

Campus Sustainability Fund Spring 2022 Annual Grant Proposal Application

Thank you for your interest in the new Campus Sustainability Fund! This application form may be used to apply for Spring 2022 Annual Grant funding in amounts from \$5,001 - \$100,000 through 5 PM on March 31st, 2022. Only applications that include thorough and thoughtful responses will be considered. Incomplete proposals will not be reviewed.

Please review our Spring 2022 grant information, including our eligibility and evaluation criteria here: sustainability.arizona.edu/csf

Please have a completed budget sheet ready to submit before starting this application. The template can be found here: <https://arizona.box.com/s/23d2mtihkkrx95c42luhk4k5omtqrwt>. After opening the link, click "Download" at the top right corner and it will download as an Excel Sheet.

All character limitations within this proposal include spaces.

For approved projects to receive funding, the project's department must have a STDFEE account as CSF funding can only be transferred to another STDFEE account. If your project's department does not have a STDFEE account set up, we recommend that it be a 265XXXX account. Although not required, we encourage you to use the same range to match the Sustainability Fee account: 2657605. Approved proposals will also be required to complete the Campus Sustainability Fund's Letter of Agreement before funding is dispersed where more details on this will be provided to the Fiscal Officer.

All funding must be used by the end of fiscal year 2023 (June 30, 2023). Unused funding as of this date will be returned to the Fund for reallocation for future funding opportunities.

** Please contact emilyhaworth@arizona.edu for questions, help in completing the budget template, or any other issues. **

Email *

stellaheflin@email.arizona.edu

Contact Information

Each project proposal requires a primary and secondary project manager as well as a fiscal officer. If the primary project manager is a student who graduates in May 2023, the secondary project manager must be a staff or faculty member OR a student who graduates AFTER May 2023.

Projects where the primary and secondary project manager are both students require the involvement of a staff or faculty member within the applicable department.

Primary Project Manager Name *

The primary project manager is responsible for completing this application, answering questions posed by the Campus Sustainability Fund's Committee, and completing all required reporting on project progress and outcomes.

Stella Heflin

Primary Project Manager Status *

Student

Staff

Faculty

Other: _____

Primary Project Manager Email *

stellaheflin@email.arizona.edu

Primary Project Manager Department Name *

Associated Students of the University of Arizona

Secondary Project Manager Name *

The secondary project manager is responsible the back-up for the primary project manager if they are unable to complete any of the requirements of the Campus Sustainability Fund, particularly completing required reporting on project outcomes.

Drew Sangerman

Secondary Project Manager Status *

Student

Staff

Faculty

Other:

Secondary Project Manager Email *

sangerman@email.arizona.edu

Secondary Project Manager Department Name *

Associated Students of the University of Arizona

Departmental Employee Contact Name *

Projects where the primary and secondary project manager are both students require the involvement of a staff or faculty member within the applicable department. The departmental employee contact must be a staff or faculty member within your department who is responsible for monitoring the project's budget and reporting if both project managers are unavailable. If this does not apply to you, type N/A for these responses.

Michael Hoffman

Departmental Employee Contact Email *

hoffmanm@arizona.edu

Departmental Employee Contact Department Name *

Facilities Management - Utilities

Fiscal Officer *

The fiscal officer is a staff member within your department who is responsible for financial transactions and who will support reporting by pulling requested expenses against awarded funding and ensuring that funding is spent within awarded categories.

Erik Reinold

Fiscal Officer Email *

ereinold@arizona.edu

Fiscal Officer Department Name *

Facilities Management - Business Services

Tell Us About Your Project

Official Project Name *

Please be specific but concise as this name will appear on reports and our website. Creativity is encouraged!

Campus Bathroom Retrofit Project

Requested Funding Amount *

Please enter this amount after completing the budget sheet and populate the total amount here. If you are requesting multi-year funding, please format it as the following: \$67,800 (FY23), \$60,200 (FY24), \$50,400 (FY25)

\$51,000

Primary Project Category *

Please select one category that best encompasses the nature of your project.

- Water
- Energy
- Waste
- Transportation
- Food
- Social Sustainability (including Social/ Environmental Justice)
- Natural Environment
- Campus Life (Health & Wellbeing, Behavior Change)
- Research and Academics
- Carbon Reduction
- Art
- Built Environment
- Policy

Secondary Project Category *

Please select a secondary project category. If not applicable, select the same category again.

