

Summer 2008

Dear Colleague:

Enclosed please find sample narratives, schedule of completion and summary budget forms from six successful applications from the 2008 IMLS Conservation Project Support (CPS) grant competition. This packet contains samples that represent different types of conservation projects from both living and non-living collections. They emphasize the overall institutional conservation perspective, the involvement of conservation professionals in all phases of the project, and the importance of the project as one of the highest institutional priorities for collections care. Each of the samples was selected to illustrate a specific aspect of a good application in any category, as described below:

Survey projects

Fairbanks Museum and Planetarium is included as a model for smaller organizations looking to do a detailed condition survey of a portion of their collection. The application provides good detail on the scope of the collection as well as a good description of their process and methodology.

Treatment Projects

Kelsey Museum is included as an example of a very clearly written narrative that shows a logical progression of conservation steps.

Cincinnati Art Museum is an example of a narrative that is very succinct, yet provides a good discussion of all of the appropriate consultants.

Environmental Improvement Projects

New England Aquarium is a sample of how to detail the expected outcomes, expected outputs, and benefits to the audience of a conservation project.

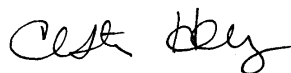
Museum of Northern Arizona application provides a good example of a project that is sensitive to multiple constituencies.

Baltimore Museum of Art is included as an example of a museum that has worked through many of its priorities and it able to put the current project into context of the long-range conservation plan and previous efforts at collections care.

I hope that these sample narratives will be useful to you as models for structuring a proposal for your conservation needs. Please contact either me at (202) 653-4674, chenry@imls.gov or Mark Feitl at (202) 653-4674, mfeitl@imls.gov if you have any questions. We would be happy to assist you and discuss any questions you have as you develop your proposal. The application deadline for the 2009 Conservation Project Support grant program is: October 1, 2008

Applications for CPS are available from the grants.gov website (www.grants.gov). We look forward to receiving your application.

Sincerely,



Christine Henry
Senior Program Officer

1. Statement of Need

The Fairbanks Museum & Planetarium, opened in 1891, is Northern New England's largest museum of natural and cultural history. The Museum's mission is

...to inspire new appreciation and responsibility for our place in the natural world.

The Fairbanks Museum's roots are in Vermont's Northeast Kingdom, at the intersection of the Great Northern Forest and the Connecticut River Watershed. The Museum embraces its leadership in the study, interpretation, preservation, and celebration of the natural history of these working landscapes, their distinctive cultural heritage, and their place in the world and strives to promote their stewardship.

The Museum collects, documents, preserves, studies, displays, and interprets 1) richly representative natural specimens that reveal the evolution, ecology, and diversity of this region; 2) objects of human interaction with this landscape; 3) archives and artistic expressions that enrich our understanding of that interaction; and 4) selected comparative specimens and objects that further its mission. The Museum holds in trust its historic building and the legacy collections of its founder Franklin Fairbanks.

The Museum offers memorable opportunities for visitors and outreach audiences to discover and appreciate their changing place in local and global natural systems through educational programs and exhibitions in a variety of media and in partnership with others.

The Museum holds in trust the most extensive natural history collections in the region, totaling over 50,000 specimens in the permanent collections. These include vertebrate mounts; a significant herbarium; geology and paleontology specimens; fluid collections; marine invertebrates; and insects and other arthropods.

The Museum conducted an IMLS-supported general natural history conservation survey in 1989-90, with consulting assistance from natural history conservator Tamsen Fuller. Though now partially outdated, her report (summary outline attached as Supportingdocument1.pdf) has informed years of improvements in the management and preservation of the Museum's natural history collections.

In 2001, the Museum completed an IMLS-supported environmental survey of the collections with conservator Richard Kerschner of the Shelburne Museum and Ernie Conrad of Landmark Facilities Group.

Recognizing the need to plan for the preservation, storage, and interpretation of its collections within a comprehensive institutional framework, the Museum launched a master planning process in 2002 and engaged Lord Cultural Resources Management

A Detailed Conservation Survey of Lepidoptera and Coleoptera
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and Planning to lead this effort. The resulting Master Plan, incorporating the recommendations of Lord's collections specialist Heather Maximea, called upon the Museum to launch complete inventories and condition surveys of the collections; automate the collections records; and provide new facilities for their housing, processing, and care.

Since the adoption of that Master Plan, the Museum has received two IMLS Museums for America grants to support the automation, inventory, and planning for the Museum's collections. The first of these two grants allowed the Museum to complete records automation, inventory, documentation, condition reporting, and planning for many categories of the Museum's historic artifacts. The second grant (currently underway) has supported the same outcomes for the Museum's natural history collections and remaining cultural collections. Thomas Labeledz, University of Nebraska Museum Natural History Collections Manager, has guided the automation and inventory strategies for the Museum's natural history collections.

The Museum is housed in a monumental, Richardsonian Romanesque building designed for the display of collections according to 19th century standards but incapable of sustaining contemporary standards for some collections environments. For several decades the Museum has been able to make incremental improvements to the environmental, storage, and security conditions of its collections. The Master Plan calls for the construction of new facilities for collections, and the Museum is now conducting a capital campaign and has completed schematic design plans for those facilities. Detailed storage specifications are nearing completion for each category of the collections. Construction is anticipated for 2009, followed by the movement of the collections into these new facilities.

In July 2007, Director of Collections Mary Beth Prondzinski joined the Fairbanks Museum staff, bringing a decade of experience in zoology and collections management at the Field Museum. Under her leadership, the current inventory, automation, and planning process has brought new institutional attention to the condition of the Museum's insect collections. These collections, including eighteen large storage boxes of Riker-mounted Lepidoptera, twenty Schmidt boxes of Coleoptera, and nine insect mosaics, have not received detailed conservation attention.

The Lepidoptera, international in scope, date from the late 19th century, and their condition ranges from poor to pristine. Most are from the collection of Joseph P. Chase and date from 1885. One box consists of approximately 1,000 carefully folded moths and butterflies, each individually enclosed in a labeled paper triangle. These, along with many of the Riker mounts, both large and small, require rehousing. The Lepidoptera have been stored in heated spaces but without comprehensive environmental controls. In the past, they have been exhibited and used for educational programs in their old Riker mounts, and some have cracked glass, stained cotton backing, or show evidence of damage by dermestids.

The Coleoptera are from the collections of Professor Alphonse Bel and were entered into the Museum's catalogue in 1891. The twenty homemade Schmidt-type boxes in which they are housed have been stored in a fumigation vault for over thirty years. Archival correspondence in the Museum suggests that this collection may include type specimens from the Arctic, though no research has ever been conducted to confirm this claim. Few of these Coleoptera have been studied, displayed, or interpreted in the past thirty years.

The nine pictorial insect mosaics, created by John Hampson (1836-1923) between 1886 and 1922, primarily from beetles, moths, and butterflies collected near his New Jersey home, were acquired by the Museum from his estate in 1977. These are among the most popular of the Museum's collections. One of the nine has received conservation treatment for damage from dermestids, and one is severely damaged. The rest have been on semi-permanent exhibition since their acquisition. Hampson's personal history is an interesting one, and these works reflect his unusual response to the natural world.

With the exception of the mosaics, the insect collections have been in storage for several decades. The Museum's records indicate that these collections have never received professional conservation attention, in part because the Museum has not possessed the in-house expertise nor adequate facilities for their assessment, treatment, and housing. Instead the Museum has been able to provide only preventive conservation attention through improved environmental controls and pest management practices, such as regular cycles of inspection and monitoring of environmental dataloggers. Unlike the prominent mammal and bird collections, these insect collections have received neither professional treatment nor thoughtful planning. The proposed conservation assessment must precede decisions about the future housing, treatment priorities, planning implementation, and interpretation of these collections. Without the information gleaned from the proposed survey, the Museum will be unable to plan for, preserve, and utilize these collections. [for an overview of the Museum's collections practices, see Collections Policy- Supportingdocument4.pdf]

2. Project Design

The Museum seeks to engage two consultants to conduct this detailed collections assessment. Catharine Hawks, FIIC, is an award-winning conservation consultant and conservation educator in the Museum Studies program at George Washington University. Robert T. ("Tommy") Allen, Ph.D., is a retired professor of zoology and entomology at the University of Arkansas and the University of Delaware who now serves as Research Associate with the Academy of Natural Sciences in Philadelphia (though his residence is in Minnesota). Professors Hawks and Allen will bring a

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combination of natural history conservation expertise and entomology scholarship necessary to survey and complete a conservation plan for these collections.

The goals of this project are to inspect each of the three insect collections and to complete a current condition description of the specimens, linked to the Museum's catalogue records, object provenance, and species status. This review will also produce a written description of the materials, dimensions, and numbers of the existing containers, including any labels and illustrations available, and will make a general determination of the scientific utility of the specimens. Following inspection, the consultants will provide the Museum with treatment rationales; recommend general treatment procedures (cleaning, stabilization, repairs, etc.); offer storage, exhibition, and preventive care guidelines. The general condition assessment report will also provide a list of recommended references for Museum staff use. Together with conservation priorities established during the review, these data will provide the Museum with a conservation plan for these old, fragile, and under-utilized collections. [for Sample Survey form, see Supportingdocument2.pdf].

Museum staff directly involved in the project will include Director of Collections Mary Beth Prondzinski and Registrar George Boden Harris. Ms. Prondzinski will serve as Project Director, scheduling and coordinating all project activities and insuring that the Museum's interests and responsibilities related to these collections are fulfilled. Mr. Harris will make all existing relevant collections records available for the project and will insure comprehensive coordinated documentation is completed during the project. Museum Executive Director Charles Browne, who serves as primary grants administrator for the Museum's federally funded projects, will insure compliance with all project record-keeping and reporting requirements, and will prioritize the proposed project within the full range of normal operations and activities. Bookkeeper Sandra Beck will maintain the project's accounting records, and Program Coordinator Tara Robinson Holt will assist with all educational program arrangements.

The Museum intends that the project consultants conduct this detailed collection assessment during a three-day on-site visit in July 2008. A secured workspace will be made available for the project during that time. The consultants will return to the Museum in February or March of 2009 for a two-day visit to present a full report of their findings and recommendations to the Museum staff and Collections Committee of the Board of Trustees. This written report will be crafted as a conservation action plan for the collections.

In the period between these two visits, the Museum's Collections Department will insure that all records related to these collections, including corrections to nomenclature, automation of catalogue records, and photo-documentation, are updated. They will also apply the preliminary recommendations of the consultants to the housing, storage, and exhibition planning of the insect collections and will

coordinate these with the facilities expansion design team, collections storage consultants, and the interpretive planning team.

The overall goal of the project is to create a conservation action plan for one of the Museum's most fragile and historically neglected collections. The timing of this plan is essential for advancing the Museum's Master Plan, as it will inform the Museum's investments in rehousing, treatment, storage, and interpretation based on the collection's condition, fragility, scientific significance and utility, and provenance.

3. Project Resources: Time, Personnel, Budget

The proposed project grant period is one year, but the project will take place in several discrete "chapters." The Museum has planned for five days with the two consultants on site in two visits – a three-day visit in July 2008 and a two-day visit in February or March of 2009. These days will be devoted to inspection of the collections and compilation of condition assessment data; drafting and presentation of conservation plan recommendations; and preparation and presentation of educational programs. The Museum's Collections staff, Director of Collections Prondzinski and Registrar Harris, will have responsibility for preparing the collections for review; compiling and making available all related catalogue records; organizing, hosting, and documenting the assessment visits; integrating the assessment data into the Museum's automated records; preparing and disseminating the final collections plan within the Fairbanks Museum community and to other partners and stakeholders such as SPNHC; and implementing the conservation plan once the grant is concluded.

The Museum expects the members of the Collections Department to devote a total of fifteen days each (three weeks/120 hours) to this project during the grant period. Significant time will also be dedicated to implementing the conservation plan after the conclusion of the grant period. The Museum is fully committed to this project, as the institutional match for this project will include all staff salaries and benefits, and it will become part of the Collections Department 2008-2009 work plan.

Most of the project budget requested of IMLS provides for the fees and costs of the conservation and entomology consultants. Their hourly rates (Dr. Allen's at a significant discount); travel to and from St. Johnsbury, VT; and subsistence costs represent most of the requested grant. The modest marginal costs associated with the proposed educational programs are also included in the project.

4. Impact

This project will succeed if the Museum acquires the necessary knowledge to implement a conservation plan for its insect collections. Indicators of impact will include comprehensive integration of the assessment data into the Museum's

automated collections database; a prioritized schedule of treatment for the insect collections; a rehousing plan for this collection (including containers, cabinets and shelving, environmental parameters); a detailed plan for the new storage spaces to be allocated to these collections; and the inclusion of the insect collections in the Museum's new interpretive plan.

Another impact will be a change in the knowledge and attitudes of the Fairbanks Museum's audiences and museum peers as they understand more fully the link between the natural history collections housed in museums and the preservation of the world's natural heritage and biodiversity. This impact will be measured by the number of participating museum professionals in the workshop on Insect Collections Preservation by Catharine Hawks; by the public participation in the educational program offered by Mary Beth Prondzinski and Robert T. Allen; by quantifying the public use of the Museum's web-based educational components; and by contributions to the Museum's capital campaign directed toward the housing and care of these and other collections.

Specific products will include:

- 1) an insect collections conservation plan adopted by the Museum staff and Collections Committee of the Board of Trustees;
- 2) a schedule of treatment for these collections; a fully integrated, automated set of collections records for the insect collections;
- 3) a completed plan for the housing and care of the collections in planned new facilities;
- 4) and a deeper institutional understanding of the scientific utility of these collections and avenues for their interpretation.

Educational Components

This project offers rare opportunities for training and public education. Insect collections have very different conservation and preservation requirements from those of vertebrates, yet small insect collections, both in museums and in private collections, are fairly common. Whether organized for scientific research, education, or as a personal pursuit, these collections warrant preservation to sustain and enhance public understanding of biodiversity and to inform future systematics, ecology, zoology, and medical research.

1. Project Design

Catharine Hawks has agreed to offer a workshop (curriculum attached) on insect collection preservation and care, designed for the museum field, during her second visit to the Fairbanks Museum & Planetarium, using the Museum's relatively small and

taxonomically narrow collection as a case study. Her workshop will be promoted through the Vermont Museum and Gallery Alliance (VMGA), the New England Museum Association (NEMA), the Society for the Preservation of Natural History Collections (SPNHC), and Museum Studies programs in New England (e.g., Tufts University, Boston University, College of the Atlantic), with a target workshop audience of 20 – 30 participants from the field. Participants will gain first-hand experience in documentation, assessment, and treatment strategies for the care of insect collections, applicable at their own institutions. [see syllabus – Supportingdocument3.pdf]

A second education opportunity will focus on the general public's understanding of collections conservation, with the Fairbanks Museum's collections again available as a case study. A public program hosted at the Museum for its community will feature presentations by Project Director Mary Beth Prondzinski and consulting entomologist Robert T. Allen. This illustrated program will highlight the importance of even obscure natural history collections to the public understanding and appreciation of biodiversity, the challenges of preserving these collections, and the important opportunity the Museum's planned expansion offers for preserving this and its other collections.

The Museum will make use of its newly developed website (still under development, to be completed in winter 2008) to present an educational program on the importance of preserving and conserving natural history collections. This interactive page of the Museum website will feature photographs of specimens from this collection illustrating the importance of conserving the record of our natural heritage. The Museum will engage a professional photographer to create outstanding, web-quality images of samples from the collection. This page will be linked to other educational content on the website (regional ecology and natural history curricula) to support deeper public understanding and appreciation for natural history collections as learning and research resources. Because of the Museum's large audience of students, teachers, and families, this web page will be designed to be attractive and useful to youth aged 8 – 18.

2. Project Resources: Time, Personnel, Budget

The preparation and presentation of the professional workshop on Insect Collection Preservation and the public program on collections conservation and biodiversity will require content preparation, development of materials for distribution through the program, promotion and marketing, and logistical support. The project consultants will bring experience and scholarship in their particular fields to their educational presentations, which, to reduce travel costs, will be scheduled to coincide with their second visit to the Museum.

