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To the Lintilhac Foundation,

Please find attached our proposal for on-going support of the Vermont *Landscape Change Program*. The *Landscape Change Program* archive now contains over 10,000 images of Vermont representing almost 95% of Vermont's towns and gores. Together, the images provide a visually compelling means by which to both look back into the past and to consider how Vermont should move into the future. Of particular interest to the Foundation should be the two modules funded by previous Lintilhac support, those for Oakledge and Shelburne (uvm.edu/oakledge and uvm.edu/shelburnelandscape). The external review done of the program last spring cited these modules as wonderful examples of what could be done with images in the archive.

The attached proposal requests funding to support the acquisition of images that can be used to inform environmental and land management decisions in Vermont, decisions that will fundamentally change the face of Vermont as we know it. We seek primarily student summer support to scan, interpret, and upload images. These summer stipends will ensure the *Landscape Change Program* will continue to be an ever-growing community resource while at the same time training graduate and undergraduate students to acquire images of particular environmental relevance. We plan to use the acquired images to document landscape change occasioned by sprawl, the impact on the landscape of building highways, the loss of urban forests and greenspace, and the changes that ski areas have brought to Vermont slopes and villages. All are major, timely environmental issues.

We hope that you will look favorably upon this proposal. Funds committed by the Lintilhac Foundation will be used as matching funds for several large federal grants we are applying for, thus magnifying their impact many times over. Please feel free to contact either of us if there are questions related to this proposal.

Sincerely,

Paul Bierman
Professor, Geology Department

Christine Massey
Adjunct Prof., Education Department

Proposal to the Lintilhac Foundation

Bringing Environmentally Relevant Images into the Public Eye

Photographic images are a window into the past through which people love to peek. The informal snapshot, the studied portrait, and the formal landscape view all record a vanished time. For nearly 200 years, photographers have been recording views of life, both the exceptional event and the day-to-day activities of people. The images these photographers left behind can include human constructs, natural phenomena, or most commonly they can depict human/landscape interaction. Images, and the depth of information they convey, are an innately appealing way to study the human condition and a past that continues to leave its mark indelibly on today's society. Most importantly, images are a way to inform environmental decisions that will leave their mark on our landscape for centuries. Those who forget the past are of course doomed to repeat it. Perhaps, those who can see the past will make better decisions the next time around!

The *Landscape Change Program* is a virtual community archive containing more than 10,000 images of Vermont landscapes from 1850 to the present day; the archive contains images from private collections, from University repositories, and from government depositories. Unlike most other on-line image collections, which are stored in restricted archives or in people's attics or scrapbooks, this collection is freely available to the public at uvm.edu/perkins/landscape. The *Landscape Change* collection is particularly rich in images of rural areas, typically underrepresented in many historical archives. Furthermore, because of its strong, town-centered governmental system, Vermont has exceptional documentation of major cultural transitions (forest clearance, industrialization, suburbanization, and road building) stretching back two centuries. It is these changes that have shaped today's society and the landscape as we know it. In many ways, Vermont is a microcosm, a representative sample of America as a whole.

Initially, the *Landscape Change Program* was supported by the National Science Foundation as an informal science education tool to demonstrate the impact and evolution of human/landscape interactions over time. As the archive expanded, and public awareness of the collection surged, interest in the cultural and historical aspects of the imagery has grown dramatically. The site now sees 20,000 to 40,000 hits each week from 1000 to 2000 unique visitors. Some of our most popular images are those related to human actions that have changed the Vermont landscape in the last half century. For example, people marvel at Burlington streets with trees, the massive changes brought by the interstate highways, Williston before there were big box stores, and the slopes of Stowe cloaked in trees (Figure 1).

It is no accident that the images attracting the most attention are those most closely related to pressing land use decisions currently facing Vermont. Several decades of debate have yet to settle whether the circumferential highway will be built. People

Images from the *Landscape Change Program* Archive indicative of those we will collect using support provided in response to this proposal

Highway Construction

Oblique aerial photograph shows construction (excavation and blasting) of Interstate 89 in Montpelier. Note cleared land at left, most likely farmland. Uplands are densely forested. Route 2 and train tracks are visible. LS06207

Sprawl and Open Space Loss

Image showing horse-drawn carriage with a man, two women, and a child on dirt and gravel Williston Road, 1901 with fenced open fields in the background. Original caption "Beuby, 1901; Father, Mother, Marion & Aunt Vivia." LS01549.