- Water
- Energy
- Waste
- Transportation
- Food
- Social Sustainability (including Social/ Environmental Justice)
- Natural Environment
- Campus Life (Health & Wellbeing, Behavior Change)
- Research and Academics
- Carbon Reduction
- Art
- Built Environment
- Policy

Background and Context *

Please provide any relevant background about your organization/team including your mission and/or expertise. Please also lay out the rationale for the proposed project such as context on the issue that your project would address. This section is meant to give us more information about you, while also giving you more space below to talk toward your proposed project. Responses are limited to 3,000 characters including spaces.

Students for Sustainability is an Associated Students of the University of Arizona (ASUA) program dedicated to implementing institutionalized sustainability practices at the University of Arizona and in the greater Tucson community. The Hydrocats committee within Students for Sustainability is committed to promoting sustainable water use on campus and in Tucson. Our previous projects have included faucet flow rate audits for on-campus buildings and faucet aerator retrofits to reduce flow rates and lower water consumption. In this specific project, our committee is working to reduce water consumption in restroom facilities on campus with Facilities Management (FM) through retrofitting older buildings with low-flow toilets and urinals. FM reports that as of 2021, the University of Arizona uses 400 million gallons of water per year. Most of the water utilized by the university is groundwater that is pumped from on-site private university wells. The University of Arizona is the largest groundwater user in the City of Tucson. The sheer quantity of water withdrawn from the Tucson aquifer makes it imperative that we reduce water usage on campus as much as possible. In recent years, the city has been focusing on more sustainable water use by reducing its reliance on groundwater and investing in green stormwater management. In addition, residential water use in Tucson is dropping 4-6% annually. Consistent with the City's commitment to protect decreasing water table levels in the Tucson area and to join Tucson in its commitment to water conservation, our committee proposes updating restroom fixtures on campus. Specifically, this project will update older urinal and toilet fixtures in the Koffler Building. Updating and replacing these outdated fixtures with high-efficiency models will reduce the water usage by more than half per flush in each fixture and by over 200,000 gallons per fiscal year. This cost effective solution will reduce Koffler's water usage by one-third, helping to lower the university's overall water footprint. This project will partner with Tucson Water through the Tucson Water High Efficiency Toilet Rebate program. Tucson Water offers this program to encourage and assist commercial and multifamily customers who wish to purchase and install new, high-efficiency toilet fixtures. These rebates will be available after the retrofits have been completed, and the rebate money will go to FM and ideally can be used to support future retrofit projects. This project is pioneering a new collaborative relationship between students and FM to address water sustainability on campus. The Hydrocats committee plans to continue this project in the future on a larger scale with a variety of funding sources until all buildings on campus are as water efficient as possible.

Project Description *

Please provide a description of your project. Please include information on the need your project fills and how it does so. Include objectives, an anticipated timeline, and expected impact(s). Responses are limited to 3,000 characters including spaces.

The intention of this project is to reduce water use on campus by replacing inefficient fixtures in bathrooms that promote high water usage in plumbing. The focus is on replacing inefficient fixtures that were installed before the passage of the Energy Policy Act in 1992. This refers to toilets that have a flush rate of 3.5 gallons per flush (GPF) and urinals with a flush rate of 1.0 GPF. Toilets will be replaced with those that have 1.28 GPF rates, a 63.4% reduction in water usage. Flushable urinals will be replaced with timed automatic fixtures, reducing their water usage to less than one pint per flush. Also, old bathroom fixtures are more likely to have maintenance issues caused by wear over time, such as leaks. Replacing these older fixtures will therefore increase water efficiency by reducing both flush rate and maintenance issues due to age. There are 38 inefficient toilets and 12 flushing urinals in the Koffler building, where we plan to focus our project. Koffler is primarily used for undergraduate labs and lectures and therefore has a high population flow on a daily basis, so it is an effective building to target. The current plan is to proceed with installation of replaceable fixtures in the summer and fall of 2022. However, for project expediency, Facilities Management (FM) has also offered to retrofit these fixtures as soon as the grant is approved, and receive compensation later, once the funds have been distributed. The anticipated completion of the retrofit is December 2022, and the avoided water usage of the retrofit is conservatively 263,000 gallons per year, accounting for a 69.2% reduction of water usage in Koffler's bathroom fixtures, and an over one-third water usage reduction in the building overall. Another aspect of this project includes education about maintenance of fixtures throughout campus bathrooms by adding QR codes in retrofitted bathrooms. This QR code will link to a website that will educate students about the retrofit and provide them with a new and efficient system to report leaks and problems in bathrooms to FM. Hydrocats will work with FM to develop this website to ensure the system works efficiently for both FM and the campus community. This would allow students to have a more active role in increasing water conservation by quickly reporting water-waste issues that they notice. As noted in the project background, projects like this have the potential to be extended into a multi-semester, multi-building undertaking with various funding sources. FM has expressed considerable interest in retrofitting inefficient fixtures on campus, however has not historically made these projects a priority. If students are able to advocate for buildings to be retrofitted and help secure funding, barriers for project completion are reduced. The purpose of this grant is to provide initial funding to begin what will continue on as a student partnership with FM and Tucson Water to make our campus more water sustainable.