Museum staff time on these educational components is factored into their budgeted time on the project as part of the project match. Director of Collections Mary

Beth Prondzinski has considerable experience presenting educational programs for the public, and Program Coordinator Tara Robinson Holt already manages all logistics, promotion and publicity, and scheduling for the Museum's programs. Their commitments to these programs will be part of their 2008-2009 workplans.

In addition to the costs of project personnel and materials for the professional workshop and public program, the remaining educational expense, \$800 for professional photography, will support the creation of high quality images for the web-based education component and the public program. Web page design, text, links, and interactives will be produced in-house according to design standards developed by the web design firm currently developing the Museum's new site.

3. Impact

Catharine Hawks's workshop on Insect Collections Preservation will focus on professional techniques for the management, conservation assessment, treatment, and preservation of insect collections. Hers will be a nuts-and-bolts professional development opportunity for Fairbanks Museum staff and for those responsible for such collections in other New England institutions, including museums, schools and universities, and museum studies programs. The use of the Fairbanks Museum insect collections for this workshop will bring professional attention to the Museum's efforts to systematically and strategically prepare for their preservation. Participating professional peers will gain new knowledge, skills, and perspectives, and the Museum, in turn, will learn from the experience of these colleagues.

The Fairbanks Museum offers an array of popular public programs in natural history, regional rural history, and environmental stewardship. These programs often draw upon the Museum's collections resources, and among the most frequent public inquiries are those questions about preservation of unique or fragile artifacts, archives, and specimens. The proposed public program will shed light on both the inherent value and the importance of preservation of such collections, from both a scientific and a public trust perspective, in a way that enriches the knowledge and appreciation of natural history collections preservation for public program participants.

Without becoming too self-referential, the Museum's very strong experience and track record in designing interactive learning experiences for youth and families will support its effort to use Internet technology and the survey of its insect collections to encourage inquiry and discovery about the role of natural history collections in the preservation of the globe's biodiversity and natural heritage. If successful, this web page will support and link to other science curriculum materials already produced by the Museum on topics in ecology, biology, and earth sciences with a consistent stewardship message. Site visitors will explore insect diversity, receive an introduction

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to insect anatomy, physiology, and biochemistry, and be introduced to the importance of the preservation of natural history collections as essential tools of scientific inquiry.

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages		7,080.00	7,080.00
2. Fringe Benefits		1,345.20	1,345.20
3. Consultant Fees	6,400.00		6,400.00
4. Travel	3,060.00		3,060.00
5. Supplies and Materials		2,100.00	2,100.00
6. Services	800.00		800.00
7. Student Support			0.00
8. Other Costs			0.00
TOTAL DIRECT COSTS (1–8)	10,260.00	10,525.20	20,785.20
9. Indirect Costs	1,539.00	1,578.75	3,117.75
TOTAL COSTS (Direct and Indirect)	11,799.00	12,103.95	23,902.95

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	11,799.00
2. Cost Sharing:	
a. Cash Contribution	12,103.95
b. In-Kind Contribution	
c. Other Federal Agencies*	
d. TOTAL COST SHARING	12,103.95
3. TOTAL PROJECT FUNDING (1+2d)	23,902.95
% of Total Costs Requested from IMLS	49.40%

* If funding has been requested from another federal agency, indicate the agency's name:

1. Treatment Project Statement of Need

The Kelsey Museum of Archaeology at the University of Michigan, Ann Arbor, is requesting support for the conservation of 22 large-scale watercolor paintings. The watercolors are the Museum's current highest conservation priority for three reasons: they exhibit considerable condition problems; they suffer from detrimental storage and mounting techniques; and they possess high scholarly significance and interest for the Museum, scholars of art and archaeology, and the general public.

The watercolors were identified and documented as in need of full conservation treatment as early as 1986, and they are currently the Museum's number one collections care priority. This is reflected in the Museum's long-range Conservation Plan, the Institutional Plan, the Preservation Plan, and in the item-specific Conservation Condition Survey. Please see the attached Conservation Plan, Preservation Plan, and Conservation Condition Survey Record included in the Supporting Documents section for more information. The condition survey record is for the largest of the watercolors, which measures approximately twenty feet long by six feet high. The Museum's Institutional Plan exceeds IMLS length requirements for supporting documents and is not included in this application.

The Kelsey Museum's Conservation Plan is a ten-year plan, reviewed every five years, and identifies the Museum's primary conservation objectives for the specified period of time. The current plan, dating from 2005, specifies ten conservation goals in order of importance. The first two goals on the plan are important preventive conservation initiatives that are in progress. These are followed by the most important treatment priority for the Museum's collection, which is the conservation of this watercolor series.

Although the watercolors have long been a preservation priority of the Kelsey Museum, due to lack of specialist expertise in paintings and paper conservation, lack of space, and lack of financial resources for a conservation project of this scale, the needed conservation treatment has not been carried out. Because of the watercolors' size and fragility, they are currently inaccessible for teaching, research, study, or enjoyment by the public. For the first time in the Kelsey's history, a new wing of the Museum, currently under construction, will provide museum-standard climate control and adequate space for the care of all the Museum's collections, including oversize items like this watercolor series. The proposed conservation treatment and flat-mounting of the watercolors, for which we are seeking IMLS support, will stabilize these fragile works of art, ensuring their safekeeping while making them accessible for teaching, research, and the general public.

The Kelsey Museum is a unit in the College of Literature, Science, and the Arts at the University of Michigan housing the University of Michigan's collections of ancient Egyptian, Near Eastern, Greek, Roman, Coptic, and Islamic materials. As a university museum, the Kelsey serves multiple audiences, ranging from the international scholarly community to the students of the University of Michigan and the general public. In all our programs—exhibits, teaching, public outreach, and research—we strive to integrate the needs of these audiences.

The majority of the nearly 100,000 objects in the collection come from Kelsey Museum archaeological excavations in Egypt and Iraq before World War II. These collections were founded in 1893 by Professor Francis W. Kelsey and supplemented with purchases made in his travels to Italy, North Africa, and the Near East in the late nineteenth and early twentieth centuries.

The Museum mounts active programs of excavation, conservation, collections research, and exhibitions, which bring the results of our research to the public in engaging and innovative ways. This is reflected in the mission statement of the Museum:

The mission of the Kelsey Museum of Archaeology is to serve the international academic community, the University of Michigan, and the public through research, conservation, and exhibition of its collections of artifacts from the ancient and medieval cultures of the greater Mediterranean region and through field work. As a public resource the Museum has a corresponding commitment to sharing the knowledge gained through our fieldwork and other research with the general public of all age levels and in all walks of life. (Mission statement approved by the Kelsey Museum Executive Committee, 1995).

As evidenced by the Museum's mission statement, the Kelsey has long been committed to conservation, employing a full-time conservator since the 1970's. The Museum demonstrates its ongoing financial commitment to conservation by currently employing two full-time, professionally trained conservators who specialize in the conservation of archaeological objects. These conservators provide both preventive and active conservation for the Museum's collections, support an active exhibition program, and provide field conservation for the Museum's current excavations. In addition to these staff positions, the Kelsey equips and supports a medium-sized conservation laboratory and funds general collections care. The Museum also funds professional development and continuing education for both conservators and supports their membership in the American Institute for Conservation. Additionally, as part of the current new-wing construction project, the Museum will renovate the existing conservation lab, providing updated facilities, additional space, and new equipment.

2. Project Design

The 22 watercolors that are the focus of this proposal are an artist's illustration of the famous fresco cycle at the Villa of the Mysteries in Pompeii, Italy. The watercolors were commissioned by Francis W. Kelsey, Professor of Latin Language and Literature at the University of Michigan from 1889 to 1927 and founder of the Museum. The watercolors were painted between 1925 and 1927 by Maria Barosso, a highly regarded Italian artist, archaeologist, and archaeological illustrator. The original fresco cycle, thought to have been painted around 60–40 BC, depicts women engaged in activities believed to be associated with the cult of Dionysus. But the exact subject and purpose of the frescoes, as well as the function of the opulent room they decorate, continue to inspire much scholarly speculation and interpretation.

Maria Barosso's beautiful and faithful renderings of these extraordinary wall-paintings are significant for the KMA's history as a university museum because they were commissioned by Kelsey as a teaching and research tool. Kelsey also saw the watercolors as a way to ensure the visual preservation of the fresco cycle, which was discovered in 1909 and began to deteriorate soon after. He wished to document accurately the condition of the frescoes and the technical details of their creation. The watercolors are thus an important artifact of archaeological documentation in an era before photography was a practical or accepted tool. They are also of great relevance to scholars interested in questions concerning the reception of the ancient wall-paintings by artists, historians, archaeologists, and the general public since their discovery. The watercolors are the only large-scale pictorial record of the fresco cycle that is roughly contemporary with its discovery and the only artist's illustration of it ever created.

The watercolors are also of interest for their place in the career of Maria Barosso and as works of art created during the Fascist government of Benito Mussolini, who encouraged the excavation, study, and recording of ancient Roman history. An accomplished artist, Barosso worked as head of drawings for the Superintendency of Monuments for Rome and Lazio and became the first woman to work at the archaeological excavations in the Roman Forum as an employee of the Italian government. These paintings, carried out primarily on site in Pompeii, took fifteen months to complete.

The watercolors are nearly life-size (5/6ths scale); the largest panel is twenty feet long and six feet high. Despite Kelsey's desire for the watercolors to be displayed and available for scholarly research and study, the paintings have only been put on view once since their arrival in Ann Arbor in the 1920's. Due to their great size, they were rolled and stored in the Museum's attic for many years. The rolled storage, dirty and dusty conditions, a wildly fluctuating climate, and poor handling created numerous condition problems. The paintings, which are watercolor and gouache on heavy-weight paper lined with linen or cotton, are now creased, warped, and distorted, with numerous tears and losses along the edges.

A temporary exhibition of the watercolors in the year 2000 focused attention on their condition. For this exhibit the paintings were affixed to rigid panels with small paper hinges. The six largest paintings were removed from the panels at the conclusion of the exhibit and rerolled for storage. Sixteen other paintings remain mounted on panels. When examining the six rolled watercolors, scholars must continue to unroll and reroll the huge paintings in sections to view them. The heavy paintings are extremely difficult to handle, and the physical manipulation required to view them continues to cause mechanical damage. In addition, the prolonged rolled state of the unsupported paintings has caused them to become deformed under their own weight.

The 16 paintings that remain mounted to rigid panels also continue to suffer ongoing damage. These watercolors were not sufficiently relaxed before mounting and are now pulling away from the small hinges, creating numerous localized tears along the edges and further distortion of the paintings. In other areas the hinging system is failing completely. An unsuitable hard plastic edging was used to frame the panels. Where this edging is in direct contact with the watercolors it is gouging the surface

and causing localized skinning, creasing, and tearing. Please see the attached Photographic Documentation (included in the Supporting Documents section) for documentation of the condition problems.

With the construction of the Kelsey Museum's new wing, containing expanded storage and exhibit facilities, the Museum will finally have adequate space to care for the watercolor series correctly. The goals of this project are threefold: to treat the current condition problems; to ensure the long-term preservation of the watercolors by mounting them appropriately on a permanent rigid support; and to provide increased access while ensuring the safekeeping of these fragile works of art. The first two goals of the project, treatment and mounting of the watercolors, will take place in Cleveland, OH, at the Intermuseum Conservation Association (ICA) laboratories and is described in more detail below. The lead conservators for the project will be Wendy Partridge, a paintings conservator who has experience treating large-scale paintings and mural cycles, and Shiho Sasaki, a paper conservator with experience treating and mounting oversize works of art on paper. The third goal of the project, to provide increased access to the watercolors while ensuring their long-term preservation, will be achieved in several ways. Providing a permanent rigid support for each painting will eliminate the risks and damage associated with rolled storage and will minimize handling. As part of this proposal we are also requesting funds for pigment analysis, which will provide information about the composition and light-sensitivity of the pigments. This information will allow us to set appropriate guidelines for access by scholars and students as well as to develop a sound preservation plan for any future exhibition of the watercolors.

The treatment and mounting of the watercolors will follow currently accepted practice for conservation of works of art on paper. As noted above, the lead conservators have worked with similar material in terms of both media and size. The treatment and documentation of the watercolors by the ICA will follow the American Institute for Conservation's Code of Ethics and Guidelines for Practice. Documentation for this project will be incorporated into the Kelsey Museum's collections management and conservation databases and maintained in hardcopy files.

All materials to be used in the treatment and mounting have been tested for use in conservation and are proven to be appropriate, stable, and safe. The order of examination and treatment of the watercolors will be as follows. Following complete photo and written documentation of all 22 watercolor paintings, the pigments will be analyzed by Dr. Paul Whitmore, Director of the Art Conservation Research Center at Carnegie Mellon University. Conservation treatment will include: unrolling of the six rolled paintings, removal of the sixteen currently mounted watercolors from their rigid supports, removal of old hinges, tear repair, reattachment of the watercolor paper to the original lining where needed, filling and in-painting of loss areas in the support if required, gentle humidification and pressing of the watercolors, and mounting of all the watercolors onto aluminum honeycomb panels.

The aluminum panels will be buffered using acid-free board, and the paintings will be mounted using toned continuous Japanese paper edge hinges. The mounting method has been used extensively for oversize works of art on paper and canvas and is a reliable method that has proven to be efficient,

structurally stable, and light-weight. Please see the attached Conservation Assessment and Treatment Proposal prepared by ICA conservators for more detailed treatment information (included in the Supporting Documents section). Please also see the supporting documents section for an itemized list of all the watercolors.

Normal Museum operations will not be disrupted by this project. Although Kelsey Museum collections staff will spend a small percentage of their time communicating with ICA conservators to monitor and discuss the progress of the project, all conservation work will occur at the ICA laboratories in Cleveland and will not impact day-to-day work at the Kelsey. Kelsey Museum conservators will be in contact with the project's lead conservators by telephone and email and will visit the laboratory during the treatment. The Museum's conservators will also provide regular updates on the project to education staff so that they may keep students, docents, and visitors up to date on the work.

3. Project Resources: Time, Personnel, Budget

The proposed time frame for this conservation project, including the education component, is 24 months. Based on estimates by the lead conservators for this project, this is an appropriate allocation of time to undertake all of the project's components. These include: packing and transportation of the paintings to and from ICA's laboratories, scientific analysis of the pigments, conservation treatment and mounting, full documentation of the project, and implementation of the education component for which we are also requesting IMLS support.

ICA, the Intermuseum Conservation Association, is the oldest regional conservation laboratory in the United States. It provides professional, high-quality, and cost-effective art conservation services, and the recently renovated laboratory is fully equipped to handle large treatment projects.

Key staff for the conservation treatment project are as follows:

Suzanne Davis, Curator of Conservation, Kelsey Museum of Archaeology, University of Michigan, Ann Arbor, MI (M.A. in Art History and Certificate in Conservation, New York University, Conservation Center, Institute of Fine Arts, New York, NY, 1998). Ms. Davis specializes in the conservation of archaeological objects, with research interests in field conservation, ceramics, and glass. She is a member of AIC and will, along with Claudia Chemello, co-manage this project for the Kelsey Museum. Ms. Davis has successfully managed projects involving contract conservators, interns, and volunteers for at least nine years.

Claudia Chemello, Senior Conservator, Kelsey Museum of Archaeology, University of Michigan, Ann Arbor, MI (M.S. in Applied Science [Materials Conservation], University of Western Sydney, Sydney, Australia, 2002). Ms. Chemello specializes in the conservation of archaeological objects, with research interests in field conservation and metal objects. She is a member of AIC and will co-manage this project along with Suzanne Davis.

Wendy Partridge, Associate Conservator, Intermuseum Conservation Association, Cleveland, OH (M.A. in Art History and Certificate in Conservation, New York University, Conservation Center, Institute of Fine Arts, New York, NY, 1999). Ms. Partridge specializes in the conservation of paintings and is a Professional Associate of AIC. She will be a lead conservator for this project. Her relevant experience includes work on multiple interdisciplinary projects involving treatment of mixed-media works of art, including murals, painted textiles, and oversize paintings.

