

December 6<sup>th</sup>, 2023

To: Kevin Reidy, Senior Water Efficiency Specialist

1313 Sherman Street

Denver, CO 80212

Project#: POGG1,PDAA, 202200003325

Project Name: Mile High Youth Corps' Single Family Energy & Water Audits and Installs

Dear Kevin,

Mile High Youth Corps' Energy and Water Conservation (MHYC E&W) program is pleased to announce the completion of the MHYC's Single Family Energy & Water Audits and Installs project funded by the Colorado Water Conservation Board (CWCBC). This report summarizes project outcomes and outlines the impact of CWCBC's funding on the MHYC E&W program.

#### SUMMARIZE THE PROJECT AND HOW IT WAS COMPLETED:

This project identified two key tasks that expanded Mile High Youth Corps' capacity for in-home conservation, community impact and Corpsmember (CM) development. The project goals centered on customer outreach, performance of in-home energy and water audits, installation of low-flow and ultra-high efficient water measures, and thorough tracking of conservation metrics.

#### TASK 1: ENERGY AND WATER AUDITS AND INSTALLS:

Through 2022-2023, the E&W program has completed in-home service visits across the Front Range to income-qualifying households. These service visits include assessment of the home's current energy and water fixtures, measurement of current efficiency, replacement of materials deemed inefficient, and conservation based behavior coaching. In addition, the Corpsmembers that completed these service visits provide additional resource support to clients who may need assistance beyond E&W's service offerings.

This project estimated that MHYC E&W would conduct energy and water audits for 200 low-income households with CWCBC funding. These initial audits lead to the identification of toilets qualifying for replacement. From Q3 2022 through Q3 2023, **MHYP E&W completed 124 in-home audits with CWCBC funding.** Energy and water audits trailed expectations while toilet installs were ahead of pace. These differences are reflected on the overall spend down tracker on page 8.

## Methodology:

### **Intake/ Scheduling:**

The E&W team conducts regular outreach to communities and potential customers. Our outreach activities combine a variety of methods and channels for communication. During scheduling, CMs qualify households based on income and benefit levels.

### Direct Customer Contact:

- CM outreach directly to individuals on our Low Income Energy Assistance Program (LEAP) list.
  - a. Each year, E&W staff connect with the LEAP office to request contact lists for individuals enrolled in LEAP benefits for the previous enrollment period. The list is filtered by zip code and household type. LEAP recipients qualify for E&W services based on income verification completed by LEAP.
  - b. CMs call residents directly to talk about E&W services and schedule service appointments. 2022-2023, CMs made an estimated 8,500 calls to Front Range residents enrolled in LEAP
- Resident inquiry directly to E&W offices
  - a. Residents are encouraged to contact our scheduling team through our phone lines or through our website contact page (<https://www.milehighyouthcorps.org/free-install-services/>)
- Through 2022 and 2023, E&W increased community outreach to historically underserved neighborhoods, particularly within Denver. We have leveraged efforts by our Promotoras community ambassador team to highlight E&W services alongside other climate action resources available to the community. The Promotoras team is supported by Denver's Office of Climate Action, Sustainability and Resiliency.

### Community Outreach:

Through third party support, the E&W team has conducted community based outreach to potential customers through the following methods:

#### *Attendance of Local Events-*

- Tabling events or recruitment fairs; events hosted by a number of community agencies and municipalities. Examples: local Denver/Lakewood library branches, Denver Metro Health and Human Services, neighborhood associations, public school resource fairs. Also prioritized connection to other local nonprofits and community organizations through Promotoras.

#### *Face to Face Canvassing-*

- MHYC Corpsmembers (CMs) canvassed specific neighborhoods based on historic service data and estimated income levels. CMs spoke with residents face to face and provided informational materials to residents.
- CMs visited local businesses to post flyers and information. Targeted locations included libraries, coffee shops, restaurants, and service organizations.

