

The Greenhouse Project

Pikes Peak Community College Rampart Range Campus

English 122-128 Service Learning

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Project Timeline: Selina Burkitt and Emily Maffe

Budget: Selina Burkitt and Emily Maffe

Executive Summary

Colorado Springs is home to some of the most beautiful views in the western region of the United States but it also experiences ugly tragedies such as homelessness and unhealthy lifestyles. Pikes Peak Community College (PPCC) is dedicated to helping the Colorado Springs community of students live healthy lives and develop habits that will enhance their futures for the better. Faced with the desire to meet the homeless population's basic need for food and provide students with the opportunity to build sustainably healthy lifestyles and habits, The Greenhouse Project at PPCC is motivated to build a solution, a community greenhouse.

Throughout the city of Colorado Springs, young adults are faced with homelessness, food insecurity, and limited access to fresh food. According to Urban Peak, on any given night close to one-thousand young adults and teens can be found wandering and sleeping in the streets without access to fresh food. According to the U.S. Department of Health and Human Services, unhealthy eating habits have contributed to heart disease, osteoporosis, certain types of cancer, and much more. By providing students and young adults with access to fresh food PPCC will be meeting the needs of the homeless and of students.

PPCC has ten campuses with over 19,000 students and influence in sixty-seven high schools. Equipped with a community greenhouse, PPCC will be providing access to fresh food to tens of thousands of students, allowing them to cultivate healthy lifestyles. The size and influence of the school provides The Greenhouse Project with the perfect community to access fresh food. With the right funding from Walmart, PPCC will provide students from difficult backgrounds with quick and free access to fresh food.

The following document will provide more details regarding the history of PPCC's community involvement, Walmart's previous community grants, the background of Colorado Springs homeless population and the lack of healthy lifestyle choices. It will discuss The Greenhouse Project's purpose and its goals, how the project will be accomplished, when the project will be accomplished, and how much the project will cost.

The Walmart grant will provide PPCC with the financial ability to accomplish The Greenhouse Project's goals. Through the support of Walmart, The Greenhouse Project will have the financial support it needs to establish a long-lasting program that will benefit the community for years to come.

History

PPCC was created in the late 1960's with the purpose of becoming a more affordable option for college education in Colorado Springs. Katherine Scott Sturdevant, the historian of PPCC, writes about the significance and start of PPCC. Kathy Sturdevant states, "It was born of an exciting movement in the country that began in the Progressive Era of the 1880s-1920s." Sturdevant, discusses how community colleges came about during the Progressive Era and skyrocketed because they offered an education for all employments. In 1967 to 1969, the PPCC was formed by five people including PPCC's first president Robert O. Hatton. They all envisioned a college in Colorado Springs that offered new opportunity for the community, access to affordable education that would prepare the students for a four-year university.

In the 1980's and 1990's, PPCC started to grow and advance in population and size. From its start in a Safeway building, PPCC grew to become a large campus of ten buildings across the city. As the school's popularity increased, PPCC started attracting more and more students. In 1968 as the population of the college grew, the buildings expanded to include schools across the whole city. Today the campuses include Rampart Range, Centennial, Downtown Studio, Creekside Success Center, Fort Carson Education Center, Peterson Air Force Base Education Center, PPCC Woodland Park, Construction Program, Diesel Mechanic Training Program, UCHealth Community Education Health Center, Center for Health Care Education and Stimulation, SPIRE Manufacturing, and Technical Education Campus where the convenience of education is available for students with diverse backgrounds. There are currently 158 certificates and degrees that are available to the over 19,000 students enrolled at PPCC. The college attracts a large number of military students to the college because of the military career programs it offers as well as convenient learning centers on Fort Carson Army Installation, Peterson Air Force Base, and the Air Force Academy. With all of these campuses, PPCC has the capability of reaching many students, all of whom have different academic dreams and goals.

PPCC is an affordable option for anyone in Colorado Springs due to its low tuition rates. In addition, PPCC provides over one million dollars in scholarships to its students annually. Financial aid is offered enabling students with financial impairments to receive an affordable education. Currently, fifty-two percent of PPCC students receive financial aid, and thirty-four receive Pell Grants. Altogether financial aid assists eighty-six percent of the population of PPCC with their tuition. PPCC's determination to assist their students with financial aid and offer low tuition rates makes PPCC a unique college in Colorado Springs.