Shiho Sasaki, Associate Conservator, Intermuseum Conservation Association, Cleveland, OH (M.A. in Paper Conservation, Royal College of Art, London, UK, 2000). Ms. Sasaki specializes in the conservation of works on paper and is a Professional Associate of AIC. She will be a lead conservator for this project. Her relevant experience includes work on multiple projects involving treatment of oversize paper-based materials, including drawings, historic wallpapers, and photogravures.

Dr. Paul Whitmore, Director, Art Conservation Research Center at Carnegie Mellon University, Pittsburgh, PA (Ph.D. Physical Chemistry, University of California, Berkeley, CA, 1982). Dr. Whitmore specializes in the characterization of art and conservation materials and their aging behavior in indoor environments. Dr. Whitmore has published widely in the conservation and scientific literature and is a Professional Associate of AIC.

Additional staff at ICA who will be involved with this project include: **Emily Helwig**, Associate Paper Conservator (M.A.C., Paper Conservation, Queens University, Kingston, Ontario, Canada, 2002), who will assist with the conservation treatment; **Charles Eiben**, Associate Preparator (B.F.A. Cleveland Institute of Art, Cleveland, OH), who will assist with the mounting design and mounting of the watercolors; and **Christopher Pelrine**, Project Coordinator (B.F.A. Pratt Institute, Brooklyn, NY, 1986), who will coordinate ICA's work flow for this project.

ICA is fully committed to this project for the period of time requested (please see the attached Letter of Commitment included in the Supporting Documents section).

Additional staff at the Kelsey Museum who will be involved with this project include: **Dr. Elaine Gazda**, Curator of Hellenistic and Roman Collections and Professor of Classical Art and Archaeology (Ph.D. in History of Art, Harvard University, Cambridge, MA, 1971), who will consult on the project from a curatorial perspective; **Sebastián Encina**, Coordinator of Museum Collections (M.A. in Anthropology, George Washington University, Washington, D.C., 2002), who will supervise issues of packing, transportation, insurance, and recordkeeping; and **Scott Meier**, Museum Exhibition Coordinator (B.A. in Graphic Design, Indiana University, Bloomington, IN, 1989), who will consult on the mounting methods for the watercolors and on developing and implementing responsible plans for their access and future exhibition. For more detailed staff bios, please see the Project Staff and Resumes section.

All Kelsey Museum staff are fully committed to their responsibilities for this project. Because all conservation work will occur off-site, Kelsey staff responsibilities are limited to overall project management, consultation, and communication, and the impact on day-to-day duties will be minimal.

The budget for this project is primarily for costs associated with the transportation, materials and supplies, and labor involved in the conservation treatment and mounting of the 22 watercolor paintings. The costs associated with treatment were determined from on-site examination by ICA conservators in August 2007. The costs for packing and shipping to and from ICA, as well as costs for materials and supplies, were also determined by ICA staff. The budget also includes the cost for full documentation of the project. ICA conservators based their estimates on similar projects they have undertaken and obtained the costs for materials and supplies from the appropriate vendors. An itemized breakdown of ICA's costs is included the Budget Justification.

The Kelsey Museum will meet the required 1:1 match by contributing staff time and resources, travel costs for Museum staff to visit the ICA laboratories during the project, and other costs as specified in the attached Detailed Budget and Budget Justification.

4. Impact

The anticipated benefits of this project will be threefold. First, the conservation treatment of the watercolors will improve and stabilize the condition of the paintings. Second, mounting them to a permanent rigid support will provide structural stability and ensure their long-term preservation. Finally, the treatment and mounting will allow, for the first time, regular scholarly and public access to these unique works of art while ensuring their safekeeping for future generations.

The results of this project will be disseminated and publicized through a variety of means. The Museum is planning public lectures about the project; the project will be featured on the Museum's website and in its newsletter; and a range of educational activities about the project are planned (please also see the accompanying Education Component Proposal). The Kelsey Museum's audiences encompass K-12 school groups, University of Michigan students and faculty, and members of the public. The Kelsey Museum is projected to receive over 30,000 visitors in the year 2009, and the Museum's website logs well over a million hits annually.

These rare watercolors are considered one of the treasures of the Kelsey Museum and the University of Michigan. The paintings are significant for students and scholars of classical art and archaeology, as well as being magnificent and noteworthy works of art in their own right. This conservation treatment project will ensure that current and future audiences may learn from and be inspired by the rich artistic and cultural heritage represented by these paintings.

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages		44,283.00	44,283.00
2. Fringe Benefits		13,285.00	13,285.00
3. Consultant Fees			0.00
4. Travel		878.00	878.00
5. Supplies and Materials			0.00
6. Services	143,499.00	43,597.00	187,096.00
7. Student Support			0.00
8. Other Costs	7,937.00	56,403.00	64,340.00
TOTAL DIRECT COSTS (1–8)	151,436.00	158,446.00	309,882.00
9. Indirect Costs	8,564.00	41,196.00	49,760.00
TOTAL COSTS (Direct and Indirect)	160,000.00	199,642.00	359,642.00

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	160,000.00
2. Cost Sharing:	
a. Cash Contribution	199,025.00
b. In-Kind Contribution	450.00
c. Other Federal Agencies*	
d. TOTAL COST SHARING	199,475.00
3. TOTAL PROJECT FUNDING (1+2d)	359,475.00
% of Total Costs Requested from IMLS	44.50%

* If funding has been requested from another federal agency, indicate the agency's name:

1. STATEMENT OF NEED

The requested grant would support the full treatment of a major work of art in the collection of the Cincinnati Art Museum, the 34-foot outdoor painted steel sculpture *Atman* by Mark di Suvero (please see Statement of Artistic Significance in Optional Attachments). *Atman* was acquired by the Cincinnati Art Museum in 1985, at which time di Suvero's studio estimated that the steel hardware used to assemble the sculpture would need replacement every 20 years. Although regular maintenance and several small treatments have been carried out during the past 22 years, a major treatment has not. The proposed treatment project involves disassembling the sculpture, replacing the corroded hardware, repainting, rebuilding the wooden swing that is an integral component of the piece, and reassembling the sculpture. In order to increase the long-term stability of the work a zinc undercoating will be applied to reduce the rate of corrosion, new hardware will be of galvanized steel, and the base will be welded to steel plates to prevent shifting.

The treatment of this work became a conservation priority following the structural steel inspection of *Atman* carried out in 2002 by the H.C. Nutting Company (Geotechnical, Environmental, and Testing Engineers). The inspection was commissioned to ensure that no damage had occurred to the work when it was moved in an emergency (see Condition Report in Supporting Documentation). The 2002 report by H.C. Nutting Company revealed "no evidence of structural deformation or failure of the welded components," however it did "reveal signs of extensive corrosion in several of the components." According to the 2002 report, extensive corrosion is present around the connection plates; there is evidence of scaling and delamination; and many of the bolts and washers are heavily corroded.

The situation became more urgent in August 2007, when one of the two buried steel cables used to anchor the freestanding leg in place rusted through. When it broke, the sculpture may have shifted significantly as there was a four-inch gap that could not be closed between the cable and the leg. The tension on the second cable also greatly increased at this time. In September 2007, after consultation with the artist's studio and Lowell McKegney (the artist's primary installer), the cables were replaced with ½-inch galvanized steel wire rope with fiber core and ½-inch Crosby cable clips. While the new wire rope cables stabilize the freestanding leg, the amount of shifting that occurred when free remains unknown. Any shift at the base of the sculpture undoubtedly caused shifting near the top where the beams are joined together.

The recent conversations with Lowell McKegney included a strong recommendation that larger steel plates (3 x 3 feet) replace the small existing plates (15 x 18 ½ inches) at the base of the sculpture, and that the legs of the sculpture actually be welded to the steel plates as originally intended when built. This was not done when the sculpture was purchased by the Museum in 1985 because its permanent position had not been finalized and concrete footers had not been set. When moved as one unit in 2002 it was difficult for the riggers to properly set each foot onto its designated steel plate.

Therefore at present the legs, while positioned on the concrete footers, are not resting on the steel plates and are not connected to the plates in any way.

At this time the sculpture is also in need of repainting. *Atman* was unpainted when purchased by the Museum in 1985. In 1988, in consultation with the artist, it was sandblasted and painted with a catalyzed polyurethane paint made specifically for coating steel (Dupont Imron). In 1996, it was sandblasted and repainted as part of the Museum's maintenance plan. Currently the paint coating is in need of replacement as the surface of *Atman* shows areas of paint loss throughout. Paint around the connection plates and welds has begun to blister and peel. There are numerous areas of abrasion to the paint surface. Since it will be necessary to fully disassemble the sculpture in order to replace the hardware, this is an ideal time to thoroughly clean each segment; this is especially the case because -previous cleaning and painting campaigns were carried out while the sculpture was in place, so that inaccessible surfaces between joined areas have never been sandblasted or coated. A Tnemec paint system, which includes a zinc undercoat, is recommended by the artist's studio and will be used to re-coat the sculpture.

Finally, the swinging bed integral to the artist's vision for the piece is in need of new boards. While the steel framework is in good condition, the boards have weathered and split significantly, and moss has begun to grow around the edge. Because the public is encouraged to use the swing, we not only have a responsibility to the artwork, but to the safety of visitors as well.

The Cincinnati Art Museum has made significant progress in the care of its collection, guided by a Long Range Conservation Plan that was developed after a 1990 general conservation survey. The Long Range Conservation Plan identified five overriding needs:

- (1) Improve collections storage;
- (2) Implement an Integrated Pest Management (IPM) program;
- (3) Improve housekeeping in storage and in galleries;
- (4) Improve the environmental control system; and
- (5) Increase care for collections where there is not a conservation specialist on staff.

The storage conditions for the collection have dramatically improved since 1990. At the end of 1990, the local historical society began to relocate, setting in motion an ambitious project to renovate about 30,000 square feet of the Museum building to serve art storage, curatorial, registration and object preparation functions. Funded through a capital campaign, over 28,000 objects from the CAM's decorative arts, costumes, textiles and ethnographic collections were relocated from overcrowded and antiquated storage areas, and rehoused in a new Spacesaver compact storage system, with radically improved environmental and security controls. This three-year project was completed in 1999, and impacted half of the total collection. With the support of an IMLS Conservation Project grant, in 2002 the Museum completed the relocation of 750

works from its European and American paintings collection, previously in basement storage, to a second renovated storage area. In 2006, another IMLS grant enabled us to relocate 1,500 objects remaining in basement storage rooms to the newer storage areas. Collection areas that remain in need of rehousing include 600 musical instruments and 1,600 ethnic textiles. At present, the renovated storage areas are reaching full capacity (especially in light of promised gifts to the collection) and the main facility offers little potential for adding storage space. The Museum has identified increased art storage as a priority in its recently completed Facilities Master Plan that has defined the space program for the future planned expansion of the Museum's campus. As an interim step to provide additional storage, the Museum is developing a plan for an off-site storage facility.

Since the adoption of the Long-Range Conservation Plan, the Art Museum has established regularly scheduled art storage and gallery housekeeping programs, as well as an IPM program following a study conducted by entomologist Dr. Tom Parker. The IPM program was updated and improved in 2007. The environmental control system has been continuously improved over the years, including the upgrading of all HVAC controls and system balancing in 1992, the replacement of the chiller plant in 1996, the replacement of air handling units in 2006 and the purchase of new HOBO dataloggers in 2007 to monitor temperature, relative humidity, and cumulative light exposure.

Having made significant progress in areas affecting the collection as a whole, the Museum has turned more attention to more specific collection care issues. The Museum employs three full-time conservation staff with expertise in works on painting, paper, and objects conservation. The position of objects conservator was added in 2003. Conservators regularly inspect works in the galleries and art storage areas to determine immediate or developing treatment needs while conducting routine care. Priority lists are maintained for each collection area and reviewed yearly by the appropriate curator and the chief conservator.

Major treatment activities in recent years have included treatment in preparation for permanent gallery reinstallations, such as 90 Asian objects in preparation for the 2007 opening of the renovated Asian galleries, a small group Ottoman decorative arts for a 2006 gallery installation, African art in 2005, and over 70 pieces for a major installation of Cincinnati art that opened in 2003. Outside conservators have been secured to address collection needs for which there is no specialist on staff. For example, in 2006 a specialist was hired to treat 200 portrait miniatures from the permanent collection. A final major treatment project of note was the cleaning and structural conservation of the 75-foot *Mural of Cincinnati* by Saul Steinberg, which was carried out by the Intermuseum Conservation Association in 2007.

The proposed funding would enable the Museum to address its highest conservation priority by securing outside assistance for a project that would be impossible to complete with the Art Museum's own conservation staff, facilities, and financial resources.

2. PROJECT DESIGN

Atman (1978-79) is a large scale painted steel outdoor sculpture by artist Mark di Suvero. The sculpture is composed of five steel beams: three vertical legs supporting two horizontal beams. The foot of each leg rests on a steel plate secured to a concrete footer. The beams are assembled and secured with a combination of connection plates, A325 hexagonal bolts, and welding. Galvanized steel wire rope with fiber core is used to secure the free leg to the other two. The lower crossbeam supports a swinging bed made of California redwood and steel framework. Two clamps anchor the swing in place, which is suspended from steel chain link rope on either side. The swing is popular with visitors to the Art Museum and Eden Park.

As an outdoor and interactive sculpture *Atman* is directly affected by weather, environmental conditions, and human interaction. Therefore the overarching goal of the treatment is to ensure the long-term structural stability of *Atman*. The tasks to meet this goal are outlined below. Throughout the process, the Museum's staff will work directly with the artist's primary installer, Lowell McKegney. Fenton Rigging & Contracting will also be hired to carry out project tasks.

- Lowell McKegney, the artist's primary installer, will work with Fenton Rigging & Contracting, and members of the Museum staff including Megan Emery and Stephen Bonadies, conservators, and Chris Williams, preparator, to disassemble the sculpture. Mr. McKegney and Objects Conservator Megan Emery will carry out a thorough examination of each component. Existing steel plates will be removed from concrete footers. Fenton Rigging will oversee the loading of sculpture components onto a flat bed tractor-trailer.
- Fenton Rigging & Contracting will transport the disassembled sculpture to the company's secure facility, where the following steps will be carried out. Ms. Emery will visit the Fenton facility at least once during this time.
 - The steel beams will be sandblasted by Fenton in order to remove existing deteriorated paint layers. This cleaning will be conducted in accordance with Steel Structures Painting Council specification SSPC-SP-10, 'Near-White Blast Cleaning' in compliance with ASTM D 4417.
 - The sculpture's components, including the new steel plates and hardware, will be painted by Fenton using a Tnemec paint system recommended by the artist's studio in order to reduce the rate of deterioration through corrosion. Coatings will be applied according to manufacturer directions: zinc undercoat, colored epoxy coating, followed by clear polyurethane coating. Paint will be factory mixed and color selection approved by the artist prior to disassembly. Dry film thickness will be 4-5 mil.

- Fenton Rigging will transport the sculpture components back to the Cincinnati Art Museum. New 3' x 3' steel plates will be installed on concrete footers in order to provide a larger, more secure base.
- Reassemble sculpture in-situ following the instruction of Lowell McKegney and with help from a team of Museum staff and Fenton Rigging. Extra care will be taken to ensure that the newly painted surface is not damaged during rigging. Welding will be carried out where necessary and will include welding the base of each leg to new steel plates. All hardware will be replaced with new galvanized steel A325 nuts, bolts, and washers. Any paint blemishes which may occur during installation and on-site welding will be touched up by Fenton.
- Replace boards on swing using 2" x 12" boards of California redwood, new carriage bolts, and a new galvanized steel link chain. The new swing will follow specifications provided by the artist's studio.

Throughout the disassembly and erection of the sculpture, Museum security guards will be on site to ensure that traffic up the Museum's private driveway can safely proceed around the work site. Fenton will supervise the safety of those helping with the process. Lowell McKegney and Megan Emery will supervise the safety of the sculpture itself.

The Museum's Objects Conservator will complete written and photographic documentation of the sculpture's condition before and after treatment, including a detailed account of treatment steps and procedures used.