#### *Handouts/Materials-*

- Creation of cardstock handouts in both Spanish and English. These materials were utilized at community and MHYC events. (Attached to this report)
- Creation of door hangers in both Spanish and English. These materials were used in canvassing neighborhoods. (Attached to this report)

#### *Mass Media-*

- Digital advertisements- advertisements including online banners and boxes for individuals within income guidelines for E&W services. Created in fall of 2022, ran through Q1 of 2023: estimated 2.1M impressions, 2,095 “click-throughs”
- Social Media- MHYC’s social media team is updated with E&W ads and marketing messaging throughout the year, featured on MHYC’s Facebook, TikTok, and Instagram pages

### **In-Home Energy and Water Audits:**

Appointments are scheduled for teams of two Corpsmembers. In a typical day, one team can complete up to seven in-home audits or four toilet installations.

Assessment and installation of low-flow fixtures:

- Showerheads - Check flowrate using available markings or measure volume over 15 seconds, replace if greater than 2.0 GPM, corroded, or poorly functioning
- Bathroom aerators - Check flowrate using available markings or measure volume over 15 seconds, replace if greater than 1.5 GPM, corroded, or poorly functioning
- Kitchen Aerator - Check flowrate using available markings or measure volume over 15 seconds, replace if greater than 2.0 GPM, corroded, or poorly functioning
- Toilet - Check flush volume using available markings or measure approximate volume using the following formula:  $V = WT_{\text{Tank}} \times LT_{\text{Tank}} \times \Delta H_{\text{Flush}}$ , recommend replacement if greater than 1.6 GPF, or older than 1995, does not meet accessibility needs of client (i.e. install an ADA toilet to replace a shorter or smaller unit for mobility-challenged clients), or poorly functioning
  - We require waivers for toilet installation- these waivers can be left for homeowners to sign, or signed on the spot if a homeowner is present.

Assessment and upgrade of energy using fixtures

- LEDs - Replace all incandescent and CFL bulbs greater than 20W, burnt out or missing
- Thermostat - Replace any non-programmable thermostat. If programmable thermostat already present, check programmed settings for set points and times

Additional Assessments:

- CMs assess CO/smoke detectors and thermostats. These materials can be replaced based on need.

- HVAC systems, appliances and insulation types are recorded. If a household needs updating in these areas, E&W refers the household to third-party weatherization/energy efficiency agencies.

#### On-site Education, Behavioral Coaching:

At the end of each in-home audit, CMs review all material installations with the resident. CMs conduct a conservation survey to gather information on a household's historic energy and water consumption. During this conversation, CMs provide residents with best practices/techniques for the conservation of water and energy and make additional recommendations for 3<sup>rd</sup> party resources (e.g. Energy Resource Center, Habitat for Humanity, LEAP)

Through 2022-2023, **conservation education was provided to 103 households funded by CWCB.**

#### **TASK 2: TOILET INSTALLS:**

During in-home audits, E&W CMs qualify existing toilets within a household. For households using old or inefficient toilets, CMs will note the need for replacement and schedule a follow-up appointment for ultra-high efficiency toilet replacement. Toilets will be considered old or inefficient if they were manufactured before 1995 or use more than 1.6 gallons per flush.

This project estimated a total of 250 toilets replaced for low-income qualified households with CWCB funding. From Q3 of 2022 through Q3 of 2023, **MHYC E&W installed 286 ultra-high efficiency toilets.**

#### UHE Toilet Installation:

In-home energy and water audits build our pool of candidates for UHET installation. CMs qualify toilets while conducting home audits. Qualifying homes are contacted and scheduled in the same manner as in-home audits. CMs conduct outreach and schedule teams for UHET replacements. Toilet waivers are also confirmed at this time.