PPCC offers education programs to high-school students and adult students who need to earn a high-school diploma. PPCC partners with sixty-seven high schools to provide concurrent enrollment services. These high-schools include The Colorado School for the Deaf and Blind, Springs Studio for Academic Excellence, Mountain Vista Homeschool Academy, and Discovery Canyon High-School. Concurrent enrollment allows students to take classes at PPCC and receive both high school and college credit at the same time. Concurrent enrollment allows high-schoolers a head start in college education and an opportunity to explore different careers and subjects that spark their interests. In the concurrent enrollment program high-schoolers earn college credits that will transfer to a four-year university, reducing the overall cost of tuition. Another program offered by PPCC is called Pivot. Pivot allows students to earn a high school

diploma through PPCC. These alternative programs collaborate with students in unique ways to provide the best education opportunities and life skills to any student.

The Rampart Range Campus, where greenhouse will be located, focuses on health sciences, and cultivates a community that is passionate about encouraging healthy lifestyles. Rampart Range is located on the north side of Colorado Springs, off of Interquest Parkway, a growing and expanding area. Rampart Range is able to reach a vast number of students, ranging in age and background, and provide them access to extensive learning resources.

PPCC is divided into four learning divisions, which teach and oversee education in their specialized subject areas. These academic divisions include the Division of Business, Public Service and Social Sciences, the Division of Communications, Humanities and Technical Studies, the Division of Health and Sciences, and the Division of Math and English. Each department consists of a dean and vice president. The dean supports their division by overseeing faculty and adjuncts, courses, and quality of education. The wide range of subjects, prepare students for their career.

The Learning Commons is one of the most influential resources available to students. The Learning Commons is a cost-free tutoring and study center. It assists students in attaining their potential and equip them with life skills. Tutoring is offered in all fields, making the Learning Commons a useful option for all students. Tutoring has been a valuable addition to the college and a helpful tool for students.

Awards and Background

The awards and accomplishments that PPCC has achieved are vast. A program named PPCC Cares organizes food donation programs for the community. A few of the programs are, the Mobile Food Market, the Community Table, and food pantries. There has been 139,786 pounds of food gathered through PPCC Cares and it has served over 13,357 people. PPCC Cares is one of our most accomplished programs and has reached a great number of people all in need of aid. The help that the college has given to students has advanced their lifestyles and brightened their futures.

Pikes Peak Community College has run many environmental sustainability programs that are still in use today. The most relevant of these programs is The Garden the largest of PPCC's campuses, the Centennial Campus, has an outside area dedicated to the growth of organic vegetation for community and school consumption. PPCC's Hydroponic Project, at the Centennial Campus has implemented the use of hydroponic growers to provide fresh vegetation for the community and the culinary studies program. Despite the existence of these programs they are only available to students who attend the Centennial Campus. The Rampart Range Campus, PPCC's fastest growing campus, does not have access to any of these environmental programs or the funds to implement its own.

PPCC has had environmental sustainability experience in more than just vegetation it facilitates a variety of other projects that benefit both the student body and the community. These other

projects include the water stations across all campuses that encourages the use of reusable water bottles. A recycling program has placed recycling bins across all campuses that heavily encourage recycling. Solar energy panels have been installed across the Centennial Campus for clean energy usage. Beyond the sustainability projects created by PPCC the college has a strong community presence, supporting outside organizations with their sustainability projects whenever possible.

Current Situation

By working on sustainability programs, PPCC has been able to establish partnerships essential to making The Greenhouse Project possible. An organization that PPCC is both actively supporting and being supported by in non-monetary aspects is the Green Cities Coalition. Konrad Schlarbaum the sustainability coordinator of PPCC serves as a board chair on the Green Cities Coalition Board of Directors. The Green Cities Coalition is a volunteer-based organization that works to bring awareness of and support to environment sustaining projects. Projects that have been supported by the Green Cities Coalition include the promotion of wind power at Colorado Spring Utilities. The organization Local Food Week, food from all across the Pikes Peak region is collected and given back to the community for free. Local Food Week helps to develop the Pikes Peak Regional Sustainability Plan, a plan meant to keep the Pikes Peak region clean as the population rises.

The Green Cities Coalition would be important in promoting a new greenhouse to the community around the Rampart Range Campus, since this greenhouse would rely on the community taking advantage of the vegetation supplied. And as this greenhouse continues to provide food for the local community, it would hopefully encourage the implementation of even more community and environmental sustainability projects in the future.