3. PROJECT RESOURCES: TIME, PERSONNEL, BUDGET

Lowell McKegney: Mark di Suvero's associate studio director and primary installer. He has been working with Mr. di Suvero for over 25 years. Mr. McKegney helped the artist build *Atman* in his California studio. He has taken down and reassembled *Atman* six times prior to installing it at the Cincinnati Art Museum in 1985. He has advised the Museum numerous times over the years regarding *Atman*. His participation in the treatment is required by the di Suvero studio. Time allotted: Nine days including travel.

Fenton Rigging & Contracting: Founded 1898, a Cincinnati firm with the equipment and facility to take down, transport, and carry out the required sandblasting and painting. This company has worked for the Cincinnati Art Museum on several large-scale projects, including the initial assembly of *Atman* in 1985 and the move of the sculpture in 2002. Our main contact at Fenton will be Bob Lee, who personally assisted with the relocation of the piece in 2002. Time allotted: Six weeks.

Stephen Bonadies: Chief Conservator for the Cincinnati Art Museum. Mr. Bonadies will act as Project Director, supervising the project schedule and budget. He has served as a conservator for the Cincinnati Art Museum since 1981, and was promoted to the position of Chief Conservator in 1991. From 2003-2006, he served as director of

museum services, overseeing design, installation, and registration, and served as interim co-director in 2006. He holds a master's degree in Art Conservation from the State University College at Cooperstown, New York. Time allotted 35 hours.

Megan Emery: Assistant Conservator of Objects, will coordinate all logistics and people involved in this project and will be directly involved at each stage to ensure the safety of the object. Ms. Emery holds an MA and Certificate of Advanced Training in Art Conservation from Buffalo State College and recently completed a Mellon Fellowship in Objects Conservation at the National Museum of the American Indian. She joined the staff of the Art Museum in August 2006. Since that time, she has become familiar with the sculpture and its history, and worked with the di Suvero studio and Lowell McKeegney to replace the cable broken in 2007 and to develop this treatment plan. Time allotted 56 hours.

Other staff involved in the project will include Julie Aronson, Curator of American Paintings and Sculpture, who has curatorial oversight of the object; Harry Geimeier, Assistant Director of Facilities Services, who will oversee the safety of staff and visitors when the team is disassembling and assembling *Atman*; Chris Williams, Chief Preparator, who will assist Ms. Emery with the logistics of dissembling and reassembling *Atman*; and the Museum's two carpenters who will make the replacement swing. Museum staff have factored their time required for this project into their yearly work plans.

The timeline for the project is May to November 2008, beginning with the scheduling and ending with final condition documentation. Disassembling is expected to require two days, and reassembling to require three days. Please see Schedule of Completion for detailed project steps. The largest part of project resources will be required of Fenton Rigging, and the requested grant of \$24,000 would help to offset the fee for their services.

The cost sharing includes some staff time and supplies, which would be provided by general operating funds for the conservation department. The Museum will seek private support from its patrons who have a record of support for contemporary art to offset the remaining cost. This group of donors has contributed \$56,000 in 2007, and \$57,000 in 2006 to special contemporary art projects. We expect its members would meet the challenge of matching the IMLS grant.

4. IMPACT

This project has an impact that extends far beyond the Art Museum's 250,000 annual visitors. Situated on the Museum's lawn fronting Eden Park Drive, *Atman* is not only the most visible art work in the collection, it is seen and used by countless visitors to Eden Park, a 186-acre park with cultural facilities, recreation amenities and views of Downtown Cincinnati and the Ohio River. The park is a major Cincinnati attraction and *Atman* is the most notable public artwork within it.

The project will ensure the stability of *Atman* for an anticipated twenty years. During this time Art Museum conservators will continue their maintenance program, which includes routine inspections to ensure concrete footers are clear of grass, dirt, and snow, prevention of built up grass clippings on and around base of legs, and ongoing maintenance of the swing to ensure public safety. An annual condition assessment will be carried out by Objects Conservator. Every ten years, or earlier if deemed necessary, a structural steel inspection will be carried out.

SCHEDULE OF COMPLETION

Timeframe	Activities
May - July 2008	<ul style="list-style-type: none"> • Chief Conservator will meet with Objects Conservator and Chief Preparator to schedule date for take down with artist's studio, Fenton Rigging, and Museum staff, including Security and Building supervisors. • Objects Conservator will make flight and hotel arrangements for Lowell McKegney. • Objects Conservator will complete all necessary conservation documentation- before treatment photographs, detailed condition report. • Objects Conservator will obtain detailed paint requirements from artist studio (color, film thickness, preferred manufacturer). • Collect paint color samples from Fenton to have approved by artist. • Objects Conservator will obtain specifications from artist's studio for the replacement swing.
July 2008	<ul style="list-style-type: none"> • Two full days required for take down. The entire project team will be involved. Fenton Rigging will load sculpture onto trucks and take to their facility.
July - October 2008	<ul style="list-style-type: none"> • Fenton Rigging will sandblast and paint sculpture. • Chief Conservator and Objects Conservator will regularly view progress of sandblasting and repainting at the off-site facility. • Chief Conservator will meet with Objects Conservator and Chief Preparator to schedule reinstallation. • Objects Conservator will order all hardware and additional supplies for assembly (upon arrival they will be delivered to Fenton for painting). • Carpenters will replace boards on swinging bed.
October 2008	<ul style="list-style-type: none"> • Three full days required for assembly. The entire project team will be involved. • Objects Conservator will complete post-treatment documentation.

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages		4,029.00	4,029.00
2. Fringe Benefits		765.51	765.51
3. Consultant Fees		7,000.00	7,000.00
4. Travel		2,850.00	2,850.00
5. Supplies and Materials		2,540.00	2,540.00
6. Services	25,000.00	5,000.00	30,000.00
7. Student Support			0.00
8. Other Costs			0.00
TOTAL DIRECT COSTS (1–8)	25,000.00	22,184.51	47,184.51
9. Indirect Costs		3,027.68	3,027.68
TOTAL COSTS (Direct and Indirect)	25,000.00	25,212.19	50,212.19

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	25,000.00
2. Cost Sharing:	
a. Cash Contribution	25,212.19
b. In-Kind Contribution	
c. Other Federal Agencies*	
d. TOTAL COST SHARING	25,212.19
3. TOTAL PROJECT FUNDING (1+2d)	50,212.19
% of Total Costs Requested from IMLS	50.00%

* If funding has been requested from another federal agency, indicate the agency's name:

1. STATEMENT OF NEED

Strategic Planning and Evaluation

During 2006, the New England Aquarium undertook three major planning and evaluative efforts: development of a five-year strategic action plan (launched January 2007), application for American Zoo and Aquarium accreditation (granted September 2006), and renewal application for American Association of Museums accreditation (self-study submitted 2006; site visit scheduled October 2007).

Through these processes, NEAq completed a rigorous self-evaluation that included programs, operations, exhibits, and facilities. The *Institutional Collection Plan* was revised (excerpts attached) as an important element of the accreditation applications. A new strategic document, *Action Plan 2007-2011* was created to guide the institution through the next five years. NEAq's Capital Plan was updated and incorporated into the Action Plan. It originally was developed in 2002 (excerpts attached), when consultants worked with staff to evaluate and prioritize capital needs. Although much has already been accomplished, this plan continues to guide improvements. Capital projects of all kinds—exhibit renovation, life support system upgrades, structural repairs—are now scheduled within the Action Plan.

Action Plan 2007-2011 confirms the institution's commitment to responsible care of its living collections. The Plan's first priority is centered on the exhibit pathway and includes all capital needs. Within this priority, one objective is to "implement an integrated capital improvement plan." The first stated assumption for all capital improvements is that NEAq will "Prioritize infrastructure improvements affecting environmental quality needed to maintain the health of the animal collection." (See attached excerpt from Action Plan)

Institutional Commitment to Capital Improvement and Collection Conservation

The New England Aquarium (NEAq) is, by its nature, a capital-intensive institution. Now nearly 40 years old, it is in need of consistent modernization, repairs, and upgrades. Each year's operating budget includes funding for capital projects, and when a surplus is achieved—as has been true each year since 2003—additional funds are added to these efforts. We seek further funding from individuals, corporations, and foundations. Between 2004 and the present, NEAq has invested more than \$7 million into building modernization projects. While many of these projects concern facilities and systems—such as electrical upgrades and structural repairs—high priority is given to projects that concern the health and presentation of our valuable living collections.

Major capital projects during the past three years have included a major electrical upgrade; installation of a new cooling tower, sump pump, and soil pipe; window replacement; new exhibit piping; concrete repairs throughout the building; re-design and construction of our Gulf of Maine exhibit; and upgrades to life support at various exhibit bays. We recently received a grant to replace filters for our largest two exhibits, the Caribbean Reef and Penguin Tray, which were our top priority in terms of life support. We will complete that project in the spring of 2008. An IMLS Conservation Project Support grant in 2000 allowed NEAq to make improvements to the Caribbean Reef's aeration chamber in a successful effort to improve water quality and clarity. Replacing the filters will further improve conservation of that collection.

Another project currently underway is a complete upgrade to the building's air conditioning system. When the Aquarium opened in 1969, it was anticipated that 600,000 people would visit annually. We now regularly exceed twice that number, yet still use the original air conditioning system. This is particularly challenging in summer, when peak visitation coincides with high heat and humidity. The rack chiller cannot always hold its set point and temperatures creep up. A grant from the Harold Whitworth Pierce Charitable Trust has allowed us to begin planning and preparation for replacement of the system. This IMLS proposal is directly tied to that effort: the same water we use for air conditioning is used for chilling in exhibits. During the summer, the temperatures in the tanks climb, often past their target temperatures, threatening the safety of our living exhibits.

Conservation Need: environmental improvements in chilled-water exhibits

The New England Aquarium presents aquatic animals from around the globe in exhibits that simulate the species' natural habitats. Different temperatures are maintained in various exhibits, from the Caribbean Reef to

our Gulf of Maine Boulder Reef. The most challenging temperatures to maintain are in the cold-water galleries. (We use the term “gallery” to refer to a series of related and adjacent exhibit tanks.)

When the Aquarium opened in 1969, the chilled water system was state of the art, with a 160-ton rack chiller providing air conditioning and chilled water for the cold-water exhibits. The chilled water was delivered to each gallery through cast iron piping and booster pumps pushed the water through each tank’s individual heat exchanger. The chilled water would pass through these ‘carbate’ heat exchangers, blocks of carbate material immersed either in the exhibits themselves or in a reservoir adjacent to the exhibits. The exchangers cooled the exhibit water through immersion. Over time, the cast iron piping delivering the chilled water became occluded and the carbate exchangers could not keep up with the chilling demands. The carbate exchangers required additional floor space or if placed directly into the exhibit, took up valuable exhibit area. Because of their age, it also became very difficult to service the exchangers and hard to find parts if they needed repair.

Because of the inefficiency and inadequacy of the original system, the Aquarium has taken steps toward improving and updating it. The old cast iron piping has been replaced with PVC pipe and has been insulated. Most of the booster pumps—which used large amounts of electricity—have been removed and new, more efficient circulation pumps have been installed on the main chilled water line. In addition, we have replaced 12 carbate heat exchangers with titanium plate & frame heat exchangers. We also installed several flow meters to improve our ability to measure and adjust the water flow through the new heat exchangers.

Efforts to date have improved conditions for the animals, reduced staff time spent on troubleshooting, and freed up space previously used for the large carbate exchangers. Nevertheless, we are still experiencing elevated temperatures in many of the tanks during the hot summer months. (See attachment, which shows optimal temperatures versus actual temperatures). Because monitoring temperature is difficult with the current system, we are often responding to increased temperature, rather than preventing it. Portable chillers can be brought online for tanks in emergency situations. They are effective in bringing down the water temperature, but we only have a limited number and cannot always service all of the exhibits with rising temperatures. In addition, these chillers take up valuable space behind the galleries and draw large amounts of electricity.

There are three main consequences to rising temperatures. First, and most important, is that above-normal temperatures can stress all of the animals in our cold-water collections, adversely affecting their health. High temperatures are especially dangerous for invertebrates, such as anemones, crabs, and lobsters. We have experienced some mortality among these animals. Second, responding to temperature increases, making adjustments, repairing old and outdated equipment, and caring for affected animals are all time-consuming and stressful for staff. Finally, the new equipment is much more energy efficient than the old system and the Aquarium is committed to both limiting its carbon output and reducing energy expenses. Completing the upgrade of the chilled water system will address all three of these issues.

How the project meets the highest conservation needs

NEAq’s highest conservation need is to maintain the health and well-being of its live animal collection. Efficient, modern life support systems are critical to maintaining optimal environmental quality in aquatic exhibits and the health of the animals within. Continuing to upgrade the life support system and replacing outdated equipment will support the Aquarium’s highest conservation need and will ensure that the animals are provided with the best possible environment. As some of the animals in our cold-water exhibits are showing signs of stress—with some mortality attributed to rising temperatures—it is vital we that address the situation.

2. PROJECT DESIGN

Goals

The New England Aquarium will improve environmental conditions for the living collections in its cold-water exhibits through upgraded heat exchangers and installation of monitoring equipment. This environmental improvement project will allow the Aquarium to achieve the following goals:

- To maintain target temperatures more consistently in cold-water exhibits;
- To reduce stress on the animals caused by tank temperatures above optimal ranges;
- To decrease staff time and attention spent monitoring and addressing temperature issues during the warm summer months; and
- To eliminate the need for emergency chillers, thereby reducing electricity use.

Objectives

To achieve the above goals, the New England Aquarium will continue making improvements to the chilled water system. We will replace the eight remaining carbate heat exchangers with plate & frame heat exchangers and will install monitoring equipment on exhibit and cold-water piping. This equipment will be critical to ensure the system is working properly, allowing staff to monitor each exhibit more easily and make adjustments as needed.

Replace carbate heat exchangers with plate and frame exchangers: There are eight remaining carbate exchangers: two in the Freshwater Gallery and six in the Cold Marine Gallery. The carbate exchanger system is outdated, difficult to maintain, and takes up valuable floor space. By contrast, plate and frame heat exchangers are extremely efficient in chilling water, take up very little space, can be mounted anywhere (on the ceiling or wall), are easy to service, and are modular—plates can be added or removed if necessary. (See photos and equipment specifications)

Plate and frame heat exchangers are a pack of corrugated metal plates with portholes for the passage of two fluids, between which heat transfer takes place. The plates form channels so that the two media (in this case, water circulating from the exhibits and chilled water from the Aquarium's rack chiller) flow through alternate channels. There is no leakage or intermixing of the waters. The corrugation provides a passage between the plates, supports the plate against each other, and creates a strong turbulence resulting in maximum heat transfer efficiency.

Install flow meters: We will install flowmeters to measure water flow on both the exhibit-water side and the chilled-water side of each heat exchanger. This equipment will facilitate the monitoring and adjusting of exhibit temperature. Staff Aquarists will be able to optimize the chilling process by increasing or decreasing flow through the plate and frame exchangers.

There are currently 7 flowmeters and we will install another 21. Until all exchangers have flowmeters, our information is imperfect: we do not know how an adjustment at one exhibit will affect overall flow through the system and, thus, alter the temperatures in other exhibits.

Install Temperature Gauges: Temperature gauges in various key locations along the chilled water system also will help with temperature adjustment. The temperature gauges provide important information on the efficiency of the whole cooling system. To maintain target exhibit temperature most effectively, staff must know the temperature of the chilled water so that they can adjust flow to obtain optimal temperatures.

Install Circulating Pumps: We will install eight small, low-energy pumps to circulate exhibit water to and from each new heat exchanger.

Activities:

NEAq staff members installed the eight plate and frame exchangers currently in service. These same staff members will install the exchangers and redirect the water flow from the existing carbate exchangers.

- The Project Manager for this initiative, Barbara Bailey, will order the required equipment. She will work with vendors to ensure correct specifications. She will also monitor results of the installations and track the budget.

