

BPAA and BARN | Artisan Astronomy: A collaboration of the arts and sciences

SECTION 1: PROPOSAL DESCRIPTION AND PURPOSE

Activities Promoted

The BPAA/BARN collaboration is unique in its ability to share a diversity of knowledge to participants. Activities from this proposal include the development of BARN classes encompassing multiple studios to equip participants with skills to knowledgeably engage with community based projects of all kinds. Using BPAA-sourced projects as real-world learning opportunities, participants in project-oriented classes will accomplish repairs and upgrades to BPAA existing equipment and facilities. This proposal will involve the following activities:

Activity 1:

Goal: Upgrade the mechanical operability of the main telescope.

Description: This activity will involve the machine shop studio as well as the welding studio at BARN. Students and other volunteers will use BARN studio facilities to manufacture metal components that control the telescope's movement. This is necessary because the current mechanisms controlling the scope have degraded over time rendering the telescope unreliable and difficult to use.

Activity 2:

Goal: Upgrade the control systems of the main telescope and provide video access.

Description: This activity will involve the ETA studio at BARN as well as the machine shop studio. In this activity, students and other volunteers will design and implement new electronic systems that interface to the computers used to control the operation of the main telescope as well as developing a means to stream the scope's output over the internet.

Activity 3:

Goal: Fix problems in the dome and shutter operation.

Description: This activity will involve all three BARN metal arts studios as well as the woodworking studio. In this activity, participants will repair the dome and shutter that enclose and protect the primary telescope. These repairs are necessary due to degradation that has occurred over the years. The dome and shutter both are near the point of mechanical failure, and are losing their weathertight integrity.

Activity 4:

Goal: Fix telescopes that have been donated by the general public.

Description: BPAA owns a number of donated, high-quality 8-inch to 12-inch telescopes of limited usability due to non-functioning electronic drive and control systems. This activity involves the

BARN Electronic and Technical Arts (ETA) studio and is intended to provide students and other volunteers the opportunity to learn electronics, programming and other skills while improving the design and operation of telescopes that will be used during public star nights or other events.

Activity 5:

Goal: Improve the furnishings throughout the facility to provide safer and more effective public access.

Description: This activity will involve the Woodworking studio and is intended to provide upgraded storage cabinets, workbenches, student desks and other items used to operate the facility in an educational capacity.

These BARN classes will both improve the functionality of the BPAA telescope and observatory, and afford participants opportunities to gain skills that can contribute to the economic vitality, community character, livability, and quality of life on Bainbridge Island.

Initial activities involve teaching interested community participants skills such as woodworking and metal machining. These skills will then be utilized to retrofit the Edwin Ritchie telescope which is one of very few publicly accessible telescopes in the Pacific Northwest, and also the largest in Washington state. During the retrofitting process BPAA and BARN will guide participants in machining new components for the declination drive, part of the system that controls the telescope's pointing direction in the sky. This updated declination drive is imperative to accurately aligning the telescope to deep sky objects, and paramount to creating the capacity for live streaming and podcasts of astronomical views.

Other classes that will be offered through the BARN/BPAA collaboration in this proposal will enhance the Helix Building, making it more accessible and welcoming to Bainbridge Island residents and tourists. These classes include woodworking, metal machining, sheet metal work, welding, and electronics, with the goal of repairing deficiencies and enhancing the operation of the observatory dome, the telescope control system, and the planetarium meeting room.

The BARN/BPAA collaboration described above focuses on an enriched learning experience in BARN studios, with BPAA facility needs supplying the subject matter. Extending our reach further, this proposal includes an additional educational element intended to benefit the entire Bainbridge community: a video link that will feed images from the Ritchie Telescope to audiences in the BARN auditorium. The observatory's location inherently limits the accessibility of programs to those able to travel to the northern part of the island or are able to walk up two flights of tightly winding stairs. A video feed will significantly improve the accessibility of all BPAA programs to the community.