As a facilitator of community growth and support, Walmart has funded many organizations in their journey to help local communities. One such organization that has received a grant from Walmart is Boys and Girls Club of America (BGCA), who received a grant amount of \$500,000. The goal of this company is to help maintain stability within the lives of children across America. One way this is done is by supporting and facilitating the growth of nutritious food within any given community. This company has been working toward this goal of greater community health by supporting the growth and health of the children of America. The ways in which this company achieves the goal is by supporting local organizations that grow food for the community, and by educating the youth of America on how to stay healthy with beneficial diet choices.

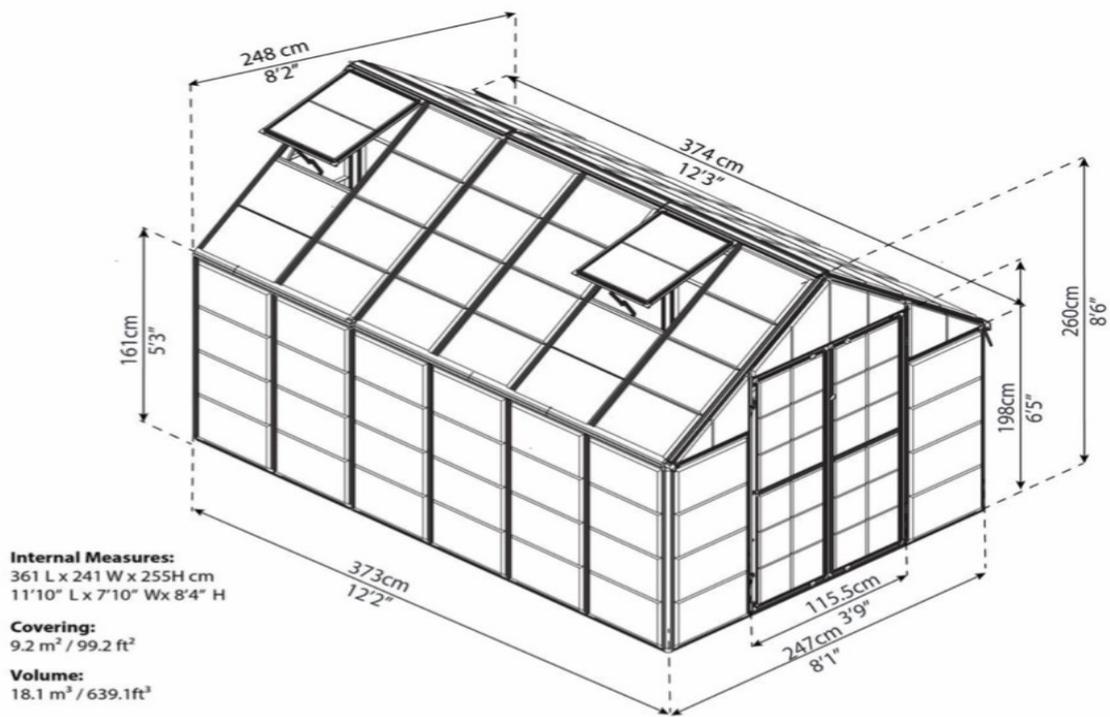
The reason that this organization was chosen is because it met the criteria that Walmart had set out for a grant that sought to provide access to healthier food. The grant was one that sought to eliminate food insecurity within local communities, and upon seeing the organization's goals along with their history, they were chosen to receive that grant amount. The goals that BGCA had in achieving this goal toward its community are very similar to the goals of PPCC, as Pikes Peak aims to relieve local families and students from food insecurity.

It is because of this long history of facilitating growth in community education and sustainability, the PPCC would be an excellent candidate for a grant by Walmart. PPCC has proven both to its students, who use the resources provided by The Garden, the Hydroponic Project, and the multitude of other projects supported by PPCC, and to the community who benefit from the food provided by these projects, that it can sustain and grow a program that will improve a community for years to come. And as time passes, PPCC will continue to be a proponent of community growth and health projects, and it will continue to find new ways to be of service to its community.

Background

According to the US. Department of Agriculture, a recent survey conducted by the Economic Research Service found that 88.9 percent of U.S. households were food secure. Food secure homes have consistent, dependable access to enough food for active, healthy living. 88.9 percent seems like an impressive number however it implies that 11.1 percent of U.S. households had difficulty at some time during the year providing enough food for all their members due to a lack of resources. This small percentage equates to 14.3 million households, 2.7 million of these struggling households were at times unable to provide adequate, nutritious food for their children. Nearly 1 in 11 Coloradans struggle with food security due to inadequate finances. According to The Place, 569 young people required assistance in 2017 transitioning out of homelessness. Having a greenhouse at PPCC will provide a sustainable resource of healthy food for both students and others in the community.