- NEAq Mechanics will make mounting frames for the heat exchangers, install the chilled-water piping and connect the plate and frame heat exchangers to the main system. They will also install the flowmeters on the chilled-water side of the system.
- Aquarists will connect the new heat exchangers to the exhibits and holding tanks. They will run and connect the plumbing, install circulating pumps, and attach flowmeters to the exhibit-water side of the system. They will also dismantle and remove existing carbate heat exchanger. This includes two that are submerged in reservoirs below two holding tank systems. Removal of these will be more challenging. The holding tanks will have to be emptied and the animals temporarily moved.
- After each new exchanger is brought online, an Aquarist will closely monitor the exhibit's temperature to ensure all is in working order.

Effect on normal museum operations

All of the work proposed here will take place behind the scenes, out of view of visitors. Installing the equipment will not disrupt the collections in any way. Exhibits will remain connected to the existing heat exchangers until the new equipment is fully installed. We will connect the chilled water lines first and then, finally, the exhibit lines. This transfer will be quick enough that it will not adversely affect temperatures, and we will monitor exhibit temperature to ensure minimal impact. If a problem occurs, we will have the emergency chiller equipment on hand.

Description of the collection

The majority of exhibits that will benefit from the proposed upgrades are in the “Northern Waters of the World” gallery, known internally as the Cold Marine Gallery. We also propose to upgrade two exhibits in our Freshwater Gallery, as described below, as well as related holding areas for all described exhibit animals.

The goal of the *Northern Waters of the World* gallery is to educate the public about cold-water biodiversity and habitats. The gallery displays both New England (“East Coast/Gulf of Maine”) and Pacific Northwest (“West Coast”) marine habitats.

East Coast/Gulf of Maine exhibits include:

- **Boulder Reef Community**. This 3,400-gallon exhibit recreates the bolder-strewn bottom habitat found throughout the Stellwagen Bank National Marine Sanctuary, and elsewhere in the Gulf of Maine. Signature species include Acadian redfish (*Sebastes fasciatus*), haddock (*Melanogrammus aeglefinus*), Atlantic wolfish (*Anarhichas lupus*), red deep-sea crab (*Geryon quinquedens*), stalked tunicate (*Boltenia ovifera*), and northern red anemone (*Urticina felina*).
- **Sandy Bottom Community**. This 2,500-gallon exhibit features 20 species that frequent gravel- or sandy-bottomed habitats. This exhibit displays such food fish as Atlantic cod (*Gadus morhua*), pollock (*Pollachius virens*), Atlantic halibut (*Hippoglossus hippoglossoides*), winter flounder (*Pseudopleuronectes americanus*), and sea scallop (*Placopecten magellanicus*). Other species include spiny dogfish (*Squalus acanthias*) and chain dogfish (*Scyliorhinus retifer*). There are two Conservation Program Species in this exhibit: Barn door skate (*Dipturus laevis* – IUCN Red List) and Atlantic sturgeon (*Acipenser oxyrinchus* – CITES listed).
- **Isles of Shoals**. The animals and habitat in this 560-gallon exhibit illustrate a characteristic common to many bottom dwellers—camouflage. The 23 species on display include American lobster (*Homarus americanus*), lumpfish (*Cyclopterus lumpus*), ocean pout (*Zoarces americanus*), and smooth sunstar (*Solaster endeca*).
- **Eastport Harbor**. This 560-gallon exhibit re-creates a habitat as would be found in a New England harbor such as Eastport, Maine. It is representative of the Gulf of Maine's high-current, nutrient-rich, consistently cold waters. The 35 species displayed include Acadian redfish (*Sebastes fasciatus*), ocean pout (*Zoarces americanus*), rock gunnel (*Pholis gunnellus*) and numerous invertebrates such as hermit crabs, sea cucumbers, seastars, red soft coral (*Gersemia rubiformis*), and scarlet psolus (*Psolus fabricii*).

- The 560-gallon Goosefish exhibit features this important food fish species in the Gulf of Maine. The goosefish (*Lophius americanus*) has an unusual appearance and unique morphological adaptation (fishing lure) that make it appealing to visitors.

West coast/Pacific Northwest exhibits include:

- Pacific Coast Tidepool. This 560-gallon exhibit features the high-energy dynamic characteristics of exposed tidepools. An artificial “wave” crashes into the exhibit approximately once a minute. Among the 11 species displayed are sea stars, sea urchins, opaleye (*Girella nigricans*), striped surfperch (*Embiotoca lateralis*), and giant green anemones (*Anthopleura xanthogrammica*), which carpet the bottom of the exhibit. (See Photo)
- Pacific Giant Octopus. The Pacific octopus (*Octopus dofleini*) residing in this 810-gallon exhibit has extremely high visitor appeal. The exhibit includes 19 other species, such as anemones and sea stars. (See Photo)
- Pacific Northwest. This 560-gallon exhibit features a West Coast boulder reef, a complex habitat. The 76 species include invertebrates such as vermilion seastar (*Mediaster aequalis*), orange sea pen (*Ptilosarcus gurneyi*), red sea urchin (*Strongylocentrotus franciscanus*), and feather duster worm (*Eudistylia vancouveri*). Fish displayed include blackeye gobies (*Coryphopterus nicholsii*), black surfperch (*Embiotoca jacksoni*), painted greenling (*Oxylebius pictus*), and grunt sculpin (*Rhamphocottus richardsonii*). (See Photo)

Also affected will be two freshwater exhibits requiring cooled water, both of illustrating New England river systems:

- Trout Stream is a 250-gallon, single-species exhibit housing New England brook trout (*Salvelinus fontinalis*). Native to New England, these trout are an important recreational fish and have high recognition among visitors. In the wild, they face numerous conservation and habitat issues, including introduced trout species and habitat destruction (e.g. dams).
- Atlantic Salmon. This 3,100-gallon exhibit houses Atlantic salmon (*Salmo salar*) and other New England river species. This local watershed display communicates several environmental issues and displays species of economic, recreational, regional, and ecological note. Atlantic salmon is a Conservation Program Species (State of Massachusetts listed).

We include animal holding tanks in our proposed project, as maintaining optimal temperature is also critical in these environments. Holding tanks are used to quarantine animals that will be introduced into exhibits, to hold animals being treated medically, and for collections management—such as when animals are being moved from one exhibit to another, or when an exhibit is being cleaned or renovated.

3. PROJECT RESOURCES

Time

This project will begin on or soon after May 1, 2008. If funded, we will finalize specifications and contact our suppliers to order the equipment. The plate and frame heat exchangers are custom-built and may take one to two months to arrive. In the meantime, we will order the other equipment and supplies.

The mechanics will install the temperature gauges soon after they arrive. They will also begin installing flow meters on the chilled-water side of existing plate and frame exchangers. Working with the husbandry staff, mechanics will identify where the new exchangers will go, and then they can begin fabricating the hanging frames for these exchangers. All of this work will be completed by the end of June, when we expect to have received the new heat exchangers. At this time, we should already begin to see an improvement. The additional flowmeters and temperature gauges will allow Aquarists more control over exhibit temperature.

After the plate and frame exchangers arrive, we will schedule their installation over the following two and a half months—most likely between the first of July and the middle of September. The exhibits with the most critical

need will be scheduled first, so that they are online for the peak heat of summer. We will prioritize based on the collections themselves, meaning that those with more invertebrates and those experiencing the highest temperatures in the past will be converted first.

Personnel

New England Aquarium staff members will complete all activities in this conservation project. Staff members from the Facilities and Animal Husbandry departments will work together to ensure the equipment is properly installed and that the results are monitored. These departments work together regularly on equipment maintenance, repair, and upgrades, and the tasks required for this project are within the normal duties of all involved. Staff contribution of time is counted toward the Aquarium's cost share.

John Dayton, Director of Animal Husbandry, will oversee this project and will supervise the Aquarists. Mr. Dayton has over 30 years of experience managing complex aquarium systems. He is responsible for the proper husbandry and management of all NEAq live animal collections and exhibits. His time commitment should be minimal, estimated at 3 hours.

Steve Smith, Facilities Manager, will be responsible for oversight of the facilities staff working on this project. Mr. Smith is responsible for upgrades and renovations throughout the building and this project is within his normal duties. He will contribute 3.5 hours to the project. Mr. Smith has been in this position for 23 years. His normal responsibilities include oversight of mechanics, electricians, and carpentry; maintaining heating, ventilation, and air conditioning systems; and maintaining the process chiller loop that cools exhibits throughout the Aquarium.

Barbara Bailey, Project Manager and Office Supervisor, will work with vendors to ensure correct specifications for the equipment. She will coordinate with facilities staff to order equipment and schedule installation, will track the budget, and will monitor the work and the results. Ms. Bailey will contribute 45 hours to this project. Ms. Bailey has worked at the New England Aquarium for 22 years, 14 in her current position. She has managed many similar projects.

Staff Mechanics will contribute approximately 112 hours to this project. They will make mounting frames for the heat exchangers. They will mount the exchangers and connect them to the main system, installing PVC piping for chilled water. They will also install flowmeters on the chilled-water side of the system. **Al Munn**, Lead Mechanic, will supervise this work and participate in the installation process directly. He will contribute an additional 112 hours. Staff mechanics are responsible for the Aquarium's equipment upgrades and maintenance. The tasks required for this project are within the normal duties of these staff members. Mr. Munn has worked for the Aquarium for 11 years, 5 as Lead Mechanic, and has overseen many similar projects.

Staff Aquarists will be responsible for connecting the heat exchangers to the exhibits and holding tanks. They will run and connect the plumbing and install circulating pumps. They will also attach flowmeters to the exhibit-water side of each system. **Michael Kelleher**, Assistant Curator, will directly supervise the work performed by the Aquarists and make decisions regarding pipe and equipment location. He will spend 18 hours on this work. Mr. Kelleher has worked for the Aquarium for 27 years, serving as Assistant Curator since 2004. He has participated in previous installation and oversight of new equipment in the cold marine gallery.

Budget

The total budget for this project is \$85,746 and we are requesting \$42,120 from IMLS. This request is to cover equipment and supplies. (See attached specs and price lists for flowmeter, pump, and temperature gauges)

NEAq will match this grant with a combination of staff time, overhead, and cash. Staff contribution accounts for \$11,523 of the budgeted cost share, including fringe benefits. Our federally negotiated indirect cost rate is 39.1% for exhibit-related work. This has been applied to total direct costs. (Our rate stipulates that equipment cost more than \$5,000 per piece to be excluded from the overhead calculation.) Our contribution through overhead is \$24,103. In addition, we will cover \$8,000 of the cost of equipment and supplies through other

funding. Each year since 1970, the Edwin S. Webster Foundation has provided grants to the Aquarium, with the past five going toward “critical capital” projects—important maintenance and upgrades. We will plan to attribute \$8,000 of this grant (expected in December 2007) toward this project.

If for some reason we do not receive a grant from the Webster Foundation, we will use another source. The Aquarium is currently raising funds from its Trustees, Overseers and closest circle of donors to support the goals of the Action Plan described above. For this cost share, we can either use funds already raised for the Action Plan, or use the IMLS grant as a challenge for a specific donor. In either case, we are fully confident that we will be able to raise the \$8,000 needed.

4. IMPACT

Assessing Outcomes

The primary outcome of this project will be healthier animals. We hope to reduce stress that these animals, particularly invertebrates, can experience with elevated temperatures. Although we cannot be 100% sure that mortality has been caused by rising temperatures, we will track mortality in these exhibits during the summer and compare with past years. We will also monitor the health of all of the animals in these exhibits to see if there are fewer health issues than in past years.

This result is dependent on another outcome, achieving and maintaining optimal temperature in each of the exhibits that use chilled water. We will assess this by continuing to record temperatures in these exhibits, comparing them with both optimal temperatures and average temperatures from past years (see attached). In July of 2007, 67% of the tanks using chilled water in the Cold Marine Gallery and Freshwater Gallery had average temperatures above optimal range. Of these, temperatures exceeded optimal by, on average, 2.85 degrees. We will assess our success against this benchmark.

Another outcome is the reduction of staff time and attention spent trying to maintain optimal temperatures. Primarily, we will track how often—if at all—we have to use the portable emergency chillers. We will track this during summer 2009, the first summer when all of the new equipment will be in operation.

To achieve these outcomes, we must accomplish the activities described in this proposal. We will measure the following results:

- Successfully installing all of the necessary equipment;
- Ensuring that staff can operate equipment, maintaining optimal flow to achieve target temperatures; and
- Remaining on schedule—completing project by the end of November of 2008.

Benefits to the Aquarium and its visitors

Optimal temperatures, if consistently maintained, will benefit the collections, Aquarium staff, and visitors. Clearly, the primary benefit is to the animals themselves. Another important result will be a reduction of staff time and effort. In addition to maintaining old equipment and responding to emergencies, staff are responsible for collecting some of the animals for the exhibits. The invertebrates most affected by rising temperatures are not endangered animals, but we do strive to collect as few animals as possible so that we have minimal impact on their wild populations, and because collecting is time consuming and often difficult in local waters.

Visitors may not notice the health of an anemone or crab, but the exhibits experiencing high temperatures can look less hearty, and stressed animals can be less active. For example, anemones appear much less robust in these conditions and, with their mortality, some tanks are more sparsely populated. We expect the exhibits in question to be more vibrant during the summer because of this conservation project.

New England Aquarium

Chilled Water System Improvement Project - Timeline

Project Week 1 Start Date: On or about May 1, 2008

TASKS	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Post	
Design & Costing																								
Preliminary system design - sizing of heat exchangers	complete																							
System pricing - heat exchangers/flowmeters/equipment	complete																							
Obtain baseline system data: flow rates/temps/etc.	complete																							
Develop equipment/materials lists	complete																							
Finalize specifications and review																								
Order equipment/materials																								
Receive flowmeter/plumbing supplies/all other equipment																								
Receive heat exchangers																								
Installation																								
Install flowmeters, temp gauges																								
Fabricate hanging frames for heat exchangers																								
Break down C6/7 holding to set up for new equipment																								
Install heat exchangers and make plumbing connections																								
Testing and Evaluation																								
Adjust system to achieve design flow rates																								
Monitor system operation for potential problems																								
Monitor water temperatures for potential problems																								
Evaluate effectiveness in meeting project objectives																								
Final Report																								

Date: October 1, 2007

Author: John Dayton, Director Animal Husbandry

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages	0.00	9,020.00	9,020.00
2. Fringe Benefits	0.00	2,503.00	2,503.00
3. Consultant Fees	0.00	0.00	0.00
4. Travel	0.00	0.00	0.00
5. Supplies and Materials	42,120.00	8,000.00	50,120.00
6. Services	0.00	0.00	0.00
7. Student Support	0.00	0.00	0.00
8. Other Costs	0.00	0.00	0.00
TOTAL DIRECT COSTS (1–8)	42,120.00	19,523.00	61,643.00
9. Indirect Costs	0.00	24,103.00	24,103.00
TOTAL COSTS (Direct and Indirect)	42,120.00	43,626.00	85,746.00

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	42,120.00
2. Cost Sharing:	
a. Cash Contribution	8,000.00
b. In-Kind Contribution	11,523.50
c. Other Federal Agencies*	0.00
d. TOTAL COST SHARING	19,523.50
3. TOTAL PROJECT FUNDING (1+2d)	61,643.50
% of Total Costs Requested from IMLS	49.12%

* If funding has been requested from another federal agency, indicate the agency's name:

1. Statement of Need

The goal of this project is to improve the environmental conditions under which a portion of the Native American basket and textile collections of the Museum of Northern Arizona (MNA) are housed. MNA proposes to do this through the purchase of 24 Delta Design cabinets for installation on compactor shelving in the new Collection Center at MNA, for which construction is scheduled to begin in the Fall of 2007. Improvement of environmental conditions is identified as the top priority preservation need in the MNA's 2005 Preservation Plan and in the Collections section of the MNA 2006-2011 Institutional Plan (see attachments).

