

MSU INVESTMENT PROPOSAL FOR INSTITUTIONAL PRIORITIES

PROPOSAL OVERVIEW

Title	Taylor Planetarium Upgrade	Request Date	December 27, 2011
Department	Museum of the Rockies	Email	smckamey@montana.edu
Requestor	Sheldon McKamey, Executive Director	Phone	994-6543

STRATEGIC ALIGNMENT

Core Themes and Objectives (check all that apply)

Educate Students

- Our graduates will have achieved mastery in their major disciplines
- Our graduates will become active citizens and leaders
- Our graduates will have a multicultural and global perspective
- Our graduates will understand the ways that knowledge & art are created and applied in a variety of disciplines
- Our graduates are prepared for careers in their field
- We will provide increased access to our educational programs
- Communities and external stake holders benefit from broadly defined education partnerships with MSU

Create Knowledge and Art

- Students, faculty, and staff will create knowledge and art that is communicated widely

Serve Communities

- We help meet a fundamental need of the citizens of Montana by providing degree programs for our students
- We help meet the educational needs of the citizens of Montana by providing a wide range of educational opportunities to a variety of students
- Our students, faculty, staff, and administrators reach out to engage and serve communities
- Our students, faculty, staff, and administrator reach in to build the university community

Integrate Learning, Discovery, and Engagement

- Each graduate will have had experiences that integrate learning, discovery and engagement
- Outreach activities will educate students and address the needs of the communities we serve
- Students, faculty, and staff will create knowledge and art that addresses societal needs
- MSU is a community that will be characterized by synergy within and across disciplines, roles and functions.

Stewardship

- The public trusts the institution to operate openly and use resources wisely
- The faculty and staff are well-qualified and supported
- MSU will support Native American students, programs, and communities
- MSU will be an inclusive community, supporting and encouraging diversity
- Our publicly provided resources are used efficiently and effectively
- Natural resources are used efficiently and sustainably
- MSU nurtures a culture of resource conservation and ecological literacy among students, faculty and staff
- Our physical infrastructure (e.g., building, equipment, open spaces) will be well-maintained and useful

PROPOSAL SCOPE

Describe the Proposal

The Museum of the Rockies (MOR) is one of MSU's most successful outreach programs, welcoming 160,000 visitors to the Bozeman campus in 2011 and more than 3 million visitors since its 1989 renovation. The museum is the most visited indoor attraction in Montana and the most popular museum in the state. Ten percent of MSU students use museum exhibits, programs or collections in class assignments. Thanks to MOR's innovative *Opening Doors for Montana School-children Program* which is funded by museum donors, children in any K-12 public, private, home, reservation or parochial school in the state can visit the MOR and its attractions for free.

An integral part of MOR is the Taylor Planetarium (TP). Since its opening in March 1989, more than 2 million people have learned more about Montana's famous "Big Sky" in the planetarium's unique environment. TP has become a significant part of MOR's outreach to K-12 education; 82% of students who visit MOR opt to see a free planetarium show. TP remains the only public planetarium in Montana, North and South Dakota; the next nearest planetariums are in Boise, Idaho and Spokane, Washington. Due to intense use and technology changes, the existing equipment has become obsolete, the facility worn, and its accompanying programming out-of-date, e.g. Pluto is no longer a planet and the space shuttle program isn't new—it's over! Teachers and museum members have asked for a change.

The Museum of the Rockies, Inc., the 501(c)(3) that supports the MOR, has launched a \$1.5 million fundraising effort to bring the Taylor Planetarium up to the same standard of excellence evidenced elsewhere in the museum. The Board of Trustees respectfully requests a one-time investment of \$45,000, or 3% of the total project, as an indication to private foundations and donors of MSU's support for the planetarium project. When the Board of Regents voted their approval for the project, the Associated Students of Montana State University immediately made a commitment to show their enthusiasm.

The planetarium's new Digistar 4 system includes the American Museum of Natural History's Digital Universe, the world's most extensive and accurate atlas of the known universe, in a highly interactive format. Visitors will be able to see brighter, sharper star fields and can travel on demand to anywhere in the universe. Digital planetarium programs such as the ones shown in New York's Hayden Planetarium will be available for Bozeman audiences, and the project includes funds to acquire and continue building a library of planetarium shows. Although shows primarily focus on space exploration and astronomy themes, programs are available on topics as diverse as weather phenomenon, Egyptian archaeology, paleontology, biology, history and oceanography. MOR's proprietary K-12 school shows and public shows such as the holiday favorite, *Season of Light*, will be refreshed and converted to a digital format.

Visitors will notice that the old center-mounted projector has been replaced with two wall-mounted lenses and the large operator's console is gone, both of which will provide space for additional seating. New lighting, theatre seats, sound system and interior finishes will create a new look for TP.

Renovation will begin on September 4, 2012 when the planetarium closes. The newly refurbished Taylor Planetarium will re-open to the public before spring break in March 2013.

PROPOSAL SCOPE

Describe the broader impacts and benefits of this proposal.

The new Taylor Planetarium will be one more center of excellence for MSU. It will increase educational opportunities for K-12 students, MSU students and faculty, tourists, Montanans, and the local community.

The Taylor Planetarium opens new worlds to children. Concurrent with the TP's opening in 1989, MOR began circulating Starlabs (portable inflatable planetariums) and astronomy teaching trunks to schools throughout Montana. A visit to the MOR to see a real planetarium is a logical next step for these students and it is expected that the new TP will increase the number of schools who make the trip to the MSU campus.

