervious Area Mapping for the New York and Québec Portions of the Lake Champlain Basin

I. Background

Basin-wide, phosphorus runoff from developed lands contributes a significant proportion of non-point source phosphorus pollution to Lake Champlain, often exceeding contributions from agricultural land use. In addition to gathering phosphorus-rich sediments and organic matter from paved surfaces and rooftops, stormwater runoff from impervious surfaces also speeds the delivery of dissolved and sediment-bound phosphorus already within streams to the Lake, and slows the rate at which stream ecosystems can absorb and process phosphorus.

As the impacts of stormwater runoff have become more widely understood, federal and state governments have developed permitting programs that mandate the use of Best Management Practices (BMPs) to control runoff. Despite understanding the relative effectiveness of urban BMPs, there is currently no easy way to tabulate the total impervious area in the Basin to better inform resource managers concerning the magnitude of the problem that must be addressed. Spatially-explicit total impervious area maps will be useful in informing future stormwater policy decisions.

This Request for Proposals calls for the development and execution of a repeatable methodology for mapping and measuring impervious area in a geographic information system (GIS) environment. This project will utilize current and the highest quality aerial orthophotography available for the New York and Québec portions of the Lake Champlain Basin, as well as satellite imagery, land-use maps and other data that aid in the correct identification of impervious areas. A similar project was recently completed for the State of Vermont, with other funding independent of the LCBP.

In addition to aiding in the development of planning and prioritization tools for managers, maps and calculations of the current impervious area also will help the development of an adaptive phosphorus management framework for the LCBP, as specified in the LCBP's long-term management plan: *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*. Total impervious area within each HUC 12 watershed is one of several large data gaps for the Basin, and the initial development of the adaptive management framework is working to fill those gaps through a variety of means.

II. Project Tasks and Deliverables

The Lake Champlain Basin Program (LCBP) seeks proposals for technical services to map all (paved and unpaved) impervious area within New York and Québec portions of the Lake Champlain Basin. The applicant should provide a clear justification for their proposed methodology to interpret available imagery to achieve the project goals. Anticipated tasks include the following or equivalent workplan components:

1. Obtain the most recently available USDA-NAIP imagery for the New York portion of the Lake Champlain basin.
2. Obtain imagery of comparable or suitable quality for the Québec portion of the Missisquoi Basin (i.e. close to 1-meter resolution, preferably 4-band or more). The LCBP project officer will help to coordinate this task.

3. Develop and apply a method for determining the extent of impervious area using the imagery obtained, including a suitable ground truth and error assessment methodology, to achieve a classification accuracy of at least 90%. The justification for the selected methods should be explicitly described, including the benefits and drawbacks in the application of the method, the approach to ground truth, and an analysis of classification errors. Approaches to mitigation of error resulting from the selected method should also be described, particularly for tilled land areas that can be misclassified as impervious surfaces.
4. Where possible, use a combination of the best available imagery and LiDAR or other suitable data to separate ground impervious area from rooftops.
5. Deliver the resulting spatial datasets to the LCBP at the end of the project, for distribution and public use. Requirements for the final datasets include the following:
 - the final impervious layer will have a resolution of no greater than 4m,
 - the final datasets must be in the coordinate system NAD83 UTM 18N,
 - the final impervious maps must be delivered in raster (either GeoTIFF or IMAGINE) file formats.
 - All datasets submitted must include FGDC-compliant metadata files anticipated in the Quality Assurance Project Plan described below.
6. Produce a final report that:
 - clearly details the methods used, including justification for those methods, auxiliary datasets used, processing steps, a model of the workflow, QA/QC sampling procedures, estimates of classification error, and FGDC-compliant metadata,
 - provides estimates of impervious area within each HUC12 tributary watershed, separated and tabulated by surface type where possible (paved roads, unpaved roads, building roofs, parking lots, etc.).