MNA has successfully sought funds to purchase cabinets and compactors for other parts of the collection that also will be moved to the new Center. In November 2006 MNA received a Save America's Treasures (SAT) grant to purchase cabinetry for the archaeology holdings that will be placed in the new Center. In July 2007 MNA received \$575,000 from the NEH Stabilization program to purchase compactors and the majority of cabinets required for the ethnology collections. The NEH-funded project has been declared a "We the People Project", and includes ongoing consultation with MNA's conservation consultant (Matthew Crawford) as well as the hiring of a Move Coordinator, who will assist in moving collections to the new Center. The basket and textile cabinets, which are the focus of this IMLS-CP proposal, are the last equipment required by MNA to complete the re-housing of 1st and 2nd priority anthropology holdings. First priority collections consist of all that are organic (katsina dolls, textiles, baskets, etc.) or highly sensitive to the environment such as archives (maps, documents, images, sound recordings, etc.). Second priority collections include inorganic objects which may have been reconstructed or stabilized in the past with environmentally sensitive adhesives or consolidants.

A portion (1,769) of the basket and textile collections are housed in Steel Fixture cabinetry and these museum quality cabinets will be moved from current storage in the Anthropology Building into the new Center. However, the remaining 1,122 baskets and textiles, which are the focus of this grant, are stacked and/or folded in wood or wood and metal cases. For two reasons, these non-mobile cases will not be moved into the Collection Center. First, they are not museum quality and second, the Center floor plan is designed to have limited space for non-mobile storage units. For this reason the collections within these old cabinets must remain in the Anthropology Building (see attached floor plan), which lacks state-of-the-art environmental controls, until new museum quality cabinetry can be purchased for installation on compactors.

MNA has known that a significant effort was required to improve the environment and preservation of its collections since the first surveys were conducted in the late 1980s. Beginning in 1988, consultants have consistently advised MNA that its collection facilities are substandard and inadequate (1988 MAP II by Lynn Denton and 2004 CMAP by Jane MacKnight; 1989 IMS Conservation Assessment by Jeanne Brako (attached); 1990 IMS Environmental Assessment by Steven Weintraub (attached), 1999 Archaeology Condition Assessment by Matthew Crawford). As Jeanne Brako noted "It is recommended the Anthropology Department be considered for rehousing in a new, larger multi-purpose facility. This is the only realistic way to significantly improve collections facilities for this important collection." It was also noted that collection areas were crowded, that cabinets were substandard, and that there were too few collection staff to care for collections.

Care of collections and the construction of a new collection center were made a top priority when a new MNA administration and board came into place in 2004. Previous to 2004, MNA's Collections Department made whatever efforts it could to improve care of collections and many of the recommendations put forth by museum and conservation surveys have been implemented. Besides the surveys mentioned above, MNA conducted IMS funded IPM (Wendy Jessup) and fire protection (Joseph Chapman) surveys in 1991. In 1987 an NSF grant purchased 15 roll storage Steel Fixture cabinets to rehouse Navajo textiles. These textiles were re-documented under an NEH grant (1988) and photo-documented under a Marshall Fund of Arizona grant (1989). A 2004/05 Museum Loan Network grant completed the photography and documentation of 200 additional Navajo textiles. MNA computerized its anthropology holdings into the Argus computer system under an NSF grant (1990). In addition, environmental monitoring was reinstated in Collections in 2001 with upgraded ACR data loggers and participation in the IPI's assessment of the PEM monitor and Climate Notebook software.

These early efforts to improve collection preservation were hampered by two factors. One was the lack of a preservation plan to guide collection efforts. MNA's Preservation Plan was created in 2003 (NEH grant with Jude Southward, consultant conservator) using recommendations from earlier museum and conservation reports. A second factor that limited progress was the previous administration and board's focus on issues that

lay outside the realm of collections. Then in 2004, with the onset of a new administration and board, long-term collections preservation was identified as a top institutional priority, along with endowment building. In 2004 the current administration sought and obtained \$3 million in private funding for the planning and construction of a new collection center. This new facility will address one of the top long-term conservation needs underscored by the 1989-1991 conservation surveys and supported by the 1988 and 2004 MAP II surveys. With the new Preservation Plan MNA in place, MNA completed a CMAP (2004) and was awarded an NEH grant (2004) to rehouse the Native American jewelry collection in a Delta Design cabinet. In 2005 MNA received an IMLS-CP grant to resolve emergency and top priority preservation needs of the fluid preserved collections. In addition, the award of NAGPRA (2005, 2006, 2007) and IMLS-MFA (2005) grants have increased collection staff levels so that the Museum can gain intellectual and physical control over collections in preparation for a move to the new Center in 2007-08.

As an indicator of MNA's current commitment to collections management the private funding that MNA received for the construction of a new collection facility came in response to the current administration's public expression of the urgent need to correct adverse conditions in collections. The \$3 million is restricted to the construction of a new climate-controlled, highly secure repository which has been registered with the US Green Bldg council for LEED Certification (Leadership in Energy and Environmental Design). The Center is scheduled to be completed in 2008 to meet a minimum of a LEED standard of Silver. MNA staff and board members spent 2005 preparing a master plan of MNA's 200 plus acre campus under the guidance of the Center's architectural firm, Roberts/Jones Associates, Inc. The goal was to form a 25-year plan for campus development and to determine a site for the new Center (see site and floor plans). Planning was essential since three structures on MNA grounds-McMillan Homestead, Coyote Range, and Akin Barn-are listed as nationally significant in the Federal Register and several other historic structures are eligible for listing. During the second phase of planning MNA, the architect, and conservation consultant (Matthew Crawford) developed environmental parameters in line with green building design. MNA also worked with Rick Cronenberger (NPS Architect, Denver, CO) on the development of storage, space, and environmental parameters. MNA realizes that this first construction phase, even with compactor capability, will not house all of the collections at the Museum, so prioritizing collections was important in the early planning phases for this new construction (see space memos).

With construction funding secured, MNA has turned its attention to addressing the next top priority preservation needs, specifically the preservation threat posed by inadequate cabinetry and an insufficient level of collection staff to implement collection improvements. MNA's 2003 Preservation Plan was revised in 2005 to address the opportunities presented by the \$3 million building construction funds and the need to focus on cabinetry replacement and expansion of collection staff. The IMLS-MFA-grant-funded Registrar and Collections Assistant and the NPS NAGPRA-grant-funded NAGPRA Specialist have become permanent staff in the Collections Department. To help in planning, MNA received an IMLS-CP grant in 2007 to bring in conservators to conduct detailed condition surveys of the textile and katsina doll collections. The Southwestern Foundation funded a project (June 2007) to hire a consultant archivist to create storage parameters and organization system for MNA archives once they are consolidated in the new Center.

The activities described above demonstrate that MNA is committed to collection preservation. As outlined in its 2004 mission and vision statement, which underscores preservation and conservation as core goals and tenets of the institution, MNA's Board is committed to the preservation of collections under their care. Although faced with difficult financial challenges in recent years, MNA has devoted what financial resources it could towards improving collections care. The number of projects completed in the past year, which is documented in the Executive Summary of the Preservation Plan, is an indication of MNA's dedication to collection preservation. MNA will be devoting staff time and almost half of the supplies needed for this project.

2. Project Design

The goal of this project is to ensure the preservation of 1,122 Navajo, Hopi, and Southwestern cultural baskets and textiles. The objective is to improve the physical storage of these textiles while also providing safe access by staff, practitioners, and researchers. This goal and this objective will be achieved through the purchase of 24 Delta Design cabinets for installation on compactor shelving in MNA's new Collection Center and consultation between MNA, Textile and Object Conservators, and a Hopi cultural traditional practitioner.

The Collections Department is directly responsible for the care and management of MNA's collections. The activities and tasks described below fall directly in line with the Department's mandate which was given new impetus when MNA secured the \$3 million for the construction of the new collections facility. The Collections Department oversees environmental monitoring, IPM, and housekeeping in collections and is responsible for the daily management of collections. This staff will be directly involved in all aspects of this project, from guidance to implementation. This project is a top priority activity for 2008-2010 on which MNA Collection staff will be focused, which is the move of 1st and 2nd priority collections into the new Collection Center. During this time, and in consultation with the NEH supported Move Coordinator and conservation consultants, collection activities (exhibits, loans, research visits) will be reduced or temporarily cease depending upon staff availability, collection involved, and the state of moving and re-housing activities.

The scope of MNA's collections is unmatched on the Colorado Plateau. Widely recognized as a nationally significant resource, they consist of over 650,000 cataloged objects and specimens in archaeology, ethnology, fine art, history and memorabilia, botany, zoology, geology, and paleontology, as well as extensive archive, photo-archive, and library holdings. Together, MNA's collections tell the story of the Plateau's peoples and natural environment and serve as the basis for research, public programs and exhibits both at MNA and at other institutions that study and interpret this region.

The 1,122 baskets and textiles that are the focus of this project are part of a larger Southwestern Native American basketry (1,399) and textile (1,492) collections that total 2,891 objects. The basket collection is largely composed of pieces by Hopi, Navajo, Paiute, and Apache weavers with smaller holdings from Tohono O'odham, Pima, other northern and southern Arizona tribes, and a small number from California groups. These collections are tapped for exhibits and research projects. In recent years MNA has received increasing requests from Hopi and Havasupai practitioners to access collections for researching early basketry making techniques.

A total of 977 baskets are small or shallow and are stored in 20 half size Steel Fixture metal cabinets that were purchased in 1980. These Steel Fixture cabinets will be moved into the new Collection Center. The remaining 422 baskets are larger or oversize and are stored in a fixed wood and metal unit with 6 horizontal sections, two oversized wooden cabinets, three wood and metal cases or in open storage on top of cabinets (see image attachment). Included in the 422 are burden, pitched, storage, and other types of basket containers from the tribes mentioned above. The fixed and wooden cabinets have doors that cannot be sealed to protect contents from infestation or environmental changes in the storage room. MNA's conservation consultant, Matthew Crawford, has viewed these cabinets and recommends that they be replaced. MNA proposes to purchase 12 new Delta Design cabinets (68"W x 86"H x 35"D).

For the textile collection MNA also proposes to purchase 12 new Delta Design cabinets. This collection consists of 1,492 Navajo, Hopi, Zuni, Mexican, and Hispanic weavings that are primarily untailed, flat, and woven. Of this number 792 Navajo textiles are housed in 15 Steel Fixture cabinets. Most of the contents are stored on rolls because they are flat and untailed with a few pieces laid flat in drawers. The remaining 700 textiles, which are Hopi, Zuni, and other non-Navajo pieces, are in 16 stacked, closed, wood and metal cases (48"H x 24"W x 24"D) in the textile storage room within Anthropology Collections (see image attachment). These textiles are rolled or folded and stacked and consist of runners, serapes, blankets, saddle blankets, rugs, robes, belts, sashes, garters, and other types of textiles. The larger pieces are generally longer than they are wide. Since the average width (which is usually the smaller dimension) is 48 inches, the textiles are folded in both directions so that they fit within the 24"-square wooden drawers. Oversized textiles (wider than 6 feet and up to 12' in width) are stored on open cantilever shelving and in muslin or polyethylene tube plastic sealed with ties. The plastic tubing is being replaced with muslin by the time this project begins. These textiles are a high priority for re-housing in museum quality cabinetry because of the potential for damage from folding and storage in the current wooden cases. They were identified as a high re-storage priority in the 1989 General Conservation Survey report. During this project these textiles will be moved into new Delta Designs and existing Steel Fixture, powder-coated, roll storage cabinets.

MNA's Navajo textile collection is widely recognized as "...one of the most important collections of Navajo textiles in public or private hands" (Webster, 1989 analysis report). The Hopi textile collection is one of the largest and most varied of its kind in a public institution. Eastern Pueblo weaving declined after Spanish contact, but continued among the more isolated Hopi for a longer period of time. MNA co-founder Mary-

Russell Ferrell Colton was very committed to helping ensure the continuation of Hopi crafts and for this reason started the annual Hopi Craftsman Show at MNA in 1930. A number of the pieces in MNA's Hopi textile collection were purchased from these yearly events. Today there are few Hopi weavers and the Museum is working with the Hopi Tribe to preserve this traditional art form. Beginning in the summer of 2005 a weaving class composed of Hopi men came to study textiles in MNA's collection. (Traditionally men weave in Hopi culture.) The instructor, Austin Lomatewama, will continue this study with future classes.

Besides the 700 textiles in the wooden cabinets, the care and storage of 217 smaller Navajo textiles that measure two or three feet in width will also be affected by the project. These 217 textiles are currently inefficiently housed in roll storage cabinets that will accommodate textiles up to five feet in width. By reorganizing these 217 textiles in conjunction with the 700 listed above, this project both will increase the number of rolled textiles and will maximize space utilization within new and existing museum quality cabinetry.

MNA requests a year to complete the project. The following includes a description of the activities that will be completed to reorganize storage and minimize unnecessary handling of these collections.

- **Activity 1: 24 Delta Design LTD storage cases and supplies ordered by Registrar (1 month).** Delta Design requires 90 days for assembly and delivery, so these cases will be ordered when MNA is notified of the award. The new cases are required to ensure that the 1,122 textiles and baskets are properly housed. As designed, the cases have anodized aluminum poles that suspend the textile tubes. With the addition of a rolled textile this pole becomes heavy and unwieldy, especially for one person. Alternatives to the pole are being investigated. In consultation with the textile conservator, the method currently used by the Costume and Textile Department at the Museum of Fine Arts (MFA), Boston, is being tested. The MFA conservator replaced the heavy poles with a 2" interior diameter archival, cardboard tube. This smaller tube, cut to the length of the pole, was slipped through the 3" interior diameter tube that holds the textile. The ends of the 2" tube then rest in the pole cradles within the case. This system has been successfully used at the MFA for the past two years and is an easy and affordable solution to the problem. It is estimated that seven cartons (36 tubes each) of 10' by 2" diameter tubes will be required for suspension purposes. To minimize waste 15 cartons (16 tubes each) of 10' by 3" diameter tubes and 10 cartons of 12' by 3" diameter tubes will be ordered for rolling of flat, untailed textiles. MNA already has polyethylene foam and tissue on hand for the basketry collection. The supply list will include 2" and 3" acid-free tubes, unbleached cotton tying tape (1-1 1/2" wide) and unbuffered tissue.
- **Activity 2: On-site workshop to determine textile storage techniques with MNA Collection staff, Textile Conservator, and Hopi Cultural Traditional Practitioner (1 month).** During the 2007 IMLS CP project to assess the condition of the MNA textile collection, Cara Varnell (Textile Conservator) demonstrated several textile storage methods and mounts which would safely house textiles and minimize unnecessary handling. The NAGPRA Specialist and Collections Manager discussed with the conservator the details of textiles that Hopi weavers are interested in studying which are not easily determined from images. MNA is honored to have a close working relationship with the Hopi Tribe and employing methods that would facilitate access by practitioners is a goal. It became clear to MNA staff and the conservator that it is important to solicit the advice of a Hopi weaver in discussions to ensure the preservation of textiles while still allowing weavers the access they need. The textile conservator and the Hopi weaver will spend 2 days on-site in joint consultations with Collection staff. The textile conservator will be available for further consultations throughout the project for an additional two days of consultation.
- **Activity 3: Consultation by Collection staff with Objects Conservator to determine housing methods for baskets placed in new Delta Design Cabinets (1 month).** No cultural issues are anticipated with the rehousing of the basketry collection. The Object Conservator (Matthew Crawford) is periodically on campus and has offered to provide a rehousing workshop. He has already viewed the baskets during a previous on-site visit and will advise on external and internal mounts required to ensure preservation of pieces. Staff will also communicate with him via email and phone.
- **Activity 4: Preparation of tubes for suspension and rolling of textiles by MNA Collection Staff and Volunteers (1 months).** Once received, the 3" diameter acid-free tubes will be cut to 2, 3, 4, 5, and 6 foot lengths for installation in new and existing cases. The 2' and 3' Navajo textiles already have acid-free tubes and

will be moved to new storage on these tubes. The Navajo textile tubes, which are buffered, are covered with an acid-free tissue barrier layer. Over the years the tissue has not proven to be durable and the MNA and the textile conservator are still discussing alternatives. The final solution will be determined during the current 2007 IMLS-CP grant.