- While on site, CMs confirm that toilets in a home are eligible for replacement (up to 2 per home). Waiver collected.
- CMs assess potential risks for installation including plastic sewer lines, leaking supply lines, rotting or unstable floorboards, and broken flanges.
- Old toilets are removed; new UHET 0.8gpf toilets are installed according to best practices as outlined in the International Building Code.
- CMs test the newly installed toilet and educate residents on how UHETs operate
- Old toilets are returned to E&W offices to be broken down and recycled. It is estimated that for all toilets removed and recycled for this project, E&W processed 24,310 lbs. of porcelain

Note: E&W audits not funded by CWCB are also qualified for toilet installation. This is most commonly used for homes audited with Denver Office of Non-profit Engagement (DONE). DONE funding does not support replacement of toilets. CWCB funding supports the replacement of toilets in these homes, after an audit is completed with DONE funding.

### Conservation Totals for 2022-2023 (CWCB funded activities):

E&W has adopted the Xcel Energy Calculator for conservation total calculations. This calculator has been adopted by other program funders and provides consistency for E&W reporting.

*Note: the Xcel calculator does not capture differences in LED bulb type or kitchen or bathroom aerators. The Xcel calculator provides more conservative estimates for kWh and Therm savings than E&W's previous conservation calculator.*

Key Highlights- 124 In-Home Energy and Water Audits, 286 Toilet Installations completed

Lifecycle Saving p/Household: average \$870

Lifecycle Conservation- 39.1M gallons of water, 1.06M kWh, 29,370 Therms

### Conservation: Materials Installed:

INPUTS		Replaces	Running Total
	<b>Total Homes Serviced</b>		340
	<b>Homes Receiving Toilets</b>		216
	<b>Homes w/ Toilet Only</b>		0
	<b>1.5 GPM FIXED SHOWERHEAD</b>	<b>2.0 GPM</b>	47
	<b>1.5 GPM DUAL SPRAY SWIVEL KITCHEN AERATOR</b>	<b>2.0 GPM</b>	24
	<b>1.0 GPM DUAL THREAD BATHROOM AERATOR - BUBBLE SPRAY</b>	<b>1.5GPM</b>	55
	<b>0.5 GPM DUAL THREAD BATHROOM AERATOR - Needle SPRAY</b>	<b>1.5GPM</b>	12
	<b>6 WATT DIMM ALAMP OMNI-DIRECT AMCG</b>	<b>40 W</b>	160
	<b>9 WATT DIMM ALAMP OMNI-DIRECT AMCG</b>	<b>60 W</b>	764
	<b>11 WATT DIMM ALAMP OMNI-DIRECT AMCG</b>	<b>75 W</b>	40
	<b>10 WATT BR30 DIMMABLE - AMCG</b>	<b>65 W</b>	40
	<b>5 WATT CANDELABRA DIMM E12 BASE - AMCG</b>	<b>40 W</b>	136
	<b>Programable Thermostat</b>		18
	<b>Niagara Stealth Toilet .08 GPF</b>	<b>1.6 GPF</b>	286

Full Conservation Table:

Savings Calculator for 2nd Quarter	Total Cost	Annual Savings	Life Cycle Savings (\$)	Annual Water Conserved (gallons)	Life cycle Water Conserved (gallons)	Annual Energy Consumption Savings (kWh)	Life Cycle Energy Savings (Therms)	Air Pollution Reduction Equivalence (acres of forest absorbing CO <sub>2</sub> )	Life Cycle Air Pollution Reduction (lbs of CO <sub>2</sub> )	Air Pollution Reduction Equivalence (number of cars removed from the road for a year)	Amount of Fossil Fuel Energy Offset (Annual Consumption Savings that were coming from fossil fuels; kWh)
1.5 GPM FIXED SHOWERHEAD	\$146	\$2,021	\$20,210	347,388	3,473,888	6,712	6,580	168	186,346	2	
1.5 GPM DUAL SPRAY SWIVEL KITCHEN AERATOR	\$44	\$216	\$2,160	147,188	1,471,680	432	504	12	12,960	0	
1.0 GPM DUAL THREAD BATHROOM AERATOR BUBBLE SPRAY	\$33	\$825	\$8,250	578,160	5,781,600	990	1,155	28	29,700	0	
0.5 GPM DUAL THREAD BATHROOM AERATOR Needle SPRAY	\$7	\$264	\$2,640	178,704	1,787,040	216	252	6	6,480	0	
6 WATT DIMM ALAMP OMNI-DIRECT AMCG	\$248	\$845	\$10,983		6,880	137,600		89	220,160	1	5,077
9 WATT DIMM ALAMP OMNI-DIRECT AMCG	\$1,795	\$4,034	\$53,790		32,852	657,040		424	1,051,264	7	24,245
11 WATT DIMM ALAMP OMNI-DIRECT AMCG	\$118	\$211	\$2,746		1,720	34,400		22	55,040	0	1,269
10 WATT BR30 DIMMABLE - AMCG	\$138	\$211	\$2,746		1,720	34,400		22	55,040	0	1,269
5 WATT CANDELABRA DIMM E12 BASE - AMCG	\$510	\$718	\$9,236		5,848	116,960		75	187,136	1	4,316
Programmable Thermostat		\$919	\$9,187				20,880		250,560	2	
Niagara Stealth Toilet .08 GPF	\$40,040	\$11,633	\$116,327	2,661,945	26,619,450			0	0	0	
Totals	\$43,080	\$21,897	\$238,374	3,913,366	39,133,658	57,370	29,371	847	2,054,686	14	36,177
Avg. Per Energy Home (Aerators, Bubs Only)	\$8.94	\$27.49	\$331.94	3,881	36,806	169	25	2	5,306	0.04	
Avg. Per Water Home (Toilets Only)	\$185	\$54	\$539	12,324	123,238			0	0	0	
	Total Cost	Annual Savings	Life Cycle Savings (\$)	Annual Water Conserved (gallons)	Life cycle Water Conserved (gallons)	Annual Energy Consumption Savings (kWh)	Life Cycle Energy Savings (Therms)	Air Pollution Reduction Equivalence (acres of forest absorbing CO <sub>2</sub> )	Life Cycle Air Pollution Reduction (lbs of CO <sub>2</sub> )	Air Pollution Reduction Equivalence (number of cars removed from the road for a year)	Reduction in Fossil Fuel Consumption for Energy Generation (kWh; powerplant)

CONSERVATION TOTALS

***Describe any obstacles encountered, and how these obstacles were overcome:***

COVID-19:

MHYC has continued to update COVID 19 protocols following CDPHE and CDC guidelines. We have continued to honor client's requests for cancellations and rescheduling based on reported symptoms of COVID. During service visits, Corpsmembers will mask upon request from clients, regardless of symptoms in the home.

Customer Scheduling

The E&W team has worked at length to attract customers to our services. Typically, Corpsmembers call customers directly to schedule appointments. To complement these efforts, the program is exploring new options for customer intake. We believe that expanding our presence into community coalitions and promoting our services to health and human services agencies will allow for new channels into target population groups. We continue to explore marketing opportunities using mass media.

In addition, we have become more intentional about our outreach to diverse population centers, specifically, Latino communities in the Denver Metro area. Our service opportunities with these demographic groups have not yet been fully explored. We have translated all marketing materials into Spanish and prioritize Spanish speaking Corpsmembers during recruitment cycles.