Program funds will be used to purchase and install videography equipment onto the telescope. This equipment will allow us to transmit, via the internet, images from the telescope to screens at BARN, or other centrally-located facilities, where people can gather more readily to participate in astronomy related activities. In addition, BARN and BPAA plan on using the Media Arts studio to post-process educational lectures,

telescope video, and other programs to reach an even wider Bainbridge Audience through Bainbridge Community Broadcasting (BCB).

The youngest members of the Bainbridge community will benefit from this collaboration as well. Currently BPAA significantly enhances BISD 5th grade curriculum by designing and hosting all 5th graders on field trips. BPAA works with educators to tailor the content towards specific core curriculum metrics, and allows students a view of our sense of place in the universe. This program nurtures creative thought and an exchange of ideas between students, families, and educators. In addition to the 5th grade planetary studies, Dr. Erica Saint Clair from BPAA has generated curriculum to support 1st grade studies of patterns in the night sky. This proposal will enhance BPAA's collaboration with BISD students in that it will bring the availability of video, from our local observatory, into the classroom, in addition to renovating the planetarium room to be better equipped to run classes. These classes are two fold, in both local school field trips, and also in youth educational programming. This enhancement would be created through the addition of crafted wainscot that folds up into classroom tables, making the planetarium a multipurpose room.

Primary goals

The activities outlined above support the primary goals of the BARN, BPAA collaborative project:

- Provide BARN members with community based projects that serve as an incentive to learn new skills resulting in increased membership, BARN sustainability, and large-scale community service.
- Provide Bainbridge Island residents with increased access to the Edwin Ritchie Observatory through direct modifications to the telescope and building refurbishment for improved accessibility.
- Enhance already implemented curriculum and educational experiences for BISD students and teachers through functional spaces and video streaming.
- Create the ability to broadcast educational seminars, both those geared towards adults, and those geared towards kids, telescope video, and podcasts to the community through live streaming at BARN's meeting spaces that are more convenient and accessible to Bainbridge residents, as well as post production through BARN's Bainbridge Community Broadcasting station.

Partners and Participants

Stephen Ruhl - President of BPAA

Stephen Ruhl provides oversight on all BPAA activities to insure the best interests of our members as well as BPAAs ability to function and provide service to our community.

Nels Johnson- Vice President of BPAA

Nels Johnson organizes the Star Parties, assists in the mechanical operation of the Ritchie Telescope, and conducts tours of the universe through the eyepiece.

Frank Petrie - Secretary of BPAA

Frank Petrie serves as a an intermediary between BARN and BPAA in the proposed activities, and is an instrumental part to planning and execution.

Erica Saint Clair, PhD - Communications officer of BPAA, Youth Education Lead BPAstroKIDS

Dr. Erica Saint Clair coordinates with BISD teachers and personnel to create educational programming for BPAA that is culturally, historically, and scientifically relevant in classrooms.

Peter Moseley - Head of BARN Metal Arts Studios

Peter Moseley will coordinate the efforts of three studios in the BPAA project; the Machine Shop, the Sheet Metal Studio and the Welding Studio.

Stan Stumbo - BARN Machine Shop Studio Lead

Stan Stumbo will coordinate Machine Shop project courses and activities for the collaboration with BPAA to upgrade the telescope mechanical drive systems.

Mark Nichols - Executive Director of BARN

Mark's desire as E.D. of BARN is support the goals and efforts of all of BARN's eleven artisan studios. BARN is uniquely positioned with facilities, equipment, and talent to bring diverse resources together in one place to meet unique challenges such as those presented by BPAA.

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BUDGET NARRATIVE

1) What is the total estimated budget for this project? The total estimated budget for this project is \$55,000 including materials, parts, consumables, and instructor time. BARN and BPAA will provide all labor through student volunteers trained by experienced instructors. The Cultural Funding Grant of \$20,000 will cover two-thirds of the estimated cost of materials, parts, and consumables. The balance of material costs (\$10,000) will be covered by BPAA general funds, and the instructor costs will be paid in part by student class fees and in part by BARN. Labor provided by student volunteers will offset commercial vendor costs not included in the project budget.

2) Please include and identify any income your project is expected to generate. This project is a real life teaching activity that will not directly generate revenue but will provide much needed repairs and upgrades to BPAA facilities.