Project Summary Snapshot *

Please provide a short summary of your project. This summary will be used on our new website and other Office of Sustainability materials, if approved. Think of this as a hyper-concentrated summary limited to just a few sentences. Responses are limited to 800 characters (~60-100 words).

Hydrocats, a water-focused committee of Students for Sustainability, collaborated with Facilities Management (FM) to identify and retrofit outdated bathroom fixtures on campus. Committee members have manually reviewed and updated toilet fixture counts and flush rate data from FM in bathrooms at several high traffic campus buildings. Hydrocats found the Koffler building to have the highest number of inefficient fixtures. Upon funding of this grant, FM will replace the building's fifty high-water-use toilets and urinals with newer and more efficient fixtures, reducing water usage for building bathrooms by 60%. Hydrocats will also add QR codes to these bathrooms to increase maintenance issue reportability. This project will save roughly 250,000 gallons of water per fiscal year.

Project Feasibility & Logistics *

Please provide a description of the work that has been completed so far to make this project feasible. Have all relevant partners been contacted/coordinated with? Please identify them in your response. Have you received reasonable quotes for supplies? What research has been completed to lay the foundation for this project? Proposals that have not thoroughly pre-planned may be rejected outright. Responses are limited to 3,000 characters including spaces.

Hydrocats committee members initially met with Michael Hoffman, Facilities Management (FM) Energy Manager, in January 2022 to discuss the feasibility and potential efficacy of the bathroom retrofit project. After identifying a need to improve the water efficiency in many bathrooms on the campus, FM shared data about bathroom fixture counts and flush rates. Committee members then spent several weeks surveying each bathroom fixture in buildings with the highest count of efficient fixtures to confirm the data from FM and identify where the highest water and monetary savings would be. After coordinating with FM about the results of our work, Hydrocats then selected the Koffler building as the focus of the project.

Hydrocats have been in close contact with Hoffman since our initial meeting in January. In February, Hoffman attended a Hydrocats meeting to brief the committee on the project and explain how to verify the fixture information provided by FM. We have continued weekly contact with Hoffman and have coordinated on all aspects of the project to ensure FM is up to date. Once project funding has been acquired, FM will be responsible for fixture installation. FM has promised to provide manpower to complete this project in a timely fashion, so feasibility is guaranteed. Attached as a supporting document is a description of new university FM Design Standards and Specifications, updated in March of 2019. These design specifications show that FM has made design recommendations of 1.28 GPF toilets and flushless urinals in new and existing buildings. The document also details the specific brand recommendations for fixtures meeting these standards that will be used in this retrofit project. Committee members collaborated with Hoffman and FM to calculate the total water usage avoided by the project's implementation. Additionally, members have been in contact with the FM plumbing shop to estimate the cost of the project. Hoffman has stated that the project cost is a not-to-exceed value, and that the blanket \$1,000 value for each fixture does an effective job in accounting for the fact that some fixtures may be easier or harder to retrofit than others. In the case of under-funding, Hoffman has expressed that FM is extremely interested in seeing the project completed in its entirety and will cover any missing funds necessary to complete the project. Hydrocats will also accompany FM personnel to the meeting with Scott Dreisbach, the Koffler building manager, to coordinate with them on providing QR code signage by the retrofitted fixtures. Hoffman has given us confirmation that placing QR codes in bathrooms will be feasible, and once the project has been funded, Hydrocats committee members will work on designing a maintenance issue-reporting website in collaboration with FM and will also meet with Hoffman to ensure funds are transferred to FM.