The greenhouse will increase public access to nutritious food and strengthen community ties. Harvard School of Public Health provides data discussing how food choices affect everyday health and emotional wellness. Students who maintain a healthy weight but consume a poor diet are liable to significant health risks that can cause illness or death. Educating students about healthy diets and equipping them with the skills to grow organic and nutritious food is a life changing idea. Dietary habits start at childhood and develop into adulthood. Improving nutritional awareness through a greenhouse will promote consistent consumption of fruits and vegetables in PPCC's community. It will assist to reduce the number of Coloradans struggling with hunger.

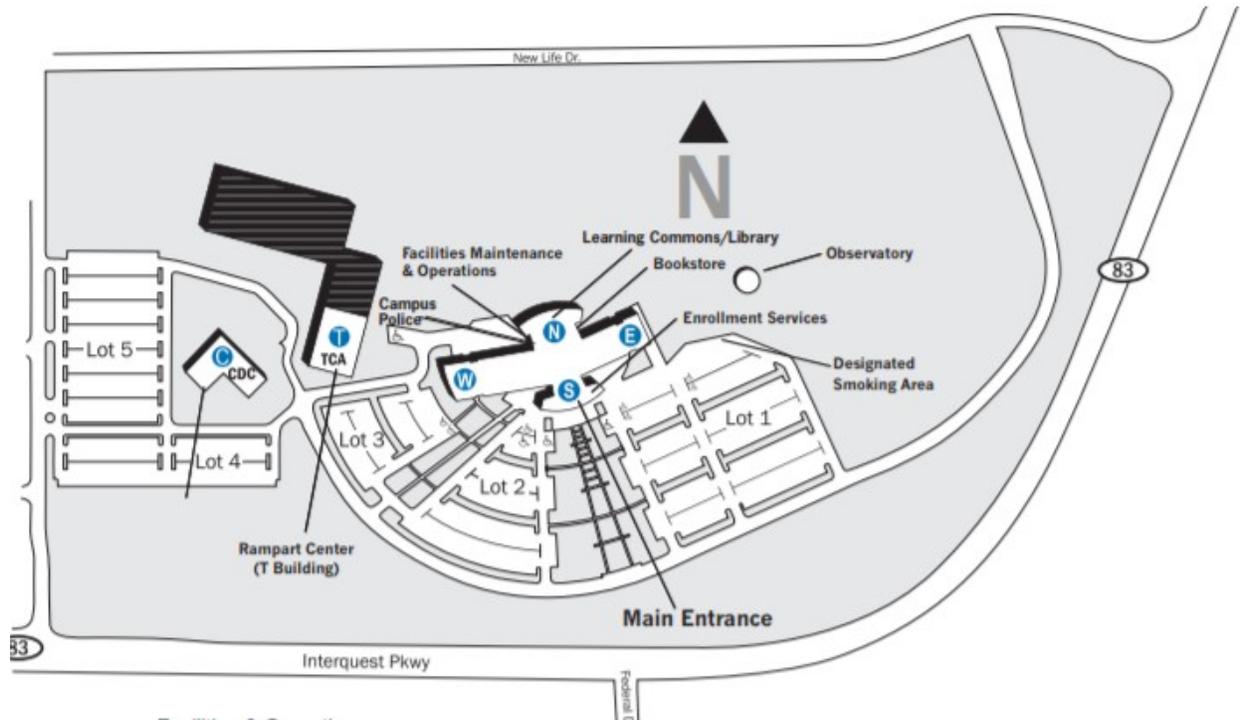


Project Plan

A vital aspect of a greenhouse is its sustainability. According to DoctorGreenhouse, "Indoor food production systems have the opportunity to reduce the overall impact that agriculture has on the environment." Greenhouses provide safeguards against the ongoing change of cultivation of the environment. The three main elements that are crucial to a greenhouse are energy, water, and systems integration. Energy is provided by solar panels which are renewable and alternative. Water will be required for irrigating plants and evaporative cooling. Recirculating irrigation systems will minimize the usage of excess water. Systems integration is the codependency of humans and plants and will help to limit waste production. The greenhouse will rely on a circulating irrigation system to nurture and grow produce. Similar to having a vegetable garden in one's backyard the community greenhouse will be available for all in the Colorado Springs community to enjoy. Assisting students in sustaining a healthy lifestyle and providing access to fresh food.

