# HEIF Project History At A Glance

Project Name	Project ID Number	Chartfield
Shower Behavior Change	17-FA XHF026	

#### Link to Project Folder

#### Project Description / Scope:

This project piloted 3 different kinds of 'smart' shower heads to measure whether they would have a positive impact on water conservation in Residence halls. The four hardware technologies were Amphiro b1 connect, the Hydrao shower head, the EvaDrop, and the Evolve Shower Start TSV; however, only Hydrao, Amphiro, and Evolve were piloted. The development team surveyed students' behavior towards resource consumption, specifically shower duration.

Phase 1 consisted of a trial period including installation of 36 evaluation units in Canyon and subsequent data monitoring of shower water usage. These intended to communicate device-specific reduction potential, and further increase user awareness of resource consumption habits.

Phase 2 consisted of a treatment phase where the devices would be activated and signs would be added to the restrooms with information about water usage in the residence halls generally, how the devices worked, and where they could get more information. This phase did not/will not get implemented as the data collection and device issues demonstrated these devices are not suitable for this type of application.

#### If you would like to read more in depth about this project:

Link to Project Report Summary

Link to Spring 2017 Project Proposal

Link to 2017-2018 Annual Report, see page 6

Link to 2018-2019 Annual Report, see page 11

Link to 2019-2020 Annual Report, see page 16

**Staff Findings Draft** 

Additions to Project Description / Scope (Include date addition was approved by Committee):

This was a pilot project implemented in Canyon Residence Halls, the results of which showed that water use data was difficult to retrieve and the devices were not designed for a continuous-use commercial-style application and therefore broke frequently. Due to these results, the devices were not implemented on a large scale across campus.

## Major Project Milestones

Stage / Phase	Description	
Milestone 1: Idea Paper		
Semester & Year Idea Paper Submitted	Spring 2017	
Idea Paper Author(s), Major(s), expected graduation year & Semester	Eduardo Valenzuela, Environmental Science & Management: Environmental Policy & Planning, Spring 2019	
	Ty Muhovich, Environmental Science & Management: Energy and Climate, Spring 2018	
Date Idea Paper Voted on By Committee (Date aligns to Committee Mtg Minutes)	March 6, 2017	
Approved for Development (Yes / No)	Yes	
Milestone 2: Development		
Semester(s) & Year(s) Project was in	Fall 2017, Spring 2018	
Development	On <u>December 7, 2017</u> the committee voted to extend the development for the Spring 2018 semester.	
Development Team Member names, majors,	Cassidy Barrientos	
expected graduation year & semester	Cody Hennings	
Development Mentor Name	Steve McKenzie, Housing and Residence Life Staff	
Estimated Savings from this Project	*Each of the devices had their own savings projections which are listed below:	

	Amphiro- Average Reduction: 20%, Estimated Yearly Water Reduction: 1,740,000 gallons per year, Estimated Yearly Energy Reduction: 612,200 kWh per year
	Evolve- Average Reduction: 60%, Estimated Yearly Water Reduction: 5,220,000 gallons per year, Estimated Yearly Energy Reduction: 1,836,000 kWh per year
	Hydrao- Average Reduction: 17%, Estimated Yearly Water Reduction: 1,479,000 gallons per year, Estimated Yearly Energy Reduction: 520,300 kWh per year
Date(s) Development Proposal Voted on By Committee (Date aligns to Committee Mtg Minutes)	On May 5, 2018 the committee approved a pilot for this project.
Approved for Implementation (Yes / No)	Yes, a small pilot was approved to measure proof of concept before implementing wide-scale

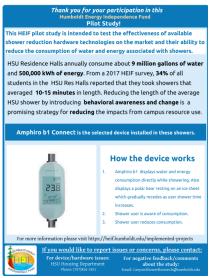
Milestone 3: Funding		
HEIF Funding Amount Requested in Development	\$9,018.26	
HEIF Funding Amount Approved by Committee	\$10,000	
HEIF Funding Amount Approved for design services (Included in the amount above)	N/A	
Match Funding Amount from other sources (State the other source)	N/A	
HEIF Funding Addition Approved by Committee, (Include Date of Additional Funding Approval)	N/A	
Total Project Funding Needed from HEIF	N/A	
Reason for HEIF Funding Addition	N/A	
Estimate Total Budget	N/A	
Milestone 4: Design & Permitting		
Date Project transition to PD&C	Not needed for this project	
Date Project completed Design Phase (i.e. Date Project was Permitted)		
Name of Design Manager (in house)		

Name of Outside Consultant		
Major scope element changes		
Milestone 5: Implementation		
Date Project entered Implementation Phase	Pilot/Phase 1: January 2019	
Date Project completed Implementation Phase	Pilot/Phase 1 installation : 1/29/2022 Pilot/Phase 1 removal: 07/01/2022	
Delivery Method (e.g. name of implementer)	Facilities Management	
Name of Project Manager (in house)	Dan Bouchard	
Milestone 6: Project Closeout		
Final Implementation Cost (including non-HEIF sources)	\$ <u>7221.45</u>	
Date Project Billed & Recorded in OBI	July 1, 2021	
Milestone 7: Monitoring		
Final Annual Savings Calculated	No salvageable quantitative data on savings, but some students reported enjoying the polar bear graphic and tried to "save" the polar bear. This inadvertently saved some water from taking shorter showers.	
Name of Person who Calculated Savings	Danika Zikas	
How were savings calculated? (e.g. monitoring devices, utility bill review, etc.)	Discussion with students living on campus Personal anecdote from HEIF student assistant	
Date Savings Metrics Calculated	11/28/2022	

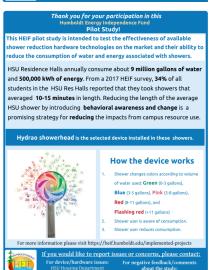
## Pictures

(Picture 1: Existing Conditions, date photo taken)

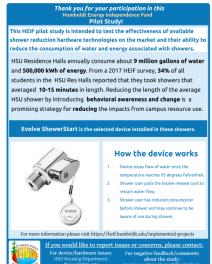
(Picture 2: Completed Project, date photo taken)



Signage for Pilot Study of Amphiro Shower Heads



Signage for Pilot Study of Hydrao Shower Heads



Signage for Pilot Study of Evolve Shower Heads

## (\*Include screencaptures and links to non-infrastructure projects.)

## Names of People who compiled this information:

Name	Date
Theressa Lopez	July 1, 2021
Theressa Lopez	July 8, 2021
Danika Zikas	12/04/2022