- **Activity 5: Delivery and installation of Delta Design cabinets on compactors in new Collection Center by Space Saver personnel (2 months).** Representatives of Space Saver will install compactor carriages and cabinets. Installation and compactors for all anthropology cabinetry is funded under the NEH Stabilization grant and is mentioned here because it is an important activity to ensure the success of this IMLS project.
- **Activity 6: Preparation of Delta Design cabinets by Collections staff and Collection Volunteers (2 weeks).** Cabinets will be carefully vacuumed to ensure interiors are free of dust and other contaminants. Drawers and shelves will then be installed into their desired positions.
- **Activity 7: Inspection and freezing of baskets and textiles for placement in new cases (9 Months).** Baskets and textiles will be inspected by MNA collection staff in consultation with the two conservation consultants and Move Coordinator (to be hired 2/2008) to determine procedures for ensuring that no infested objects are placed in the new Center. The majority of the current cases in which the baskets are stored are unsealed and therefore susceptible to pest activity. All baskets will be wrapped and frozen in accordance with MNA's IPM protocol before being moved into the new facility. This activity will commence once the new cabinets are ready to receive collections and will continue until the collections are all moved.
- **Activity 8: Baskets moved into new cabinets by Collection staff and Volunteers (3 months).** In consultation with the Object Conservator, the basket collection will be moved into the 12 new cases. Storage mounts will be created at this time. No cultural concerns about housing techniques are anticipated.
- **Activity 9: Lists of textiles to be moved into existing and new storage will be generated by Collections Manager (1 month).** All of the Museum's textile and basket collections are computerized into the Argus database and lists will be generated and updated by collection staff.
- **Activity 10: Textiles moved into cabinets by Collection staff and Volunteers (7 months).** Textile rehousing will require more time to complete than the baskets will require. Besides the creation of special mounts for some textiles, it will be important to plan the placement of textiles within the appropriate size case. Two of the existing 5' wide Navajo cases (which hold 2' and 3' wide textiles) were purchased from Steel Fixture in 1988. Each 5' wide bar holds one 2' and one 3' textile, each on its own acid-free tube. Arranged numerically, this plan produced a complicated inventory system, but the most pressing problem is that there are far more 3' wide (150 total) textiles than there are 2' wide (67 total) textiles. The result is that space in the second 5' wide cabinet is severely under utilized and contains mostly 3 foot wide textiles. The contents of these two Navajo textile cases will be moved into cases that accommodate 4' and 6' wide textiles. The two 5' wide cases will then be used to hold textiles between 4 and 5' in width. The new four foot wide Delta Design case (with a capacity of 120 two foot wide textiles) will hold all 79 of the 2' wide Navajo, Hopi, and Southwestern textiles. The two 6' wide cases (with a combined capacity to hold 120 six foot textiles or 240 three foot textiles) will hold all 180 of the 3-foot wide textiles and all 6-foot wide textiles currently folded and stored in wood and metal cabinets. The 52 oversize textiles on cantilever shelving are already rolled onto acid free tubes and will be placed on Delta Design roll storage inserts in the two proposed oversized cabinets. The textiles will then be wrapped with a dust cover.
- **Activity 11: Argus database updated and cabinet lists created (duration of project) by Collection staff.** This will ensure that locations remain current and up-to-date at the close of the project.

The conservation/preservation methods employed will be appropriate for the type of collection. Housing is the primary issue for the baskets and textiles that are the focus of this project. These baskets are stored in wooden cabinets or in open storage and the textiles are currently housed in small wood and metal cabinets or on open metal and wood cantilever shelving. Existing cases are internally constructed of wood and all drawers are wooden, a less than ideal material for the construction of housing units. Within this environment textile fibers can degrade and become more brittle over time. In the case of folded textiles, permanent fold lines can result as individual brittle fibers fracture apart. Due to their size these textiles currently must be folded many times so that they will fit within the 2-foot x 2-foot-square wooden drawers. In the 1989 General Conservation Survey

report author Jeanne Brako stated: “wooden storage units that were designed and fabricated in-house over numerous years are probably providing an environmental buffer to the specimens... [but that] ...M[etal] cabinetry should be instituted as available for several areas of the collection. The textiles that are stored folded...should be moved to metal cabinetry... [because]...the alleviation of the physical stresses of folding and layering outweighs the benefits of environmental buffering...” After the Museum re-implemented environmental and microclimate monitoring in 2001, MNA determined that no additional Rh buffering is offered by wood over metal cabinetry (see Rh Comparison attachment).

This project will remove these baskets and textiles from deleterious storage in wood and metal cabinetry. The rehousing materials selected will be either neutral or acid-free buffered. Some of the supplies are on hand while others like the unbuffered abaca tissue and tubes will be purchased. The baskets will be placed on polyethylene padded shelves. As appropriate, acid-free buffered tissue, already on hand, will be used to cushion pieces. Carrying trays will be created from acid-free boards as determined with the object conservator. Ideal housing for untailed textiles is flat storage. However, such storage is prohibitively expensive and requires more space than is currently available. The next best option for storing flat textiles is in roll storage that places little mechanical stress on textiles. The goal, therefore, is to place these textiles in powder-coated, metal, roll storage cabinetry. To fulfill the needs of the basket and textile collections, storage cases must meet several requirements. They must be constructed of stable, inert materials, be vented but sealable, have drawers that allow easy access to textiles, and fit into MNA’s currently available space. Two years ago MNA selected Delta Design LTD as its manufacturer of choice because of this company’s experience, as well as service and ability to construct cabinetry of certain sizes. The doors and the drawers in all Delta Design cases have heavy duty extension suspensions to render them easy to pull out so that even textiles in the back of the drawer can be reached without removing textiles in front.

3. Project Resources: Time, Personnel, Budget

A total of \$107,311.80 is requested from IMLS for this project which MNA anticipates completing in one year based on past experience. IMLS funding will allow MNA to purchase 24 Delta Design cabinets, continue consultation with its two conservation consultants, include a Hopi practitioner in decisions on textile housing methodology, and pay for Delta Design cabinet shipping and a portion of the supplies.

MNA will provide \$107,467.42 in support which will be part of a larger initiative to move 1st and 2nd priority collections into the new Collections Center when it opens in 2008. MNA will provide almost half of the cost of supplies. As part of MNA’s match, three MNA Collection staff will be involved. This staff includes the Collections Manager (30%-536 hours), the NAGPRA Specialist (80%-1456 hours), and Registrar (20%-364 hours). The Collections Manager, Elaine Hughes, is head of the Collections Department and will serve as the Project Director. She will be involved in consultant consultations, organization, inventory updates, and daily tasks as needed. She has an MA in Museum Science from Texas Tech University and 20 years of professional museum experience in collections management. She worked at MNA for seven years from 1986-92 as the Anthropology Collections Manager and rejoined the Museum in her current position five years ago. She is the lead grant writer for collection improvement projects. The NAGPRA Specialist, Gloria Lomahaftewa, will be the most involved of the Collection staff in the daily activities of this project. Her position was originally grant funded under two successive NAGPRA grants (submission of new summaries-2005/06 and follow-up consultation with 4 Tribes-2006-07) but will become a permanent Collections position upon the conclusion of the NAGPRA grant in October 2007. She will work with the other staff in consultations and will be directly responsible for overseeing volunteers and the rehousing of the basket and textile collections. She has 23 years of experience in the museum field. She worked at the Heard Museum and joined MNA’s staff in 2005. Her experience includes work with both exhibits and collection rehousing projects. The Registrar, Kara Kelly, will order supplies, oversee object freezing/preparation and will help with daily tasks as needed. Kara has an MA in Museum Studies from the University of Kansas. Her 10 years of work history includes experience with geology, paleontology, history, archives, archaeology, ethnology, and fine arts collections, at institutions such as the Natural History Museum and Biodiversity Research Center at the University of Kansas, Jackson County Parks and Recreation (administrator of historic sites), and Union Station Kansas City Inc. which administers the Kansas City Museum and its collections. Collection staff will be aided in this project by trained collection volunteers (see volunteer training attachment). This group of primarily retired professionals has been

volunteering with MNA since the mid 1990s. Collection staff has provided several training sessions in the handling of collections. MNA's Volunteer Coordinator performs background and security checks and has complete information and references for volunteers in Collections. Their time commitment to this project is for an average of 21 hours per week. Volunteers will cut tubes, prepare cases, and work with staff on other tasks.

Three consultants will be hired to ensure the success of this project. Austin Lomatewana will serve as the Hopi cultural traditional practitioner consultant. He has over 40 years of weaving experience. He previously taught Hopi weaving at the Hopi Jr-Sr. High School and for the past three summers has taught traditional weaving at Hopitutuqaiki, the Hopi School, Inc. He will spend a total of two days on this project. Cara L. Varnell, textile conservator, will continue consultation begun in 2007 under an IMLS-CP condition assessment project. She will come for a second on-site visit to work with staff and the Hopi practitioner in the development of textile storage methodology. She has her certificate in conservation from the Textile Conservation Centre at Hampton Court Palace in England and has been a working conservator for the past 25 years. She worked for the Fine Arts Museums in San Francisco, The Metropolitan Museum of Art and the Los Angeles County Museum of Art. For the past 8 years she has been in private practice with institutional and private clients throughout the country. She will spend a total of four days on the project. Matthew Crawford of Crawford Conservation Studio is the objects conservator who will continue his consultation with MNA. He has an MS in Art Conservation from the University of Delaware, Winterthur Art Conservation Program. Mr. Crawford performed an archaeological condition assessment in 1999 for MNA, is the conservation consultant for MNA's proposed collection center, and condition assessed MNA's katsina doll collection under the 2007 IMLS-CP grant. During his visit in August he had a quick overview of the MNA basket collection. He has worked extensively with Native American collections particularly southwest material culture as a conservator at the Arizona State Museum (1994-1997) and at the Denver Museum of Nature and Science (2000 – 2002). He will provide advice on basketry rehousing methods for a total of two days. Letters of commitment and resumes are attached.

Delta Design, Ltd was selected in 2003 by MNA as the museum cabinetry company that the Museum would use in future cabinetry purchases. This selection was recommended by Jude Southward the conservation consultant who helped MNA write its 2003 Preservation Plan. MNA has purchased several cabinets since this time from Delta Design. The company is reliable and responsible and is willing to make cabinets to MNA's size specifications. The cabinets have silicone gaskets, filtered vents which can also be closed, locks, constructed of 18 gage steel, and are powder coated. The requested 6' and 12' cases have bi-fold doors. Delta's price quote and specifications are attached. The regional installer for Spacesaver is Concert Architectural Interiors in Phoenix, AZ. This company is trained in the installation of Spacesaver compactors and Delta Designs cabinetry and has been working closely with MNA architect, Jim (James) Roberts.

4. Impact

Benefits resulting from this project will include both immediate improvement at the object and collection level, as well as long-term improvements at the institutional level. This project will remedy the imminent risk of deterioration to baskets and textiles from exposure to the wood present in the current wood and metal cabinetry and improved IPM control over these holdings through inspection and placement in cabinets with state-of-the-art environmental seals. Additionally, by reorganizing the 214 Navajo textiles, this project will maximize space utilization within new and existing museum quality cabinetry.

There will also be direct benefits to the public and users of the collection. The stacked baskets and textiles are less accessible for research and teaching purposes, but will be more accessible once this rehousing project is completed. MNA conducts public tours of collections (3rd Fridays of each month) with a focus on the life of collections behind the scenes (grant, loan, research projects; preservation needs; initiatives and challenges). The state of housing for textiles is one of the topics addressed and, if funded, this project will allow MNA to show proper textile housing for all, rather than for just the Navajo textiles.

Information about this project will be integrated into MNA's public web site. Within the next two years MNA will make the Navajo textile collection the first of its collections to be available via MNA's web site to its local, regional, national, and international audience. As a part of this web presence, MNA will include a section that describes the textile improvement projects that have occurred and agencies that made the projects possible. The intent is to educate the public about the time, effort, and resources needed to make such collections accessible while still preserving them.

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages		55,608.28	55,608.28
2. Fringe Benefits		13,902.00	13,902.00
3. Consultant Fees	5,080.00		5,080.00
4. Travel	613.21		613.21
5. Supplies and Materials	101,618.59	6,200.00	107,818.59
6. Services			0.00
7. Student Support			0.00
8. Other Costs		21,221.84	21,221.84
TOTAL DIRECT COSTS (1-8)	107,311.80	96,932.12	204,243.92
9. Indirect Costs		10,535.30	10,535.30
TOTAL COSTS (Direct and Indirect)	107,311.80	107,467.42	214,779.22

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	107,311.80
2. Cost Sharing:	
a. Cash Contribution	
b. In-Kind Contribution	107,467.42
c. Other Federal Agencies*	
d. TOTAL COST SHARING	107,467.42
3. TOTAL PROJECT FUNDING (1+2d)	214,779.22
% of Total Costs Requested from IMLS	4,996.00%

* If funding has been requested from another federal agency, indicate the agency's name:

NARRATIVE

1. STATEMENT OF NEED

Environmental improvements to The Baltimore Museum of Art's storage area for African, Ancient American, Native American, and Pacific Islands art have been identified as the highest collection care priority in both the BMA's 2006 General Conservation Survey and 2005 Art Storage Vault Assessment. The proposed project is next in a series of collection storage area renovations that have taken place at the BMA over the past 15 years, addressing storage issues in decorative arts; paintings; textiles; and prints, drawings, and photographs. Detailed condition surveys of the African, Ancient American, Native American, and Pacific Islands collections have already been completed, and appropriate rehousing for each object has been identified.

The vault for the Museum's condition-sensitive collection of African, Ancient American, Native American, and Pacific Islands objects is at maximum capacity. Several factors place this storage area at the top of the list of conservation priorities:

- These collections are growing.
- The light-sensitive nature of many objects in these collections requires the frequent rotation of works in the galleries, but crowded storage conditions prevent easy access to works for preparation and installation.
- Record storage, carpeted areas, and office activities in the storage areas are not good conservation practices, particularly from a pest management perspective.
- Crowded conditions impede the Museum's ability to fulfill requests for scholarly access to the collection.
- The planned reinstallation of the related permanent collection galleries will necessitate temporary storage of approximately 400 objects currently on view.

The Museum's collections care activities are accomplished by conservators, curators, registrars, preparators, and facilities and security personnel, working together to ensure proper care and safety of art objects. The conservation program is housed in adjacent paper conservation and painting conservation laboratories, along with offices and a space for treatment of objects. The staff includes a paintings conservator, paper conservator, objects conservator, assistant objects conservator, conservation technician for paintings, conservation technician for paper, and an administrative assistant. Works requiring specialized expertise are treated by consultant conservators, including a textiles conservator, frames conservator, and mount fabricator.

Over the past 16 years, the BMA has received eight IMLS conservation grants that have funded treatments of works included in the reinstallation of the Old Master galleries (2002); a survey of the BMA's collections of African, Asian, Ancient American, Native American, and Pacific Islands art (1999); housing for the newly acquired Lucas collection of 20,000 works on paper (1998); improvements to the prints, drawings, and photographs vault (1994); rehousing works on paper (1993); control of natural light (1992); upgrading the decorative arts vaults (1991); and the first General Conservation Survey (1990).

The BMA's financial commitment to conservation is demonstrated by staffing levels, including hiring consultants to accomplish specialized projects, annual budgeting for ongoing conservation treatments, allocation of space and the provision of specialized lab equipment, and an active fundraising effort for conservation projects.

2. PROJECT DESIGN

The first project goal is to make significant improvements in the storage area for the growing collections of African, Ancient American, Native American, and Pacific Islands art. This goal will be accomplished by the following objectives: increasing storage capacity, enhancing the housing of individual objects, and relocating office functions. The second goal is to increase access to the collection. The objective for this goal is to create a study area adjacent to the storage areas.

Renovation projects requiring contractor supervision are regularly managed by the BMA Operations and Security Departments and will not impede other Museum activities. All work will take place in non-public areas. A position of Assistant Objects Conservator was created in 2006, joining the existing Objects Conservator on staff, and this additional staff position, along with a temporary Conservation Technician position, will make it possible for object conservation work to continue without disruption.