Loss of Urban Greenspace

This view looking east up College Street in downtown Burlington on 8/25/1929 was taken in front of the Fletcher Free Library. This is one of many photographs that Louis L. McAllister took for the Burlington Street Department to document their construction projects. The arcade of American elm trees seems to be peacefully coexisting with the overhead electric and telephone lines, while providing summer shade for pedestrians and motorists. LS00055.

Ski Area Construction

Three skiers on the mountain at Smugglers Notch looking toward Mount Mansfield and Stowe Ski area. The Stowe trails are clearly visible as open snow-covered corridors on the otherwise forested slope but this image appears to pre-date the gondola and Cliff House construction as neither are visible. Exact location of this image is uncertain but the Spruce Peak ski area may be just over the fellow's head. Image taken on February 25, 1968. LS05714.

lament the loss of farmland in Williston; yet, they shop at Wal Mart and Circuit City. Burlington's residents grow increasingly frustrated with ineffective public policies that allow continued erosion of greenspace while debate rages over ski area expansion. We, as environmental scientists, have an obligation to provide the information people need to make these decisions knowing as fully as possible the impacts of their choices. Thus, we have decided to acquire more images for the *Landscape Change Program* in these areas of great public and environmental interest.

This proposal seeks support to gather a very specific set of images that will enrich the *Landscape Change Program* archive and place the archive, a provider of primary information, squarely in the center of the most important environmental debates in Vermont. Most of the funding we request will support student stipends. The students will scan, interpret, and upload the images to the web archive so that they are publicly accessible. They will also work over the academic year to create web-based modules that highlight the most germane of the images for public viewing. The result will be a far richer archive capable of better serving both the general public as well as land use and environmental professionals in a variety of fields.

Work, such as we propose, is inherently interdisciplinary and thus we plan to recruit students with a variety of skills. Specifically, each summer we plan to recruit one Geology or Environmental Science undergraduate student to work alongside an Historic Preservation Masters student recruited with the assistance of program director, Professor Thomas Visser. There is no other way to do this project well. In order to interpret both the natural and historical content of the images, we need expertise in both fields. Faculty member Bierman will continue to supervise the overall project with faculty member Massey processing the images uploaded by the students and ensuring quality and consistency of the final results. Together, she and Bierman will arrange for scanning sessions and work with archives.

This request for support is part of a coherent funding plan designed to both expand and enrich the *Landscape Change Program*. We are currently seeking large-scale support ($200,000) for the *Landscape Change Program* from the National Endowment for the Humanities (primarily to add historical information to the existing 10,000+ images) and from the NSF ($300,000 to nationalize the model we began in Vermont and to involve K-12 teachers more fully). Most Federal programs that might support a project such as this will release additional funds if non-Federal matching can be demonstrated. It is our intent to use the entirety of Lintilhac support to leverage as much other funding as is possible. Not only is Lintilhac Foundation funding critical for leveraging external funds in the long-term, but it demonstrates local support for the project. UVM has been generous in matching support, providing technical programming and database support at no cost as well as hosting the web site and providing undergraduate summer stipends and graduate tuition grants.

Program History

The *Landscape Change Program* began in 1999 with pilot funding from the National Science Foundation to Bierman and Massey (EAR-9907724, $74,717). This initial funding supported the development of a web site and curricular materials designed to bring the study of landscapes and the changes they reflect to high school classrooms via a traveling instructor as well as the informal science community via the world-wide-web. The program was a success. After two years, curricula had been developed, there were more than 800 images online, and hundreds of students had investigated landscape changes in their communities.