Environmental Sustainability Outcomes *

Please provide a brief description of how you expect your project to advance environmental sustainability on campus. Responses are limited to 3,000 characters including spaces. A definition of environmental sustainability is provided in our Spring 2022 Information.

Retrofitting bathroom fixtures is a simple and straightforward method to fortify campus water conservation efforts and advance community-driven sustainability efforts. A retrofit to the Koffler building is projected to reduce water usage by conservatively 263,300 gallons of water per fiscal year (roughly $\frac{1}{3}$ of the building's total water usage), thereby furthering environmental sustainability efforts on the University of Arizona campus. This accounts for a 69.2% reduction in water usage in Kofler bathroom fixtures, a significant improvement. Over the next four years, over the course of one student's undergraduate career, this could result in an over one million gallon reduction in water usage.

Tucson is currently experiencing an unprecedented mega drought, with water from sources such as local aquifers and the Central Arizona Project being extremely limited. Saving water at any possible opportunity is therefore of paramount importance to ensure future community access to water on the University of Arizona campus. The retrofit project represents a significant step in reducing overall water usage and serves to mitigate an issue of commanding interest in forwarding campus sustainability via a simple and robust method. In August 2021, an official drought was declared on the Colorado River. This has resulted in mandatory water cuts for many Southwestern states and Mexico, as well as the instatement of compulsory drought plans for states in the Colorado Basin, including Arizona. The large-scale megadrought compounding declining river flow has changed the certainty of Central Arizona Project (CAP) water deliveries. Currently, the city of Tucson uses less water than CAP delivers, allowing the City to use CAP water to recharge the Tucson aquifer. The official drought on the river now prevents the City of Tucson from using its excess water for groundwater recharge, making our aquifer more vulnerable to drought in the future. Concerningly, the University of Arizona currently utilizes the local aquifer as its primary source of water. It is now more imperative than ever that the university reduces its water use to protect groundwater levels. If the University of Arizona makes strong commitments and visible action to reduce its water usage, it will advance sustainability efforts and conserve more water for future generations.

Social Sustainability Outcomes *

Please provide a brief description of how you expect your project to advance social sustainability on campus. Responses are limited to 3,000 characters including spaces. A definition of social sustainability is provided in our Spring 2022 Information.

Globally, water scarcity affects 2.7 billion people – including Arizonans. Our state has been classified as having high water stress by the World Water Resource. This coincides with an ever increasing population in both the Phoenix and Tucson metropolitan areas and an ongoing drought in the Colorado Water Basin. The effect of this population-induced water stress is observable in the record low levels of Lake Mead, one of the main supplies of the CAP water that Tucson receives. A weaker CAP supply disproportionately affects small farmers and ranchers who are already facing hardships of growing in an ever-changing climate. For example, farmers in Pinal County have had their water allocations cut by 60% in the past year. Water scarcity is a community problem that disproportionately affects low income communities with little ability to update water infrastructure systems to meet the challenges of lower water tables and aging systems. It is thus the responsibility of entities with means, such as our university, to reduce their consumption. The University of Arizona is a leader within the local and regional communities and should be held to a higher ethical standard, especially given the high impact it has on said communities, both economically and socially. As the largest groundwater user in the City of Tucson, a city with limited water resources, a change in the university's water consumption practices would serve as a reinforcement of their commitment to better the community. By reducing the amount of water wasted by building fixtures, this project will aid in water conservation efforts made by the university, which has not historically been a priority. In the past, sustainability efforts have been geared towards "... climate neutrality and net-zero anthropogenic carbon dioxide emissions," according to the university's Office of Sustainability, and water conservation goals have been limited. However, we are hoping the inclusion of water efficient fixtures will create an additional dimension of the university's sustainability efforts in water conservation. One unique aspect of this project is that all members of the university will have access to the retrofitted utilities. This creates an opportunity for everyone to be a part of the conservation efforts every day.

