



GREEN FUND

Project Application

Green Fund Mission Statement: “The NAU Green Fund promotes student participation in and provides funding for projects that reduce NAU’s negative impact on the environment and create a culture of sustainability on-campus.”

REQUIREMENTS FOR FUNDING:

- The project must be implemented on the Flagstaff Mountain Campus.
- The person submitting the project must be a NAU student, faculty, or staff member.
- Projects must provide all necessary documents, letters of support, and authorizations prior to submission.
- The Green Fund distributes funding on a **reimbursement basis**. Project teams should partner with an administrative office to provide upfront funding for the project. Once the project has been successfully completed, the Green Fund will reimburse the administrative partner.
- All project applications should be submitted to greenfund@nau.edu for review.

DISCLAIMERS: All applications will go through a comprehensive vetting process, and you may be asked to provide more detailed information. **The Green Fund is not responsible for acquiring the necessary permits, permissions, or approvals for a project, although we are happy to assist with this process if needed.** Additionally, the Green Fund does not provide any ongoing maintenance costs unless otherwise specified by the committee. A sponsoring department must take responsibility for operations and management. The Green Fund Committee only meets during the academic year. All projects submitted outside of the regular academic year will be reviewed at the start of the next academic session.

REVIEW PROCESS: Upon project application submission, the Green Fund will begin to review your project within two-three weeks. At this time, the Green Fund will provide comments on the project. **This process can extend for long periods of time depending on the scope of the project.** Incomplete applications will not be reviewed until all components are submitted.

We highly recommend meeting with a Green Fund Committee member prior to submitting the application. The Green Fund Committee member will assist you with the proposal writing process, if needed.

CONTACT INFORMATION

Contact Information

Project Leader Name: Kayla Tallmadge

Phone: (970)529-6813

NAU Email: krt368@nau.edu

Expected Graduation Date (if applicable):
2028

Project Name: Bus Fleet Electrification

Project Advisor Information

Project Advisor Name: Avi Henn

Phone: (928)523-5435

NAU Email: Abraham.Henn@nau.edu

NAU Department/Unit for Funding
Reimbursements:

Office of Sustainability/Green Fund

PROJECT OVERVIEW

Please answer the following questions to the best of your ability, for questions that are not applicable, please list N/A.

Executive Summary

Please provide a brief overview of your proposal. Please address how this project will support the goals of the Green Fund (student involvement, creating a culture of sustainability, and lessening NAU's impact):

This is a request for the funds required to bridge the gap between an EPA grant, available funding from University Transit Services, and the total cost of adding two fully electric buses to NAU's bus shuttle service on campus. This is a highly visible and useful project that would incorporate student involvement in sustainability through an action as simple as riding the bus to class. This promotes a culture of sustainability at NAU because the university would be leading by example with the encouragement of electric vehicles *and* public transportation usage. This project is also the beginning of the effort to accomplish the University's 2035 goal to "Electrify most of the NAU bus and shuttle fleet," as is outlined in the NAU Smart Campus Master Plan and part of NAU's Climate Action Plan.

Two old, outdated buses will be removed from the fleet and replaced with low-emitting 35ft Gillig electric buses instead of new diesel vehicles. The buses being replaced are 2008 Thomas HDX 40' buses, which operate with the average fuel economy of 5.7 miles per gallon (the average daily miles traveled is 191 miles, meaning each day of use, the diesel buses consume approximately 33.5 gallons of fuel). An electric bus would eliminate the associated emissions of two diesel buses.

In the 2023 Fiscal year, NAU's direct transportation contributed 1,665.15 Metric Tons Carbon Dioxide Equivalent, as part of the University's overall Scope 1 emissions (NAU Office of Sustainability). Part of this contribution is the diesel buses that are utilized in the fleet of free transportation around the NAU campus. Replacing two diesel buses with electric vehicles will result in a large portion of these emissions saved from being emitted annually. The vehicle type that funding is being requested for are two battery electric buses with a minimum 437kWh battery capacity and an operating range up to 230 miles per charge. The cost of one fully electric bus is \$990,000.

One dual chargepoint charger will be purchased for an estimated \$168,000, allowing charging in under four hours during the nine-hour overnight rest period. This will enhance fleet flexibility, especially in colder weather when range may decrease, enabling quick recharges to resume routes efficiently.

Arizona Public Services (APS) is conducting a fleet electrification study, and current infrastructure has been confirmed as sufficient to support initial electrification, including bus replacements.

Additionally, two NAU mechanics will receive 54 hours of paid training at \$105/hour, following modules from the International Transportation Learning Center on zero-emission bus maintenance. The manufacturer will provide this on-site training as part of the BEV purchase.

Project Components

1. Does your project require space or construction on campus? If so, where? Please review the "Space Committee Document" located on our webpage and follow the steps to begin requesting a location.

Yes, this project will add to the bus fleet managed by Fleet Services/University Transit Services and charging stations will be installed. All the approvals and planning is being carried out by Fleet Services in collaboration with Facility Services.

2. Have you obtained all necessary approvals for this project? The Green Fund is not responsible for acquiring the necessary permits, permissions, or approvals for a project, although we are happy to assist with this process if needed. Please attach all letters of support to this application. Letters of support should include confirmation from the sponsoring department that the sponsoring department will cover all upfront expenses and work with the Green Fund Business Manager to acquire reimbursement after project completion.

Attached are letters of support. No additional approvals are required.

3. Does the project include any continued maintenance costs? The Green Fund does not

provide any ongoing maintenance costs unless specified within the budget and approved by the committee. A sponsoring department must take responsibility for operations and management.

The maintenance of electric buses will be the responsibility of University Transit Services.

4. Will this project provide funding for student wages? Coordination of wages must be done through the sponsoring department and must be included within the project budget.