By 2001, advances in web technology and the increasing number of images we were collecting and being offered, led to a second round of funding from NSF (EAR-0122005, $114,619). This support was specifically targeted to expanding the collection, moving the image archive to an open-source data base structure, and diversifying the populations served by the archive. Over the past three years, we have developed all-new software to manage and display the archive, we house more than 10,000 images, and we now see 20,000 to 40,000 hits per week on our website. The archive is widely known and widely used. We have formed strong alliances with image repositories that allow us to scan their collections. Key repositories include: the UVM Library Special Collections, the Vermont Historical Society, and the Vermont State Archives.

In addition to National Science Foundation funding, the project has been supported by local foundations. Over the past three years, the Lintilhac Foundation provided $17,000 to support a graduate student in Education who developed a web site interpreting landscape changes in one Vermont town through both cultural and natural history lenses (http://uvm.edu/shelburnelandscape). The Henderson Foundation provided over $5000 for preparation of interpretive signage based on images in the *Landscape Change Program* collection (http://uvm.edu/oakledge), a project also supported by the Lintilhac Foundation.

Work Plan and Budget Justification

We propose a four-year project which should add about 1500 images each year to the *Landscape Change Program* Archive. Each year we will recruit two students, an undergraduate student in Geology, Environmental Science, or Natural Resources and a graduate student in Historic Preservation. These students will receive a summer stipend sufficient to pay them for two months of work each summer. During the summer, they will spend an average of one day each week scanning images, three days each week interpreting images and preparing captions, and one day each week in the field taking modern re-photographs of the scenes in the images. We expect that each student will continue to work on the project during the academic year for credit producing a web-based module that highlights the most germane images they collected over the summer. This work could be accomplished as a part of a project for another class. The students will be assisted by faculty member Massey who has extensive experience overseeing web page creation, the result of her role in the Perkins Museum digitization project. By the end of the year that the students have been associated with the program, they will have gained a number of valuable skills including image processing, image description, historical categorization, writing, and web-authoring.

Prior to each summer, faculty members Bierman and Massey will work with the appropriate image repositories to identify the images that will be scanned. Massey will work over the summer and fall doing the second step of image processing, that is proofreading what the students have written and ensuring the quality and completeness of their image descriptions. To process the 1500 images that the students collect should take her about a month. Other duties, including preparing for the scanning, incorporating public comments on the images, and advising students on their web-based modules will account for the other two weeks of her time requested each year on this proposal. Each year, Bierman will contribute 5% of his academic year time to this project as a UVM cost share but requests no salary support.

Each summer, we will address a different topic. The first year, we will consider the landscape impact of highway construction. This is a most timely topic as the circumferential highway remains "on the books". To illustrate and study the impact of highway building, we will continue to scan the best images of the 40,000 plus that were taken during the building of Interstates 91 and 89 through Vermont. These images show the Vermont landscape before, during, and after construction and thus provide a vivid model for the public of what to expect should the "Circ" be built. These images are held by the Vermont State Archives and its director, Gregory Sanford, with whom we have worked extensively, has given us permission to continue scanning this collection.

The second year, we would like to approach "sprawl". This too is a timely topic and we will begin our work close to home by working with the Williston Historical Society (we have permission to investigate this collection) and using the University of

Vermont Special Collections which holds imagery of South Burlington. As the second year begins, we will consult with Beth Humstone and the Vermont Forum on Sprawl to identify towns where our images might make the greatest impact on public thinking and behavior. We will then work with necessary town and state archives to obtain proper images.

During the third year, we will concentrate on urban areas and how they have changed over the past century. We will concentrate our work in Burlington and adjacent Winooski but may if time allows expand to Rutland and St. Johnsbury or St. Albans. For Burlington, we hope to use the images take Louis L. McAllister for the Burlington Street Department held by the University Special Collections.

The fourth year of the project will focus on ski areas and how they have changed the Vermont landscape both directly and indirectly. We anticipate working directly with the ski areas themselves and the archives of images that they hold as well as working with the towns that have been affected by ski area development. Initially, we plan to work in the Stowe, Waitsfield, and Jeffersonville areas but our work may take us to Jay and further south. We intend to contact the Vermont Ski museum and work with them to acquire images.

We request limited funds for travel by automobile to the various archives but request no funding for technology as the National Science Foundation and UVM have provided the computers and scanners we need to do image acquisition for this project.