# *Thank you for your commitment to green initiatives at the University of Illinois. One of the ongoing requirements listed in the terms of the funding agreement for your project is the submission of semesterly reports with key information about your project. In addition to this form, please provide additional financial documentation and/or progress photos if available.*

# *Please be as accurate as possible in describing the project (including possible setbacks or challenges in meeting the initial goals of the project). Not fully meeting your project's goals will not disqualify you from making future funding requests as long as your reports are as complete and accurate as possible. If you have any questions, please contact the Student Sustainability Committee, at* [*sustainability-committee@illinois.edu*](mailto:sustainability-committee@illinois.edu)*.*

**Project Name:** The Hip-Hop Xpress

**Date of Report Submission:** 3/4/2022

**Project Purpose:**

The goal with this funding was to add sustainable energy sources (solar panels, batteries, and generators) and education to the existing (and still under construction) Hip-Hop Xpress project. The Xpress is a modified school bus turned into a mobile music and technology lab. The bus purchase and most other retrofitting costs are covered by a different grant from the University President.

**Detailed Accounting of Expenditures to Date:**

Wages for Architecture students and faculty = $11,150.50

Horizon Energy Programming Material = $1,991

**Project Progress to Date:**

In January 2020 our 35ft school bus arrived on campus and the team set to work creating a series of as-built drawings of its existing condition. The drawings were used to meet with various university and community stakeholders to envision the bus’s potential for a mobile music and technology lab. After a semester of precedent research, program planning, testing various use scenarios, design workshops, and demo-ing the interior, several conceptual design strategies were created. Those strategies were shared with community members and - based off feedback - a general design direction became clear.

With a better understanding of how the bus might be used, the design developed around three primary themes: a gathering space for collaboration, a long multi-purpose workbench, and seating booths for more focused work. Digital models were created to test spatial relationships of the interior elements, different form and shape languages were investigated, and initial material/ texture/ lighting possibilities where simulated.

Information learned from the 3D models allowed us to finalize the interior layout, determine approximate size of the various elements, and consider how they could be manufactured. Using the School of Architecture’s Advanced Fabrication Lab, we created full-scale prototypes of the seating, storage, and workbench elements. The prototypes allowed us to refine the design for material and manufacturing efficiencies, develop an assembly process that can be undertaken by unskilled labor, and allow for installation to occur in multiple short timeframes.

As of now we have fabricated and assembled 80 percent of the interior components and will begin installing them during Spring Break. Following installation, we will wire the bus for the electrical and technological components such as: music production/ recording equipment, internal speaker system, wireless hotspot, charging station for battery powered equipment, and general power supply for computers, tablets, phones, etc. During that process overall power demand will be calculated and tested, allowing us to specify the appropriately sized inverter and PV array that can operate both in tandem and stand-alone from the bus’s battery system. Ongoing research from Architecture students and faculty is helping to narrow into the exact purchase and installation steps to follow for our solar-powered plans.

Sustainability has been a guiding principle during each phase of the project. In conceptual design, doing more with less was important. We envision the interior as a scaffolding that can evolve over time. During the development process, it became essential that everything we designed could be manufactured on campus by our team. After completing demolition, nearly all the material removed was either recycled or will be reused in the new design. Many elements from the U.S. Green Building Council’s LEED system have been followed: specifying materials from within a 500-mile radius, using low-impact materials with high recycled content, low-emitting materials for enhanced indoor air-quality, acoustic performance, thermal comfort, and lighting. We are also tracking the overall embodied energy and have spent a significant amount of time on automating the construction/ fabrication process to reduce human labor and exposure. Lastly, we have purchased material from Horizon for teaching STEM topics related to renewable energy, and we have done some trial programming with the Xpress around these materials that will help us to shape larger programming efforts in the future.

**Student Involvement and Outreach to Date:**

During the Spring 2020 semester an undergraduate/ graduate seminar was offered and over fifty students from the Schools of Architecture and Music, along with the College of Engineering participated. Students were organized into interdisciplinary groups such as: sustainability research, design, branding/ social media, community relations, programming, bio-beats, disc jokey robot, the rollin’ mixtape, and fabrication. Following the seminar (that went online half-way through the term due to COVID) a group of Architecture students continued working during the Summer 2020 semester via an independent study. Their primary focus was on collating work from the previous semester, furthering the design research, and preparing visual representations for community feedback.

Much of the 2020-21 academic year was spent on gathering feedback, determining the necessary technical components required to make the bus a mobile technology lab, developing the design to accommodate those factors and creating full-scale architectural prototypes. This was accomplished with our faculty team, lab assistants, and a few dedicated students. This past Fall and now in the Spring semester a team of three Architecture students have a been working each week on the fabrication and assembly of the bus’s interior components. As we move towards installation, a larger number of students will join to assist with the process.

Meanwhile, the Hip Hop Xpress has been involved across campus with students in the College of Engineering; Gies College of Business; the Hip Hop Collective, the School of Music; and with student volunteers with programming in Rantoul, IL, as well as block parties in Champaign and Urbana. Joseph Edwards, who is/was part of SSC, came to Rantoul in June 2021 when the Hip Hop Xpress teamed up with DREAAM.org to provide a week-long Street College with youth there. Student volunteers with the Krannert Center for the Performing Arts helped with a block party in the Silverwood neighborhood of Urbana in June 2021. The Lovin’ U campaign took place across Champaign and included many University-connected volunteers. Much of the preparation for that campaign was done by students in Dr. Patterson’s Hip Hop Entrepreneurship (Engineering) class in Spring 2021. The Illinois Business Consulting group in the Gies College of Business, as well as students in Business 301, met with Dr. Patterson through the Fall of 2021 to develop longer-term marketing plans for the Xpress. Last fall and currently, students in the Hip Hop Collective <https://music.illinois.edu/ensemble/hip-hop-collective> are actively working with youth at the Don Moyer Boys & Girls Club and the Xpress on STEAM programming. The Hip Hop Xpress also made a trip to Tuskegee University in October 2021 to continue collaborations between the UI AIFarms Institute <https://aifarms.illinois.edu/> and Tuskegee faculty across several units. Some images and details available here: <https://publish.illinois.edu/hiphopxpress/>

**Marketing and Promotion Efforts to Date**: \*\*see below

Below are some examples of promotional materials for the project:

Graphical user interface

Description automatically generated with medium confidence

A picture containing text, outdoor

Description automatically generated

**Additional Comments:**

Below are schematic drawings for the bus design.

Diagram

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Table

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