III. Summary of Other Requirements for the Selected Proposal

The selected proposal will be required to complete the following additional tasks:

1. Following initial notification of the award, a workplan must be approved by the LCBP before a grant agreement can be executed and the work begun. The workplan will detail the logistical elements of the project, including deliverables, project timeline, and budget. Information about the LCBP grant process, workplan development guidelines, and reporting requirements can be found on the LCBP website at: www.lcbp.org/granttool.html.
2. Once the grant agreement has been executed, the contractor must develop a data Quality Assurance Project Plan (QAPP) to be approved by the LCBP, New York DEC, US EPA, and Québec MDDEP before the beginning of any data collection. More information about LCBP Quality Assurance Plans can be found at: <http://www.lcbp.org/qapp.htm>.
3. The successful applicant will be required to pilot their methods and provide the output to the LCBP Project Officer for review and approval prior to completing the project. Any changes to the methodology required at that time will be coordinated between the contractor and the LCBP Project Officer.
4. The successful applicant will prepare brief quarterly reports documenting progress on each objective and task in the project (see attached Proposal Format Requirements). A final report fully documenting the project's results will be required at project completion, no later than January 4th, 2013.

5. When approved, the final report will be edited for content and style in consultation with the successful applicant and may be published as part of the Lake Champlain Basin Program's Technical Report Series, located here: http://www.lcbp.org/publication_search.aspx.

IV. Eligibility

Eligible organizations include colleges, universities, nonprofit organizations, for-profit companies, and government agencies. The selected contractor will be responsible for the completion of all project tasks, though subcontracted work may be permitted by the LCBP Project Officer upon request. Individuals and representatives from organizations that participated in the development or review of this RFP and its contents are ineligible to apply.

V. Proposal Evaluation and Selection Criteria

Proposals will be judged according to the following criteria:

1. Demonstrated knowledge of remote sensing and geospatial analysis methodologies
2. Technical merit and feasibility of the proposed methods for identifying impervious area
3. Potential for the project to enhance the technical capabilities and infrastructure within the Lake Champlain Basin. Proprietary products are not acceptable as deliverables. All products developed as part of this project should be made available to LCBP upon completion of the project.
4. Demonstrated ability to create documents and products that are accessible to and can be used by local partners working to decrease nutrient pollution in the Lake Champlain Basin.

VI. Available Funds and Match Requirements

A total of \$70,000 is available for this project. No match is required.

VII. Period of Performance

Work is to be completed no later than February 15th, 2013.

VIII. Schedule and Requirements for Proposal Submission

1. Please follow the format outlined in the attached Technical Proposal Format Requirements.
2. Ten (10) paper copies of each proposal must be RECEIVED by the LCBP office by 4:30pm on **May 16th, 2012**. Please submit paper copies bound only with a single staple or binder clip.
3. *In addition*, an ELECTRONIC VERSION of the proposal, either on disk or via e-mail must be submitted. Electronic versions also must be RECEIVED by 4:30pm on **May 16th, 2012**.

IX. Contact Information

Direct all proposals and other inquiries to:

Eric Howe

Technical Coordinator

Lake Champlain Basin Program

54 West Shore Road

Grand Isle, VT 05458

(802) 372-3213

ehowe@lcbp.org

Technical Proposal Format Requirements

Proposals should adhere to the following format and should not exceed a 10 page maximum length (font size 12), NOT including budget information, references cited and investigator resumes.

TITLE: - Concise and descriptive.

POINT OF CONTACT: Name, position, organization, address, telephone, fax and email of the person who will be the point of contact.

AUTHORIZED REPRESENTATIVE: Name, position, organization address, telephone, fax and email of the person who is authorized to sign the contract.

ABSTRACT: Brief description of proposed work.

INTRODUCTION: Overview of what the project is and what it will accomplish in relation to the RFP.

OBJECTIVES AND TASKS: List the project's objectives and describe in detail the tasks that will be performed relative to each objective, including methods and approaches.

DELIVERABLES: Detailed description of the planned products from each task of the project. Quarterly progress reports and a final report are required deliverables.

SCHEDULE: Timeline showing anticipated dates for completion of the major tasks and deliverables. Quarterly progress reports are due on the last day of December, March, June, and September. Work is to be completed within fifteen (15) months after the execution of a contract or grant.

DETAILED BUDGET JUSTIFICATION: Cost breakdown by major budget categories (i.e. personnel, equipment), linking costs to specific tasks/deliverables wherever possible. Breakdown should show costs to be covered by the LCBP award and other sources (if applicable), as well as any match amounts and totals. (1 page, not included in the 10 page maximum total for the proposal).

TECHNICAL REFERENCES CITED: List all references used for the proposal (not included in the 10 page maximum total for the proposal).

CURRICULUM VITAE/RESUME OF PRINCIPAL INVESTIGATORS: Include up to 3-5 references for prior work pertinent to the proposed project. Please limit to one page per investigator; not included in the 10 page maximum total for the proposal.