3. Confirm that all matching commitments have been fulfilled:

Total CWCB funding for this project was \$146,809. Through Q3 of 2023, E&W utilized a total of \$146,809 (100% of allocated funds). Matching funds included other single-family and multi-family energy and water efficiency partners- Denver Office of Nonprofit Engagement, City of Westminster, Aurora Water, City of Lakewood, and Energy Outreach Colorado

**Project Name:** Energy & Water Conservation Program  
**Grantee:** Year One, Inc dba Mile High Youth Corps  
**Address:** 6740 E Colfax Ave, Denver, CO 80220  
**Phone:** 303-433-1206  
**PO Number:** POGG1,PDAA,202200003325  
**Full Grant Amount:** \$ 146,809.00  
**Date of Invoice:** 10/11/2023

TASK	Description	Total Budget Funds	Previously Invoiced	Current Invoice	Remaining Total	Percent Complete
1	Energy & Water Audits and Upgrades	\$ 57,314.00	\$35,000.00		\$ 20,457.65	64%
	Materials		\$1,856.35	\$ -		
2	Toilet Installs	\$ 73,625.00	\$26,980.00	\$ 380.00	\$ (23,931.65)	133%
	Materials		\$69,185.00	\$ 1,011.65		
	Indirect Fee	\$ 15,870.00	\$12,396.00		\$ 3,474.00	78%
<b>Total</b>		<b>\$ 146,809.00</b>	<b>\$145,417.35</b>	<b>\$ 1,391.65</b>	<b>\$ -</b>	<b>100%</b>

Task No.	Task Description	Grant Funding	Grant Spending	Projected Match Funding	Actual Match Funding	Total Project
1	Audits and Upgrades	\$ 57,314.00	\$ 36,856.36	\$ 161,730.00	\$ 185,291.26	\$ 222,147.62
2	Toilet Installs	\$ 73,625.00	\$ 97,556.65	\$ 82,460.00	\$ 69,737.64	\$ 167,294.29
	Indirect Fee	\$ 15,870.00	\$ 12,396.00	\$ 14,850.00	\$ 10,947.36	\$ 23,343.36
	<b>TOTAL</b>	<b>\$ 146,809.00</b>	<b>\$ 146,809.00</b>	<b>\$ 259,040.00</b>	<b>\$ 265,976.26</b>	<b>\$ 412,785.27</b>



Include photographs, summaries of meetings, and engineering reports/designs

Included in this packet are images of MHYC E&W activities over the course of the project. We have also included samples of outreach materials that were created for community outreach.



Clockwise from above: fully installed Niagara Stealth 0.8gpf toilet; toilet breakdown for porcelain recycling; setting new toilet onto wax ring and flange; installing flange.





# FREE WATER + ENERGY SERVICES LOWER YOUR UTILITY BILLS!

**Free Home Assessments and Install of new:**

- Free High-Efficiency toilets
- Free High-Efficiency showerheads and faucet aerators
- Free Programmable thermostats
- Carbon monoxide/Smoke Detectors
- Free Energy efficient LED light bulbs

**MORE INFO 720.974.0500, Option 2 • [info@mhyc.net](mailto:info@mhyc.net)**

 **MILE HIGH  
YOUTH CORPS** [milehighyouthcorps.org](http://milehighyouthcorps.org)



# SERVICIOS DE AGUA Y ENERGÍA GRATIS REDUZCA SUS FACTURAS DE UTILIDADES

**Evaluaciones gratuitas del hogar y instalaciones gratuitas de:**

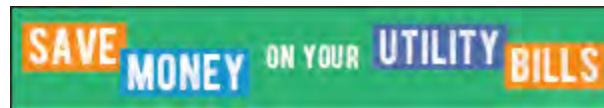
- GRATIS bombillas eficientes de energía LED
- GRATIS duchas de eficiencia alta y aireadores de grifo
- GRATIS Detectores de monóxido de carbono/humo
- GRATIS auditoria de energía del hogar
- GRATIS Inodoros de alta eficiencia
- GRATIS Termostatos programables

**Más información 720.974.0500, opción 2 • [info@mhyc.net](mailto:info@mhyc.net)**

 **MILE HIGH  
YOUTH CORPS** [milehighyouthcorps.org](http://milehighyouthcorps.org)



Flyers/card stock handouts; used in canvassing and at community events



Digital ad banners: ran Fall 2022-Q1 2023; linked "click through" function to MHYC EW services page.