

Advancing the Cubuy-Lomas Community Services and Development Center in Puerto Rico



WPI

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Advancing the Cubuy-Lomas Community Services and Development Center in Puerto Rico

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Abstract

Many communities in Puerto Rico continue to suffer the effects of Hurricane Maria and a wave of school closures in 2017. In 2020, Javier Valedon and his organization ID Shaliah, along with the Karma Honey Project, began renovating a vacant school into a community center for the residents of Cubuy-Lomas. The goal of our project was to facilitate our sponsors' missions by improving visibility of the center, expanding the center's outreach network, documenting the vision for the center, and assembling a library of resources for this project and others like it. We have created tools for our sponsors and future WPI teams to continue to approach funding strategies and networking with similar community centers in Puerto Rico.

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We would like to thank WPI for providing us with the opportunity to complete the IQP abroad. We are appreciative of both the professional, teamwork, and social skills that the IQP promotes that we have been able to develop over the duration of the project period. The IQP project is unlike any other, and we are thankful for the experiences that this journey has provided us with.

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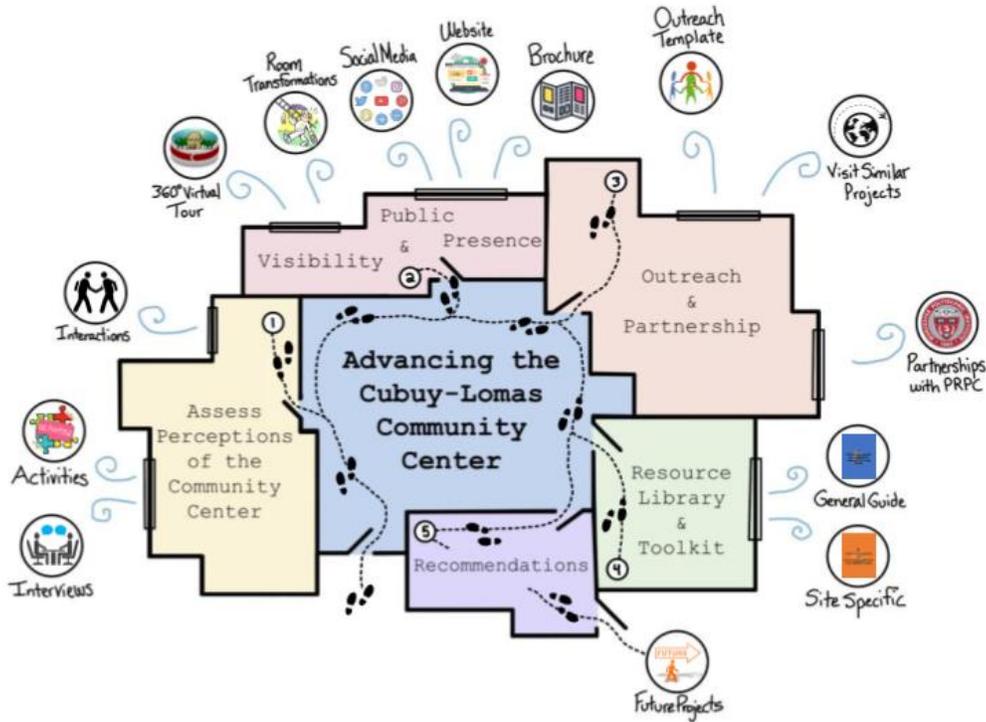
Executive Summary

In developing areas like Puerto Rico, where accessibility to several essential resources is limited, some communities can rely on government assistance as a form of support during times of need, whereas dire situations often force small, rural communities, like Cubuy, located in the municipality of Canóvanas in Puerto Rico, to rely on a strong and cohesive community presence to support themselves. Despite being a territory of the United States, the island of Puerto Rico has a history of self-dependance from the time that the United States colonized the island in 1898 (Kunstler, 1992). In the last decade, one manifestation of how insufficient government support has impacted Puerto Rico was the United States' poorly coordinated response to Hurricane Maria. In Cubuy, issues surrounding access to reliable and clean water, medical supplies, services and equipment, food, and sufficient shelter, among other things, have thus plagued the community since the Hurricane. A lack of government support has contributed to another significant problem on the island: school closures, more than 300 in less than three years (Singh, 2019). Paradoxically, abandoned school buildings have become a beacon of hope for communities seeking to recover, rebuild, and prepare for the future. In the small town of Cubuy, an organization called ID Shaliah Inc. was founded by Javier Valedon in 2020 to help deliver essential resources including food and medical supplies to the community. ID Shaliah, along with newfound partners, The Karma Honey Project, are now renovating a vacant school building in Cubuy to develop a community and resiliency center for the Cubuy and Lomas communities.

Mission & Objectives

The goal of this project was to contribute to ID Shaliah and The Karma Honey Project's collaborative missions of organizing a community center to meet the needs of the residents of Cubuy-Lomas. We set out to achieve this goal through the following objectives:

1. Assess perceptions of the residents about the community center and their consistency with the sponsors' vision.
2. Improve the visibility of the community center through different forms of media.
3. Design an outreach plan for the development of strategic partnerships.
4. Develop a library of resources and tools for the continued development of the Cubuy community center and similar projects.



Summary of Product Methodology
(Graphic Credit: Makayla Delo)

Assessment of Community Center Perceptions

We sought information on the history and culture of the members of the community, as well as information on what programs and services are currently available in Cubuy. We interviewed four ID Shaliah volunteers and concluded that:

1. The sponsors' plans for the programs and services that will be offered at the community center address the real needs of the community.
2. The community's strengths lie in their ability to take initiative to unite, rebuild and support themselves in desperate times.
3. The main priorities of the community are access to medical and pharmaceutical services, a consistent source of water and electricity, and reliable shelter, in addition to security, phone service, and transportation, respectively.
4. The community faces its greatest challenges with respect to poverty, its remote location, and the difficulty of receiving external assistance.

Improving Visibility of the Community Center

To successfully market the Center to the general community, other organizations and companies, and stakeholders, we sought to develop an online presence in several different formats to make information easily accessible. We increased community center visibility by

creating a website, a 360-degree tour of the site, computerized visualizations of the future designs of the center, a social media campaign, and a brochure. The key deliverables produced for improving visibility for the center include the following:

Website: We created the Cubuy-Lomas Community Services & Development Center website, where all of the information pertaining to the community center can be accessed either directly on the site or through linked platforms so people can learn about the center and make donations. The website has the option to be viewed in both English and Spanish, and there are versions for a mobile device or a computer. The site features 6 pages: Home, Virtual Tour, Programs & Services, About, Ways to Give, and Reach Out. The 360-degree tour, the images of the room transformations, and the links to the center's social media platforms are all embedded in the website, among a number of other features.

360-Degree Tour: Encompassing the entire campus, this tour provides a walkthrough of the site with stops at each significant space. Users can click through the tour on a computer or a smart phone, or take the tour with the virtual reality option. At the beginning of the tour, users are greeted with a welcome message and a site directory for navigation. Information icons in each room provide specific information about how the space will be utilized. This virtual tour is accessible through the CloudPano website, Google Streets, and the Cubuy-Lomas Community Services & Development Center website. The purpose of this tour was to allow people to view the site of the community center and learn about each space without being at the center.

CAD Models: We also created renderings displaying what each unfinished space in the interior and exterior of the community center is projected to look like. Current images of the center were edited using Photoshop to display the exteriors of each building with fresh paint. For interiors, Revit and SketchUp models display each room with paint, furnishings, and décor. The visuals will allow the sponsors to show finished products to potential investors to demonstrate where the project is heading.

Social Media: To advertise and update the public about the community center's progress on different social media platforms, we created a public Instagram page for the community center, which was linked to the pre-existing Facebook page. By linking the two pages, posts created on one platform are now automatically being posted to the other. During our time in Puerto Rico, we shared posts about the center's mission, plans, and progress. This initiative allowed us to set the sponsors up for the future by creating the accounts, securing a set of followers, and providing examples of content to post.

Brochure: To advertise the community center to community members who may not have internet access, we also created a brochure. The trifold brochure, available in both English and Spanish, includes information about the mission of the community center and what programs and services it has to offer. The brochure is a tangible resource that can be updated and can regularly be distributed, or available to pick up at the center.

Designing Outreach Plans for Developing Strategic Partnerships

Another aspect of this project was creating a long-term partnership between our sponsors and the WPI Puerto Rico Project Center. Because of the increasing popularity of the initiative to repurpose old buildings into community centers in Puerto Rico, we also wanted to connect our sponsors and the directors of the Puerto Rico Project Center with the leaders of the organizations who are tackling these projects in other communities on the island. We designed an outreach plan to provide the sponsors with methods for connecting and developing relationships with potential partners by developing an organized contact spreadsheet and drafting an email template. In addition, we assembled helpful information in our Community Center Planning Guide & Toolkit.

Library of Resources for the Cubuy Center and Others

To compile all of our sponsors' plans and visions, we created a working document complete with general guidance, suggestions, and resources for community center planning, as well as site-specific details including CAD models, budget templates, and plans for programming and services. The Community Center Planning Guide & Toolkit aims to accomplish two goals: provide other similar projects with information on how to build and maintain a community center, and provide future management with a comprehensive toolkit documenting how the project center has progressed so far. As a result, the document is separated into two distinct parts: I. Community Center Development: General Planning Guide, and II. Cubuy-Lomas Community Services & Development Center Site-Specific Toolkit. Therefore, the document can be viewed in its entirety or each part can be distributed to different audiences.

Recommendations

Each of these recommendations stems from the suggestions outlined in the Community Center Planning Guide:

Use the Community Center Planning Guide to plan next steps, beginning with community center operations. Begin this process by organizing the logistics of how the center's programs and services will be operated, followed by a cost analysis of the programs and services. Although short-term development is important, form a long-term implementation plan to outline how the team will work to achieve the ultimate goals of the project.

Generate support from the community to begin seeking funding. We recommend that the sponsors, or future project teams, continuously update the website and the social media platforms. Use the brochure as a template to create a regular newsletter to distribute to the community, or other means in the Community Center Planning Guide to update the public about the center. Document the support of the community through petitions or recording the center's usage to strengthen applications for financial assistance.

Utilize the contact lists and a personalized version of the email template included in the toolkit for outreach. When seeking funds and support for the community center, tailor the process to the target audience to effectively engage each potential stakeholder. There are several other outreach techniques outlined in the Community Center Planning Guide & Toolkit.

Create a formal budget. Further information is included in the Community Center Planning Guide & Toolkit. We recommend using the tools we provided to generate interest from potential donors, as well as the suggestions in the Community Center Planning Guide. The team recommends pursuing grants as the most substantial source of funding for the community center, and hosting fundraising events at the center to engage the community and generate income.

When the center is operating, refer to the evaluation methods in the Community Center Planning Guide & Toolkit. We recommend using services analyses by recording the program usage to understand the level of demand of each service and evaluating the community's responses to additions and changes in programs using periodic surveys.

Conclusion

This project was the beginning of a new partnership between the WPI Puerto Rico Project Center, ID Shaliah Inc., and the Karma Honey Project. Throughout the course of the project period, we developed meaningful relationships with our sponsors and the volunteers who we interacted with during our time in Cubuy. Using the tools we created, we have helped lay the groundwork for our sponsors to continue to develop the center, showcase the center's progress, and promote the center to the public. We envision future project groups continuing the work that we have done to progress forward with securing funding, as well as expand the network connecting our sponsors, the WPI Puerto Rico Project Center directors, and other organizations working on community center projects in Puerto Rico. There are several initiatives being organized to facilitate the utilization of abandoned schools into community centers. We see the value in connecting the leaders of these projects with one another to share insights with each other to achieve the broad goal of creating a stronger Puerto Rico one community at a time. We anticipate that the Cubuy-Lomas Community Services & Development Center will serve as a beacon of light for the members of the community and an inspiration to others in Puerto Rico.

1. Introduction

In urban and rural communities alike, a significant determining factor of a community's successful development stems from the involvement and collaboration of people from different factions of the community (Harrison, 2008). The Oxford Dictionary states one definition for community as "a feeling of fellowship with others, as a result of sharing common attitudes, interests, or goals" (The Oxford Dictionary, 2010). In developing areas like Puerto Rico, where accessibility to several essential resources is limited, residents have more of a dependency on a strong and cohesive community presence to support themselves. While some communities can rely on government assistance as a form of support during times of need, dire situations force small, rural communities, like Cubuy, located in the municipality of Canóvanas in Puerto Rico, to look within to obtain the aid and resources that they require.

Puerto Rico's people possess a rich social and cultural background, including a strong dependency on their own strength, due to the challenging history of political and economic problems that the island has faced, in addition to the frequent natural disasters that force many communities to exist in a constant state of recovery. Despite being a territory of the United States, the island of Puerto Rico has a history of self-dependance from the time that the United States colonized the island in 1898, while taking minimal responsibility for supporting and providing for the island (Kunstler, 1992). In the last decade, one manifestation of these problems was the United States' poorly coordinated response to Hurricane Maria, where the government of Puerto Rico only received 3.3 billion dollars of the 91 billion dollars of aid that the United States promised one and a half years earlier (Honl-Stuenkel). This lack of aid has led to a plethora of struggles for Puerto Rico, with smaller, more isolated communities like Cubuy being impacted most severely. Issues surrounding access to reliable and clean water, medical supplies, services and equipment, food, and sufficient shelter, among other things, have plagued the Cubuy community due to the minimal external aid being provided. Without adequate solutions in place, these problems are bound to compound on one another in these rural areas, where the frequency of catastrophic weather events threatens further destruction.

A lack of government support has contributed to another significant problem that complicates the present discussion: school closures. The lack of support and funding for the education department has caused more than 300 schools in Puerto Rico to close in less than three years (Singh, 2019). Approximately 589 million dollars was budgeted by the government in an attempt to recover the deteriorating education system, however only 4% of that funding was actually dedicated to the cause ("The Disappearing Schools of Puerto Rico," 2019). The vacant school buildings are yet another example of one of the major problems Puerto Rico is facing that contributes to the lack of faith that many Puerto Ricans hold in their government. In communities similar to Cubuy, this distrust and the theme of insufficient external assistance has driven residents to find alternative ways to support themselves independently. Within recent years, abandoned school buildings have become a beacon of hope for communities seeking to recover, rebuild, and prepare for the future. This is the case in the community of Cubuy.

In the wake of Hurricanes Irma and Maria, many community efforts have advanced the recovery of the island, and several initiatives have been implemented as a method of addressing community needs. For example, the Hispanic Federation operates a housing and community development initiative that focuses on repairing and constructing temporary and permanent housing to address the housing crisis on the island, while restoring sustainable water access to the residents (Hispanic Federation, 2020). Some of these projects take shape within abandoned buildings as a way for community leaders and other non-profit organizations to turn these empty spaces into opportunities. One such example is Esceula Parcelas Suarez in Loiza. This abandoned building has been converted into a fully functioning community center designed to fulfill community needs through food drives and medical clinics, in addition to serving as a refuge during natural disasters (Singh, 2019). Other similar recovery and community development projects and centers have developed throughout Puerto Rico. In the small town of Cubuy, an organization called ID Shaliah was founded by Javier Valedon in 2020 to help deliver essential resources including food and medical supplies to the community. Valedon and ID Shaliah, along with their newfound partners, The Karma Honey Project, are now renovating a vacant school building in Cubuy to develop a community and resiliency center for the Cubuy and Lomas communities. Although many factors play a role in developing a community center to accommodate the needs of a particular community, aspects of previous projects can be very useful in advancing the missions of the Cubuy Community Center.

Despite these efforts to implement and advance community development programs throughout Puerto Rico, many smaller communities without access to the resources to initiate their own development are continuing to suffer from the effects of Hurricanes Irma and Maria. Specifically in Cubuy, it is difficult to access valuable resources located in San Juan. ID Shaliah's project is working to advance their efforts in serving the community through the community center that the organization is developing, however this project is a significant undertaking, particularly without a consistent source of funding. Although the leader of this project, Javier Valedon, has experience working with and providing for the community through his involvement with ID Shaliah, organizing a community center is a detailed process that requires extensive planning and organization. Because of the need for the residents of Cubuy to be self-sufficient, it is important that they have all of the tools that they need to operate the community center, which will be a significant source of the community's support. Previous community center projects and start-up guides provide a sturdy foundation for the development of the Cubuy community center. However, these guides must be refined and tailored to the specific needs of Cubuy to create a detailed plan for the development and operation of the Cubuy community center.

This project intended to contribute to the development of the community center in Cubuy by encapsulating the visions of our sponsors: ID Shaliah and The Karma Honey Project. To assist with the efforts of transforming the abandoned school into a fully functioning, resilient, and sustainable community hub, our project team developed a living, comprehensive document including a guide to community center planning, a library of resources for similar projects, and an organized toolkit of site-specific information for the Cubuy center. We worked to increase visibility for the community center by creating a website, a 360-degree tour of the site,

computerized visualizations of the future designs of the spaces of the center, a brochure, and a social media campaign to promote and market the Cubuy center to the public and to potential funders. In addition, we designed an outreach plan including a detailed set of contact information of prospective stakeholders, partners, and donors, as well as a set of recommendations for future fundraising strategies. The goal of our project was to help facilitate our sponsors' missions through documenting the community center's progress and future plans, assembling a toolkit of useful resources, establishing an online presence for the center, and creating a network of connections for the development of future partnerships.

In the next chapter, we discuss the importance of community development and resiliency planning with relevant examples from successful projects in Puerto Rico to lay the foundation for the demand for this type of project work. The following chapters illustrate our methods in achieving our project goals, the outcomes of our objectives and the deliverables that we produced, and a set of recommendations for our sponsors to act upon. We conclude with a reflection on our project work and our suggestions for how we envision the WPI Puerto Rico Project Center and future WPI teams working in Cubuy and on similar projects on the island.

2. Background: Importance of Community Development & Fostering Resiliency

Community development is a tool implemented by local governments and organizations to respond to the needs of the people in the community. This development can take shape in the form of different programs, services, and activities that are developed with the aim of enhancing the quality of life for community residents. Often, these initiatives are organized and operated within a neutrally located facility, or “community center,” that serves as a centralized hub for the community. In a broad sense, the goal of community development programs is to strengthen the community and provide a support network for residents. Depending on the needs of the community, this can be done through supporting local businesses, creating recreational spaces for children, cleaning up the community, preparing residents for emergencies, responding to extreme weather events, or supplying residents with necessities such as food and water. In Puerto Rico, many communities rely on assistance from outside sources and organizations for ample access to these fundamental services.

Worcester Polytechnic Institute established a project center in San Juan, the capital of Puerto Rico, over thirty years ago to partner with local government agencies and non-profit organizations to work on projects with a “focus on sustainable community development,” including “themes related to community climate resilience, livelihood improvement, and environmental management.” With new project center management for the Puerto Rico project site, the project center is tackling a new set of projects with the goals of “building community climate resilience by repurposing elementary schools that have been abandoned by the state into community centers that can enhance resilience to natural disasters” (WPI). The information included in this background chapter illustrates the research that our interactive qualifying project team found relevant to developing a community and resiliency center in Cubuy, Puerto Rico.

Cubuy is a community of approximately 1,800 residents in the municipality of Canóvanas on the West edge of the El Yunque National Rain Forest, which is approximately a thirty-minute drive from the capital city of San Juan, displayed in *Figure 1* and *Figure 2*.



Figure 1: Location of Cubuy with respect to the mainland island of Puerto
Source: Bing Maps, 2021

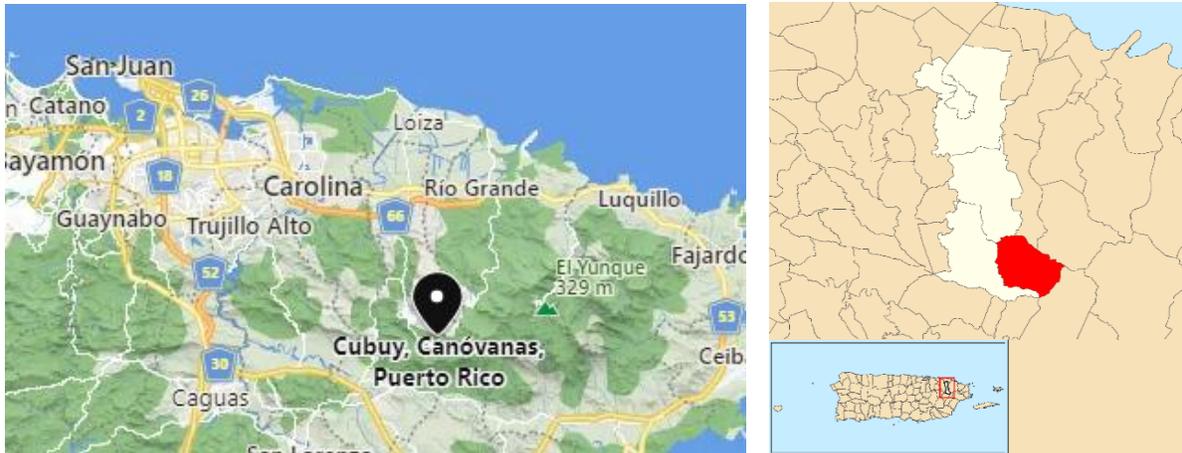


Figure 2: (a): Location of Cubuy with respect to San Juan and El Yunque National Rain Forest
 (b): Location of Cubuy (red) within the municipality of Canóvanas (tan)
 Source: Bing Maps, 2021

We begin by discussing what community development is and its importance in strengthening communities. We define what community and resiliency centers are, discuss some of the different types that exist, and explain how to evaluate which types are suitable for particular communities. Next, we dive into the history of the abandonment of school buildings in Puerto Rico, and how these vacant structures can be transformed into community and resiliency centers to benefit the community. We then discuss how past natural disasters and weather events have left a lasting impact on Puerto Rico and the inhabitants of the island to demonstrate the island’s need for projects similar to the work being done in Cubuy. We then move on to explore community development in Puerto Rico, and the community and resiliency center projects that have been and are currently being conducted in Puerto Rican communities like to Cubuy. We then draw upon these projects as well as “toolkits” and “how-to” guides that provide general guidance on developing community centers to outline an overview of community center planning. Finally, we introduce our sponsors, and how their individual missions are intertwined to achieve the goals of their project.

2.1 Community Development

According to Steve Harrison, author of a five-year community development plan for The Shire of Augusta-Margaret River, “[a] strong vibrant community is one that has and supports social networks, creates economic advantage, shares common values, allows for and encourages cultural and social expression, is able to encourage and accept diversity of interests and opinion, cares for its people and strives for personal, inter-personal and civic participation” (Harrison, 2008). This report defines community as a group of people who share an identity and are united through any combination of features, such as their geographic location (whether it be a state, county, region, town, city, neighborhood, suburb, or even simply a street), cultural and demographic elements (such as ethnicity, age, or religion), or social circles (including places of work, athletic teams, clubs, music groups, political parties, etc.) (Harrison, 2008).

According to this plan, community development can be thought of as building the community, which increases the strength of the community and “unites the efforts of people in the belief that by working together more can be achieved which will benefit all parts of the community” (Harrison, 2008). Some of the key resultants of community development include increasing community involvement and interaction, promoting community participation in making decisions, allowing opportunities for community members to come together to work on projects and solve problems, providing more readily available information, and increasing a communal feeling of closeness and connection to one’s community (Harrison, 2008). In agreement, Edwin Melendez believes that community engagement has three tiers, including decision-making, forming relationships, and capacity-building (Melendez, 2020). These layers, Melendez suggests, are increasingly important in improving resiliency to extreme climate events where this community participation is necessary to improve the readiness of the community (Melendez, 2020).

2.2 Defining Community and Resiliency Centers

Developing community centers in underprivileged communities is a common method employed by community leaders and organizations to provide essential services to community members, engage community involvement and participation in social activities and decision-making, offer educational programs, support local businesses, bolster economic development, and create a safe space for members of the community in times of crisis, all of which contribute to community development. Several types of community centers exist for different purposes, from serving the homeless, offering activities and programs for the community’s youth, providing medical services to locals, to acting as resiliency centers to aid communities recovering from natural disasters. In the following sections, we define what community and resiliency centers are, the different types, and ways to evaluate their contributions to the community.

Prior to learning how to begin planning a community center, let’s answer the question of: what is a community center? The Merriam-Webster dictionary defines a community center as “a building or group of buildings for a community’s educational and recreational activities” (The Merriam-Webster Dictionary, 2021). According to one journal article, community centers are “meaningful spaces that facilitate social interaction through their diversity of programming and services” (Colistra et al., 2017). Additional definitions can be found in *Figure 3* below. Like community centers, resiliency centers can have a variety of definitions depending on their functionality. Generally speaking, a resiliency center is a space that provides “a safe and supportive healing environment for individuals, couples, and families seeking improved emotional and physical health and greater joy.” (CDPS, n.d.). More specifically, ResilientSEE agrees that a "Resilient Community Hub as an existing or new space, where educational and/or social services are provided regularly throughout the year to the community, yet the facility is ready to withstand emergencies and serve the community in times of need" (ResilientSee, 2021). Clearly, there are several ways to interpret what a community center is, and there is no one-size-fits-all definition. Community centers are developed to fit the needs of the specific communities that they are designed for and provide resources that will benefit the people who live there. This

ultimately means that the needs and wants of the community members shape what a community center evolves into and how it will serve the respective community.

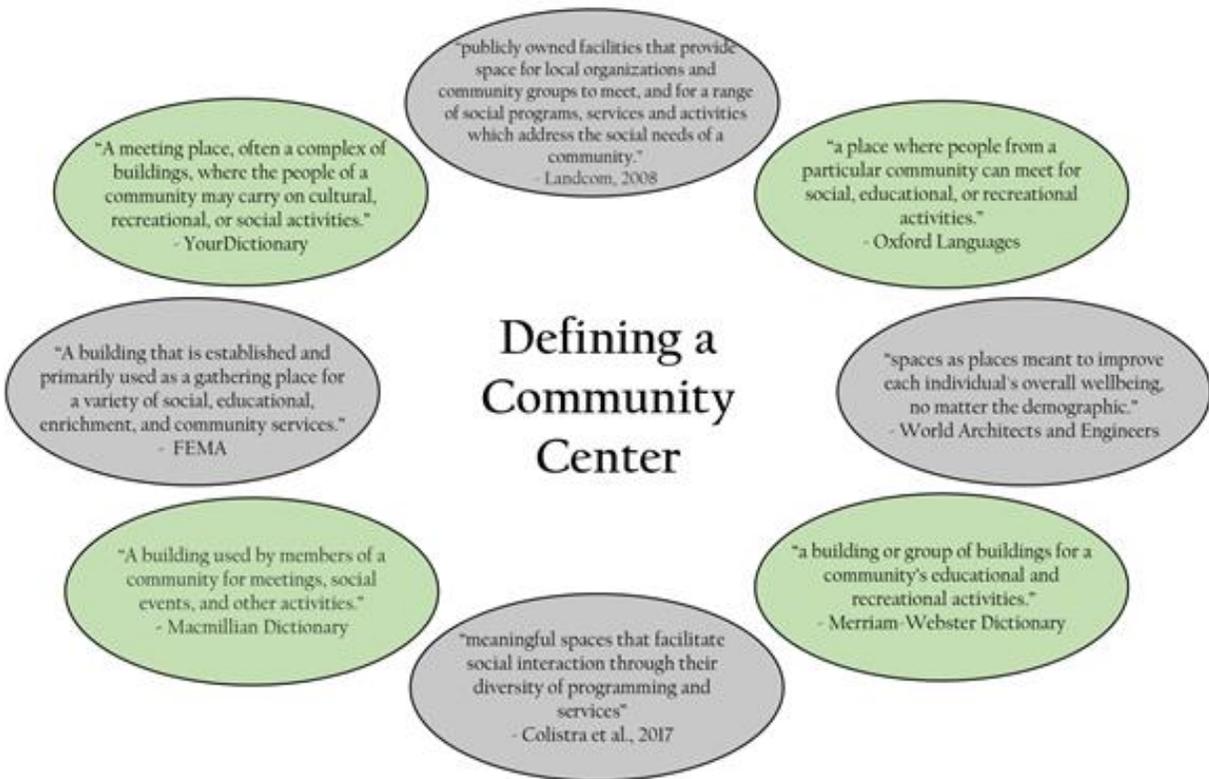


Figure 3: Variety of definitions for a community center
(Graphic Credit: Makayla Delo)

It is difficult to dictate what makes a “good” community center due to the individuality of the unique communities that they serve. However, there are some common themes that arise. First, the intentions and plans for designing the community center’s physical space should be agreed upon by the locals, as the center will be utilized by the community members. The center should also assist its beneficiaries in their everyday life, whether that be through providing physical resources and materials, information, or offering support services to promote the general wellbeing of the community members (Colistra et al., 2017). In addition, the space should help the people of a community come together and facilitate community members’ participation and collaboration with each other on community projects and initiatives to achieve common goals. And finally, in difficult times, having a designated place where community members can feel safe, welcome, and supported can contribute significantly to the overall well-being of the community.

The elements outlined above allow communities to support themselves so they can flourish and grow stronger together. When evaluating a community center, it is important to note that many of the same initiatives that are employed across several community centers will look slightly different to cater to the needs of each individual community. As mentioned previously,

community centers exist in a variety of shapes and forms, and therefore the evaluation of a community center should be conducted with respect to how well the services that the community center offers address the needs of the community it serves. In our part I of our Community Center Planning Guide & Toolkit, we have included information about evaluation techniques that can be used to assess the adequacy and success of the programs, services, and operations of a community center.

2.3 Contributions of Community Centers to Infrastructure

Community centers have additional opportunities to have a positive impact on the community, apart from the services that they provide. Community centers can play a significant role in improving the infrastructure in developing communities by providing temporary housing for those in need as well as facilitating the development of new buildings and structures. Community members often gain a sense of ownership of communal facilities, such as community centers, which can help stimulate interest in developing their community's infrastructure with their newfound pride in their community. The adoption of community-based need identification, prioritization, and planning schemes provides an opportunity to utilize community members to lead community development projects to make efficient use of the cumulative knowledge that the members of a community possess. Additionally, through the help of community members, jobs are created, construction costs are reduced, and carbon emissions are decreased with the decrease in material transportation. In this way, community contributions are optimized while local self-sufficiency and economic growth are promoted. Thus, community centers have the potential to connect community members with the development of their own communities. Sparking self-sufficiency and the aspirations for community members to act in building their community is important for the success of any community (Bredenoord et al., 2020).

2.4 Transforming Abandoned Schools into Community Assets

Community centers can also utilize the current infrastructure in communities to turn vacant spaces into community assets. In this section, we discuss how abandoned school buildings are being revived and transformed into community centers. These vacant buildings are optimal sites for community centers to be implemented, as they are often in neutral locations within communities with a significant amount of space that can be used for a variety of services and programs to benefit the community. We begin by discussing the history of how these vacant school buildings arose throughout Puerto Rico. Then, we explore how these vacant buildings can be transformed into community assets, and two examples of successful resiliency centers that have been constructed within two of Puerto Rico's abandoned school buildings.

2.4.1 History of Recent School Closures in Puerto Rico

The education system in Puerto Rico has been on the decline for several years due to a reduction in student enrollment, which is demonstrated in *Figure 4* below, that is attributable to

the low birth rates and the departure of residents from the island. As a result of living in constant fear of the frequent natural disasters and the rising debt in Puerto Rico, citizens have been embarking on quests to the mainland United States, resulting in a decline in Puerto Rico’s population of almost 12%, from 3.9 million to 3.4 million between the years of 2009 and 2017 (“The Disappearing Schools of Puerto Rico”, 2019). This significant decrease in population and has had severe consequences on the island’s economy, which has had a particularly detrimental impact on schools.

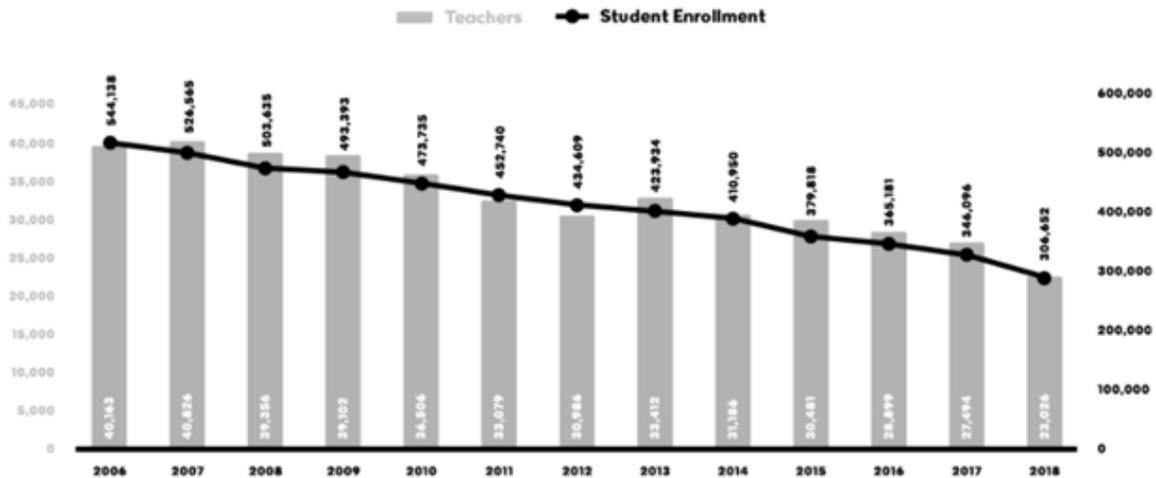


Figure 4: Student and teacher enrollment 2006-2018 (“The Disappearing Schools of Puerto Rico,” 2019)

In the early months of 2017, the governor of Puerto Rico, Ricardo Rosselló, hired a new education director from Philadelphia, Julia Keleher, in hopes of sparking a change in Puerto Rico’s education system (“The Disappearing Schools of Puerto Rico,” 2019). Keheler, who is known for securing government grants, took immediate action in closing several public schools in the push for her initiative to establish and support more charter and private schools. In June of 2017, Keleher made the decision to shut down 183 schools across the island. Shortly after, Hurricane Maria struck the island, resulting in more school closures due to the disastrous effects of the Hurricane on Puerto Rican communities (“The Disappearing Schools of Puerto Rico,” 2019). By September, more than 300 schools had officially closed, as is displayed in *Figure 5* below and were subsequently abandoned. These school closures made it increasingly difficult for children to access education because commute time was significantly increased, as is demonstrated in *Figure 6* below. Parents and caregivers would then have to spend more time before and after work walking their children to and from school. This is significant because over 20% of families in Puerto Rico do not own a car, which would make the ability of parents to transport their children to school further from home increasingly difficult, especially in remote areas (Prigov, 2019).

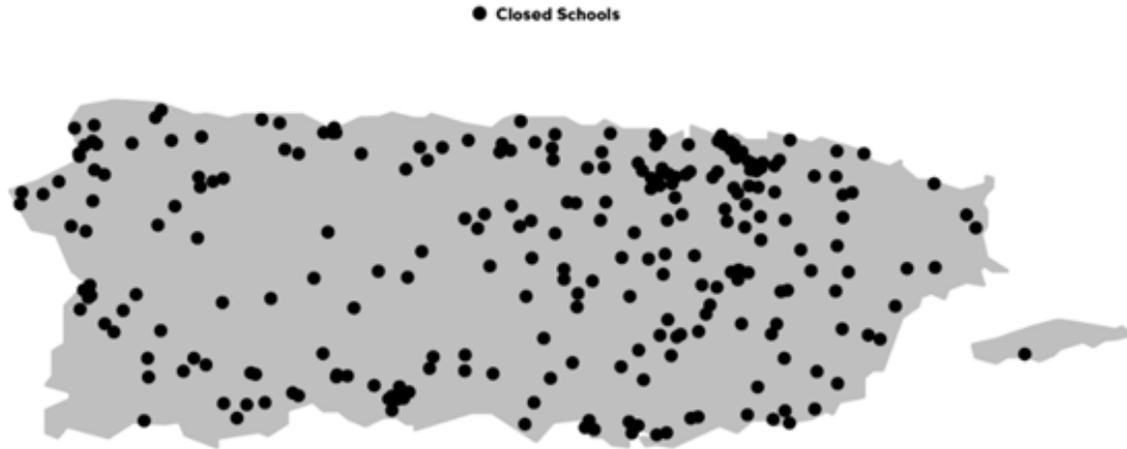


Figure 5: Puerto Rico school closures since September 2017
 (“The Disappearing Schools of Puerto Rico,” 2019)



Figure 6: Average daily commute time in minutes (Prigov, 2019)

The number of school closures on the island left Puerto Ricans with suspicions that the funding for education was being misused. These suspicions grew when the island’s education department was set to receive \$589 million to help reopen schools, but only saw 4% of that money (“The Disappearing Schools of Puerto Rico,” 2019). Following this incident, Keleher was investigated and arrested for fraud and corruption, however, she was found not guilty in her trial hearings. This failure on the part of the government of Puerto Rico is consistent with the attitude exhibited by several Puerto Ricans who hold a feeling of resentment and disappointment toward their government.

People in the community often view these abandoned schools as symbols of abandonment displayed by the Puerto Rican Government. This sense of abandonment runs deeper than buildings – it is present in their geography, demographics, and environment. The roots of this feeling of abandonment stems from when the United States military overtook the

island in 1898 in the Spanish-American War (Peréz, 2002). Puerto Ricans have since struggled with their identity, as their official language is Spanish, however their citizenship is American, where English is the predominant language, and the predominant race is Caucasian (Peréz, 2002). The United States government has also disappointed Puerto Ricans on more occasions than one, and thus it has become difficult for the people of Puerto Rico to place trust in government. Due to the lack of trust in the government officials, Puerto Rican communities have begun to start searching for their own resources and support systems in times of need.

2.4.2 Transforming Vacant School Buildings into Community Centers

In a study conducted by Others and Belonging Institute, 82 out of the 144 abandoned schools sampled in Puerto Rico are waiting to be reused, which is displayed in *Figure 7* below. The longer these abandoned schools remain untouched, the more they will continue to deteriorate, and it will become increasingly expensive to repair and rehabilitate them (Santiago-Robles, 2019).

Out of 144 visited school buildings, most (82) are vacant and have yet to be re-used.

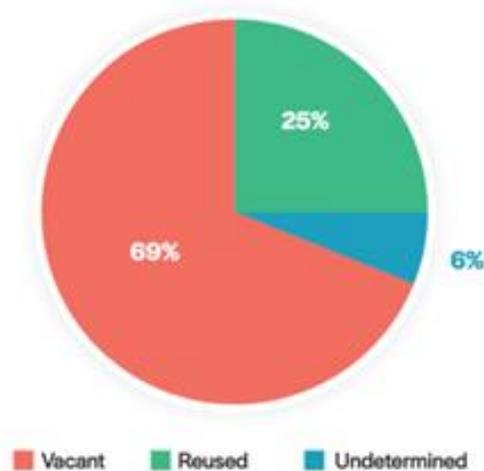


Figure 7: Sample of abandoned school reuse in Puerto Rico (Others & Belonging Institute, 2020)

With more than 673 school closures in Puerto Rico since 2007 (Others & Belonging Institute, 2020) community members are becoming tired of seeing these hidden treasures go to waste. They see the potential these buildings have to offer in times of need, such as during natural disasters, financial depressions, and pandemics. Most of the abandoned schools in Puerto Rico are currently being rented or sold for as little as \$1 (Others & Belonging Institute, 2020), and people, like our project sponsors (discussed in section 2.9), are taking advantage of utilizing these vacant buildings and transforming them into community hubs for support and resilience. During the hurricanes most recently experienced by the island, most of the island's abandoned

buildings were used for shelter and supply distribution. In the moment, these were quick, pop-up solutions, but this sparked the idea of: what if these buildings were already prepared and familiar to the community members, so community members would feel more comfortable and safer in the event of another storm? To realize the potential of this proposed solution, we would like to turn to an example of an active transformation initiative as well as successful projects where community and resiliency centers built within abandoned school buildings have successfully supported their communities through hardships that have struck their communities.

At the Senate Education, Culture, and Tourism Committee held on April 28th, 2021, Mayor of Loíza, Julia Nazario Fuentes made it clear that steps need to be taken to address the vacant school situation in Puerto Rico (Periódico Presencia, 2021). As a former teacher, Fuentes wants to lead and guide the push to see these closed campuses be usefully occupied, just like the ones in her municipality. All of the schools that were abandoned in Loíza since January of 2012 have been utilized successfully in progressing community development as well as providing valuable infrastructure (Periódico Presencia, 2021). These transformed buildings now have a wide range of purposes from offering health workshops to serving as tutoring centers, centers for social empowerment, soup kitchens, and emergency refuges.

One of the successful and fully functioning community centers in Loíza, the former Escuela Parcelas Suarez, which can be seen in *Figure 8*, was developed in an abandoned school building that closed nine years ago. This center was fully operational during Hurricane Maria and Hurricane Irma (Singh, 2019). Having the building readily available helped to provide complete relief efforts to the members of the surrounding communities. The staff worked tirelessly cleaning up debris, distributing food and water, and even offering legal services for people who did not have a title to their property (Singh, 2019). When this building is not being used as a resiliency hub, the center still provides benefits for the community through educational classes and health services.

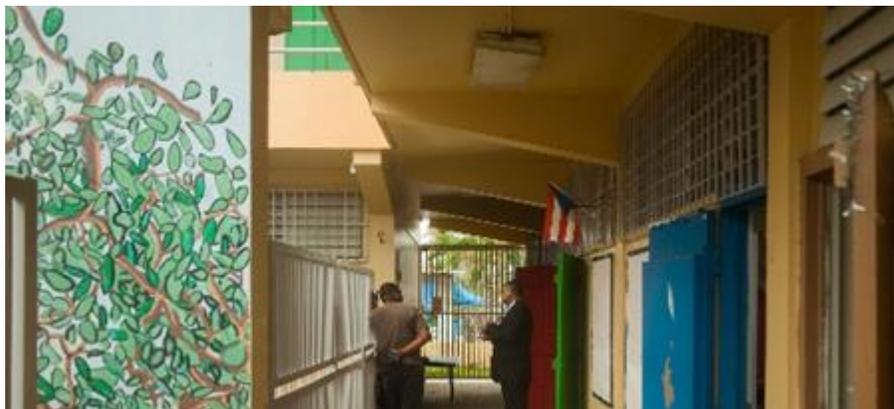


Figure 8: Escuela Parcelas Suarez (Singh, 2019)

Another example of an abandoned school-turned community center in Loíza is the former Escuela Pedro G. Goyco, which is now known as the Taller Comunidad La Goyco. During a tour of the center, we learned from one of the executive directors of the project that the school was

closed in 2015, the community quickly stepped forward to maintain the 100-year-old elementary school and claim it as their own. Several generations of community members attended this very school and felt that they must preserve the building as a cultural center and memento to their community. The community remained persistent for five years in convincing the mayor to officially transfer the title to the property to the community in 2021 through petitioning, negotiations, and through their consistent upkeep and development of the building, including the installation of a solar panel system. Today, the center rents workspaces to local businesses, craftspeople, and artisans, offers free classes, workshops, and counseling sessions, and hosts events such as concerts, farmers markets, movie screenings, and celebrations creating a place for locals to gather, celebrate, collaborate and prosper. The before and after images of the theater and concert space of the center is shown below in *Figure 9*.



Figure 9: (a): Community cleanup efforts at the former Escuela Pedro G. Goyco (Singh, 2019)
(b): The Taller Comunidad La Goyco as it stands today (Photo Credit: Makayla Delo)

Outside of the community of Loíza in San Salvador, Escuela Segunda Unitas Mercedes Palma, shown below in *Figure 10*, is another example of a transformation to a community asset. According to a local community organizer of El Departamento de la Comida, Tara Rodriguez-Besosa, the closing of the school created “a ghost situation” in the center of San Salvador (Singh, 2019). This emptiness led her to embark on a mission to transform the vacant school into something beneficial for the community (Singh, 2019). The building is now being utilized to fulfill the community’s needs through operating food drives and medical clinics until the government announces concrete plans for the use of the building in the future. Tara and her partners are hoping for the building to eventually become a community center, as well as a place of refuge during natural disasters.



Figure 10: Escuela Segunda Unitas Mercedes Palma (Singh, 2019)

These are three examples of the many projects that are working on transforming vacant schools in Puerto Rico and advancing Mayor Fuentes initiative. In all three school renovation projects, Escuela Parcelas Suarez, Pedro G. Goyco, and Segunda Unitas Mercedes Palma, the communities sought to make the buildings function as both community and resiliency centers. Witnessing how the center at Escuela Parcelas Suarez assisted the surrounding communities through Hurricanes Irma and Maria revealed how beneficial and successful these projects can be for the community and its members. In section 2.6 Community and Resiliency Centers in Puerto Rico, we further discuss similar projects that are in the works, many of which have also been built within vacant buildings in Puerto Rico.

2.5 Impacts of Natural Disasters on Puerto Rican Communities

Due to the high humidity, breezy ocean winds, and warm, tropical water temperatures at the surface of Caribbean, Puerto Rico lies in a region that has been dubbed “Hurricane Alley” (*Figure 11*). During hurricane season, which roughly spans from August to November, hurricane activity significantly increases in the Atlantic. In 2020, there were seven major storms with winds topping 111 miles per hour, and in 2021, it was predicted that there might be up to ten such hurricanes. With hurricanes being this common and severe in this part of the world, Puerto Rico has unfortunately become all too familiar with the devastating effects that these massive storms create. According to a report completed by former WPI students, Puerto Rico experienced \$370 million of commercial and industrial damages, \$308 of agriculture related damage, \$59 million of lost sales, \$42 million of lost inventory, \$28 million of damage to structures, and \$29 million in damages to equipment, along with a loss of nearly 80% of all Puerto Rican crops from Hurricane Georges alone (Carreau et al, 1999). As is demonstrated through this extreme example, hurricanes have a substantial impact on all aspects of Puerto Rican life.

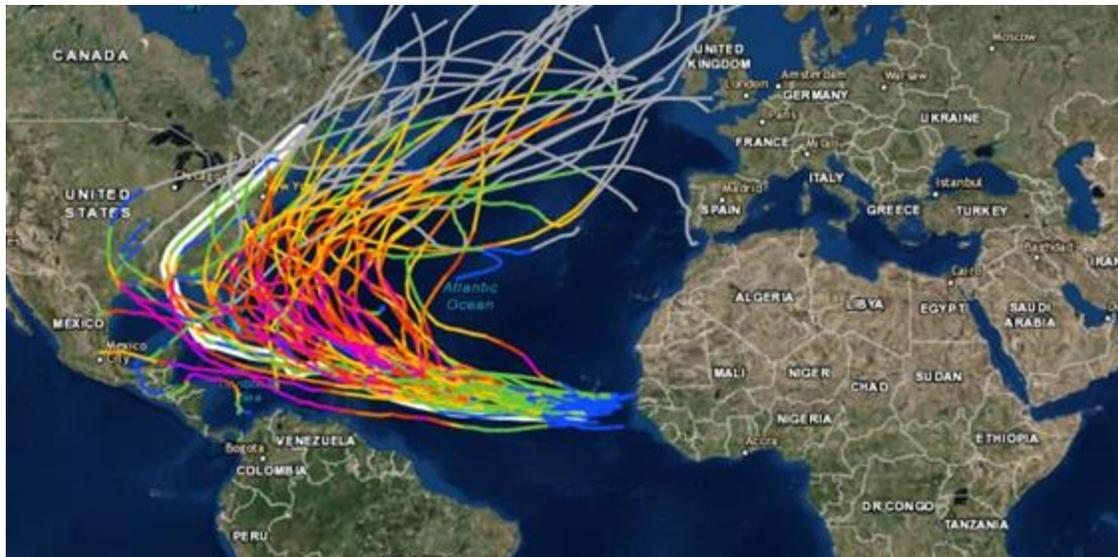


Figure 11: A graphical representation of “Hurricane Alley” (Avila-Foucat, 2020).

After Hurricane Irma and Maria hit Puerto Rico in September of 2017, many of the island’s inhabitants were left homeless, in isolation with food and water scarcities, and cut off from the rest of civilization without electricity or communication, waiting for the slow coordination of support from aid organizations for food and water (Zorrilla, 2017). The category 5 storm was the eleventh-most intense Atlantic hurricane ever recorded and struck Puerto Rico with sustained winds blowing at 145 MPH, peaking at 155MPH, causing widespread flooding and devastation. Most wooden structures as well as many cement-based structures were lost or damaged past livable condition. As of May 11, 2018, FEMA reported that 357,492 homes in Puerto Rico were damaged by Hurricane Maria (FEMA, n.d.). A majority of Puerto Rico's 69 hospitals were left without electricity or fuel for generators directly after the storm, and only three major hospitals were functioning four days after the Hurricane. Even then, the hospitals had no form of communication between them, making internal recovery efforts that much more difficult. Even 16 days after the Hurricane, only 25 hospitals were operating, only 9.2% of people had power, 54% had water, 45% had cell phone service, and the Federal Emergency Management Agency had distributed 433,000 food packages and 42,000 gallons of water (FEMA, n.d.). Despite all efforts to rebuild in the months following these devastating events, the island continues to struggle to combat the aftermath of hurricane Maria today.

Up to a year after the storms, the small community of Cubuy continued to suffer greatly from Hurricane Maria. The community would still experience random power outages lasting anywhere from a few hours to sometimes even days (Torres, 2018). Running water came and went frequently (and still does on occasion), and roads providing the community access to receiving essential resources and aid were inaccessible. Javier Valedon, the founder of ID Shaliah and one of our project’s sponsors, recounts his experience in Cubuy after Hurricane Maria, where he went seven months without power, and two months without running water. As shown in *Figure 12* below, the most impacted region of the island was the north-eastern portion of the island, where the hurricane directly struck the island just 15 miles from Cubuy. Hundreds of cases of non-repairable housing, roof damage, and flood damage were reported in the area (Torres, 2018). Because of the slow coordination of aid from external organizations and disaster

relief agencies, Cubuy, along with the entirety of Puerto Rico, relied heavily on the actions of community members for recovery efforts.

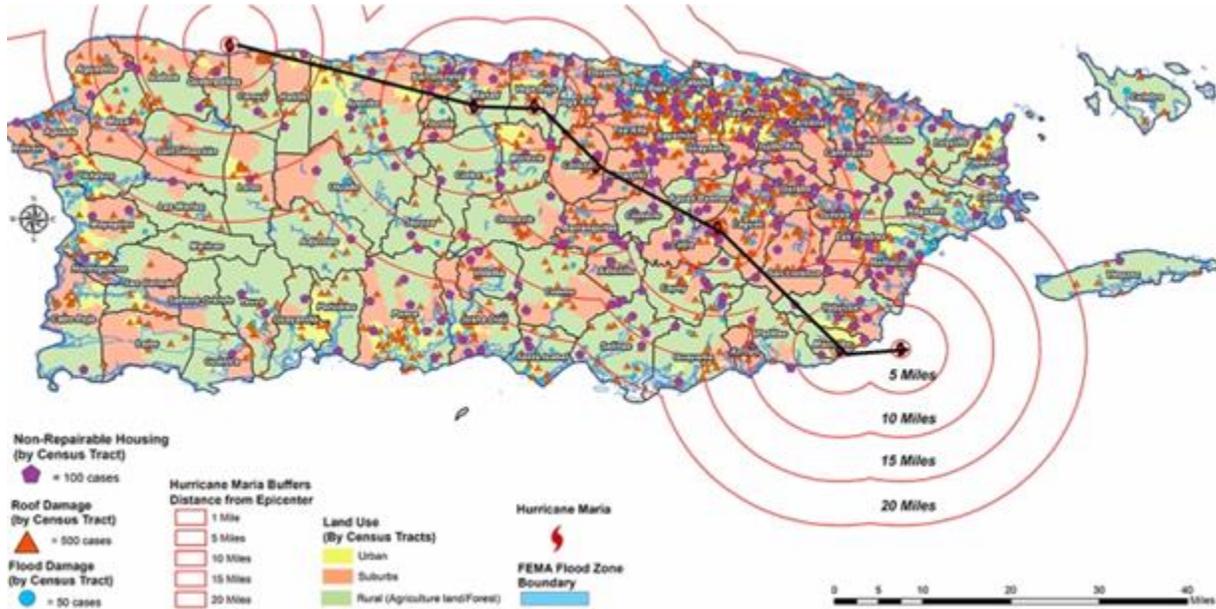


Figure 12: Map tracking of the eye of Hurricane Maria through Puerto Rico, and the level of damage caused in different regions (Torres, 2018)

2.5.1 Hurricane Resiliency in Puerto Rico

Resilience can be defined as “the capacity to recover quickly from difficulties; toughness” (Oxford Dictionary, n.d.). This capacity to recover from tropical storms has become a necessary practice in Puerto Rico due to the frequency of hurricane strikes on the island. Resilience can be quantified and can be “measured in the degree of resilience that describes the household perception of recovery. Or resilience can be described qualitatively by community assets and how well the community is connected” (Avila-Foucat, n.d.). Unfortunately, a large national debt has restricted Puerto Rico from being able to organize effective hurricane recovery efforts in the past, and this trend will likely continue for the foreseeable future. However, a sense of community connectivity is one source of potential for successful hurricane resiliency and recovery efforts in Puerto Rico.

Hurricane resiliency efforts have increased in recent years and have been especially prominent in Puerto Rico after Hurricane Maria in 2017. In the United States, Community Development Corporations (CDCs) have grown and have even spilled over into Puerto Rico as PRCDCs, or Puerto Rican Community Development Corporations. These PRCDC’s are involved in a range of initiatives that aim to improve community health, such as economic development, sanitation, streetscaping, and neighborhood planning projects, and oftentimes even provide educational and social services to neighborhood residents along with hurricane relief and recovery services (Democracy Collaborative, n.d.). Several PRCDCs are also in strong agreement with the idea that public opinion is leaning toward a more decentralized approach (with less government involvement) to hurricane resiliency. Case studies suggest that this more

decentralized approach to post-disaster planning and recovery in Puerto Rican communities and municipalities is the most feasible and desirable from a public view, further supporting the ideas of the PRCDCs (Borges-Mendez, 2020). This yields promise to community and resiliency center projects, much like the one in Cubuy.

2.6 Community and Resiliency Centers in Puerto Rico

Now, with an idea of prior and ongoing community development efforts in Puerto Rico, we turn our attention to projects similar to the Cubuy-Lomas Community Center project that are taking place on the ground in Puerto Rico. In this next section, we describe several similar and relevant projects in Puerto Rico, some of which are focused on creating resiliency centers in communities impacted by Hurricane Maria, as well as community centers that have been created through transforming abandoned buildings and schools into central community hubs offering support to the local communities.

2.6.1 Puerto Rico Earthship Project

The Puerto Rico Earthship project is an initiative set forth by the organizations Earthship Biotecture and Biotecture Planet Earth in February of 2018 as a mission to act in response to the devastating effects of Hurricane Maria (*What is the Puerto Rico Earthship Project?*, n.d.). For reference, Biotecture Planet Earth is “a registered non-profit organization formed with the goal of expanding the use of affordable, resilient and sustainable buildings around the world while educating the public about the architecture, construction and functionality of these buildings” (*What is the Puerto Rico Earthship Project?*, n.d.). With a similar mission, Earthship Biotecture, organized by Michael Reynolds, is “an organization based in Taos, New Mexico that works globally and has been building self-sustainable houses all over the world for the last 45 years with the aim of providing structural and reliable shelter to every inhabitant on planet Earth” (*What is the Puerto Rico Earthship Project?*, n.d.). Both of these organizations and the projects that they complete are financed and operated solely on donations and volunteer efforts, which is how the Cubuy-Lomas Community Center will also be sustaining itself financially (*What is the Puerto Rico Earthship Project?*, n.d.; *Puerto Rico Hurricane Relief Community Center*, n.d.).

The founders of this project have worked closely with locals in the community as well as international volunteers who have joined in the effort to build what the organizations refer to as *earthships*, shown in *Figure 13*, which they describe as self-sustainable buildings capable of withstanding natural disasters that can serve as examples of independent, resilient structures for the community (*Puerto Rico Hurricane Relief Community Center*, n.d.). According to the Biotecture Planet Earth organization’s website, *earthship* structures are constructed on the basis of the following ideals:

1. Building with Natural and Repurposed materials.
2. Heating and cooling through thermal mass to create a comfortable living environment.
3. Using wind and solar energy to create electricity.
4. Harvesting and filtering rainwater to provide drinking and wash water.

5. Containing and treating its own wastewater without external contamination.
6. Producing its own food in an integrated greenhouse (*Puerto Rico Hurricane Relief Community Center*, n.d.).

These structures have a strong emphasis on sustainable education, with spaces dedicated for libraries, music and audio-visual studios, classrooms, and offices (*Puerto Rico Hurricane Relief Community Center*, n.d.). All buildings “harvest rainwater, utilize solar electricity, are constructed using repurposed materials, heat and cool passively, contain all sewage, and provide food” (*What is the Puerto Rico Earthship Project?*, n.d.), which according to the organization, “provides independence from often unreliable corporate and government entities” (*What is the Puerto Rico Earthship Project?*, n.d.). This is on theme with the way that many Puerto Ricans view their government, and therefore the mission and values of this project align and resonate with the Puerto Rican people.

The goal of these organizations is to build trust between the organizations and the locals in the community to help to teach them how to manage the center on their own and be able to construct these centers independently in the future (*Puerto Rico Hurricane Relief Community Center*, n.d.; *What is the Puerto Rico Earthship Project?*, n.d.). At their Puerto Rico project site, the completed structures will be managed by a local non-profit called Tainasoy Apiario (*Puerto Rico Hurricane Relief Community Center*, n.d.). In addition to the assets listed above, this community center will serve as a safe haven to provide shelter, solar energy, water, and other forms of natural disaster relief aid to the members of the community (*Puerto Rico Hurricane Relief Community Center*, n.d.).



Figure 13: The Earthship constructed in Aguada, Puerto Rico
(*What is the Puerto Rico Earthship Project?*, n.d.)

2.6.2 Grupo de las Ocho Comunidades Aledañas al Caño Martín Peña (G-8)

Grupo de las Ocho Comunidades Aledañas al Caño Martín Peña, also known as G-8, is “a community based non-profit organization that brings together 12 grassroots organizations from the Cano Martin Pena Special Planning District and the Cantera Peninsula as a strategy to

unite with a common voice around the issues that are pertinent to all the neighborhoods along Martin Pena” (Maria del Mar Santiago, n.d.). This organization is working in Puerto Rico to create community kitchens as part of resilient emergency centers in abandoned school buildings. These kitchens are designed to assist with providing food for the community in times of crisis and can be rented to local catering businesses in times of normalcy to generate income and support economic growth (Maria del Mar Santiago, n.d.). These schools utilize rainwater catchment and solar energy systems in order to increase self-sufficiency and resiliency to extreme weather events (Maria del Mar Santiago, n.d.).

At the site of the first community center, the former Moises School, the center hosts workshops for the community that act as trainings to operate community boards (Maria del Mar Santiago, n.d.). At the second site, the Santiago School, this location has also become a center for community board meetings, workshops, and after school programs (Maria del Mar Santiago, n.d.). G-8 has also utilized these community centers to address the technology gap that exists in many Puerto Rican communities, which is demonstrated in *Figure 14*. G-8 is currently working on a mission to train local residents in different technology applications to close this gap (Maria del Mar Santiago, n.d.). Additionally, as a result of the increase in online schooling and time spent doing schoolwork at home as a result of the COVID-19 pandemic, these community centers are also offering educational after-school programs to provide a safe place for learning for the children of the surrounding communities (Maria del Mar Santiago, n.d.).



Figure 14: A technology training workshop at one of the community centers organized by G-8 (Maria del Mar Santiago, n.d.)

2.6.3 Additional Community Projects in Puerto Rico

El Hormiguero: Centro Social Autogestionado, pictured in *Figure 15*, a community center operating on donated funds led by Gabriel Hatuey, is converting another abandoned building in San Juan into a community center (Jackson, 2018). El Hormiguero utilizes the community center space for such programs as “Cine Hormiga nights,” screening films and documentaries, lectures, discussions, study sessions, and even classes in self-defense (Jackson, 2018). El Hormiguero is looking in the future to open a floor of the building as a public library in addition to creating meeting room spaces, a kitchen, and a health clinic (Jackson, 2018).



Figure 15: El Hormiguero: Centro Social Autogestionado (Jackson, 2018)

El Almacén, organized by Javier Rodríguez, is a space that was originally used as a workshop for Rodríguez’s personal woodworking projects (Jackson, 2018). Rodríguez transformed the workshop into a café after creating a solar energy system from donated equipment and funding. Today, El Almacén, pictured in *Figure 16*, serves the community as a center for an array of workshops and programs that the community can participate in (Jackson, 2018). The center gained traction as an increasing number of tradespeople became interested in the space and began collaborating with one another, working together to hold their own workshops in the space. Such workshops are diverse, and the programs offered are frequently rotated, from movie nights and band sessions to classes on environmental education and knot-tying lessons (Jackson, 2018).



Figure 16: El Almacén (Jackson, 2018)

Centro de Apoyo Mutuo – Caguas, pictured in *Figure 17*, was initiated in September following Hurricane Maria's strike on Puerto Rico, originally created in an abandoned building in the Caguas community (Jackson, 2018). This Building utilizes a rainwater catchment system constructed by the organization Ridge to Reefs out of Maryland as a part of its sustainability efforts (Jackson, 2018). Resulting from this location's success, there are currently 10 Centro de Apoyo Mutuo locations across Puerto Rico (Jackson, 2018). Each is independently operated from the next, and thus the services and programs offered at each location vary. For example, one center offers food services and serves as a shelter for families in need in a once abandoned school (Jackson, 2018).



Figure 17: Centro de Apoyo Mutuo – Caguas (Jackson, 2018)

2.7 General Guidance for Community Center Planning

Although no community center is alike and each community has its own individual needs, several of the key steps to formulating and carrying out a community center development plan can be universally applied to any project. Several toolkits and “How-To” guides are available online with several of the same ideas and suggestions. According to the editors on the wikiHow staff, the first step in beginning to create a community center is setting aside time to map out the community center, beginning with establishing the goals for the center and formulating a mission statement. In agreement, the authors of the ResilientSee Regional Resilience Toolkit state that it is important to lay the foundation for a successful team dynamic, which involves establishing a common understanding among group members about project goals. This also includes developing personal relationships with the members of the project team. In the initial team meetings, the team should consider planning to draft a timeline outlining the ideal completion dates of certain project aspects, or at minimum, the steps that the team will take in sequential order. Having a timeline drafted allows the team to visualize the process that will need to be completed step by step in order to reach the desired outcome. In addition, having goals established at the initial stage of the project offers the team the ability to continually assess and evaluate the project's process by determining if the work being done on the project is consistent with achieving the project goals (ResilientSee, 2021).