In total, the greenhouse will cost \$5000 including the building itself, the seeds, the appliances, and the tools used for planting. Construction, conducted by student volunteers, will begin the





first of February and be completed at the end of March. Planting will take place according to the Farmer's Almanac for the year 2020. All of the vegetables planted will be self-sustainable plants, such as carrots, tomatoes, cucumbers, and lettuce. These plants require minimal maintenance, keeping the greenhouse operations running smoothly as possible.

Following an interview with Kelley Jennings, the farm manager at University of Colorado at Colorado Springs, the information here was collected. The greenhouse will be run by volunteers from PPCC students attending Rampart Range campus. The food produced by the greenhouse will be available to students and the surrounding community. Any unexpected challenges, such as plants failing to thrive, will be tended to by thorough regulation of the greenhouse by the staff. Following the farmer's almanac will provide a solid base to keep the greenhouse functioning. Fresh, sustainable produce for the students as well as a unifying agent for students at PPCC will be created with this greenhouse.

Project Timeline

- Construction
 - Purchase greenhouse kit, January 1, 2020.
 - Purchase all other supplies other than planting materials January 3rd.

- Giving up to two and a half weeks for delivery the build can begin January 20th and should be complete by the 23rd. By this time the other supplies should have arrived.
- Once the structure is complete, electrical and water set up can start. Starting the 23rd of January, the electrical and plumbing can be set up and should be completed by the 30th. (To include misters, heater, fan, and lights)
- During the electrical and plumbing set up, planting materials can be purchased in store.
- Beginning in February we can start preparing the ground in the greenhouse.
- **Planting**
 - Planting will take occur in accordance with the *Original Farmer's Almanac*. Which can be accessed here www.almanac.com, under the planting calendar option.
 - According to ceresgs.com/year-round-greenhouse-planting-calendar/ for Colorado seeding can begin in February due to sunlight amount.
 - In the beginning February warm loving, long season crops tomatoes, peppers, and eggplants need to be planted in pots.
 - In mid to late February seeding begins for cold resistant vegetables lettuce, kale, radishes, beets, carrots, peas.
 - Allow 100-150 days for maturity before transplanting into the ground they are cold intolerant.
 - In March warm plants can start to be planted beans, basil, cucumbers and squash.
 - Begin replanting for cold tolerant vegetables second round.
 - May cold intolerant plants can start being transplanted into the greenhouse.
 - August-September winter vegetables can start to be planted.
- **Harvest**
 - Harvest for the cold tolerant vegetables mostly likely can begin in mid-late march.
 - Harvest for cold tolerant vegetables will continue in May.
 - Harvest during August-September for earlier planted crops.
 - Continue harvesting throughout November, December, January.

Budget

Walmart and Home Depot have a large assortment of products useful for the greenhouse build and set up. According to Planet Natural Research Center these items would be needed to start a greenhouse, based on budget and space available.

<u>Materials</u>	<u>Cost</u>	<u>Quantity</u>	<u>Total</u>

Deck Planter 36 x 15	\$20.49	2	\$40.98
Deep Cycle Batteries	\$184.99	2	\$369.98
Fan and Thermostat	\$327.15	1	\$327.15
Flooring	\$229.99	1	\$229.99
Five Gallon Bucket	\$2.96	3	\$8.88
Garden Soil 1 cu ft.	\$3.00	96	\$288.00
Greenhouse 8ft x 12ft	\$1299.00	1	\$1299.00
Heater	\$560.04	1	\$560.04
Hose	\$18.84	2	\$37.68
LED Lighting	\$39.97	4	\$159.88
Miscellaneous	\$514.58	1	\$514.58
Mister Kit	\$49.99	2	\$99.98
Outlets	\$11.99	4	\$47.96
Potting Bench	\$53.90	1	\$53.90
Seeding	\$17.49	3	\$52.47
Shelve 4 pack	\$138.42	1	\$138.42
Solar Panel	\$498.00	1	\$498.00

Stakes 5 ft. 25 pct.	\$31.67	4	\$126.68
Top Soil	\$1.87	8	\$14.96
Trowel	\$1.50	3	\$4.50
Utility Cart	\$79.99	1	\$79.99
Wiring 250ft	\$37.17	1	\$37.17
Total			\$5000.00