N/A

5. Please list all additional sources of funding you have pursued, including department, grants, ASNAU graduate, student government, etc.

A grant from the Environmental Protection Agency has been approved for \$991,720.00. University Transit Services will be contributing roughly \$700,000.

Project Specifics

1. Is there a public outreach plan? How do you plan on communicating your project with the NAU community? Do you require assistance from the Green Fund in your outreach plan?

The public outreach plan will incorporate all of the departments associated with this project. We will work with Inside NAU to formulate a story on the purchase of electric buses and how they help us in reaching our carbon neutrality goals. The Office of Sustainability will work to educate students, staff, and community members. Social media advertising will take place. When the two diesel buses are officially retired to NAU's Property Surplus (part of this process will be dismantling of the old buses and tear down to simple parts) a DERA scrappage statement will be made. We will make this disbursement a media event to demonstrate our commitment to reducing emissions and transitioning to a completely electrified fleet, assuring that the diesel vehicles are permanently removed from operation.

Also, a decal or some other form of Green Fund advertising will be on the vehicle, showcasing the Green Fund's involvement.

2. Are you working with other groups on or off campus? If so, describe your partnership.

This project is a collaborative effort between the Office of Sustainability, University Transit Services, Campus Shuttle, and Facility Services. The Office of Sustainability is providing oversight of the project while Transit Services will be in charge of project execution, management, and implementation.

Project Parameters

1. What are the environmental costs and benefits associated with your project?

Environmental costs of this project include: 1) the emissions connected to manufacturing and transporting the buses to Flagstaff Mountain campus, 2) the damage done to the environment in order to mine the lithium used for electric bus batteries, and 3) the energy required to charge the electric bus batteries until NAU's grid system officially becomes charged by renewable energy or offsets account for continued fossil fuel use. While there are higher environmental impacts from the production of the electric vehicles, there are also environmental impacts related to producing new diesel buses. The production impacts are more than offset by the lifetime benefits of electric buses.

The environmental benefits of this project is 1) the avoidance of added carbon dioxide equivalent emissions due to consistent bus operation, 2) the reduction in annual emissions of the total NAU shuttle fleet, 3) improved air quality throughout Flagstaff Mountain campus and Coconino County due to decreased air pollution from diesel buses and 4) increased knowledge of environmentally friendly transportation options. This demonstrates to our student body that NAU is committed to sustainability and encourages them to engage in sustainable behaviors in their daily lives.

2. Is this a one time expense or will you require future funding for your project?

No, this is a one time expense and will not require funding in the future.

3. How will you measure and monitor the impact of your project after its implementation

We are going to monitor the reduction of diesel consumption and its impacts to our total Scope 1 emissions. The Green Fund IRC and the Office of Sustainability will measure long term effects of the project in regard to cost of maintenance, user experience (including transit services and students) and environmental impact. The Office of Sustainability is already tracking annual Scope 1 emissions. Transportation-related emissions are a portion of this and impact can be monitored through changes in carbon dioxide equivalent emissions.

Project Budget

Please include a thorough breakdown of all project costs as well as **justification for each line item**, as well as a 5% line item for contingency. Based on the parameters of the project, the committee may increase or decrease this contingency. **Make sure to include all potential taxes or costs associated with each item.**

| Item | | Quantity | Price | Justification |
|--------------------------------------|--|----------|--------------|--|
| Green Fund Electric Bus Contribution | | | \$500,000 | The Green Fund will provide the difference in funding for the purchase of two electric buses to add to the University's shuttle fleet. |
| EPA Grant | | | \$991,720.00 | Amount provided through the EPA 2023-2024 Diesel Emission Reduction Act National Grants. |
| University Transit Services | | | \$700,000.00 | These are the funds that Fleet Services have available for the purchase of new buses. |

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|--|------------------|
| 5% Contingency (5% of total project cost) | \$25,000 |
| Total Project Cost | \$2,188,000.00 |
| Total Request from Green Fund | \$525,000 |

Gillig Electric Bus: <https://www.gillig.com/buses/battery-electric/>

EPA Grant Proposal: [24-0225 NAU DERA narrative revision-EPA comments.docx](#)

Budget Outline: [24-0225_BUDGET_COST_SHARE_revised.xlsx](#)

Erik Neilson Letter of Support: [Nielsen letter of support Electric buses.pdf](#)

Erin Stam Letter of Support: [Letter of Support for electric buses 4-2-2025.pdf](#)

Project Timeline

Please provide a timeline for the significant dates of your project. Please add all relevant information and consider any holidays/breaks and time required to obtain necessary approvals. **Please be as specific as possible.**

| Timeline | |
|---|---------------------------|
| Action & Parties Involved | Month/Year |
| Green Fund approves project funding difference & procurement is complete | April-May 2025 |
| Electric charging stations installment | July-September 2025 |
| New Electric Shuttles will be purchased, delivered; mechanics and electricians will be trained to work on electric vehicles and managers and operators will be trained on safe operation of these vehicles. | October 2025-January 2026 |
| Put electric vehicles into commission on route | January-March 2026 |
| Old Vehicle disablement and scrappage. Documentation and auction for scrappage materials will be held. Final project report | August 2026-December 2026 |

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| will be submitted along with scrappage reports | |
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| Anticipated Date of Completion | December 2026 |
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Project Completion Checklist

Please complete all of the following items before submitting an application

- ~~Contact Information~~
- ~~Project Overview~~
- Project Budget
- Project Timeline
- Obtain **ALL** necessary letters of support for reimbursement, ongoing maintenance, student wages, etc. Attach the letters of support to the completed application.
- Submit the completed application to GreenFund@nau.edu

Thank you for your submission. We deeply appreciate your commitment to sustainability at NAU, and we look forward to working with you.