The next suggested step in this mapping process is to determine the needs of the community, and then subsequently, the strengths of the community (wikiHow, 2021). The ResilientSee Regional Resilience Toolkit calls this second step the assessment, stating that “The objective of the assessment is to determine where hazards and community assets intersect and to determine what the potential impacts are at that intersection - or what is the asset’s vulnerability and risk to hazards” (ResilientSee, 2021). With the needs and strengths of the community identified, the services that the community center will provide can be outlined. ResilientSee refers to this step as acting, where the findings of the assessment are summarized, organized, and prioritized to then be used to create implementation plans with strategies and actions to address the main issues. This toolkit suggest that this is the “most important component of risk reduction and resilience building” (ResilientSee, 2021). At such a point, the conceptual next step is to begin thinking about the location and some of the logistics: staffing and management, what kind of building as well as how much indoor and outdoor space will be needed, necessary equipment, and how the center will be sustained financially, whether that be through donations, fundraising events, or charging a price for services or participating in events or programs (wikiHow, 2021).

With the general blueprint for the community center laid out, the guide outlined by wikiHow lists the next step in the planning process as fundraising. In this process, the first order of business is establishing a budget with the initial start-up costs as well as the costs of building, services, and operation. Tom King, a writer for Bizfluent, and the Florida-based business Coastal Steel Structures recommend establishing this budget with the first one to three years of construction, remodeling, and operational costs in mind, with approximately 20% of the original budget set aside as a reserve for “unforeseen circumstances” (Coastal Structures, n.d.). It might also be valuable to consult with nonprofit organizations to analyze their budget to get an idea of how to structure one’s own budget.

According to the wikiHow guide, there are several ways to gain funding by meeting with donors, applying for government funding and grants, and by using such marketing techniques as

soliciting donations by mail, phone, advertisements on social media, radio, televisions, as well as local newspapers, and visiting neighborhoods going from door-to-door to pitch to potential donors. Coastal Structures proposes utilizing social media to generate interest in the community to secure volunteers, donors, etc., the use of signage, as well as the previously mentioned marketing techniques to attract larger philanthropists and sponsors (Coastal Structures, n.d.). King also supports the use of bulk-mailing to raise awareness for the community center and spark the interest of donors (King, 2019). In addition, he offers the idea of requesting local business or other organizations to pay for the costs of the mailing in exchange for an advertisement in the newsletter (King, 2019). Both sources suggest fundraising events as a common means to raise funds through hosting events and charging admission or securing sponsors for the events. Coastal Structures also recommends establishing a fund-raising committee that is solely responsible for finding and applying for grants, and seeking out potential donors or volunteers to assist with the planning of the community center both monetarily or through volunteer assistance (Coastal Structures, n.d.).

To assist with obtaining funding is gaining the support of the community. Community members can sign petitions and other documentation that can be presented to donors in seeking sponsorships (wikiHow, 2021). Coastal Structures also recommends developing a proposal to present to government officials “listing the types of programs it will offer, the space required to offer those programs and services, the equipment needed, staffing, operating budgets, marketing and advertising costs and construction estimates or estimates for remodeling the building to your purposes” (Coastal Structures, n.d.). Gathering the contact information of community members can also be used to create email aliases or mailing lists to update the community about the community center’s progress and stimulate interest in volunteering, financial support, and community involvement in developing the community center. Additionally, politicians and government officials can be consulted for support. One suggestion listed for gaining community support is to hold a town hall meeting to pitch the community center to locals, and extend invitations to potential donors, media outlets, and government leaders (wikiHow, 2021).

Following these provisional steps comes the time to officially establish the community center. In order to do so, the wikiHow guide recommends beginning with constructing a set of bylaws with the regulations and policies, as well as the outline of the organization’s internal structure. Next would come securing a location (if not owned already) and registering the community center as a nonprofit organization, as non-profit organizations are eligible for special benefits. Finally, the programs and services provided by the community center must be advertised, by means of social media, television, radio, and newspaper advertisements, flyers, mail, etc. (wikiHow, 2021).

Lastly, the community center’s programs, services, and initiatives should be continually evaluated. Because communities’ priorities can change overtime, it is necessary to continually reevaluate the community center’s main focuses in terms of what programs and services it has to offer. Although some adjustments can be made simply by gauging demand for different services, developing a system for adjusting programming and services at different points in time can provide reassurance that the community center is moving in the right direction. A team can determine the community’s needs and priorities by evaluating the program and service usage to understand the level of demand of each program/service. The team can also gauge the success of the services being offered by evaluating the community’s responses to additions and changes in programs using periodic surveys. In addition to evaluating individual programs and services, the

team can also evaluate the other aspects of the project, as well as the team's own functioning. This self-evaluation can be informal and performed regularly throughout the project period, or it can be a more formal assessment, depending on the project team's needs (ResilientSee citation).

The ideas presented in these toolkits are expanded upon in the Community Center Planning Guide & Toolkit, which is discussed in the Methodology and the Findings, Deliverables, & Outcomes chapters, as many of these suggestions are applicable to developing the community center in Cubuy.

2.8 Exploration of Grants

Planning is one step in developing a successful community center, however, funding is also a very critical part of the process. Applications for funding often require the type of planning described above in order to demonstrate that the project has been thoroughly thought out, and that it has clear goals, a clear direction, and has made progress. Grants are a highly sought-after form of funding for non-profit organizations and projects, however the application processes often require extensive effort to complete in order to fully communicate the plans and vision for the project. In this section we discuss what a grant is as well as the different types of grants that apply to non-profit community center projects.

A grant is defined as “a sum of money given by a government or other institution for a particular purpose” (Collins English Dictionary, 2021). Grants are one of the best options for funding nonprofit community center projects, as the organization does not have to pay back the funds they were provided with. Federal grant funding currently makes up about 23% of all government funding in Puerto Rico and is becoming an increasingly popular way to help smaller communities bounce back from natural disasters (Commonwealth of Puerto Rico, n.d.). Grants called discretionary grants can be administered by the federal government to an organization, but more reliable funding is available via state governments and independent organizations. There are different types of common grants, however “startup grants” and “project/program” grants are most specific to hurricane relief and community center projects. To be eligible to apply for a grant, an organization must fall under one of the following categories (grants.gov, n.d.):

- Government Organizations
 - State governments
 - County Governments
 - City or township governments
 - Special district governments
 - Native American tribal governments (federally recognized)
 - Native American tribal governments (other than federally recognized)
- Education Organizations
 - Independent school districts
 - Public and state-controlled institutions of higher education
 - Private institutions of higher education
- Public Housing Organizations
 - Public housing authorities
 - Indian housing authorities

- Nonprofit Organizations
 - Nonprofits having a 501(c)(3) status with the Internal Revenue Service (IRS), other than institutions of higher education
 - Nonprofits that do not have a 501(c)(3) status with the IRS, other than institutions of higher education
- For-Profit Organizations
 - Organizations other than small businesses

As mentioned previously, the government can distribute grants to nonprofit projects, which is the main source of government funding. Government grants are funded by tax dollars, which means that they include “stringent compliance and reporting measures to ensure the money is well-spent” (Segal, 2021). With regard to the grant application process, the “paperwork is complex and applicants must describe how the awarded funds will benefit the local community or the public at large” (Segal, 2021). Developing a “convincing proposal” is a difficult process, and specialized grant writers are often hired to write them for organizations (Segal, 2021). Because grants are highly sought-after significant sources of funding, the grant application process is extremely competitive. However, “receiving a government grant is highly prestigious and often brings an individual or entity to the attention of other donors or sponsors” which can create a snowball effect for additional donors to contribute to the project.

In April of 2021, “the Department of Housing and Urban Development (HUD) announced the obligation of \$8.2 billion in Community Development Block Grant Mitigation funds for the island”, offering much needed financial assistance to Puerto Rico (Samuels, n.d.). The Community Development Block Grant Mitigation (CDBG-MIT) Program is a grant program that helps “areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses” (Housing and Urban Development, n.d.). This \$8.2 billion in aid in April was not the first-time disaster relief has been funded via the Community Development Block Grant Mitigation Programs as “Congress appropriated \$12 billion in CDBG funds in February 2018 specifically for mitigation activities for qualifying disasters in 2015, 2016, and 2017, and HUD was able to allocate an additional \$3.9 billion, bringing the amount available for mitigation to nearly \$16 billion” (Housing and Urban Development, n.d.). Although this grant focuses more on resilience to natural disasters and mitigating risk of future damage from such disasters, there are other grant programs that focus more so on community development (Housing and Urban Development, n.d.). Programs and organizations that “address needs such as infrastructure, economic development projects, public facilities installation, community centers, housing rehabilitation, public services, clearance/acquisition, microenterprise assistance, code enforcement, homeowner assistance, etc.” can apply for a variety of community development grants (Housing and Urban Development, n.d.). For more information on grants and grant applications, refer to the resources in our Community Center Planning Guide & Toolkit.

2.9 Stakeholder Analysis



Figure 18: Stakeholders of the Centro de Desarrollo & Servicios Comunitarios

2.9.1 Project Sponsors: ID Shaliah and The Karma Honey Project

With such a massive undertaking as developing a community center, it is necessary to incorporate stakeholders, partners, and sponsors to help organize and contribute funding or other resources to the project. A project sponsor is described by Neal Whitten as an individual with overall accountability for a project and is primarily concerned with ensuring that the project objectives are delivered upon. The sponsor “endorses and defends the project as a valued investment” to the community and in some cases, to “provide approval and funding for the project” (Whitten). In the context of our IQP project, the term “sponsor” refers to each of the two main organizations that we collaborated with who are leading the community center project in Cubuy. Our sponsors in turn have developed relationships with other individuals, businesses, and organizations who are stakeholders that are sponsoring the community center project by providing donations and resources. For our purposes, we will refer to these stakeholders (*Figure 18*) as “partners” of our IQP team’s sponsoring organizations.

ID Shaliah Inc.

Our primary sponsor is ID Shaliah Inc., led by the president of the organization, Javier Valedon. ID Shaliah Inc. is a non-profit organization founded by Valedon in May of 2020 with the mission of creating absolute autonomy to supply resources for communities and their residents to meet their needs and improve their quality of life. As a humanitarian project, ID

Shaliah provides citizens in Cubuy with access to medicine, hot food boxes, adult diapers, medical equipment, essential items for preparing for emergencies, and home rescue services, amongst other things. Currently, ID Shaliah feeds approximately 500 people per month, delivers medicine to more than 100 families each month, and delivers more than 2,000 food packages per month, as well as supply citizens with wheelchairs, walking sticks, walkers, glucose level testing machines, and emergency preparation kits. ID Shaliah also operates a program to help fix damaged properties from natural disasters. In addition, during the pandemic, ID Shaliah worked to provide sanitizer, PPE, facemasks clothing, and other medical supplies to the community. Most of the funds raised by ID Shaliah for community resources are obtained through donations from the community itself (Interview Notes in Appendix A).

By establishing a community center to have a central space to operate out of, Valedon has high hopes and several ideas for how the space will be used to support the community. He plans to open a health clinic with doctors, nurses, a pharmacy, and a laboratory as he explained to us that 60% of the population of Cubuy is elderly, and the COVID-19 pandemic it made it increasingly difficult for older residents to access the medical services that they need. He also plans to have a cafeteria with a modern restaurant feel to give people an alternative experience to a typical soup kitchen. Valedon also hopes to create a space for refugees where they can be fed, clothed, bathed, and supplied with other basic necessities. In addition, he plans to have a cyber library where community members can have access to computers to complete government forms and take classes in finance and civil law. Another facet he envisions is offering classes in agricultural practices, self-defense, CPR, first aid, and emergency preparations. Elaborations on these programs and services are available in our Community Center Planning Guide & Toolkit and on the Cubuy-Lomas Community Services and Development Center website.

Karma Honey Project

Our second project sponsor, The Karma Honey Project, led by Johnny Williams and Candice Galek, was founded in 2018 to increase the population of honeybees in Puerto Rico, and in turn to create local jobs through beekeeping and ecotourism. The project is looking to expand throughout Puerto Rico in many different disciplines. For example, the El Yunque Children's Bee Education Center, a classroom built out of a shipping container created to educate children in Puerto Rico about bees, was built as an expansion of the Karma Honey Project (Karma Honey Project, 2020). The Karma Honey Project aligned with Javier and ID Shaliah in December of 2020 to collaborate on the community center project (Interview Notes in Appendix A).

Williams plans to develop different programs pertaining to their organization's work within the community center, including a woodshop, a beekeeping classroom, and a honey-processing department within the building where tourists and community members can come to the community center to gain hands-on experience with beekeeping and the honey-making process, which could become a source of revenue to support the community center. Williams also envisions teaching people how to make and maintain bee boxes where the Karma Honey Project can then buy back the honey produced by the bees maintained by the community members to stimulate the local economy. Elaborations on these programs and services are

available in our Community Center Planning Guide & Toolkit and on the Cubuy-Lomas Community Services and Development Center website.

2.9.2 Additional Partners

ID Shaliah Market

ID Shaliah has also created a local farmers market that provides small businesses centered around agriculture, craft work, and gastronomy an opportunity to grow their businesses and share their goods and services with the community. Products from local farmers, craftspeople, and tradespeople can be rebranded and promoted by ID Shaliah under the organization's brand name. The goal of the ID Shaliah market initiative is to boost the economy in rural communities like Cubuy and Lomas by offering business assistance as well as through purchasing back products from local businesses.

GelyCan

GelyCan is a medical organization based in Canóvanas, Puerto Rico, and they are partnering alongside ID Shaliah and the Karma Honey Project to assist with the operations of the medical clinic at the community center. GelyCan provides a variety of services, including substance abuse, behavioral, physical health, and mental health services to community members with disabilities. One of Valedon's top priorities is to provide medical services and supplies to community members that do not have access to treatment due to the long distance to the nearest hospital. Medical treatment, consultations, therapy, intervention, and transportation, among other things, are all services offered by GelyCan which will benefit the Cubuy-Lomas communities (Gonzalez, 2020).

E.M.F.T. Puerto Rico

The Emergency Management Task Force (E.M.F.T.) of Puerto Rico is an organization that helps people prepare for natural disasters, such as hurricanes. The information that the organization works to teach to the public includes home survival techniques, how to plan for a natural disaster, how to prepare and use the contents of emergency backpacks, and what materials one should gather to prepare for emergencies. E.M.F.T. has also partnered with other emergency management and planning organizations in the past. E.M.F.T. will offer their instructional courses at the community center to assist the center in its resilience efforts (EMFT Corporation, 2021).

Municipio de Canóvanas

The government of the Canóvanas municipality is also a stakeholder in the community center. The government of Canóvanas hosts several community events such as history nights, kayaking outings, and other fun events to help bring the communities within Canóvanas together. The municipality is also starting initiatives to promote renewable energy and other sustainable

efforts, as well as fundraising for community members in need. The municipality has been highly supportive of the community center project in Cubuy as the mission of the center aligns with the mission of the municipality in their sustainability and community-boosting efforts (Municipio Canovanas).

Agricultura

Agricultura is an organization working to become a leader in the agriculture production industry in the Caribbean. Their mission is to provide food security to the people in this region, while improving their maximum agricultural capacity for local marketing in exports by using science and technology to facilitate production. One subsection of their organization is the land authority of Puerto Rico, which focuses on guaranteeing the conservation of land in Puerto Rico for generations to come. Additionally, the organization is working to aid in the training of farmers to benefit both the general public and economy of Puerto Rico, while leasing agricultural land and facilitating the installation of irrigation pumps. Agricultura has an innovation fund for agricultural development in Puerto Rico where their mission is to provide financing to help develop and improve agricultural productive capacity. The organization also established a branch called the Agricultural Insurance Corporation (Corporacion Seguros Agricolas De Puerto Rico, CSA) which was created to help provide insurance for farmers against damage from external factors. Agricultura plans to contribute to the Community Center by developing an agriculture initiative to teach community members how to grow their own crops. The center plans to provide community members who have completed the course with Agricultura a plot of land to grow their own crops which can then be sold back to the center (Agricultura.pr, 2018).

3. Methodology

Mission Statement:

The ultimate goal of this project was to contribute to ID Shaliah and The Karma Honey Project’s collaborative missions of organizing a community center to meets the needs of the residents of Cubuy-Lomas by improving the visibility and public presence of the center, expanding upon the center’s outreach network and funding strategies, documenting the vision and progress of the community center, and assembling a library of resources for this center and similar projects.

Objectives:

1. Assess perceptions of the residents about the community center and their consistency with the sponsors’ vision.
2. Improve visibility of the community center through different forms of media.
3. Design an outreach plan for the development of strategic partnerships.
4. Develop a library of resources and tools for the continued development of the Cubuy community center and similar projects.

Figure 19 below is a graphic that displays the steps that the team took to help advance the Cubuy-Lomas community center.

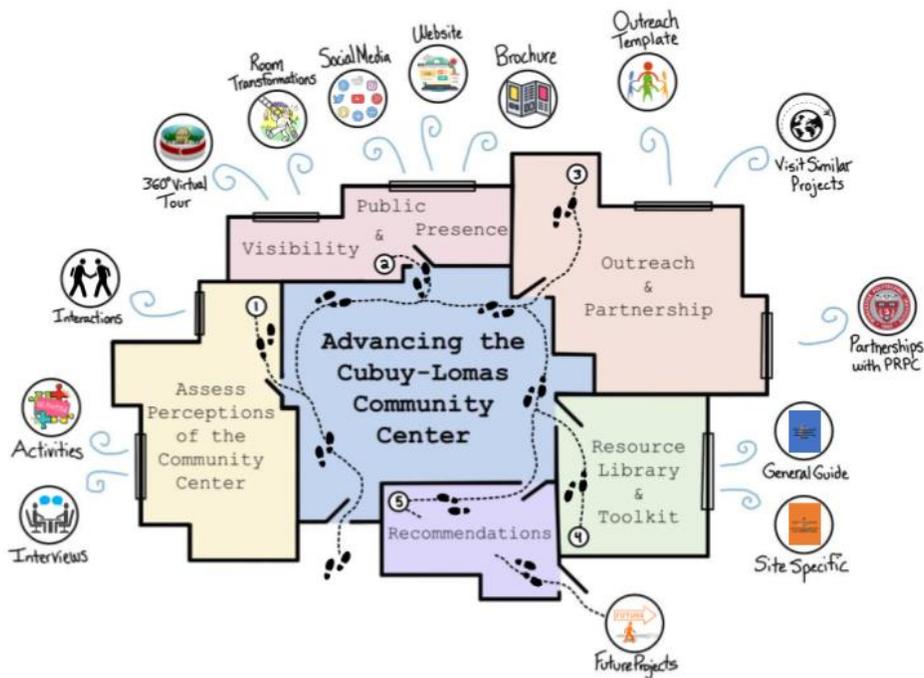


Figure 19: Rooms of Possibilities for Advancing the Cubuy-Lomas Community Center
(Graphic Credit: Makayla Delo)

Objective 1: Assess perceptions of the residents about the community and their consistency with the sponsors' vision

As outsiders entering this community, the greatest challenge that we faced was connecting with the community. Although the population of Cubuy-Lomas is just 10,000, many residents of the community live in remote, single-family homes over a widespread area. As a result, it was difficult to approach members of the community to learn about their lifestyles, culture, and experiences. Additionally, the language barrier was another obstacle that we faced, which made communication with community members off-site a difficult option to pursue. Because of these challenges, we opted to focus our assessment of the community's needs with the community members who volunteered at the community center on a regular basis. This assessment required strategies to identify the needs of the community, the community's strengths and weaknesses, and what cultural aspects bring the community together. We sought information on the history, culture, and ways of life of the members of the community for the purpose of developing deep, meaningful relationships with the community members to establish trust and demonstrate our interest in immersing ourselves in their community to form an understanding of the community's identity.

We interviewed four ID Shaliah volunteers from the Cubuy-Lomas community who dedicate their time to working at the community center on a daily basis. The interview was conducted in an informal, semi-structured group setting with the four interviewees, our sponsor, Javier Valedon (who served as both a translator and an interviewee himself) and the eight members of the two project teams who were working at the community center, shown in *Figure 20*. The research questions that we set out to answer were:

- i. Are the volunteers from the Cubuy-Lomas communities and are they well connected to the community?
- ii. How long have the volunteers been involved with ID Shaliah/working at the community center?
- iii. How often do the community members volunteer for ID Shaliah/at the community center?
- iv. How close-knit is the community?
- v. How often does the community come together?
- vi. What are the strengths of the community? What are the skills of the community members? What networks exist within the community?
- vii. What are the most significant struggles that the community faces?
- viii. How has the history of the community shaped the people in it?
- ix. What does the community need most from the community center? Which services that the sponsors have already designed do the community members feel will be most beneficial to the community?
- x. Are there any other services/programs that the volunteers think the community center should provide?
- xi. Do the volunteers envision themselves using the community center, and which of the services do they foresee themselves benefiting from?