Within the storage area proposed for renovation, individual objects are crowded and inadequately housed. Offices are located within the space. The 1,460-sq. ft. space is divided into four rooms: two vaults and two offices. The area houses approximately 5,000 objects of tremendous diversity in date, culture, and medium. The space is adjacent to a 3,676-sq ft. gallery on the Museum's ground floor where approximately 400 objects from the African, Ancient American, Native American, and Pacific Islands collections are exhibited.

The outer vault room includes filing cabinets, study space, and collection storage. Museum-quality art storage cabinets from Interior/Better by Design are made of heavy-gauge steel with welded construction, coated with a chemical-resistant finish, and have ¼" safety glass windows sealed with closed-cell elastomeric gaskets. These cabinets are compatible with the new compact storage proposed for this area, so they will be reinstalled as part of the new system.

The inner vault room houses the majority of the objects, which are stored on trays, lined with polyethylene foam, within a nine-section compact storage unit occupying three-quarters of the room. The drawers are crowded, making additional drawer storage critical. Individual supports and padding are needed for many objects. Some textiles have been rolled onto tubes and stored on pipe racks, but many others are stored folded in trays. These textiles should be rolled or stored flat in wide drawers. A bank of open shelving and metal screens are attached to one wall. The pressure of the growing collection is such that the only walkway has been pressed into service for storage, leaving inadequate space for the safe passage of art and people.

Objects housed in this area represent four distinct areas of the collection:

- **African**, the largest group of objects at over 2,100 works, ranges from a pre-dynastic Egyptian ceramic beaker to a contemporary bead piece. Particularly strong in West African art, the collection includes masks, figures, stools, and other sculptural forms in wood, many with attachments of metal, fiber, and organic material. In addition, there are brass cast weights, ceramics, beadwork, ivory miniatures, jewelry, carved stone, and metal currency forms and weapons. One of the first African holdings in an American art museum, the BMA collection was inaugurated with gifts in 1947, the year after the Museum organized a pioneering exhibition of African art. African art is the most requested collection for school tours and is the focus of the BMA's annual *African Spirit* program and film series, which runs from November through February.

- **Ancient American**, more than 1,400 objects, includes primarily ceramics, a few works of gold and other precious materials, and several large stone objects.
- **Native American**, more than 1,000 objects, includes baskets, walrus ivory carvings, and beaded and quilled hides. Notable strengths include Plains beadwork and Southwest basketry.
- **Pacific Islands (a collection area formerly called “Oceania”)**, over 440 objects, features primarily wood objects, but there are also a group of 44 fragile *tapa* (painted bark cloths), a delicate *Malanggan* mask of coral and shells, necklaces, and adornments of feather and other sensitive materials. This collection, initiated with a gift in 1955, is considered among the finest in an American art museum.

These collection areas have experienced considerable growth over the past six years—1,177 new works, making up 22% of the current holdings—and now exceed the space available to store them safely. Two new curatorial appointments in African and Ancient American art (the latter a joint appointment with the Johns Hopkins University) were made in 2004, resulting in greater activity not only in acquisitions, but also in collection care and presentation. A new collection support group, Friends of the Arts of Africa, the Pacific, and the Americans, was established in 2006 and is already generating additional acquisitions.

The gallery where these collections are displayed is scheduled for expansion and reinstallation between 2009 and 2011. A lead grant of \$500,000 from the City of Baltimore has already been received for the project. The reinstallation will establish dedicated spaces for each of the four collection areas, which are now installed together in a space that was last renovated in 1982. This effort continues a series of permanent collection reinstallations initiated with the acclaimed Cone Wing for French post-Impressionist art in 2001 and continued with the Museum’s Jacobs Wing in 2003. This reinstallation is hampered by the fact that there is no space to store the 400 works currently on display while the gallery is being renovated. The proposed storage area improvements will permit safe housing of these objects during reinstallation, in a storage space that will then accommodate continued collection growth.

A team of BMA conservators, curators, registrars, and facilities personnel, led by Thomas Primeau, Director of Conservation, worked together to design the proposed project. It builds on the findings of a detailed condition survey of the objects in these collections, funded by the IMLS. Consultant Objects Conservator Brian Ramer prioritized treatments, identified individual housing needs for each object, and made recommendations for storage and housing upgrades throughout the collection. The treatment recommendations have been completed, but most of the storage issues have not been resolved, principally due to lack of space.

In this project, the office functions in the storage area will be moved to another part of the Museum and the study area in the outer vault will be relocated to one of the two former office spaces. BMA staff will construct an isolation wall to separate the inner and outer vaults. Outside contractors will remove the office walls and carpeting, and install appropriate flooring and new storage furniture in the outer vault and the other former office area. Contract work will be overseen by the Director of Capital Projects, and the contractors will be accompanied by BMA security staff at all times. The outer vault will be equipped with a new compact storage unit, with cabinets, shelves, flat file drawers, pipe racks, and stored wall screens formerly used in the painting vault before compact screens were installed in that area.

Once the renovation is complete, each object will be secured within an individual enclosure designed to protect it from mechanical and chemical deterioration. The rehousing process will be extensive and labor intensive, making it necessary to hire a Conservation Technician specifically for this project. BMA Conservators Ann Boulton and Christine Downey will supervise the Conservation Technician, in consultation with the appropriate curator. Consultant Textile Conservator Louise Wheatley will rehouse 122 objects, rolling textiles requiring this storage method and placing others in flat file drawers. She will also verify that the 179 textiles already rolled are stored correctly. All work will take place at the BMA.

Through training and attendance at professional meetings, BMA conservators stay abreast of the latest storage methods and have incorporated this knowledge into the project. These methods are summarized in "Storage of Natural History Collections: Ideas and Practical Solutions," edited by Carolyn L. Rose and Amparo R. de Torres (Society for the Preservation of Natural History Collections, 2002). A recent project at the National Museum of the American Indian stimulated the development of new techniques for preparing sensitive objects and proved the success of the materials and methods planned for BMA.

- **Storage Furniture:** Compact storage provides efficient use of space, resulting in expanded storage capacity and safer storage for the objects. The storage furniture selected for this project meets the highest conservation standards and has been used successfully for similar collections. The weight of these units will not present any structural or load problems in the affected areas. The furniture is chemically stable, physically durable, functional, and safe. The cabinets are finished with a non-reactive, solvent-free, baked polyester powder coating. The drawers and shelves are adjustable and secure. The carriage supporting the cabinets is sturdy and moves with a minimum of vibration. The carriages will accommodate the existing glass-fronted cabinets, converting them to compact storage units. Reusing these cabinets is cost effective. Formaldehyde-free flooring will be installed with low volatile organic compound adhesive.
- **Rehousing:** All materials used in rehousing will conform to the highest conservation standards for physical integrity and chemical stability. Boxes and rigid, protective trays will be constructed of acid-free corrugated board; cushion supports for unstable objects such as baskets, bowls, and masks will be formed of polyethylene foam; and spun-bond polyester cloth will cushion objects and protect them from abrasion. All materials have been tested for chemical stability. There will be a diversity of housing solutions: jewelry and brass weights in individual storage compartments; ceramics in custom-carved foam; light-sensitive baskets and coral masks in boxes to prevent light exposure and dust accumulation; and mounts for objects such as masks with organic materials. Textiles under 36" x 74" will be protected by layers of acid-free tissue and stored in flat files. Larger textiles will be protected by a layer of acid-free tissue and rolled onto an appropriately sized acid-free storage tube. Rolled textiles will be covered in clear polyethylene sheeting fastened at the ends with non-adhesive cotton twill tape.

During the project, the BMA's exhibition schedule will permit objects in the outer vault to be moved temporarily to another vault, which is used for temporary exhibition storage. The door between the inner and outer vaults will be locked, monitored by a security card reader, and sealed with plastic sheeting. HVAC ducts will be sealed with a temporary plastic sheeting to control dust dispersion. The door from the outer vault to the new study room will also be sealed with plastic sheeting to control dust migration to the galleries. Construction debris and carpet scraps will be carefully wrapped in sealed bags before removal from the work area. A portable, ductless fume extractor will filter air continuously, mitigating potential contaminants and controlling dust. The fume extractor uses a multi-

layer activated carbon filter combined with a HEPA prefilter. The inner office walls do not extend to the ceiling and are not load bearing, thus they can be removed without producing damaging vibration. The new compact storage carriage and cabinets will be delivered in small sections and assembled on site. The vendor has experience installing storage furniture in museums.

3. PROJECT RESOURCES: TIME, PERSONNEL, AND BUDGET

The timeline for the project is based on experience with other collection storage area renovations at the BMA. A new, additional objects conservation position was hired last year, and a temporary conservation technician will be hired specifically for this project. The judicious use of consultants will ensure quality work and reduce the demand on staff time.

CONSERVATION STAFF

Thomas Primeau, Director of Conservation, is project director. In addition to his 12 years of experience in conservation, he holds Master's degrees in Art History from the University of Michigan, Ann Arbor, and in the Conservation of Historic and Artistic Works from the State University College at Buffalo, New York. Ensuring the proper storage of artwork is part of his ongoing duties. He generally undertakes at least one major planning or capital project each year. In 2004-2005, he led an assessment of all of the art storage vaults. In 2006, he updated the 2001 General Conservation Survey.

Ann Boulton, Objects Conservator, will provide training and supervision for Conservation Technician and oversee the Consulting Textile Conservator and Mount Designer/Fabricator. Boulton has worked on objects in the BMA's collection since 1991 as a consultant, and joined the BMA's staff in 2001. She holds a B.A. in Fine Arts from the University of New Mexico, and an M.A. and Certificate of Advanced Study in Conservation of Historic and Artistic Works from the State University of New York.

Christine Downey, Assistant Objects Conservator, will also provide training for the Conservation Technician and will participate in the rehousing of objects. She holds an M.A. in Art Conservation degree from Queen's University, Ontario, with work experience at the Nelson-Atkins Museum of Art and the Smithsonian. Her position was created in anticipation of increased object conservation needed for the growing collection of African, Ancient American, Native American, and Pacific Islands art.

Conservation Technician for Objects, a nine-month contract position, will work exclusively on this project, creating individual storage housings for collection objects. The position requires understanding of conservation issues and the professional practices of object care and preservation, as well as fine arts handling experience. A bachelor's degree is preferred.

Louise Wheatley, Consultant Textile Conservator, will examine and rehouse the textiles in the collection. She has extensive experience working with textiles in all areas of the BMA's collection. She has served as a consultant conservator with the BMA since 1973, treating works and advising on appropriate storage for textiles.

REGISTRARIAL/CURATORIAL STAFF

Frances Klaphor, Registrar/Associate Curator, will help to organize the collection and ensure that object locations updated. A registrar at the BMA since 1984, she holds a joint position at the BMA as Associate Curator for Asian Arts. Oversight of works in storage is one of her primary responsibilities within the Registrar's Office. Work on the vault will be a planned part of her work during the grant period, as the highest priority in the Art Storage Vault Assessment.

Michael Klunk, Preparator, will assist with art movement and construction of a temporary wall. He has 11 years of experience at the BMA. He worked previously at the Maryland Institute College of Art.

Karen Milbourne, Associate Curator of African Art and Department Head of Arts of Africa, Asia, Ancient America, Native America, and Pacific Islands, will provide curatorial oversight for the project and consult about organizing the vault and new study area. She holds a Ph.D. in Art History from the University of Iowa, with 15 years' experience in the museum field.

FACILITIES STAFF

Kevin Moore, Director of Auditorium, Capital Projects, and Telecommunications, will coordinate and supervise contractors and will move the security card reader and data lines. He has overseen a number of capital improvement projects at the Museum in the past five years. Moore will also schedule and oversee BMA Security, Housekeeping, and Facilities staff involved in the project.

The budget is based on extensive experience with similar projects. The detailed condition survey provided the information necessary for determining the amount of materials that will be needed for rehousing objects. Moving the offices is a cost-effective way to gain storage and study space, particularly when combined with existing screens not used since the renovation of the paintings vault and new compact storage units that can accommodate existing art storage cabinets. Finally, it will be more cost efficient to use experienced Museum personnel to construct the isolation wall and reposition an air diffuser, data port, security card reader, and light fixture than to hire additional contractors and provide them with security escorts. The Museum has been very successful in funding conservation projects in the past, particularly when there is an existing match that gives prospective donors a sense of leveraging their investment. Within the last month, the BMA received commitments totaling more than \$100,000 from the Richard C. von Hess Foundation with a BMA Trustee match for painting and frame conservation treatments for the Old Masters collection.

4. IMPACT

The project will bring the BMA's storage of African, Ancient American, Native American, and Pacific Islands objects into compliance with accepted conservation standards. More efficient storage will facilitate frequent rotation of objects onto view. Access will be improved through capturing office spaces for additional storage and a study room. The Museum will be able to service requests by scholars to view works, allowing wider dissemination of information on the collections.

Expanded storage is necessary to accomplish the proposed renovation and reinstallation of the related galleries by providing additional space to store works currently on view. The reinstallation will result in more art on view, as well as a contextually rich installation with information about the cultures that produced these important works of art. These collections, which represent many cultural heritages, are important touchstones for the diverse communities that the Museum wishes to attract and serve. Based on other recent BMA collection reinstallations, the Museum expects a noticeable increase in gallery visitation.

SCHEDULE OF COMPLETION

Part A: Vault Expansion and Improvement

Task	Time Frame	Personnel
Temporarily relocate storage cabinets and objects from outer vault to Caplan vault, build temporary wall to separate the inner and outer vaults and relocate security card reader. (Inner vault will still be accessible from the rear hallway.)	July 2008	Registrar, Preparator
Empty staff offices and the study area currently located in outer vault	July 2008	Associate Curator, Housekeeping staff
Remove office walls from outer vault	August 2008	Contractor, monitored by Security staff
Make minor infrastructure changes in former office area: change location of vent in HVAC ductwork, relocate light fixture, change data port	August- September 2008	Operations staff
Remove carpet from former office areas and install new flooring	September- October 2008	Contractor, monitored by Security staff
Install new storage furniture	October- November 2008	Contractor, monitored by Security staff
Clean new storage furniture and renovated vault area to prepare for utilization	November 2008	Housekeeping staff
Remove isolation wall and return storage cabinets and objects from Caplan vault	November 2008	Registrar, Preparator

Part B: Object Rehousing

Identify storage needs for African, Ancient American, Native American, and Pacific Islands collections	Complete	Consultant Conservator, Curatorial staff
Conduct search, hire, and train Conservation Technician for rehousing project, order rehousing materials	September -October 2008	Conservation staff
Examine and rehouse African, Ancient American, Native American, and Pacific Islands textiles	November 2008-June 2009	Consultant Textile Conservator
Construct customized storage boxes for objects, based on completed survey, and rehouse objects	November 2008-June 2009	Conservation Technician
Reorganize and rehouse materials in the inner and outer vaults. Update condition and location records.	November 2008-June 2009	Registrar, Conservation, and Curatorial staff

BUDGET FORM - PAGE FOUR

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages	0.00	39,007.00	39,007.00
2. Fringe Benefits	0.00	13,262.58	13,262.58
3. Consultant Fees	0.00	9,100.00	9,100.00
4. Travel	0.00	0.00	0.00
5. Supplies and Materials	112,500.00	35,019.00	147,519.00
6. Services	0.00	4,980.00	4,980.00
7. Student Support	0.00	0.00	0.00
8. Other Costs	0.00	0.00	0.00
TOTAL DIRECT COSTS (1–8)	112,500.00	101,368.58	213,868.58
9. Indirect Costs	0.00	11,446.56	11,446.56
TOTAL COSTS (Direct and Indirect)	112,500.00	112,815.14	225,315.14

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	112,500.00
2. Cost Sharing:	
a. Cash Contribution	112,815.14
b. In-Kind Contribution	
c. Other Federal Agencies*	
d. TOTAL COST SHARING	112,815.14
3. TOTAL PROJECT FUNDING (1+2d)	225,315.14
% of Total Costs Requested from IMLS	49.93%

* If funding has been requested from another federal agency, indicate the agency's name: