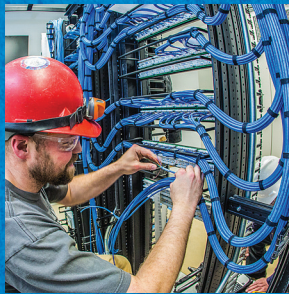


FY15 Capital Budget Request Summary & Narrative



August 2013



UAF FY15 Capital Request Items Construction, Capital Research, Academic Equipment & Technology Summary

August 2013

CAPITAL CONSTRUCTION REQUESTS		State Appropriation	Receipt Authority	Total
Renewal & Renovation, Code, ADA		23,370.0	-	23,370.0
R&R, Code, ADA Total		\$ 23,370.0	\$ -	\$ 23,370.0
New Construction				
Engineering Facility		33,300.0	10,000.0	43,300.0
Cogen Heating and Power Plant Boiler and Turbine Replacement		200,000.0	45,000.0	245,000.0
Housing Receipt Authority		-	65,000.0	65,000.0
New Construction Total		\$ 233,300.0	\$ 120,000.0	\$ 353,300.0
Planning for New Construction				
UFD Emergency Services and Management Facility Replacement		700.0	-	700.0
Community & Technical College Emergency Services Training Center		900.0	-	900.0
Parking Garage		350.0	-	350.0
CRCD-Kuskokwim Campus Consortium Learning Center		700.0	-	700.0
Planning for New Construction Total		\$ 2,650.0	\$ -	\$ 2,650.0
Land, Property, and Facilities Acquisition				
Bunnell House Replacement		250.0	-	250.0
Northwest Campus Realignment		150.0	-	150.0
Land, Property, and Facilities Acquisition Total		\$ 400.0	\$ -	\$ 400.0
CAPITAL RESEARCH				
		State Appropriation	Receipt Authority	Total
Enhancing Competitive Research and the Benefits of Research as an Industry in Alaska				
Investments in University Wide Research Areas of Opportunity	1	\$ 3,000.0	\$ 3,000.0	\$ 6,000.0
Community Partnerships for Self-Reliance & Sustainability	2	1,000.0	-	1,000.0
Adopting the EarthScope Seismic Array for Earthquake Assessment	3	5,000.0	40,000.0	45,000.0
Improving Arctic Oil Spill Response Through Dedicated Science and Technology Center	4	1,000.0	2,000.0	3,000.0
Enhance Base Maps for Alaska	5	1,900.0	-	1,900.0
Research Total		\$ 11,900.0	\$ 45,000.0	\$ 56,900.0
ACADEMIC EQUIPMENT & TECHNOLOGY				
		State Appropriation	Receipt Authority	Total
eLearning Technology	1	\$ 1,488.0	-	\$ 1,488.0
Advanced Analytical Instrumentation for Resources R&D and Education	2	\$ 1,157.5	\$ 1,157.5	\$ 2,315.0
Palmer Certified Test Kitchen and Outreach Center	3	700.0	-	\$ 700.0
Welding Equipment for UAF Interior Aleutians Campus & Community and Technical College	4	174.0	-	\$ 174.0
Digitization and Preservation of Alaska's Heritage	5	560.0	-	\$ 560.0
Equipment for Energy R&D	6	1,462.0	-	\$ 1,462.0
Academic Equipment Subtotal		\$ 5,541.5	\$ 1,157.5	\$ 6,699.0
Wireless Connectivity Infrastructure	1	425.0	-	425.0
Academic Equipment & Technology Total		\$ 5,966.5	\$ 1,157.5	\$ 7,124.0

UAF FY15 Capital Budget Request Narratives

RENEWAL & RENOVATION (R&R), CODE, ADA

UAF's R&R request represents a proportional share of the expected \$37.5M UA system R&R request. The list of items below represents several high priority R&R, Code and ADA items and an estimated amount for allocation in FY15. These items are a small fraction of all UAF R&R and DM needs. Events and circumstances may require reprioritizing and/or increasing or decreasing specific projects and allocation amounts.

Cogen Heating Plant Required Upgrades to Maintain Service and Code Corrections (Ph3)

(GF \$1,000.0)

The UAF combined heat and power plant is a co-generation facility that provides electrical power, domestic and firefighting water, and steam for heating buildings. The plant is over almost 50 years old and many components have exceeded their useful life. This project will address revitalization of the highest priority deficiencies of utilities on the UAF Main Campus. The heating plant renewal items will include the steam and electrical system and water system. The items were identified in the 2006 Utility Development Plan as needing immediate action. Avoiding a major utility failure is the primary objective of this project.

Critical Electrical Distribution

(GF \$3,500.0)

The existing electrical distribution system at UAF is nearly 50 years old. With the completion of several new facilities, the antiquated equipment could be stretched beyond its capabilities and begin to fail. To ensure campus power is not shutdown, major upgrades must be made to replace the ancient switchboard and cabling to bring the campus distribution back into code compliance. This is a multi-phase project and \$32.9M has already been appropriated in past years (2005-2014). Additional funding is necessary to complete the upgrade.

Fairbanks Campus Main Waste Line Repairs

(GF \$2,000.0)

Planning is still on going on the sanitary systems and UAF has developed a priority list of repairs. Essentially, 90% of the sanitary mains and building branch lines have failed or are failing. Earlier phased work has replaced the most critical failed sections including the main trunk off campus to the utility, and failed lines are several existing facilities. This funding will address the next group of projects in the prioritized list developed by engineering consultants in 2011.

Fairbanks Main Campus Wide Roof Replacement

(GF \$1,000.0)

UAF has many large campus structures that still have original roof systems. As buildings on campus age and do not receive adequate R&R funding, roofing system repairs only offer a band-aid solution to a long-term problem. Funding is required for a multi-year project to replace roofs that have surpassed their useable life and are at risk of complete failure.

West Ridge Facilities Deferred Maintenance and Revitalization

(GF \$7,000.0)

The first phase of the West Ridge Deferred Maintenance project will provide a road map on how to effectively and efficiently address deferred maintenance and functional obsolescence in these facilities. A program of renovations will be developed to ensure the University is addressing the needs of the buildings in a timely manner and in such a way as to enhance the space for the existing programs on West Ridge. The first project is expected to be relocation of the Irving 1 animal quarters into the basements of the BiRD and Virology Buildings. This requires the completion of these unfinished spaces. Next on the list is consolidation of 24/7 operations so needed backup infrastructure can be efficiently provided for the National Weather Service, Alaska Satellite Facility, and Alaska Volcano Observatory.

ADA Compliance Campus Wide: Elevators, Ramps, Restrooms

(GF \$1,000.0)

The Campus Wide ADA Guidelines Compliance project is an on-going effort to bring the UAF Fairbanks campus and associated community and research campuses into compliance with ADA guidelines. This project includes accessibility improvements such as renovations to restrooms, improvements to accessibility routes both inside and outside buildings, replacing drinking fountains, upgrading elevators and modifying stairwell handrails.

Elevator/Alarms Scheduled Upgrading and Replacement

(GF \$500.0)

UAF Facilities Services manages the operation and maintenance for a fleet of more than 50 elevators and lifts with an average age of over 25 years. With the help of an FY01 audit, 28 elevators were identified as needing modernization upgrades. This request represents the latest installment of multi-year modernization plan and will address ADA, code, and deferred maintenance improvements in the campus elevator systems. Also included in this scope of work is routine and deferred maintenance on the many fire alarm systems in UAF facilities.

Lower Campus Backfill Renovations per 2010 Masterplan

(GF \$400.0)

Classroom improvements, relative to modern pedagogy and learning styles, will be achieved through a combination of renovation and new construction. This will take place throughout lower campus. Locating research facilities closer to Lower Campus

and including mixed academic facilities on West Ridge better integrates these functions and improves the undergraduate academic experience. The improved visibility and accessibility to these programs highlights the unique research that is particular to UAF, research tied to Alaska's natural history, climate and culture. This project will include as necessary soundproofing, paint, carpet, whiteboards, intelligent teaching tools, and other renovations necessary to each individual space.

Patty Center Revitalization

(GF \$1,000.0)

Constructed in 1963 to replace an existing 40-year old gym, the Patty Center now houses sports and recreational space for five NCAA Division II, and two NCAA Division I sports. This includes both men's and women's teams that are a vital part of the UAF Campus Life Master Plan. The construction project will correct an abundant list of code citations and extend the life of the 50-year-old facility. The facility must be upgraded to meet basic competition standards.

Campus Infrastructure

(GF \$1,000.0)

Continued and sustained funding would allow for the completion of the approximately one mile North Tanana Loop Road, provide access roads to the Natural Sciences Facility, Museum, parking lot North of West Ridge Research Complex, bike trail access, and access and improvements to the campus trail system. North Tanana Loop Road is a key component to improving public and employee access to the critical research facilities on West Ridge. Current traffic routes take cars, buses, and large delivery trucks through the heart of the walking campus or through existing parking lots.

In addition, installation of a wireless mesh network will provide robust, fail-over capable wireless network access to areas of UAF campus that are exterior to buildings. This will provide the foundation and infrastructure for several new services to be made available on the UAF Fairbanks Campus.

Tilly Commons Demolition

(GF \$2,000.0)

Lola Tilly Commons, the current location of the campus meal plan dining facility, is in need of a substantial renovation. An analysis of the projected maintenance and renewal necessary to a safe, sound, and sanitary facility shows that the funding necessary exceeds the value of the facility. With the completion of the Wood Center Dining Addition in August 2014 the central dining activity will relocate from Tilly Commons to Wood Center. UAF has evaluated many options for the reuse of Tilly Commons but the high deferred maintenance costs make it more efficient to demolish the building.

Student Services Renewal - Wood Center Student Union

(GF \$2,000.0)

The Wood Center has the advantages of a central campus location, the draw of food service, and very high levels of pedestrian traffic. Despite these advantages, Wood Center does not function as a "campus center" that attracts students in the evenings or on weekends or whenever they have spare time during the day. While there are areas within the building that are "destinations" for students, including the Pub and the bowling alley, the building as a whole is not a draw for students, even those who live on campus. Renewal work in the Wood Center will include renovation of existing spaces to allocate room for the consolidation of programs serving UAF students.

Kuskokwim Campus Facility Critical Deferred & Voc-Tech Renewal Phase 2

(GF \$970.0)

Current maintenance and repair funding levels are not sufficient to meet the critical maintenance needs at the rural campuses. Funding will allow for continued major renovations and code upgrades to over 50,000 square feet of space. Work generally includes new architectural finishes on the inside and outside, new electrical distribution, corrected plumbing systems, and installation of code compliant ventilations systems.

NEW CONSTRUCTION

Engineering Facility

(GF \$33,300.0, NGF \$10,000.0, Total \$43,300.0)

This request represents the final amount necessary to complete the UAF engineering facility. The state provided partial funding for this project in FY12 and FY13. The funding is necessary to complete the facility, without this final amount of funding the project will be only partially complete thus not available for engineering students.

The UAF campus is the home of the College of Engineering and Mines (CEM) and the Institute of Northern Engineering (INE). CEM and INE are the center for engineering education and research in Alaska today. The Duckering Building on the Fairbanks campus is the main facility that supports the engineering programs on the UAF campus. The Duckering Building supports engineering education and research throughout the state of Alaska. The Duckering building as documented by the UA Engineering Plan 2010 is too small and the facilities cannot fully support the needs of modern engineering education and research.

Through efficient use of the facilities in the existing Duckering Building the project will magnify the benefit provided by the available funds to support the greatest number of students. A partially upgraded Duckering Building is an integral component of the proposed solution; the proposed facility includes approximately 30,000 gsf of renovation in the existing Duckering Building. The UAF Engineering Facility provides a new addition of 119,100 gross square feet (gsf) located between the Duckering Building and the Bunnell Building. The new facility will incorporate the strengths of

the existing building and the successful existing UAF engineering program. The proposed solution is to selectively upgrade portions of the existing building. Portions of the existing building that currently adequately house their programs will remain in their current configuration. Some of these spaces are not ideal; but they do provide an effective learning and/or research environment. The new UAF Engineering Facility design provides an efficient solution to the space and functional deficits recognized in the existing Duckering Building.

The new facility will support the University of Alaska Fairbanks in its role to graduate more engineering students. The new facility creates an environment that enhances interaction among the students, professors and researchers. The modern building improves indoor environment and building systems and student success and retention are enhanced through a visible and interactive learning environment (engineering on display), day lighting of common, learning, and research spaces, improved air quality, student interaction and learning spaces in common areas and integrated engineering research and instruction.

Cogen Heating and Power Plant Boiler and Turbine Replacement

(GF \$200,000.0, NGF \$45,000.0, Total \$245,000.0)

The Atkinson Heat and Power Plant provides electricity, heating and cooling for about 3 million square feet of academic, research, office and housing space at the University of Alaska Fairbanks. The plant's two main boilers were installed in 1964 and are nearing the end of their 50-year useful life. A failure of these boilers (either gradual or catastrophic) is a substantial risk to the University's mission and finances. The boilers are identified as the most significant risk to UAF in the Risk Management Plan submitted to the Board of Regents.

With that looming, a wide variety of options were evaluated by consultants (both engineering and environmental) and UAF. The best solution was a new 17-megawatt combined heat and power plant, anchored by circulating fluidized bed (CFB) boilers. CFB's are flexible solid fuel boilers that allow us to augment our coal use with up to 15 percent biomass or other solid fuels. This new plant will produce cleaner air for our community than the current facility and is the cornerstone of a strong and diverse energy portfolio for the next 50 years.

This project will provide a flexible heat and power solution, reduced emissions and lower fuel costs, and will allow the university to use its financial resources for a long-term solution rather than temporary fixes on an aging plant that uses 1890's technology.

Housing Receipt Authority

(NGF \$65,000.0)

As part of the Student Life: Transforming the UAF Experience project, UAF proposes to provide new student housing units through a public private partnership arrangement. The housing will be the first phase in a plan to increase the quality and quantity of housing stock. The project will provide beds in dormitory buildings either

adjacent to the Wood Center or at a location near core campus. The first phase, a 90-bed dormitory, could be constructed between August 2014 and May 2016.

PLANNING FOR NEW CONSTRUCTION

UFD Emergency Services and Management Facility Replacement

(GF \$700.0)

The proposed UAF Emergency Services and Management Facility will provide space to meet the current demand and future growth of the emergency services programs and continue to fulfill the university's missions and goals. The facility is envisioned to be a living laboratory for emergency responders, attending classes and labs adjacent to an actual operating emergency services department. The facility space program allows for apparatus bays and support spaces for fire and EMS, and firefighter/medic living quarters for on duty members.

Community & Technical College Emergency Services Training Center

(GF \$900.0)

The proposed CTC Emergency Services Training, Education, and Emergency Management Facility will provide space to meet the current demand and future growth of the emergency services programs in addition to support space for the UAF Police Department. The facility is envisioned to be a living laboratory for emergency responders, attending classes and labs adjacent to an actual operating emergency services department.

The new state of the art training center will be constructed at a new location near lower campus. The new building and location will provide greater access by the public and other agencies to the training and operational emergency services groups.

Parking Garage

(GF \$350.0)

The construction of a parking garage on campus will provide consolidated parking, open up valuable land for future buildings, improve the appearance of the lower campus entry, and provide convenient, short-term parking for visitors and part-time students. The FY15 Capital Request will fund planning and design. Construction would commence in FY17.

Kuskokwim Campus Consortium Learning Center

(GF \$700.0)

This KuC library expansion was part of the original 2006 Campus Master Plan to reduce overcrowding and to accommodate extended library hours. The library is currently short of book space, office space, and study areas. The layout of the current facility also makes it difficult to effectively and securely offer adequate library services to the public, primarily because the public restrooms are outside of the library and require the entire building be open to the public during extended library hours which can be problematic in terms of security. KuC envisions a 3,246-sf expansion onto the

front of this facility. Half would be a library expansion and the remaining half would be for a gift shop, offices, and conference room. This expansion would promote the university consortium collection.

LAND, PROPERTY, AND FACILITIES ACQUISITION

Bunnell House Replacement

(GF \$250.0)

The Early Childhood Education (ECE) program requires more functional space in order to meet accreditation requirements and to continue to offer the high-quality education and service provided by the program. UAF is in discussions on a land swap to acquire an existing building near campus which is larger and well suited to be the new home of the ECE program. UAF land to be traded is on the south side of Geist Road, and abuts the Parks Highway.

Northwest Campus Realignment

(GF \$150.0)

The Northwest campus was designed and constructed to provide adult basic education (ABE) and offer introductory college on campus course work in small traditional classrooms of 5-25 students taught by a resident or itinerant instructors and limited distance learning. The UAF Northwest Campus consists of fourteen one-story wood frame structures. Funding of this project will allow for a realignment of leased land and campus-owned parcels in order to more fully meet campus needs and improve the instructional environment.

ENHANCING COMPETATIVE RESEARCH for ALASKA

Investments in University-wide Research Areas of Opportunity

(GF \$3,000.0, NGF \$3,000.0, Total \$6,000.0)

As recommended by the Regents at the December 2012 meeting this request is designed to increase UAF research capacity and competitiveness. It will provide funding for university matching agreements, for state-of-the-art scientific equipment and instrumentation, start-up funds for new faculty in critical research areas, and for professional and skilled support for proposal development and review for competitive research awards.

Community Partnership for Self-Reliance & Sustainability Program Support

(GF \$1,000.0)

Recently, community leaders have challenged UAF to revise the way researchers work with communities. In response, UAF, the Alaska Native Science Commission (ANSC), and four rural Alaska communities initiated the Community Partnership for Self-Reliance and Sustainability (CPSS). The objective of CPSS is to foster "inreach" from communities to the university to develop collaborations that implement each community's vision for self-reliance and sustainability.

During the pilot phase, UAF researchers visited communities, listened to community priorities, offered suggestions for ways that UAF expertise might address some of these priorities, and established collaborative connections between community leaders and appropriate UAF research groups to guide and implement solutions. For example, CPSS has worked closely with Newtok to explore village relocation options, with Nikolai to address salmon fishing concerns, and all partner communities to reduce the high cost of energy.

Numerous communities, Tribal groups, and UA organizations who have learned of CPSS's early success have asked to join the partnership. A stable core of funding is required to address this request. Funding for CPSS will: 1) expand partnerships to Alaskan communities; 2) help align and integrate UA's various institutions conducting research with communities to assist the Strategic Directions Initiative; 3) increase the network of community-researcher interactions and knowledge sharing; 4) expose more UAF researchers (faculty and graduate students) to key issues confronting rural Alaska, 5) improve UAF engagement with communities to ensure community needs are a top priority, and 6) increase the capacity for the State of Alaska to address pressing rural issues and track research activities in communities.

Improving Earthquake Prediction and Monitoring in Alaska

(GF \$5,000.0, NGF \$40,000.0, Total \$45,000.0)

The National Science Foundation (NSF) has funded a monumental project to blanket the United States with a transportable grid to record the minute vibrations of the Earth. NSF is now looking to move the grid to Alaska in 200+ locations across the state. NSF is making an estimated \$40M investment in the Alaska Transportable Seismic Array as part of this EarthScope project. EarthScope will include with the seismic stations the required communications and technology infrastructure not currently available in many remote locations in the state. Each station has a residency time of about two years, after which the station is planned to be moved to the eastern edge of the array. This \$40M federal investment is not conditional on additional state funding however, it creates an opportunity to leverage this investment from NSF to ensure this one-time opportunity benefits Alaska directly and beyond the scheduled two year project term.

Alaska has a one-time opportunity to transform a temporary investment into a sustained earthquake monitoring and production network. By filling in significant monitoring gaps in the current very limited seismic network, Alaskans will be provided data necessary to better understand the earthquake risks to our communities and information and enhance our capacity to warn and respond.

The first of these funds will allow UAF to buy out the infrastructure, in place, and diversify the types of environmental measurements. A large portion of the investment by NSF will pay for installation of the infrastructure to support the stations. With the seismic stations installed, they can be augmented with additional tools to measure Alaska's environment at a fraction of the cost to install from

scratch. With the infrastructure in place, it becomes possible to communicate this information across the State in a timely manner. This investment will, for the first time, provide sustained comprehensive earthquake monitoring across Alaska.

Arctic Oil Spill Response through a Science Technology Center

(GF \$1,000.0, NGF \$2,000.0, Total \$3,000.0)

One of the areas of highest interest and potential for new development in oil production is in the Alaskan Arctic offshore where it is estimated there are more than 23 billion barrels of technically recoverable oil exist. Exploration and development of these resources are dependent on public trust in the capacity to prevent, respond to and mitigate the effects of an offshore arctic oil spill. The danger of oil spills - whether from exploration, production, ship traffic, or land-based activities - can best be mitigated by thoroughly informed decisions based on integrated, multi-dimensional knowledge of the operations and the total environment, including the people. In terms of risk mitigation, prevention is always the first priority.

This funding will support research and educational programs developed at UAF through an Arctic Center for Oil Spill Research and Education (A-CORE). Funds will build the infrastructure required to partner effectively with State and Federal agencies, industry, and other academic institutions. A-CORE will provide the structural framework for developing and sustaining the type of transformational science and technology, education, and knowledge transfer collaborations necessary to address the complex challenges associated with exploration, development, and transport in the future.

Mapping Alaska

(GF \$1,900.0)

Alaska's Statewide Digital Mapping Initiative (SDMI) is an interagency program producing updated high-resolution imagery and elevation model data for the entire state. The base imagery and elevation mapping program is well underway, with a new, high resolution satellite image of the entire state to be complete in 2014. Elevation mapping statewide is projected to be complete within the decade. This proposed effort will be directed at providing much needed information critical for assessment and potential development of Alaska's resources. Increased capability to monitor and document land surface conditions and characteristics will improve our ability to detect and respond to the changing environment, assess resources, and plan new development. Such monitoring is particularly needed in regions of rapid change, such as in areas changed by wildfires, along coast lines, near glaciers and in zones of rapidly degrading permafrost. In addition to using traditional remote sensing technology the university will use part of this funding to advance the use of new technologies including hyperspectral imaging which will dramatically enhance the ability to local new mineral deposits, clarify vegetation types and improve the ability to track oil spills in ice covered waters.

ACADEMIC EQUIPMENT & TECHNOLOGY

eLearning Technology

(GF \$1,488.0)

The request is to upgrade and purchase audio-videoconferencing equipment and audio-video recording equipment for education and research programs. The equipment will outfit approximately 12 classrooms on the UAF campus, one classroom at each of the five extended community campuses (in Bethel, Dillingham, Kotzebue, Nome, and at the Interior-Aleutians campus) and five Fisheries and Ocean Sciences sites in Anchorage, Cordova, Juneau, Kodiak, Petersburg, and Seward. Additionally, tablet bundles for the five UAF extended community campuses, audio-video recording equipment for classroom instruction and digital video field kits for distance delivered instruction and field research will better enable student learning.

The emphasis areas for this instructional technology have considerable student demand, and considerable reservoirs of knowledge and expertise, across the state: Alaska Native languages and cultures and fisheries and marine sciences. The project will integrate academic programs, research and creative activities across a range of disciplines and will provide the foundation for expanded course delivery and research collaboration between the UAF Fairbanks campus, the extended UAF community campuses, and the statewide locations of the School of Fisheries and Ocean Sciences.

Advanced Analytical Instrumentation for Resources R&D and Education

(GF \$1,157.0, NGF \$1,157.0, Total \$2,315.0)

This request is for two advanced analytical instrument systems that will enable highly competitive research and cutting-edge education in natural resource and environmental sciences. UAF can secure funding from a charitable foundation for half the cost, but the University must provide a 50% match. Both instruments are mass spectrometers, although each has very different capabilities. One can make high precision isotope ratio measurements of a wide range of chemical elements in both solid and liquid samples. The instrument would be used by researchers and students in a wide variety of fields, including geochemistry, geochronology, archaeology, environmental sciences, forensic sciences, biosciences, pharmaceutical, food and beverage laboratories and more. The other instrument incorporates new technological developments in ICP-MS instrumentation (Triple Quadrupole technology) that make quantification of rare earth elements (REEs) straightforward. The instrument package would replace equipment that is nearing the end of its serviceable lifetime. It would improve capabilities not only for REE analysis, but also for ongoing research by UA undergraduate and graduate students, staff, and faculty in areas such as fisheries, chemical oceanography, toxicology, environmental chemistry, food science, archaeology, and wildlife biology.

Palmer Certified Test Kitchen and Outreach Center

(GF \$700.0)

This is a joint request by the Cooperative Extension Service and the School of Natural Resources and Agricultural Sciences. The project would convert part of the existing facility at the Palmer Experiment Farm to create a DEC certified commercial test kitchen and a nearby work area for research in specialty crop processing. Alaska's growers and food processors face barriers in bringing products to market because there is little infrastructure for testing. These facilities will enable testing food preparation methods, product palatability, processing and packaging for transport, storage conditions and shelf life, and many other characteristics.

Welding Equipment for UAF Interior-Aleutians Campus & Community and Technical College

(GF \$174.0)

Funding is requested to purchase portable welding equipment which will be used to support the UAF Occupational Endorsement in Welding Technology in the rural areas of Alaska that the Interior-Aleutians Campus (IAC) serves and will provide residents in the IAC region with the opportunity to become entry-level welders. Acquisition of this portable equipment will also fill the need for community welding courses for non-degree seeking students and lifelong learners. Welding is an important industrial skill with applications in agriculture, mining, transportation, aviation, oil and gas, and construction. The proposed training includes topics that range from welding basics to advanced pipe and metal plate fabrication and will provide functional work skills in many industries.

Digitization and Preservation of Alaska's Heritage

(GF \$560.0)

Funding is requested to upgrade and further develop infrastructure supporting digitization and preservation facilities and services at the Alaska and Polar Regions Collection and Archive of the Elmer E. Rasmuson Library. The upcoming 100-year anniversary of UAF provides impetus for both preserving Alaska's cultural heritage and making it widely accessible to the public in a digital format. The equipment request is specialized hardware for time-based media, such as film, video, and audio collections, specialized scanning hardware for formats such as microforms, and upgrades to current scanning equipment used for maps, manuscripts, and photographs. It includes additional computer hardware and software to support the new equipment and workflows.

Equipment for Energy R&D

(GF \$1,462.0)

Funding is requested for two items to enhance the research capabilities of the Alaska Center for Energy and Power (ACEP). First, the addition of automated switchgear will greatly enhance ACEP's ability to become the 'flight simulator' for the typical hybrid-diesel powerhouse as found in Alaska and other locations that rely on diesel electric generators. It will lower ACEP's costs to operate the Power Systems Integration Lab,

make it more appealing for third parties to collaborate with ACEP and to use the facility for development and demonstration, and provide a better training environment for students and utility operators.

Second, a debris test barge would contribute to the goal of successful operation of “smart”, environmentally compatible hydrokinetic power generating devices (HKDs) in Alaskan rivers. HKDs have considerable potential as a source of affordable electricity to remote communities, but woody debris have been shown to be the greatest hazard to their successful operation. In addition to assessing the woody debris hazard and approaches to mitigation, the instrumented barge will provide unique opportunities for student research and education as well as community outreach.

Wireless Connectivity Infrastructure

(GF \$425.0)

Funding is requested to support an outdoor wireless mesh network which will provide robust, fail-over capable wireless network access to areas of the Fairbanks campus that are exterior to buildings. This will provide the foundation and infrastructure for several new services to be made available including wireless access in outdoor areas and transportation points, campus safety cameras will be placed at campus ingress and egress areas, scientific instrumentation connectivity for data collection will be enabled, it will allow for administrative services at outdoor events (such as student ID card swipes or meal plan operation at events), and to create an outdoor lab/learning environment for educational purposes.