We also sought information on what programs and services are currently available to the community so we could assess the adequacy of current services and locate the gaps in the resources of the community. We explored alternative methods to allow the community members to shape their experiences for us as a substitute for asking simpler questions. During the interview session, we also prompted discussion using the method of storytelling, where we asked questions that allowed community members to tell us their own stories about particular experiences. Ethical considerations were taken during the entire interview process, particularly during this sensitive portion of the discussion where we requested the following of the volunteers:

- i. Would you mind sharing with us what life was like during Hurricane Maria?
- ii. Walk me through your days, weeks, and months following Hurricane Maria.
- iii. Where did you go after the Hurricane hit? Who did you visit first?
- iv. How did the community support each other following the Hurricane?

These questions allowed the team to gain more in-depth information to help supplement the research questions that we posed. We utilized this approach based on the notion that much information can be gained indirectly through these forms of communication. We understood that when community members make requests for what they wish to see from the community center, they might be requesting things that are not feasible or might not fit within the scope of the community center's bounds. Thus, we hypothesized that developing a deeper understanding of the community through the connections and bonds formed through this type of a discussion would allow us to deduce alternative solutions to the community's requests. Because we approached this interview process with the additional purpose of being able to evaluate the programs and services that the sponsors had already begun planning, this method was used to provide us with information that allowed us to assess how well these initiatives suited the needs of the community in order to provide feedback to the sponsors on their current initiatives.

With a firm grasp on the needs of the community and an enhanced understanding of the community's background and identity, we brainstormed ways to improve the programs, services, and initiatives that our sponsors had previously developed to best address the needs of the community. As was previously discussed, our sponsors already had several concrete ideas for the services and programs to be offered at the community center and which spaces would be allocated for them. To help facilitate these ideas, we synthesized the information gained through the interview process to contribute to the sponsors' current work with helpful ideas and suggestions. We utilized interview feedback and sponsor discussions to determine what programs and services are currently available to the community outside of the community center. When compiling the information obtained from each interaction outlined above, we were able to locate the gaps in the resources of the community and assess the adequacy of the current services. See the Findings, Deliverables, & Outcomes chapter for detailed information on the findings of our community engagement, where we explain how we identified common ideas, requests, and themes from the different members of the community who were interviewed, and then arranged the issues, needs, and requests, prioritizing the central and immediate problems that need to be addressed.

Because we were limited to the responses of the four members of the community who we interviewed due to the difficulty in accessing and communicating with local community members without adequate transportation and translation, our interviewees were not an entirely representative sample of the community. However, we justified our sample as these community members represented the age range from mid-twenties to retirement age, with a variety of occupations. Additionally, because these volunteers work with ID Shaliah in the poorest parts of the community and served the most underprivileged communities during times of desperation during the aftermath of Hurricane Maria, the volunteers were qualified to speak on behalf of those in the community who need the most help. Another limitation to the responses that we were able to record was that for three of the four volunteers, the responses needed to be translated by our sponsor from Spanish to English. Therefore, it is possible that key information, words, or phrases could have been lost in translation, or stories were not fully or effectively communicated. However, given the circumstances, we were able to gain a wealth of information from this interview process.



Figure 20: Interactions with the community center's volunteers
(Photo Credit: Shelby Tweedie)

Objective 2: Improve visibility of the community center through different forms of media.

We set out to create different forms of media that could be used as part of an outreach initiative that we designed (described in detail in Objective 3) as well as to develop an online presence for the community center where it could gain exposure from the public. We sought to create media that would be available on a variety of outlets for the purpose of presenting the community center's progress and vision to potential donors. In this way, we wanted to communicate the work that has already been done at the community center to demonstrate that concrete progress has been made, which has the potential to influence partners to contribute to a project that has momentum. In order to successfully market our project to the community, other

organizations and companies, and notable individuals with a platform to support the project, we sought to develop an online presence in several different formats so that word about the community center could be accessed from several outlets. We wanted information to be easily accessible and shareable across these different platforms so one click could connect all of the information about the community center. The sponsors had been promoting the community center on their organizations' individual Facebook pages, however we collectively decided that the community center needed to have central pages specifically for information about the community center. Starting with a Facebook page that the sponsors had created, we built upon this foundation and created the following forms of digital media.

360-Degree Tour

We developed a 360-degree walkthrough tour of the facility using a 360-degree camera. We implemented information icons in each room of the tour that when clicked, a pop-up is displayed with specific information about how the space will be utilized, as well as links to additional resources pertaining to each space, and computerized images of how the rooms will look once completed. The purpose of this tour was to allow potential funders, community members, or anyone with interest in the project to view the site of the community center and learn about each space without being physically at the site.

We set out to create the 360-degree tour by capturing images of each space with a Ricoh Theta camera and assembled the tour using CloudPano software. To create a smooth flow through each space, pictures were added sequentially and ordered starting with the entrance, then moving through paths around the center as if one was walking through the site themselves. Hotspots were then created to move from one view to another, which required viewpoints to be set for each transition. Once the photos and views were organized, we then created information icons which included descriptions, CAD models, and videos of each room. With the completed tour, we set forth to publish the virtual tour on Google Streets. For the Google Streets version of the tour, we placed the 360-degree photos in the correct place on the map and connected the views to each area. We submitted the tour to be published by Google, which required approval before the tour could be publicly accessible, therefore anyone can search and view the facility.

Computerized Visualizations of Room Transformations

Our sponsors indicated to us that one of their greatest needs was a way to display to potential partners and donors that reflected the vision of the community center. In order to meet this request, we created renderings displaying what each unfinished space in the community center is projected to look like, including both the interior and exterior of the facility. We took photos of the community center throughout the different stages of the project period to document the physical improvements being made to the community center and indicate the successful project management and progress that the community center was making. We used Photoshop, SketchUp, and Revit software to bring the sponsors' visions of what they wanted each space of the community center to look like to life. For some of the unfinished rooms, the sponsors left it up to the team to be creative with the software to design modern, visually appealing, and

functional models. We took the most up-to-date photographs of each room and the building exterior of the facility and used image editing software to design what the completed space would look like, complete with paint colors, furnishings, and décor.

For the interiors and exteriors of each building, the team wanted to create a visual to represent the vision of what the final remodel would look like. For the exteriors, Photoshop was utilized to add paint and color to the outdoor images. We inserted an image into the software and finished the paint around the outside of the buildings to indicate what the finished exteriors will look like. For the interiors of each building, the team had to use a different software that allowed for the production of three-dimensional images that could be used to visualize furnishings. One limitation of this part of the project was the absence of the blueprints for the community center, which made it difficult to accurately model each room. However, because these models were being used as visualizations rather than for accuracy, this did not have a significant impact on the final products. In order to model the interior of the rooms of the community center, we took measurements of the interior of the important rooms and recorded the details such as the windows, doors, and wall extrusions. Utilizing the drawings and measurements, we developed models using Revit software for the medical clinic, pharmacy, café, kitchen, emergency preparations classroom, and cyber library. To model the spaces being occupied by the Karma Honey Project, including the woodshop, the “Queen Bee” classroom, and the honey processing room, we used SketchUp as these spaces were simpler and the sponsors had a less clear vision for how they anticipated these spaces to look. SketchUp better suited this purpose due to its ease of use and the ability to photoshop special equipment into these spaces, particularly the machinery for the honey spinning room.

For both modeling methods, similar steps were used despite the different software platforms. We started by creating the floorplan and then extruded the walls to the correct height. Once the basic model was created, details such as the extrusion of the walls, the windows, and the doors and entryways. We then added color and furnished the rooms based on our sponsors' visions and our own creativity. The models designed in Revit were rendered in Lumion to create a realistic view of space. The designs produced in SketchUp did not need to be rendered. Upon completion, we took screenshots of the best views of each room and added them to the 360-degree tour, the Cubuy-Lomas Community Services and Development Center website, our Community Center Planning Guide and Toolkit, and the community center's social media accounts.

Social Media Platforms

In order to increase visibility in the short term, we began a social media campaign for the community center. Originally, the team had proposed using methods to update the community on the center's progress at the conclusion of the project period. Although many of the ideas that we had originally proposed became recommendations for the future, creating content for social media was an achievable way to make periodic updates for the public in the time that was allotted, and a platform that could be expanded upon and continued to be used by the sponsors in the future. We sought to capture photos and videos of the WPI teams and the community center's

volunteers working at the site throughout our project period to use in promotional videos and social media posts. In this way, we were able to display the work that was being done to advance the progress of the community center, as well as stimulate interest in the project with visually appealing, engaging content that the community would be regularly exposed to online.

We set out to create promotional content to show the current condition of the community center and display to the public that improvement efforts are taking place at the site. We wanted to create a video to excite the community about the project and stimulate interest in becoming involved. We recorded video footage of the community center including the different buildings, rooms, and views around the site. We also captured clips of ourselves, our sponsors, and the volunteers actively working, smiling, and waving at the camera. Using these recordings, we edited and compiled the video footage of the community center into a promotional video with fun, enthusiastic music to supply to potential donors and to post on social media.

To advertise and update the public about the community center's progress on different social media platforms, we created an Instagram page and a YouTube channel in addition to the preexisting Facebook page for the community center. We created a public Instagram page specifically for the community center to upload daily content to followers in the community. This Instagram account was linked to the Facebook page that already existed, although this page was not frequently used to post updates and promotional material. By linking the two pages, posts created on one platform were now automatically being posted to the other to increase the number of viewers who would be seeing the content. We posted updates and content on a daily basis including:

- Videos of our sponsors talking about their vision for the community center and why the project is important to them
- Spotlights showcasing photos and videos of the volunteers explaining how the community center will impact their lives and communities
- Photos and videos of the site and progress transformations of the buildings
- Highlights of the programs and services that the center will offer with the before and after models of what the different spaces will look like

The Instagram page allowed us to be creative in engaging with the public. Our sponsors' busy schedules made it difficult for them to create these accounts, build a base of followers, and develop posts. This initiative allowed us to set the sponsors up by creating the accounts, securing a set of followers, and by posting the initial content that can serve as examples for the different types of content that the sponsors can post in the future.

Website

We sought to create a professional platform containing the different forms of media outlined above where patrons, potential investors, and other organizations could learn about the community center and make donations. The goal for the website was to create a space where we could compile each of the forms of media that we had constructed in one base from which all of this information could be accessed either directly on the site or through linked platforms. We

began with a template on the Wix website developing platform to build our website. We utilized the images taken by our team and the volunteers at the community center to enhance the website and give it a professional, yet personal feel. The information entered in the website was collected from the methods outlined in Objective 4. On the website, we created the following pages:

- Home
- Virtual Tour
- Programs and Services
- About
- Ways to Give
- Reach Out

These features will be discussed in further detail in the Website Platform section of the Results, Deliverables, and Outcomes chapter.

In order to publish the website, we registered the account under an email account that we created solely for the community center. (Note that this email account is the same email with the same security information that we used to create the social media accounts in order to easily transfer these accounts to our sponsors and allow anyone working on the project with the login information to be able to have access.) We then purchased the first year of a business plan on the Wix platform that allowed us to create our own unique domain name. We settled on a .org extension, as this project is a non-profit organization, and to increase the professional appearance of the website. We selected a basic business plan that allows our sponsors to accept donation payments through the website, allows the website to be found online using relevant search terms, allows visitors to the website to subscribe to an email alias, sign up to become a volunteer and sponsor, and send emails directly through the website to the community center email address.

To connect all of our digital media in one accessible platform, we linked the community center Instagram and Facebook pages and the YouTube channel directly to the website. We also embedded the 360-degree tour directly into the website where it can be used by visitors on the virtual tour page without leaving the site. In addition, we included the transformations of the rooms that we created using computerized modeling on this page with the purpose of allowing visitors to view the current state of the site, with the projections of each space available in one place.

Brochure

To expand our reach out into the community, we decided to develop a brochure to advertise the community center and all that it has to offer to members of the community. We wanted to create a product that could serve as a hardcopy version of the website to communicate the most important information to community members who may not have access to the internet or who feel more comfortable with reading off of a piece of paper instead of a screen. Utilizing Canva, we created a trifold brochure with information about how to contact the community center, the mission of the center, a list of the programs and services that are being planned, and descriptions of some of the classes that will be offered. The information in the brochure is

supported with images and icons to make it both informative and visually appealing, while not overwhelming the intended audience with too much information on one sheet of paper. We developed an English and a Spanish version of the brochure to accommodate the non-English speaking members of the community.

Objective 3: Design an outreach plan for the development of strategic partnerships

With the center being still in the development stage, we sought to construct an outreach plan with the purpose of providing the sponsors with templates and methods for reaching out to potential partners and donors to help them secure the financial assistance and relationships necessary to advance the community center. Our sponsors expressed to us the significance that obtaining funding will be to successfully operating the community center, and therefore it was critical that we examined several avenues that the sponsors could explore. A part of this process involved our team taking the initiative to have the initial soft conversations with contacts of interest, inquiring about suggestions, recommendations, and potential opportunities for collaborations and sponsorships. From there, we developed an outreach plan for how to continue these initial conversations and start these communications with future contacts.

Outreach Initiative

As part of the team's own outreach initiative, we researched and created a spreadsheet of contacts that could help the project. We included the name of the contact, their organization/company, phone number, email address, a brief description of how they can help, a link to their website (if they had one), and the status of our communication with them (uncontacted, contacted, no response, and responded). This spreadsheet was further broken down by category where we separated our contacts in an organized fashion based on what the contact was for.

In order for our team to begin soft conversations with our list of contacts, we crafted an outreach template to be used to send emails to our contacts. We included a greeting, an introduction to who we were, an overview of the project, and a section that could be tailored to the contact that we were reaching out to in order to convey how we believed that they could be helpful to us and how their work or product could be beneficial to our project. In the early stages of the project before we began developing our main deliverables, we began to reach out to companies including Walmart, PPG Paints, Best Buy and other local companies in Puerto Rico with the purpose of getting our foot in the door to determine who were the best points of contact in the chain of command of these businesses and organizations to begin to build an outreach network that we could document for our sponsors in their quest to do their own outreach in the future. We also connected with our contacts who were on LinkedIn to begin conversations about the project and how we could envision them becoming involved. We used the email template to communicate with our contacts who we couldn't reach on LinkedIn, as well as Facebook Messenger to connect with local business as this is a common method employed in Puerto Rico to have business conversations with small, local companies.

As part of our individual outreach initiatives, we also utilized our personal social media presence to post information about the community center and updates on the center's progress and encouraged friends to share these updates and information on their personal social media accounts as well. Many of the videos and photos that we recorded we also shared with our sponsors to share on their platforms. Although we focused our attention primarily on developing an outreach plan and formulating contact lists and networks to be used by our sponsors in the future, beginning the social media campaign outlined in Objective 2 allowed us to create the platforms and the initial content to secure a following that the sponsors could continue to maintain and grow in the future.

In order to plan for the further development of the sponsors' partnerships, we sought information about budgets, funding opportunities such as grants and donations, and fundraising for the purpose of detailing this information in easily accessible, step by step guide for approaching financing the community center. We utilized information contained in "how-to" guides online, the websites of similar projects, government web pages with relevant grant application information, and recommendations and observations we found during the project period. We included in our Community Center Planning Guide & Toolkit for the sponsors both a chapter on outreach and another on finances with general information, recommendations, and resources for approaching outreach strategies, funding, budgets, etc. We also included site-specific information on the Cubuy community center's financial/budgetary information. In terms of site-specific information to be used by the center, we included a copy of the general outreach template, organized contact lists that we developed, and ideas for funding opportunities that are specifically available to the community center.

Visits to Successful Community Centers in Puerto Rico

Something we hoped would be part of completing this objective was setting up meetings with other organizations who have and are currently developing community and resiliency centers in Puerto Rico. Communication with the leaders and volunteers of these organizations, as well as the members of the communities who benefit from the services provided by these centers, would offer valuable insights into what has worked and what hasn't worked in other communities. The purpose of this was to learn about how these centers operate, the types of services they provide, and how they manage their centers to apply many of these findings to the Cubuy center. We used a modified version of our standard email template to reach out to the founders of other community centers in the San Juan area and organizations that have or are currently working on similar projects to gain insights about their operations.

In the last week of our project period in Puerto Rico we were able to visit a community center in Santurce called the Taller Comunidad La Goyco. This center is referenced in section 2.4.2 of the Background chapter. Today, the center is a cultural cornerstone of the community that rents workspaces to local businesses, craftspeople, and artisans, offers free classes, workshops, and counseling sessions, and hosts events such as concerts, farmers markets, movie screenings, and celebrations creating a place for locals to gather, celebrate, collaborate and prosper. One of the three leaders of this project led us through a tour of the facility where she

explained to us the history of the school and how the center came to fruition, how the center is currently being operated, and their plans for their operations and budget for the upcoming year. During this process, we were able to collect information that we could use as recommendations for our sponsors in the future, as well as use this practical experience as a relevant source to support our research findings. The leader of this project emphasized the need to develop a network for community center projects on the island to share insights with each other, learn from one another, and work together. This initial tour allowed us to also lay the foundation for building WPI's network with these types of projects for future students to contribute to. We discuss this in the next section.

Partnerships with the WPI Puerto Rico Project Center

Another aspect of this project was creating a long-term partnership between our sponsors and the WPI Puerto Rico Project Center to allow future WPI projects groups to continue to work with the Cubuy community center. With our project, we sought to form the initial relationship with our sponsors and begin the foundational work that future projects can build upon. We also wanted to begin to create a network of communication between our sponsors and similar projects. Because of the increasing popularity of the initiative to repurpose old buildings into community and resiliency centers in Puerto Rico, we wanted to be able to connect our sponsors and the directors of the Puerto Rico Project Center with the leaders of the organizations who are tackling these projects in similar communities on the island.

In order to develop these connections and lay the groundwork for creating this network for both our sponsors and the Puerto Rico Project Center, we included the contact information for some of the leaders of community center projects in Puerto Rico in our contact sheet that was included in a library of resources for both the sponsors and the directors of the project center. In addition, the visit to Taller Comunidad La Goyco allowed the Puerto Rico Project Center directors to discuss future opportunities for collaboration, as well as for us to report back to our sponsors with helpful suggestions that we could include in our recommendations for their future work. In the next section, we discuss the library of resources and tools, and the Community Center Planning Guide & Toolkit that we created to share with our sponsors, the WPI Puerto Rico Project Center, and other projects.

Objective 4: Develop a library of resources and tools for the continued development of the Cubuy community center and similar projects

The main challenge that we identified for our sponsors was a lack of documentation of the project's details. Although our sponsors had a lot of ideas and plans for their vision of the community center, none of these details were documented. Information was passed verbally from one person to the next, however, sometimes important information was omitted in this loose form of communication, objectives were not communicated clearly, and the details were not ironed out. We sought to compile all of the plans that our sponsors expressed verbally into a written document so the sponsors could refer back to this information in the future, share their visions with potential partners, and use this information in their applications for funding. We

created a written document, complete with general guidance, suggestions, and resources for community center planning as well as site-specific details including images, CAD models, action items, contacts, budgets, and plans for programming and services, among other things.

To develop this document, we gathered records of how the center has progressed, and documented all of the information pertaining to the community center that we were given by our sponsors. We asked the sponsors take us through a tour of the center, and requested that they walk us through what they envisioned for each individual space of the community center in terms of the current programming of spaces, project management, and level of involvement between the center's partners, community members, and volunteers in operating each part of the community center. We created sheets that had headers for the information we desired, and spaces in between to take notes to help us organize the information about each space. As we toured the center, we asked questions about the purpose, feasibility, stakeholders, management plans, wants and needs for each room, and the importance of each service. We recorded the sponsors' responses on the templates that we created. During this process, we began by asking the sponsors to give us an overview of each space. We then asked questions that allowed us to fill in the gaps in the information we were still missing. The specific information we sought was:

- i. The services and programs the sponsors were planning to offer at the center
- ii. The rooms/outdoor spaces being used to provide each service/conduct each program
- iii. The types of equipment and resources the sponsors had already secured for each service, and what resources the sponsors still needed to acquire
- iv. The staffing requirements that will be needed to operate the programs and how volunteers, community members, or paid employees will be trained
- v. The tentative operating days/hours of each service

Because this project contains numerous stakeholders and a number of moving parts, documenting all of the information pertaining to the community center in one convenient, organized location made the information easily accessible, editable, and shareable among the people involved with the project. Documenting all of the details in one organized location helped to ensure that there are no miscommunications between our sponsors, their volunteers, the stakeholders, partners, community leaders, etc.

As mentioned in background section 2.4, Puerto Rico is populated with abandoned school buildings, and increasingly, community leaders are taking the initiative to transform these abandoned school buildings into community and resiliency centers. Based on the growing popularity of these projects and on our conversations with our sponsors and other community leaders working on transforming abandoned school buildings into community centers, we saw value in assembling a general planning guide to community center development with information, guidance, suggestions, and resources that can be generalized for several different types of community center projects. We sought to compose a guide based on our research on community center development in the preparatory term and the progress that we observed at the Cubuy community center with the purpose of being able to assemble this information for similar projects to use, for our sponsors to refer to as the community center grows and continues to develop, and for future WPI teams working in Cubuy and other community development projects

in Puerto Rico. Therefore, we decided to create a general planning guide to community center development to include with our site-specific documentation discussed above.

We utilized the information that we had found in our research of “how-to” guides to planning, developing, and maintaining community centers in the preparatory term. We synthesized the information from multiple sources into a chronological set of chapters for each of the main steps that can be generalized to most community center planning projects, each with helpful tips and information that can be used to accomplish each step in the process. We also incorporated research from sources that we were referred to on site from organizations who had created their own community center and regional resilience guides. Much of this information aligned with our previous research.

As mentioned, we arrived on site when the sponsors had already formed their project team, performed their own community assessment from their experiences as members of the community, and had designed the programs and services that they wished to offer the community. The actions of our sponsors had thus far relatively closely followed the recommendations that we found in our research. At this point in time, they had not yet evaluated the logistics of their programs and services, and they were beginning to start their outreach to other organizations, businesses, and individuals to secure partnerships and funding. Since the sponsors’ actions had aligned with guides that have already been published, and were successful, we compiled all of this information into the planning guide because we had not only the research to support these actions, but also the practical success. Using our research, we filled in the rest of the guide with the steps, suggestions, and recommendations that our sponsors could use in the future. Because this objective evolved into creating a document that encompassed both the information contained in the general planning guide, as well as the site-specific documentation, we separated the document into two main parts: The General Planning Guide for Community Center Development and The Centro de Desarrollo & Servicios Comunitarios Site-Specific Toolkit. We sought to make the document distinctly separable so different parts of the document could be distributed to different audiences based on what information they would be using, whether that be the community center general planning guidance, the information directly pertaining to the Cubuy community center, or both. More information about the organization of the guide is available in the next chapter.

4. Results, Deliverables, and Outcomes

Results and Findings from Community Assessment

In our interview with the four volunteers from ID Shaliah and our sponsor, Javier Valedon, we were able to conclude that our sponsors' plans for the programs and services that will be offered at the community center adequately meet the needs of the community. We desired to gain a thorough understanding of the community from the volunteers who we interviewed to understand community dynamics, how well the community comes together, the community's strengths and weaknesses, and what the community needs most from their community center.

When Hurricane Maria hit Puerto Rico, the community formed units. When people had no water, no light, no phone service, and no shelter, the community united and led themselves through the aftermath together. During the interview, the volunteers expressed their gratitude to their fellow neighbors for food, shelter, and the shared use of generators when they lost everything. Despite being a rural community, the members of the community, particularly within close regions and neighborhoods, are very close knit and come together to unite to achieve a common goal.

The community's strengths lie in their ability to take initiative and rebuild themselves and their community after a catastrophic event. This immense strength was demonstrated to us in a very powerful portion of the interview. We understood that talking about Hurricane Maria is a sensitive subject, and asked the community members if they wouldn't mind sharing with us what life was like during the Hurricane and the weeks and months afterward. The stories were powerful. One member described Maria as "an unforgiving experience," thinking about how many people did not have help. Another stated, "It was so horrible . . . I do not want to remember more because it was not good. But we are here." Another explained that it was tough for her emotionally when her students asked her what had happened. Javier described Maria as shocking. He was scared, his house was shaking. He was alone with his mother, and they thought that they were going to die. He told us that you have to experience the Hurricane to understand, that "You could hear the wind talk, scream." He recounted for us a story of true inspiration:

Javier remembered standing on the balcony thinking, "What are we gonna do now?" Then a dove landed in front of him, shook its feathers, and flew off again. He knew, "That's what I have to do."

It is this spirit of getting back up again after one has been beaten down that embodies this community. This notion of progressing forward, as Valedon stated, "We are here, we survived."

The volunteers explained several items that the community needs from the community center. The top priority of the community is access to medical and pharmaceutical services because they live 30-40 minutes from the nearest hospitals and pharmacies. Javier explained that his father nearly died of a heart attack when Javier had to transport him to the hospital himself. He was so cold that Javier had thought that he already passed away by the time they got there. He was very close to dying because the hospital was so far, which is why the community needs a

hospital and doctors. The eldest volunteer also expressed that several older people need access to pharmacies for medications, and another volunteer stated that her and her family would be using the clinic and the pharmacy. Water and electricity were the next priorities identified by each of the volunteers. The volunteers and Javier explained to us how they showered with rainwater for one month after Maria. They used the river water to clean their clothes, and went seven months without power following the storms. We identified the third top priority as shelter. Javier remembers seeing his neighbors' houses blown out, while the front of another volunteer's house had collapsed. Another volunteer lost her bed, her sofa, everything, due to the water damage to her home. As a result, the community members underscored the importance of having the center for refugees during times of crisis.

In addition, the community members indicated to us that the community needs security, phone service, and transportation. Security in this context refers to protection from crime that comes from other places, such as gangs from other communities who commit crimes of vandalism and theft due to a lack of a police presence. A volunteer also mentioned that community members need a place to go to practice other things, such as skills and hobbies. With the wide and diverse range of programs and services that the sponsors planned to offer, when we asked what services at the community center the volunteers saw themselves benefiting from, there was overwhelming support for many of the non-essential services as well. One volunteer stated that women like herself will utilize the martial arts classes, and everyone will be able to benefit from the agriculture instruction. Another informed us that CPR and first aid will be beneficial because a lot of young men want to study to become nurses to help the community, while another provided her endorsement for the finance classes.

We identified the community's greatest weakness as its remote location, and the difficulty that the community has in receiving external assistance. During the aftermath of Hurricane Maria, several essential necessities were unobtainable to the citizens. Transportation in and out of the community as well as communication was extremely challenging. Javier recalled going three days without being able to communicate with his daughters. He told us that he drove three hours to go and see his daughter, a drive that usually only takes twenty-five minutes. He compared the roads to the television series *The Walking Dead*. Another volunteer explained that the ambulance could not even come to retrieve the people who had died. Residents had no access to money because the banks were closed, and the community members talked about waiting hours upon hours at the gas station to fill gas cans to power generators. One volunteer recalled waiting five hours in line for gasoline before the station ran out, and she had to try again the next day. In terms of assistance from the United States, the military landed helicopters in a nearby baseball park with food (MREs) and water. However, it took two weeks after the hurricane for the U.S. to come and help, and this aid lasted for fourteen days. People were putting SOS signs on their houses because there was just no help. *Figure 21* shows the project teams having a discussion with Javier Valedon at the community center.



Figure 21: Group conversation between teams, advisors, and sponsors
(Photo Credit: Maritza Santiago)

Project Deliverables

This project had several deliverables, including:

1. Creating a 360-degree tour of the site, computerized visualizations of the future designs of the spaces of the center, a social media campaign, and a website to market the Cubuy center to the public
2. Constructing an outreach plan with a set of contacts and recommendations for future fundraising strategies
3. Developing a comprehensive document with a guide to community center planning, a library of resources for similar projects, and an organized toolkit of site-specific information for the Cubuy center

Here, we discuss in greater depth the deliverables that our team produced, and elaborate on the broader outcomes that they contribute to.

360-Degree Virtual Experience

Encompassing the entire campus, the 360-degree tour provides a walkthrough of the site with stops at each significant space. Users can choose to click through the tour on a computer or a smart phone, or take the tour with the virtual reality option. At the beginning of the tour, users are greeted with a welcome message and provided with a directory of the space to navigate their way through the site or to a specific area. Each space is labeled with the corresponding room number, and includes a description of the program to be offered in the space, who will oversee the service, tentative operation hours, as well as 3D models projecting what the space will look like in the future. This virtual tour is accessible through the CloudPano website, where it was

developed, through Google Streets, and on the Cubuy-Lomas Community Services & Development Center website. Screenshots of the tour can be found below in *Figure 22* and the full tour can be viewed through the [Cubuy-Lomas website](#) or at [CloudPano link](#).

Our sponsors have created networks all over the island of Puerto Rico as well as in the United States, so it was important to create a tool to help them market the project from long distance. Most of their connections do not have time in their busy schedules to travel to Cubuy and see the community center for themselves. The 360-degree tour allows these potential partners to have the experience that they would have if they were on site on their own time from wherever they are located.

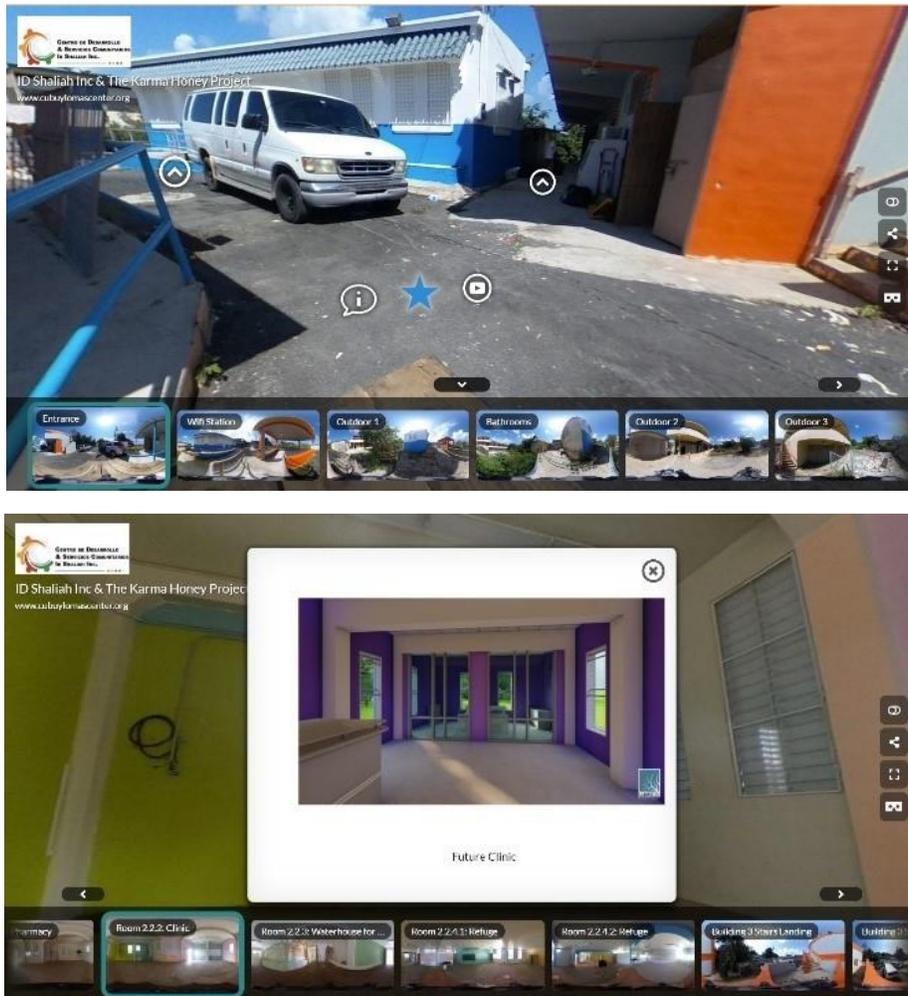


Figure 22: 360-Degree Virtual Tour Screenshots

Figure 22 is two snapshots from the virtual tour. The information text bubble can be clicked on to reveal information about each spot in the tour. The star or camera can be clicked on to display room transformations and CAD models. The YouTube symbol is a link to the Cubuy-Lomas Center Website. The bottom picture shows what happens when a camera icon is clicked on.

Computerized Transformation Visuals

The photos taken throughout our time on site as well as the photos taken by our sponsors at the time the center was purchased already display the immense progress that our sponsors have made in developing the center. The team further developed these images using Photoshop software to display how the exteriors of each building could look with a fresh coat of paint. For the interior of each building, we built models of the spaces in Revit and SketchUp and completed each room with paint, furnishings, and décor utilizing design and rendering software. Revit was used to model the cyber library, pharmacy, medical clinic, refuge, kitchen, café, and emergency preparations classroom. All these rooms were brought to life utilizing Lumion, which created realistic images of each space. The spaces being utilized by the Karma Honey Project – the wood shop, the Queen Bee classroom, and the honey processing room – were created using Google SketchUp. These spaces were more creative than technical. Two of the spaces, the agriculture classroom and the mixed martial arts space, were provided to us by the organizations who will be operating those programs.

The visuals we created will allow the sponsors to have a finished product that can be provided to potential investors to demonstrate where the project is heading. Below in *Figure 23* and *Figure 24*, we have included images of two models next to images of each space in its current condition to display the “before and after” version of each space. The complete set of transformations of the spaces can be found in Appendix A.

Note: For all before and after transformations, the before picture is on the left and the after picture are on the right



Figure 23: Cyber Library Transformation

The cyber library is complete with green paint on the walls and furnished with computers, desks, chairs, and shelves around the outer parts of the room to give it a modern computer lab feel.



Figure 24: Queen Bee Classroom Transformation

The Queen Bee classroom is complete with a full set of desks and chairs like in a typical classroom setting. There are also whiteboards scattered throughout the room.

Social Media Campaign

The team created two social media platforms for the community center: an Instagram page and a YouTube Channel. Facebook is a popular site amongst the older locals, however we also wanted to target a broader and younger audience through linking an Instagram page to the Facebook page to cross-post material on both platforms to viewers on both sites. During our time in Puerto Rico, we posted a welcome message from the project’s founder and our sponsor, Javier Valedon, volunteer spotlights, transformation photos, and progress updates. These posts were posted directly to Instagram and automatically posted on the corresponding Facebook page, where they received support from a wide range of audiences.

The Instagram account was followed by community members, WPI students, our own friends and families, the friends and families of the volunteers and sponsors, the followers of our sponsoring organizations, among others. Community members, The Karma Honey Project, our fellow WPI students, and others have shared our posts on their personal accounts, extending the reach of our posts to people who do not already follow the account. While we had to work to secure the initial following by promoting the page on our personal accounts and by following the followers of our sponsoring organizations from the community center page, within the first week of the campaign, we already had other viewers following our page who we did not extend a follow request to originally. Shown below are images displaying the viewing statistics of our most popular Instagram posts.

Sharing the center’s mission, plans, and progress across different platforms allowed us to reach different target audiences to spread the word about the community center. The public is able to see the passion and excitement that ID Shaliah, The Karma Honey Project, their volunteers, and the community members have for this project and how much it means to them. Screenshots of the [Facebook](#), *Figure 25*, and [Instagram](#), *Figure 26*, pages can be viewed below as well as followed through the attached links.

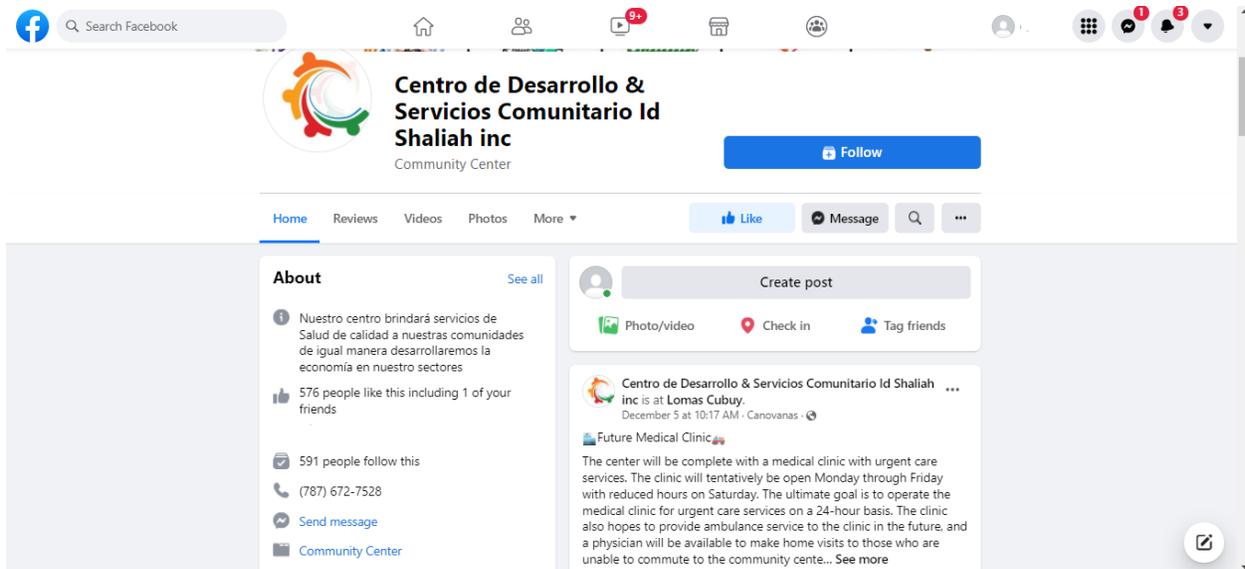


Figure 25: Screenshot of the Facebook page

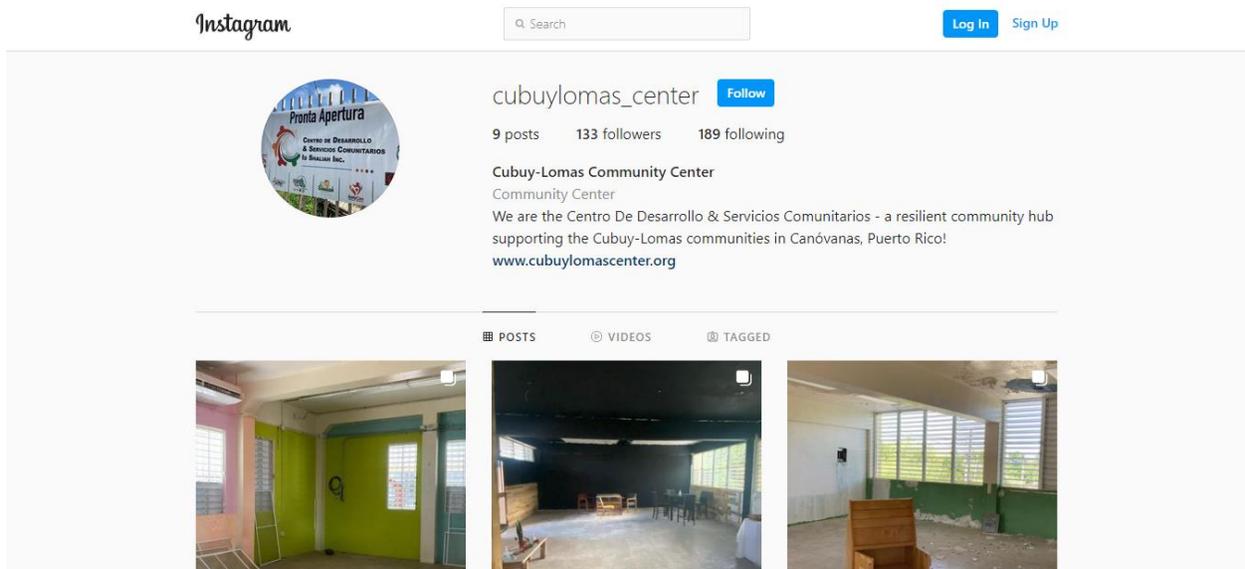


Figure 26: Screenshot of the Instagram

Website Platform

Linking of all the previous deliverables is the [Cubuy-Lomas Community Services & Development Center website](#) website that we created. The website has the option to be viewed in both English and Spanish, and there are versions for a mobile device or a computer. The site features 6 pages: Home, Virtual Tour, Programs & Services, About, Ways to Give, and Reach Out. At the bottom of each page, there is a footer that includes buttons that link to the Facebook page, the Instagram page, and the YouTube channel, a contact submission form which allows

visitors to subscribe to an email alias, buttons directing visitors to each page, as well as a button that brings viewers to the donation portal.

When the user first enters the website, *Figure 27*, they are greeted by a welcome message and a brief mission statement with a button to take viewers directly to the About page. Scrolling down, the promotional video we created plays on a loop, with a button to take viewers to the Virtual Tour. Below is a brief mention of the center's programs and services, with a button that links to the Programs & Services page. The Home page also includes a list of the main sponsoring organizations recognition of the partners of the project.

On the Virtual Tour page, the 360-degree tour is embedded for visitors to take the tour directly on the website. Below are images of each of the main rooms with a before picture, and views from the Revit and SketchUp models of what each space will look like, along with brief descriptions of how the spaces will be used.

Next is the Program and Services page, *Figure 28*, where users can discover what the community center has to offer. This page includes a button to take viewers to a submission box where users can leave suggestions or feedback about the current programs and services. This page has four main sections with corresponding buttons to take visitors to specific pages for the following: food services, medical and pharmaceutical services, programs and classes, and basic necessities. Each of these pages includes a detailed description about the services that fall under each category. When the community center opens, we have left the sponsors with the ability to allow users to schedule appointments and sign up for classes online.

The About page gives a brief description of the background of the project, followed by the official mission statement and vision. There is a "Meet the Team" section on this page featuring photos of our sponsors, the volunteers, and our team members working at the community center site.

On the Ways to Give page, there is information about the different ways for people to contact and donate to the project. This page also includes forms that users can fill out if they are interested in becoming a volunteer or a sponsor that can be submitted directly through the page.

The last page, Reach Out, contains a form for viewers to fill out to contact the community center email through the website. Below, the center's address, operating hours, contact information, and social media information is listed.

Our team developed the website to compile all of our digital media and all of the relevant information about the community center into one place to make it easier for community members, similar projects, and potential investors to learn about the project. Now, our sponsors can continue to update this site as developments are made.