3) What will the requested funds be used for? Cultural Grant funds will be used to purchase materials, parts, and consumables. Materials and parts needed for this project include manufactured bearings, aluminum and steel plate and bar stock, sheet metal, fasteners, lumber, and plywood. Consumables include shop supplies used directly to accomplish this work.

4) Include the amount and origin of any funding that is committed and/or pending for this program/project. There is currently no other funding committed or pending for this project. Without this Cultural Grant funding, BPAA will accomplish the work on a pay-as-we-go basis, subject to availability of donations and other grant funding. Under such circumstances, the work will take several years to complete. Additionally, without the collaboration of BARN's Metal Arts, Electronic and Technical Arts, and Woodworking Studios, BPAA will be forced to pay commercial rates for the work.

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BUDGET ESTIMATE **January 18, 2018**

Expense Categories	2018 - Year 1				2019 - Year 2				TOTAL Year 1 and Year 2			
	Total Project Hours Year 1	Total Project Budget Year 1	COBI Cultural Funding Request Year 1	% of Total Project Budget Year 1	Total Project Hours Year 2	Total Project Budget Year 2	COBI Cultural Funding Request Year 2	% of Total Project Budget Year 2	Total Project Hours	Total Project Budget	COBI Cultural Funding Request	% of Total Project Budget
<u>Telescope Mechanical Drive Systems</u>												
Materials & consumables		\$4,000	\$4,000	100%		\$2,000	\$2,000	100%		\$6,000	\$6,000	100%
Labor (staff) **	40	\$4,000	\$0	-	20	\$2,000	\$0	-	60	\$6,000	\$0	-
Labor (student) ***	600	\$0	\$0	-	300	\$0	\$0	-	900	\$0	\$0	-
<u>Telescope Electronic Control & Video Systems</u>												
Materials & consumables		\$4,000	\$2,000	50%						\$4,000	\$2,000	50%
Labor (staff) **	30	\$3,000	\$0	-					30	\$3,000	\$0	-
Labor (student) ***	400	\$0	\$0	-					400	\$0	\$0	-
<u>Dome & Shutter Structure & Operating System</u>												
Materials & consumables		\$4,000	\$4,000	100%		\$3,000	\$2,000	67%		\$7,000	\$6,000	86%
Labor (staff) **	30	\$3,000	\$0	-	30	\$3,000	\$0	-	60	\$6,000	\$0	-
Labor (student) ***	300	\$0	\$0	-	300	\$0	\$0	-	600	\$0	\$0	-
<u>Planetarium/Classroom Improvements</u>												
Materials & consumables		\$2,500	\$1,000	40%		\$2,500	\$1,000	40%		\$5,000	\$2,000	40%
Labor (staff) **	20	\$2,000	\$0	-	20	\$2,000	\$0	-	40	\$4,000	\$0	-
Labor (student) ***	200	\$0	\$0	-	200	\$0	\$0	-	400	\$0	\$0	-
<u>Workshop & Office Cabinetry</u>												
Materials & consumables		\$4,000	\$4,000	100%		\$4,000	\$0	0%		\$8,000	\$4,000	50%
Labor (staff) **	30	\$3,000	\$0	-	30	\$3,000	\$0	-	60	\$6,000	\$0	-
Labor (student) ***	300	\$0	\$0	-	300	\$0	\$0	-	600	\$0	\$0	-
TOTAL		\$33,500	\$15,000	45%		\$21,500	\$5,000	23%		\$55,000	\$20,000	36%

** Staff hours to be compensated by student memberships and class fees.

*** Labor provided by students offsets commercial vendor costs excluded from this estimate.

BATTLE POINT ASTRONOMICAL ASSOCIATION

2018-2019 CULTURAL FUNDING METRICS

1. Total hours of volunteer labor spent across the five activities listed in our Budget, both in the BARN shops and onsite at the Ritchie Observatory.
2. Total hours of BARN class and open studio time utilized in support of this collaboration, on a per person basis, inclusive of both student and instructor time.