Introducing kids to STEM disciplines such as space exploration, astronomy and cosmology at a young age has sparked interests in future career paths. MSU's Dr. Angela Des Jardins, Director of the Montana Space Grant Consortium (MSGC), explains: "I feel my career essentially started with the Taylor Planetarium. As a youngster, the planetarium was the center of my access to space. As a young adult, it gave me my first job. That job then led to further space-related opportunities, and eventually into solar physics and education research." Many adults who were raised during NASA's manned space program continue to be fascinated with space exploration and see the planetarium as an essential way to "keep the dream alive" as NASA scales back its mission.

The planetarium is central to MSU's annual Astronomy Day, a free community outreach day that has been hosted by MOR for 15 years. Partners include MSGC, Extended University, Space Physics Outreach Team (SPOT), SPIE, and the local amateur group, Southwest Montana Astronomical Society (SMAS). Montana middle-school students on campus each November for Science Olympiad spend an evening at MOR where planetarium shows are a big hit. With the assistance from SMAS, the MOR offers evening star-gazing parties, a winter astronomy lecture series, and night-sky observations in Yellowstone National Park on several summer weekends.

As funding becomes available, MOR plans to return to producing its own planetarium shows. From 1991 to 2000 when TP was state-of-the-art, staff produced eight original programs with assistance from MSGC, all of which were made available to other planetariums and some of them sold internationally. Three new shows are planned. The first is an update to *Here Comes the Sun*, based on discoveries by MSU's Solar Research Group; the second is a new show that would feature MSU researchers' amazing discoveries in the Yellowstone Ecosystem; and the third overlays Native American sky understandings with current NASA research (part of a current NASA proposal). All of these have potential for wide distribution which will increase MSU's visibility.

The planetarium's new Digistar 4 system will provide opportunities for MSU researchers and students. When the system was demonstrated at MOR last summer, Dr. David McKenzie, MSU Physics, projected 10' x 10' solar images on the planetarium dome and researchers were able to see details that were not visible on their computer screens. Dr. Clemente Izurieta, MSU Computer Science, used Digistar 4 to project a visualization of surface and subsurface water transport in a small section of the Middle Fork of the Flathead River. Dr. Joey Key, MSCG, plans to show her outreach project, *Celebrating Einstein*, in the new TP. Today's partners include Physics, Solar Research Group, MSCG, Computer Science, and the Natural-history Filmmaking program; as the campus becomes away of the new system's capabilities, the list will grow. Developing a planetarium program as a way of disseminating research findings is an exciting option for meeting EPO grant requirements. Dr. Tom McCoy, Vice President of Research, Creativity and Technology Transfer, is extremely supportive of the planetarium project.

The new TP will also draw attention to MOR and MSU. The facility is unique which has publicity value in itself. In addition, visitors to Montana rate dark, night skies as one of the state's best attractions and TP is the only facility in Montana where they can learn more about the dazzling array of stars they are enjoying.

ADDITIONAL INFORMATION

Implementation Plan *(Please describe with timelines)*

The Board of Trustees of MOR, Inc. has already started its "Building Bigger Skies" fundraising effort. In addition, the Board has authorized a \$1.2 million construction loan from its reserve to MSU Facilities to ensure that the project starts and ends on time. The planetarium will close on September 4, 2012 after the Labor Day weekend and re-open to the public before spring break in March 2013. MSU Facilities is responsible for the renovation.

In February 2012, MOR will send Eric Loberg, Taylor Planetarium Program Manager, to Digistar 4 training so that he can begin converting existing school programs to a digital format. This will ensure that schools who visit during spring 2013 will be able to see new shows in the new planetarium.

Assessment Plan *(Please describe with indicators)*

MOR will assess results based on use and/or satisfaction of the following groups by comparing current benchmarks with data obtained after 15 months of operation, (June 30, 2013):

- Increase visits to MOR from Montana K-12 schools from 17% to 23% and increase the number of these students who see a planetarium show from 82% to 90%
- Increase use by home school students from 3% to 8% and by geographically isolated students from 11% to 16% and achieve an 80% satisfaction rating
- Increase the number of MOR visitors who see the TP from 43% to 60% and increase their satisfaction with the experience from 50% to 90%
- Increase use of the TP by museum members by 20% or from 30,558 to 36,670
- Increase participation in MSU Astronomy Day and other related events to 2,000 people total
- Attract at least five MSU classes to the new facility and achieve a 90% satisfaction rating
- Identify at least one MSU researcher who would like to create an original TP show as part of grant-funded EPO requirements

If assessed objectives are not met in the timeframe outlined, what is the plan to sunset this proposal?

There is no plan to sunset or scale back this project.

SIGNATURES

Department Head <i>(please print)</i>	Signature <i>(required)</i>	Date
<i>Sheldon McFarman</i>	<i>Sheldon McFarman</i>	<i>12/18/11</i>
Dept Head Priority <i>(please circle one)</i> : <u>Very High</u> High Medium Low Very Low		
Dean/Director <i>(please print)</i>	Signature <i>(required)</i>	Date
<i>Sheldon McFarman</i>	<i>Sheldon McFarman</i>	<i>12/18/11</i>
Dean/Director Priority <i>(please circle one)</i> : <u>Very High</u> High Medium Low Very Low		
Executive/VP <i>(please print)</i>	Signatures <i>(required)</i>	Date
Executive/VP Priority <i>(please circle one)</i> : Very High High Medium Low Very Low		