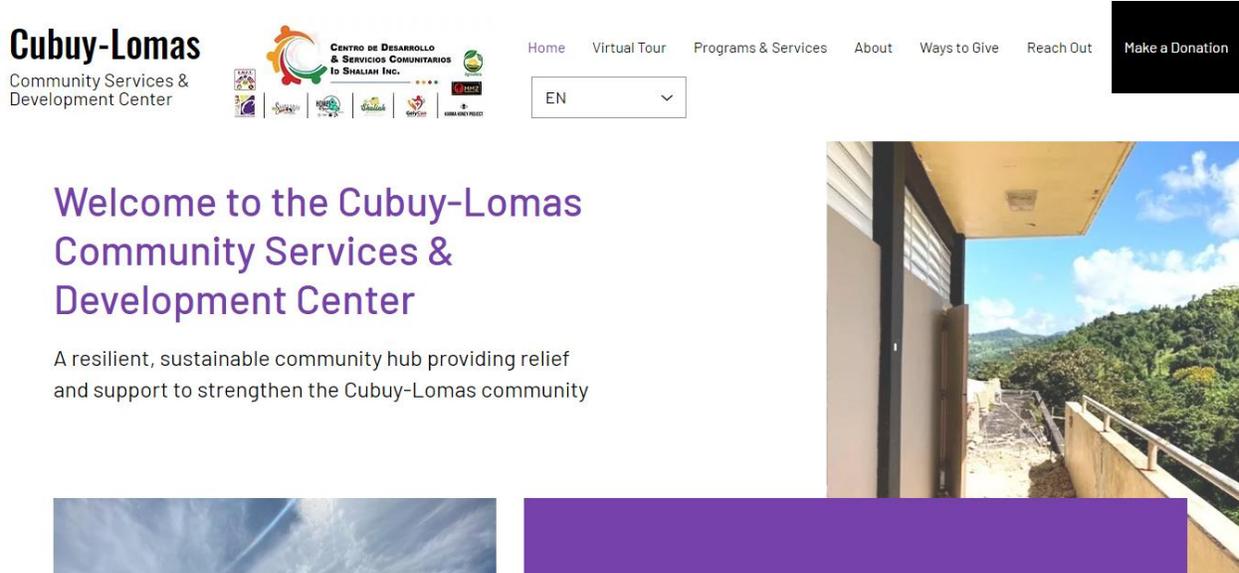


Figure 27: Cubuy-Lomas Website Home Page

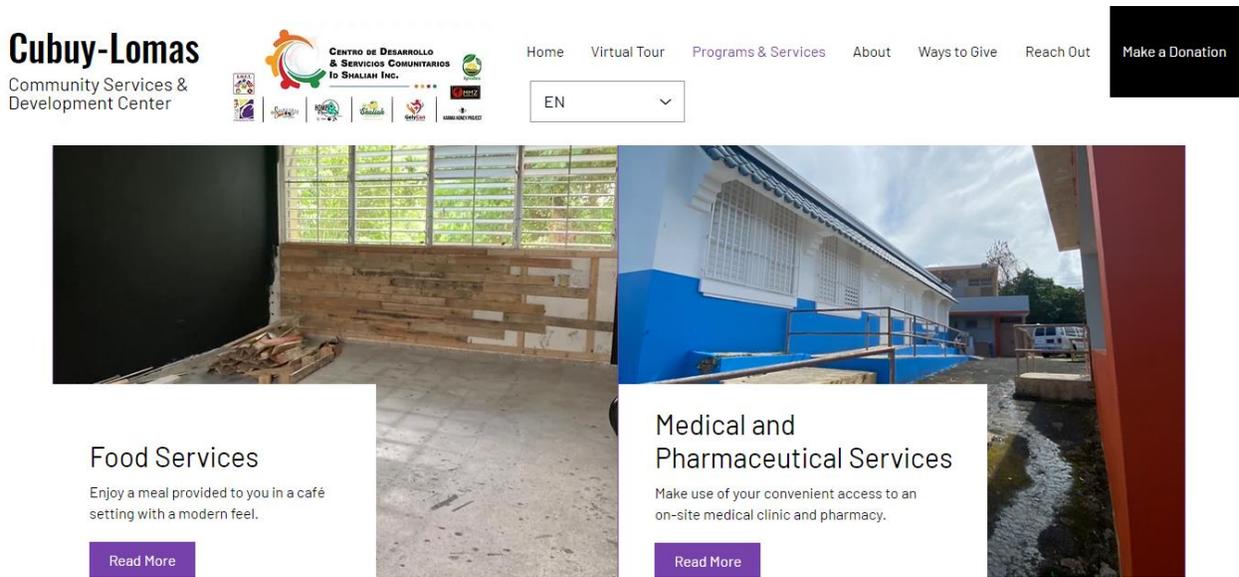


Figure 28: Cubuy-Lomas Website Programs and Services Page

Brochure

The brochure allows the sponsors to reach community members who may not have internet access. The trifold brochure, available in both English, which can be seen below in *Figure 29*, and in Spanish, located in Appendix B, includes information about the mission of the community center and what programs and services it has to offer. The center’s address, contact information, website URL, and social media usernames are also listed. In laying out the programs and services the center will offer, we included detailed descriptions of some of the services that require more explanation about what the programs will consist of, such as the cyber

library, the emergency preparation courses, and the agriculture program. We utilized a blue and orange color scheme, as this is the same used for the logo and merchandise for ID Shaliah, which the community is already familiar with and supportive of. These colors are also the dominant colors of the buildings at the site of the community center.

The brochure is a tangible resource that the sponsors can hand out to members of the community. The brochure can be updated, similar to a newsletter, and can be regularly distributed, or available to pick up at the center. We discuss how to continuously update the community, particularly those who are not online, using similar techniques in the Recommendations chapter.



Figure 29: The English Version of the Brochure

Outreach Plan

The goal of the outreach plan was to leave behind all of the tools necessary for future project management to initiate collaborations with potential project stakeholders and contributors. As part of the outreach plan, we developed a spreadsheet in Google Sheets that contains the contact information of the individuals, organizations, and companies that we researched. We included the name of the contact, their organization/company, phone number, email address, a brief description of how they can help, a link to their website or social media (if applicable), and the status of our communication with them (uncontacted, contacted, no response, and responded).

This spreadsheet is further broken down by category where we separated our contacts in an organized fashion based on what the contact was for. The spreadsheet allowed us to organize all of our research about potential funders and act as a living record for our sponsors to utilize, update, and refer back to. For example, one specific category that the contact sheet was broken down into was lumber/wood. Our sponsors noted that they would like to build homemade tables and chairs for the café using repurposed wood. Therefore, a wood and lumber portion of the spreadsheet was separated for ease of locating relevant contacts. Another particular category of high interest was obtaining paint for both the interior and exterior of the center, as well as sealant for the roofs. Hence, a section of the spreadsheet was dedicated to paint-related contacts.

We also drafted an email template, seen below in *Figure 30*, to use to begin soft conversations with the contacts from our spreadsheet. The template includes a greeting, an introduction of the WPI team, an overview of the project, and a section that can be tailored to the contact that we were reaching out to in order to convey how we believed that they could be helpful to us and how their work or product could be beneficial to our project. The email template was drafted so that several emails could be sent to a number of contacts without having to design a new email each time. Our sponsors are ambitious about extending arms out to as many companies and organizations as possible, and this template provides an efficient way of sending these emails while only having to adjust the last section of the email.

Good (whatever time it is) company (personal/direct name),

My name is blank, and I am a part of a team of engineering students from Worcester Polytechnic Institute currently working on a community project in the Cubuy-Lomas region of Puerto Rico. This area was devastated by Hurricane Irma and Hurricane Maria, leaving residents without power and water in some areas for almost two years.

We are taking an abandoned unused school and rebuilding it into a center for the community. Our center will feature a walk-in clinic, laboratory, pharmacy, free soup kitchen, organic food shop, and 5 classrooms where we will teach everything from agriculture to finance, Crypto and more.

In addition we will have a refuge area, storage for emergency disaster supplies, honey spinning facility, wood workshop, indoor and outdoor theater area, greenhouses, organic agricultural area, farmers market, and community gardens.

The students will be aiding us in setting up an off the grid system for water catchment, solar power, and food sustainability so that in the event of another disaster we will have a safe haven for the community.

We will be focused on building bee education classrooms where we will teach not only the importance of pollinators but classes on how to raise queen bees as well as how to build bee boxes. When students graduate from the class they will do so with a queen bee and box which they can take home with them.

CUSTOM: relate to how this person/company can help the project

Figure 30: Outreach Email Template

In addition to these site-specific deliverables that are included in both a library for the sponsors as well as in Part II of the Community Center Planning Guide & Toolkit, we also created included a chapter on outreach in Part I of this document. This chapter includes information and resources about stakeholder analysis, outreach tools, how to develop an outreach plan, and how to communicate the vision for a community center project to potential donors and partners. This chapter can also be referenced by our sponsors, in addition to a more general audience. For more information, refer to Part I of the Community Center Planning Guide & Toolkit.

Community Center Planning Guide & Toolkit

The [Community Center Planning Guide & Toolkit](#) aims to accomplish two goals: provide future management with a comprehensive toolkit including information on how the project center has progressed so far, as well as provide other similar projects with information on how to build and maintain a community center of their own. As a result, the document is separated into two distinct parts:

- I. Community Center Development: General Planning Guide
- II. The Centro de Desarrollo & Servicios Comunitarios Site-Specific Toolkit

Therefore, the document can be viewed in its entirety or each part can be distributed to different audiences based on what information is relevant and applicable to them. This also allows the Centro De Desarrollo & Servicios Comunitarios to maintain information in the toolkit that they

feel is private. This document is a working document that we have made easily editable and shareable. We would like to note that the chapters and information contained in this document is arranged in a way that conceptually organizes the steps to community center development, however this format is merely a suggestion based on our research, practical experiences, and the layout of other guides that we have referenced.

Part I: General Community Center Planning Guide

The general planning portion of the guide was meant to help similar community center projects build and maintain their community center. This section was also meant to compile all of the information that our team identified as being the most important and useful for community center development. This portion of the guide includes all of our team's research into how to organize a project management team, assess community needs, design programs and services, analyze project logistics, manage finances, implement services, and evaluate the center's programs and operations. Many of these steps were already completed by our sponsors before we arrived on site, therefore the information in this guide includes different team-building strategies and community assessment tools that our sponsors used that aligned with our research. In addition, we completed the guide with the information, suggestions, and resources that we recommend as the next steps to complete the community center development process. Therefore, the guide can be referenced by both our sponsors, as well as future WPI teams, the WPI Puerto Rico Project Center, and similar community center projects in Puerto Rico.

When researching how to organize a community center, our team utilized many pre-existing online "how-to" guides that focused on community and resiliency center development. Although many of these guides had components that were applicable to our project, there was not a singular guide that encompassed all of the information that our project dealt with. There also was not a guide that was tailored to small Puerto Rican communities with limited resources, like Cubuy. This observation is what led our team to the conclusion that our project should explore developing a portion of the guide meant to serve as a resource to other similar projects. This was particularly relevant as these types of projects are becoming increasingly popular in Puerto Rico, and will undoubtedly need to reference documents such as this one in their preparations. From our research, our team understood the time and effort it takes to research and pull information from various sources. Facilitating this process for future projects with similar goals through producing our own guide would allow projects to look no further for this information and utilize our guide as a jumping off point to find the information they are looking for, and use the resources that we incorporated in the guide for further information on specific topics. The following table of contents demonstrates how the community center development section of the guide is organized:

I. Community Center Development:	
General Planning Guide.....	20
1. Formulating the Project Team.....	21
Assembling the Team.....	22
Establishing a Common Understanding.....	23
2. Community Assessment.....	24
Community Engagement.....	25
Identifying Needs & Priorities.....	27
3. Project Development.....	30
Designing Services, Programs, & Initiatives.....	31
Evaluation of Program Logistics.....	32
Planning for Implementation.....	33
4. Community Endorsement.....	34
Generating Community Support.....	35
5. Outreach.....	37
Stakeholder Analysis.....	38
Outreach Tools.....	39
Developing an Outreach Plan.....	40
Storytelling.....	41
6. Finances.....	42
Budgets.....	43
Budget Templates.....	44
Funding Opportunities.....	45
Grants.....	46
Fundraising.....	47
7. Evaluation & Modification.....	48
Evaluation Techniques & Methods.....	49
Evaluating Programs & Services.....	50
Self-Evaluation.....	51

The general community center guide portion provides information on how to assemble and manage the project team, as well as engage the community and identify their needs and priorities (*Figure 31*). This chapter can help similar community center projects to build a strong team to efficiently use the skills of each team member and set project goals that encapsulate the mission of the project, as well as ensure that the team has an understanding of the community’s needs. The next chapter focuses specifically on designing and implementing programs and services for the center based on what is learned about the community from using the suggestions from the previous chapter. This is followed by a chapter focusing on generating community support for the project. This is the point that our sponsors had reached in the development process, and although they may not have completed these steps in a sequential order, they had achieved the goals of each chapter leading up to this point.

Furthermore, the general community center planning guide also provides information on outreach to potential stakeholders and investors. Developing an outreach plan will help our sponsors and similar projects to develop strategic partnerships that will be able to support the community center in the long-term with both funding and assistance with other project aspects. The next chapter piggy-backs on this one focusing on finances. This chapter includes budgeting plans and templates that can help our sponsors in Cubuy and other projects organize their finances and budget for the future. The final chapter of the general planning guide explains how to evaluate programs and services, as well as the operations of the center to provide suggestions about how to continually improve the center.



2. Community Assessment

Chapter Overview:

Identifying Needs & Priorities.....	16
Community Engagement.....	17

24

Figure 31: Community Assessment Chapter Title Page from the General Community Center Planning Guide

Part II: Site-Specific Toolkit

This portion of the document was meant to provide the future management of the Centro de Desarrollo & Servicios Comunitarios with a comprehensive toolkit of resources for operating, evaluating, and further developing the community center. The toolkit encompasses all of the information, including plans, visions, and other records, used by the current management to develop the community center up to the point of the guide’s publication. Although this information will be most useful to the Centro de Desarrollo & Servicios Comunitarios specifically, valuable ideas can be taken from the Plans for the programs and services at the Cubuy center that could be beneficial to other community center projects. The following table of contents demonstrates how the site-specific toolkit section of the guide is organized:

II. Centro De Desarrollo & Servicios Comunitarios: Site-Specific Toolkit.....54

- 1. Directory.....55
 - Floorplan.....56
- 2. Current Programs & Services.....57
 - Building 1.....58
 - Building 2.....62
 - Building 3.....65
- 3. Building Transformations.....70
 - Exterior Progress & Projections.....71
 - Interior Progress & Projections.....72
- 4. Outreach Plans.....76
 - Outreach Contact Information.....77
 - Outreach Email Template.....78
- 5. Donations & Contributions.....79
 - Donations & Contributions.....80
 - Volunteers.....81
- 6. Resiliency Operations.....82
 - Preparations & Recovery.....83

During the first couple of weeks working with our sponsors, our team noticed that the current project management team did not have any organized documentation explaining aspects such as: what the purpose of each program is, when it will be operating, who will be operating it, who the program or service is accessible to, and other general information that would be important to have written down to be referenced either by the project management team or communicated to community members. This finding led to the development of the site-specific portion of the document. This portion of the guide was developed in order to compile all of the information pertaining to the project in one organized, convenient location for the current management to refer to and show to potential investors, as well as to document the center’s plans, visions, and operations for the future leaders of the project once our sponsors hand the project down to new management. With all of this information in one place, future management can look back at the document for any guidance that may be of value to run the community center. An example chapter cover page is shown in *Figure 32*.

The site-specific toolkit was also created to compile the materials we created for the sponsors to use for their specific outreach plans. The toolkit contributes to outreach in two ways: by providing an outreach template and contact list, as well as by the toolkit in itself being a tool to display the project’s progress and organization to potential stakeholders. The email template and the contact lists included in the toolkit are referenced in the Outreach Plan section of this chapter. In addition to these specific tools for the Cubuy community center to approach outreach, the toolkit itself can be used as leverage in reaching out to potential investors by displaying that the project is organized, well-planned, and has made substantial progress. Using the guide as a visual representation of the project’s progress to provide to potential stakeholders is useful as it can influence stakeholders and potential partners to become involved with and invest in a project that is sophisticated and progressing on a path to success.



3. Building Transformations

Chapter Overview:

Exterior Progress & Projections.....	37
Interior Progress & Projections.....	38

Figure 32: Building Transformation Chapter Title Page from the Site-Specific Toolkit

5. Recommendations

This project is far from over. Our project team has taken the initial steps to lay the groundwork for our sponsors, as well as for future project groups from WPI. We have created several tools and resources that can be used in the future, and we will now explain how we envision these tools being utilized.

Analysis of programs logistics

In continuing with the layout of the guidance in the Community Center Planning Guide, we recommend that our sponsors continue the project using the suggestions in the guide as a baseline to reference. The conceptual next step in the guide is analyzing the logistics of the programs and services to be offered at the community center. We recommend beginning this process by organizing the logistics of how the center will be operated. There are several logistics of the management and operations of the community center that must be considered to determine how to make the programs and services that have been planned possible. The sponsors have already determined how much physical space will be required for each service and have allocated space in the blueprint of each building/on the property for each program to operate. When we walked through each space detailing how each space would be utilized and the plans that the sponsors had for each program, we asked them to identify for us what types of equipment and resources will be necessary for each service, as well as what staffing requirements will be needed to operate the programs. Much of this information was preliminary.

We recommend that as a next step, the sponsors determine the concrete logistics for each program, including official operating days and times, the precise number of staff (whether they be volunteers, community members, or paid employees) that will be required to facilitate each program, what hours they will work, and how the employees will be managed (i.e. what platform will be used for scheduling and payroll.) Although Javier has a rough estimate of the volunteers that are at the disposal of the community center and their level of commitment to the community center's operations, the sponsoring organizations should also document their volunteer's hours using a spreadsheet and create staffing schedules based on their availability. It will also be important to log volunteer hours for grant application purposes.

Next, we recommend that the sponsors perform a cost analysis of what the programs and services will cost, including the initial costs and the costs of operations. Startup costs can include the costs of the materials and equipment that will be needed upfront, along with any installation or set-up costs of equipment. Operational costs can include the utility usage of each program, the cost of labor for paying staff to run or manage the services, and the costs of maintaining each program, such as purchasing new materials or routinely cleaning, repairing, or servicing certain equipment.

Plans for implementation

While much of the work that has been done in advancing the community center has been physical work with the goals of opening the center in January of 2022, there lacks both plans for this short-term development as well as the long-term development of the center. Based on our research, we recommend that the sponsors take the time to develop a long-term implementation plan, typically structured from 5 to 20 years, to outline the priorities, actions, timeline, and cost of implementing each program/service/initiative in order to create a broad overview of where the project is heading, particularly because the sponsors indicated to us that they plan to move on from the project within the next few years and hand the project over to new management.

We also recommend creating a short-term action plan, from 0 to up to 5 years, which should focus on incorporating budgets, funding, and the technical aspects of implementing the plans that reach the goal of the long-term plan. These technical aspects include who will be leading the project, specific cost breakdowns, financial support, and a detailed, even if tentative, timeline for the implementation of each program, service, or initiative. This information can then be passed down to the successors of the project. Our project team has begun this work in creating the [Community Center Planning Guide and Toolkit](#), and this document should be continuously updated with information as it develops to be used by the future leaders of the project.

Generating community endorsement

The community center is for the members of the community, and therefore the sponsors should have an effective way for engaging with the community to promote the programs and services that are available to them. Generating support from the community is also a critical step in order to move forward with beginning to seek funding from government agencies, potential donors, sponsors, and partners. As the work on the community center advances, a great way to keep this enthusiasm alive is to continuously update the community on the community center's progress. We have created several outlets for the sponsors to begin this process.

The sponsors are now the owners of the website that our team created. We recommend that the sponsors, or future project teams, utilize the platform that we have built and continuously update the website with images showing the progress being made to the community center, as well as updating the programs and services information as it changes. We also recommend using the "bookings" feature of the website platform to allow community members to sign up for classes or book appointments at the medical clinic.

The sponsors now also have access to the social media platforms that we created. We have already begun a social media campaign on Instagram and Facebook that has been highly successful in generating excitement about the community center. The Instagram account has over 130 followers and growing, and the posts that we have been making are consistently liked, commented on, and shared by both people who follow the account and by the friends of those people who do not follow the account, which generates interest in the work that is being done and is spreading the word beyond just those who follow the account. Since the creation of the

Instagram campaign, the Facebook page has gained more than 200 likes. We recommend that the sponsors keep up with their activity on these accounts and continue to grow their social media presence.

From our visit at the Taller Comunidad La Goyco, we were provided with a copy of a newsletter that this center distributes to the community members, particularly because many of the members of that community are elderly as well. This newsletter has been successful in keeping locals updated about events and programs. Based on this success, we recommend using the brochure that we created as a template to create a regular newsletter that can be distributed to the community. We also recommend using some of the following methods to update the community with reports and information about the community center's progress:

- Email aliases
- Paper mail
- Flyers
- Newsletters
- Web/paper calendars for program and activity updates
- Submitting to local media outlets

When approaching the funding aspect of the project, having the documented support of the community can strengthen the team's applications for financial assistance. Having written documentation of the community's support demonstrates the community's need for the project and can have a greater influence on potential sponsors, partners, government agencies, philanthropists, and other donors' willingness to contribute to the project. We recommend that the sponsors document community support, such as using petitions to record community support that can be presented to government agencies and prospective funders by obtaining signatures from community members at public venues and from their visits at the community center. As part of this process, we recommend that the sponsors also document the community center's usage, and record how many people utilize each service every day. This can be used for grant applications as well as evaluation purposes, which we will discuss shortly.

Outreach

In terms of outreach, we recommend that when seeking funds and support for the community center, the process must be tailored to the target audience to effectively engage each potential stakeholder. The plan for outreach is bound to change, but in general, the outreach plan should include a list of the project's stakeholders and their potential roles in the project, outreach goals for each stakeholder, and the best way to communicate with the stakeholder. We created a list of contacts who could be potential funders or partners, and included their name, organization, email address, phone number, website URL, a brief description of their relationship to the project, and the status of our communication with them. We organized the contact information into categories to make contacts for certain requests easily identifiable. These spreadsheets can be used as a jumping off point.

For larger businesses and corporations, we recommend phone calls as the best method of approaching corporate leaders, and working up through the chain of command until the desired employee is reached. For small businesses, some might not have formal phone numbers and email addresses. For these, we recommend sending Facebook messages and trying to connect through social media. Some company leaders may have LinkedIn accounts that can be utilized to begin soft conversations. There are several other outreach techniques that we outline in the Community Center Planning Guide & Toolkit, including:

- Websites
- Social media accounts/posts
- Text message chains
- Statistics
- Newsletters
- Emails
- Paper mail
- Brochures
- Flyers/posters
- Meetings
- Presentations
- Videos
- Maps
- Interactive media

When sending electronic messages such as via email, we recommend using a version of the email outreach template that we included in the toolkit, which includes what the team is looking for from the relationship with the potential funder/stakeholder (which is custom for every email), general information about the team's missions, a brief description of the progress that has already been made, an explanation of how the work being done relates to the person/business/organization of interest, and how they could contribute and benefit from the team's project. We recommend attaching videos and photos of the team's work, and any room visualizations that connect to what the team is seeking assistance with to demonstrate that the project is a serious undertaking that has gained traction. We have left a number of tools that can be used for different purposes to convey the vision of the community center, including the website, the 360-degree tour, the room transformations, the brochure, and of course, the toolkit. Depending on the stakeholder or contact, it can be helpful to include these tools (or links to these tools) to aid in the description of the project. The purpose of the tools we created was to develop visually stimulating resources to generate interest in the project, and they should be used to market the project to the public.

Budgets

We strongly recommend that the sponsors take the time to create a formal budget. This is necessary to determine how feasible the community center plans are as well as to decide how to

allocate funds. Having a budget can also be used to present to potential sponsors, partners, and donors to display exactly what funds are needed and where contributions will be used, as some donors may want to contribute to specific aspects of the project. Having a budget demonstrates that the project has been organized and thoroughly planned. Of course, budgets can be subject to change. Nevertheless, constructing a tentative budget is a foundation that may be built upon as the project progresses. We recommend that the sponsors include the following in the budget:

- Estimates of the initial costs to start the community center
- The costs of making structural improvements to the building
- The costs of the programs and services being offered
- The costs of maintaining and operating the center
- The costs of any necessary equipment
- The costs of fundraising
- A reserve allocated to cover any unexpected financial setbacks

This process may require the help of external sources, including contractors as well as other organizations that have or are currently working on similar projects. The budget should also be complete with what the center already has accumulated with dollar amounts, and indicate whether these supplies were purchased out of pocket or donated. The sponsors should include a well-documented list of the financial and physical contributions (with dollar equivalents) that they have received from external donors. The budgets should be organized and broken down into subcategories with individual budget sheets for each program and service, based on the information discussed in the Evaluation of Project Logistics section. Sample budget sheets are included in the Community Center Planning Guide & Toolkit, with more tips on how to construct budgets.

Funding opportunities

There are several opportunities for funding at the disposal of a community center project. We recommend using some of the following techniques to help in advertising the project to potential donors:

- Use the website, 360-degree tour, social media, CAD models of the room transformations, and other tools included in the Community Center Planning Guide & Toolkit as part of the sponsors' outreach initiative and online presence to boost awareness of the community center
- Continue hosting open house events:
 - Invite potential donors, sponsors, partners, philanthropists, government officials, and media
- Contact media outlets to market the project

While these techniques are useful in generating interest and awareness for the community center, we also recommend that the sponsors contact potential donors and sources of funding directly, such as by:

- Meeting with representatives from local businesses, charities, religious and cultural groups, for-profit organizations, and individual philanthropists
- Reaching out to politicians and community and government leaders
- Applying for government funding
- Applying for grants

Grants

We recommend pursuing grants as the most substantial source of funding for the community center project. As the project continues to develop, the sponsors can identify which grants the community center is eligible to apply to, identify what the grant application processes consist of, and can even consider locating professional assistance to help with completing these applications. Grants that are related to hurricane resiliency and community development are the main grants that the center will be eligible to apply for.

As mentioned in background section 2.8 Exploration of Grants, applying for grants is a difficult and time-consuming process, particularly without experience. Therefore, we recommend that our sponsors use the following basic steps in approaching grant applications:

1. Draft a proposal summary
2. Introduce the applicant and organization
3. Establish the problem statement
4. Provide objectives and desired outcomes
5. Explain step by step of how the project will be executed
6. Describe the skills and the training that the staff has
7. Explicate management and progress sheets
8. Layout the expenses and budget plan
9. Express the long-term impact of the funding (Raj, 2020).

The more information that is included to support the applicant's mission, the better. However, it is strongly recommended that the proposal summary is attention-grabbing to engage the reviewers in the project. Also, be sure to include a cover letter that describes the requested grant amount, project mission, proposal contents list, references, contact details, and signature of the organization's director (Raj, 2020). For more references on how to write successful grant applications refer to the grant section of the Community Center Guide and Toolkit.

Fundraising

The sponsors have held open houses at the community center to showcase the center's progress to the community. The next step is to begin hosting fundraising events at the center. Hosting fundraising events is a fun way to engage the community in the project as well as raise funds to support the center. Fundraising events can be creative and there are a variety of ways that such events can attract attendees and generate income. We recommend some of the

following ideas to begin holding fundraising events at the increasingly renovated community center:

- Movie screenings
- Live performances
- Poetry slams
- Paint nights
- Game nights
- Athletic tournaments

To help make these events successful, we recommend the following:

- Set ticket prices and charge for admissions, concessions, etc.
- Obtain sponsors for events in exchange for also promoting the sponsors
- Solicit community volunteers to form committees and help organize and the events

When working with non-profit organizations, there are often restrictions when it comes to assigning a monetary value to providing goods and services, and this exchange is often forbidden. However, the above fundraising events may still be conducted, and community contributions may be welcomed, but not required. Those who are able to may donate "suggested" amounts for admission, participation, concessions, etc.

Evaluation

In the future when the center is up and running, we recommend that our sponsors use the evaluation methods that we have outlined in the Community Center Planning Guide & Toolkit. Because communities' priorities can change overtime, it is necessary to continually reevaluate the community center's main focuses in terms of what programs and services it has to offer. Developing a system for adjusting programming and services at different points in time can provide reassurance that the community center is moving in the right direction. The evaluation method should be simple, well-defined, and not be too time or resource-consuming.

For this project, we recommend using services analyses. The two of the major domains of these analyses are to: determine the community's needs and priorities and gauge the success of the services being offered. We suggest recording the program and service usage to understand the level of demand of each program/service, such as by having community members sign in or by physically recording the number of community members who sign up for classes, receive a meal from the cafeteria, etc. We also recommend evaluating the community's responses to additions and changes in programs using periodic surveys. These can be paper surveys that community members can fill out while at the community center and leave in a designated collection bin, as well as Google forms that can be sent to community members via email or text message. Links to these surveys can also be linked to the website or the center's social media pages. It would also be helpful to have an anonymous suggestion box on site at the community center.

6. Conclusion

The undertaking that ID Shaliah Inc. and the Karma Honey Project have embarked on transforming a once-abandoned school building into a community center is one of many projects in a movement to create a more resilient, prosperous Puerto Rico. Upon arrival at the project site, the project was much further along in its development than we had initially suspected, and we were immersed in a quickly unfolding project driven by our sponsors' highly ambitious attitudes and enthusiastic spirits. This determination and strong work ethic had progressed the project a great length, however there were technical aspects of the project's development that had been pushed aside in the effort to expedite the center's development to be ready to operate in January of 2022. As a result, our project shifted to tackling the work that would lay the foundation for the future long-term success of the community center to supplement the short-term efforts that the sponsors were taking to open the community center.

The goal of our project was to help facilitate our sponsors' missions through documenting the community center's progress and future plans, assembling a toolkit of useful resources, establishing an online presence for the center, and creating a network of connections for the development of future partnerships. Our project team developed a living, comprehensive document including a guide to community center planning, a library of resources for similar projects, and an organized toolkit of site-specific information for the Cubuy center. We worked to increase visibility for the community center by creating a website, a 360-degree tour of the site, computerized visualizations of the future designs of the spaces of the center, a brochure, and a social media campaign to promote and market the Cubuy center to the public and to potential funders. In addition, we constructed an outreach plan including a detailed set of contact information of prospective stakeholders, partners, and donors, as well as a set of recommendations for future fundraising strategies, many of which include methods to utilize the products that we developed for increasing visibility and generating interest in the project.

Using these tools, we have laid the groundwork for our sponsors to continue to develop the center, showcase the center's progress, promote the center to the public, and approach the next facet of the project: funding. Our project team hoped to be able to assist our sponsors with their networking and outreach strategies, including grant applications. The sponsors expressed to us that they had little experience with these applications, and that they did not currently have the adequate plans documented to approach these complex applications. Instead of focusing our attention solely on funding and grant applications, we created plans and products that the sponsors could then use to demonstrate that the project has been thoroughly organized and outlined, and has a clear direction and momentum. To begin the work to prepare our sponsors for obtaining funding, we outlined chapters on outreach and finances in our Community Center Planning Guide & Toolkit using our preliminary research and the resources that we identified as containing valuable information. We included recommendations in this document as well as in this report for how our sponsors can proceed with funding. The next step is to continue to build upon these resources and utilize this information to begin applying for financial assistance.

This project was the beginning of a new partnership between the WPI Puerto Rico Project Center, ID Shaliah Inc and the Karma Honey Project. Throughout the course of this project, we developed a meaningful relationship with our sponsors and the volunteers who we interacted with during our time in Cubuy. We hope that WPI's partnership with these two organizations will continue in the future and students from WPI may continue to contribute to the work being done in advancing the community center in Cubuy. Our project has only scratched the surface of the potential that exists at the Cubuy-Lomas Community Services & Development Center. We envision future project groups continuing the work that we have done, particularly in progressing forward in the realm of funding.

We also envision future WPI project teams expanding upon the network that we have set the foundation for connect our sponsors, the WPI Puerto Rico Project Center directors, and other community leaders and organizations working on community and resiliency center projects in Puerto Rico. There are several initiatives being organized to facilitate community leaders to utilize the abandoned schools in their communities to transform them into community and resiliency centers. We see the value in connecting the leaders of these projects with one another to share insights with each other, learn from one another, and assist each other. The goals of these projects are to build stronger, resilient, sustainable communities capable of supporting themselves in everyday life, as well as during times of crisis. We envision a network where the leaders of these projects may collaborate and share information to help grow their communities stronger together. The broad goal is to create a stronger, prosperous Puerto Rico one community at a time.

Our team is eternally grateful to have been given the opportunity to work with ID Shaliah Inc., the Karma Honey Project, and the WPI Puerto Rico Project Center. We look forward to continuing to follow the progress of the Cubuy-Lomas Community Services & Development Center and are anticipating the center's opening in January of 2022. We hope to continue our involvement with future IQP teams and contributing to the development of future projects. We hope that our research and the tools we have created will be valuable to both our sponsors, as well as future IQP teams and the Puerto Rico Project Center in their mission to expand their network and continue to work with similar types of projects in the upcoming years. We are excited and anxious to see what the future holds for Cubuy. We hope and anticipate that the Cubuy-Lomas Community Services & Development Center will serve as a beacon of light for the members of the community and an inspiration to others in Puerto Rico.

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Appendices

Appendix A: Room Transformations





The four images above show the transformation of the café and kitchen. The café is complete with a full dining area, with family sized dining tables, chairs, and a bar like dining table. The Café also includes a full-sized kitchen that includes a farmers sink, industrial stoves, a large fridge/freezer, and a storage area for food. There is a wooden wall separating the two areas and the walls are painted black with the lower half of most wall consisting of wooden planks.



The transformed medical clinic is complete with a front desk along with two examination rooms, both with examination tables and hospital beds. Each room is accessible via sliding glass doors and the whole room is coated with purple paint.



The two images above show the transformation of the pharmacy, which includes shelves to store the medications as well as a counter where the prescriptions will be prepared. This space is coated with purple paint.

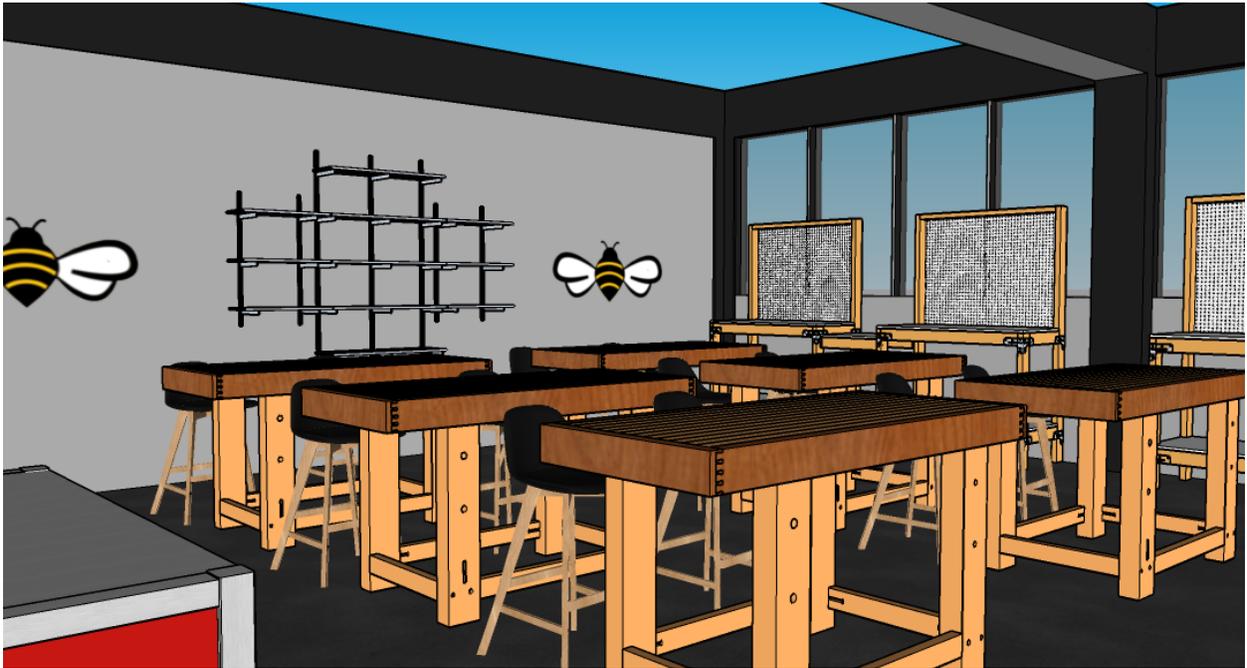




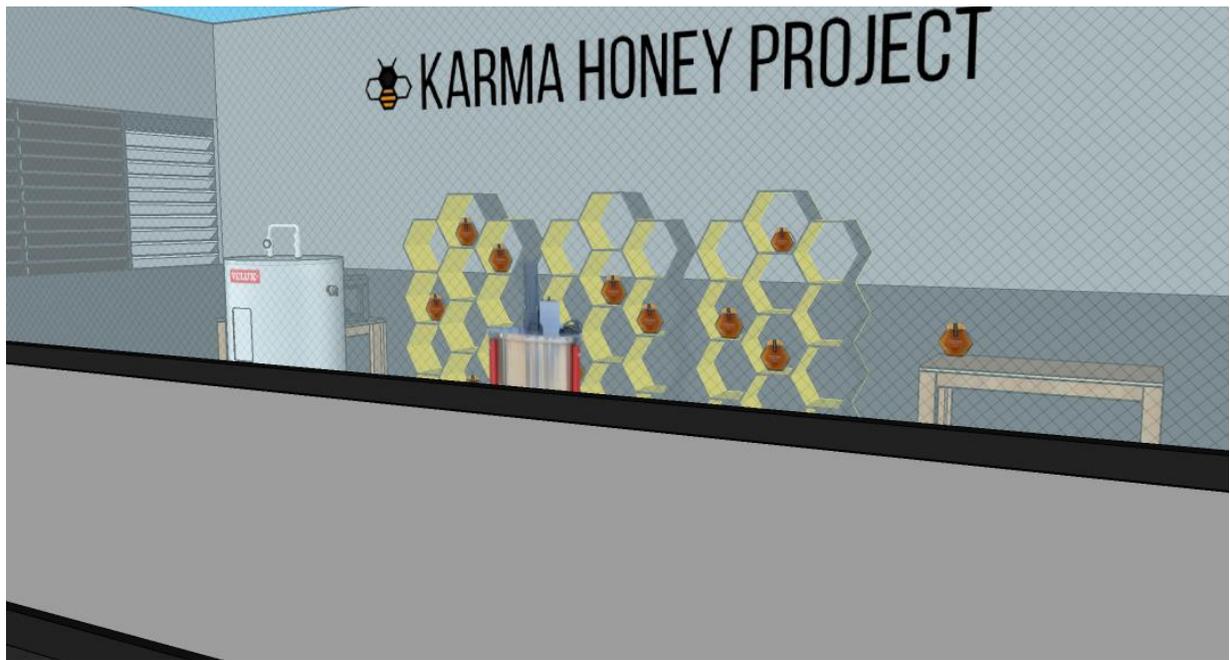
The four images above display the transformation of the refuge. The refuge is furnished with ample bedding, changing stalls, and a men's and women's shower section. The room is also coated with tan paint.



The two images above show the transformation of the emergency preparations classroom. The Emergency Preparation/CPR classroom has tables, chairs and shelving and is coated with grey paint.



Transformation of the woodshop. The woodshop includes desks, chairs, work benches and shelves, all set up in a classroom setting. The interior walls are painted grey.



Transformation of the honey processing room can be seen in the two photos above. The honey processing room has a large plexiglass wall splitting the room in half along with some machinery and shelving

Appendix B: Spanish Version of the Brochure



SOBRE NOSOTROS

Nuestra misión es crear una Autonomía Absoluta para atender las necesidades esenciales de las comunidades. Nuestro objetivo principal es Construir Comunidades próspera, unidas y más Fuertes.











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CENTRO DE DESARROLLO & SERVICIOS COMUNITARIOS
Id SHALIAH INC.

AYUDANDO A LA COMUNIDAD DE CUBUY-LOMAS

¿QUÉ OFRECEMOS?

El Centro Comunitario ofrecerá servicios desde Defensa Personal salud, educación hasta agricultura Queremos cubrir las necesidades comunitarias.



LISTA DE PROGRAMAS Y SERVICIOS

- ✓ Clínica
- ✓ Farmacia
- ✓ Cafetería
- ✓ Biblioteca Cibernética
- ✓ Preparación de Emergencia
- ✓ Educación Financiera / Jurídico
- ✓ Dojo / Autodefensa
- ✓ Agricultura
- ✓ Carpintería para Cajas de Abejas
- ✓ Clases de Abejas Reina
- ✓ Procesamiento de Miel
- ✓ Zona de Refugio

DESCRIPCIÓN DE LA CLASE

Biblioteca Cibernética
Desarrolle nuevas habilidades tecnológicas en las clases de instrucción o use nuestras computadoras para su uso personal, como para pagar facturas y completar formularios gubernamentales en línea con nuestra disponibilidad de WIFI gratis.

Preparación de Emergencia
Obtenga la certificación en resucitación cardiopulmonar, primeros auxilios, el uso de maquinaria y equipo de construcción y aprenda habilidades, como la conservación de alimentos, para prepararse para eventos de emergencia.

Agricultura
Obtenga experiencia y desarrolle su futuro negocio cultivando en nuestro jardín orgánico. Productos que serán para nuestra marca exclusiva Desde mi Campo. Dinero generado serán para seguir nuestra misión de alimentar y llevar ayuda al prójimo.



Después del Huracán María, sabía que tenía que hacer algo para no volver a pasar por las necesidades que pasamos

- Javier Valedon, Presidente & Fundador de ID Shaliah Inc.