Student Leadership & Involvement *

Please provide a brief description of how you expect your project to benefit students on campus regarding the creation of leadership opportunities or student engagement. What leadership opportunities exist within your proposal? If you plan to hire/ or involve students, please describe in what capacity. For example, if you plan to hire students, create an internship, or seek student involvement, please describe relevant details thoroughly (wages, responsibilities, duration of job, extent of involvement, how you will solicit/ market these opportunities etc.). Responses are limited to 3,000 characters including spaces.

This project will create student leadership opportunities for those who are passionate and willing to make the University of Arizona's campus more sustainable and water efficient. While Facilities Management (FM) will be in charge of the labor and installation, the students have worked extensively this semester to identify which plumbing fixtures would create the most change in water consumption if replaced. To do this, all fifteen Hydrocats students have consulted with FM and performed detailed surveying both in and out of committee over the last three weeks to identify six buildings that are likely to benefit the most from replacing fixtures. Using a list of all fixtures provided by FM, the students have cross referenced the plumbing fixtures in high traffic areas, and identified Koffler as the most effective target. This project also gives students valuable experience in water management and data analysis, through collaboration with FM, and on collecting and reviewing data. Students not only helped collect and validate data, they were also responsible for communicating with Hoffman to understand and quantify water usage reductions in order to improve project justification and help the university community understand the impact of the project. Finally, this project will also give Hydrocats the opportunity to educate the community and raise awareness on water sustainability via the website linked by the QR code stickers placed next to each of the retrofitted fixtures.

By doing this, we are hoping to achieve two main goals. The first is developing leadership skills by collaborating with FM to develop a stronger relationship between students and campus staff. Ideally, this relationship could be continued on into the future and benefit the feasibility of water sustainability projects. The project additionally aims to raise student awareness in understanding the importance of water conservation and the opportunity the city provides to reduce water use. They will bring this awareness along with them throughout the rest of their time at the university and potentially as future members of the Tucson community. This project will not hire students, as the students involved will be those in the Hydrocats committee of Students for Sustainability who volunteer their time towards this project. The replacement of fixtures will be executed by FM, either by staff in the plumbing shop or external contractors.

Education, Outreach, & Behavior Change *

Please provide a brief description of how you expect your project will communicate its impacts to the campus community. How will your project educate the campus community and/or incorporate outreach and behavior change? How are you reaching beyond the "sustainability choir?". Responses are limited to 3,000 characters including spaces.


This project will compellingly communicate its impacts to the campus community, championing the movement to reduce water usage throughout the university. Every building on campus has restrooms that could potentially be retrofitted. The implementation of this project across the entire campus would eventually reach every student, professor, and guest at the university. By communicating the importance of reducing water use through updated plumbing, a collective appreciation for reducing water usage will spread throughout the university community. The project will furthermore educate the campus by highlighting the importance of water management in toilets and bathrooms. All members of campus, regardless of their background in water sustainability, could easily become involved in reducing water usage and promoting sustainability efforts. An additional goal of this project is to include several small QR code signs on the mirrors of each retrofitted bathroom. Scanning this code would send the user of the fixture to a website with information about the benefits of the retrofits as well as how the user can be more sustainably minded. Because restrooms are universally utilized by the community, this would be an effective strategy to spread information beyond the sustainability choir on university efforts to contribute to water conservation, and overall increased sustainability. The website would also include an efficient method of reporting fixtures as defective or troublesome, developed in tandem by Hydrocats students and FM. In this way, members of the community could feel that they are actively involved in both improving campus facilities and conserving water, simply by reporting noticeable faults in fixtures.

Project Budget *

Please provide a completed project budget using our Budget Template. The template can be found here:


<https://arizona.box.com/s/23d2mtihkakrx95c42luhk4k5omtqrwt>

Using the link, click "Download" at the top right corner and it will download as an Excel Sheet. You will need to sign into Box if you haven't used it prior. Please save your Excel sheet as: Project Name_Budget Template

 Campus Bathroo...

Supporting Document

Not required, but please upload any relevant documents here, including annual reports, FM budget quotes, maps, images of the product or equipment to be purchased, etc.

 Changes on UAri...

This form was created inside of University of Arizona.

Google Forms