Active Youth & Passive Design:

Addressing Crime through Design of "Safe Space" in Paukūkalo, Maui

Liana Takamine

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University of Hawai'i

Doctorate Project Committee

Joyce Noe, Chairperson

Leilani Brown

Colin Hanlon

Calvin Higuchi

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We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in partial fulfillment for the degree of Doctor of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

Doctorate Project Committee

Joyce Noe, Chairperson

Leilani Brown

Colin Hanlon

Calvin Higuchi

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ABSTRACT

Recreational youth centers play a key role in shaping safer communities and can provide a sense of security within a neighborhood. The purpose of a youth center is to provide a safe, positive environment for adolescents and teens to learn and develop social skills. The facility becomes an intermediate space between home and school, which children can call their own.

The success of a youth center depends on architectural aspects such as tectonic form, space, and programming. The organization of space is a critical factor in the design as each area should maintain faculty supervision while providing the youth a feeling of independence and security. The building becomes a "safe space" and a place of alternative entertainment for youth. In addition, the youth center staff act as positive role models and help guide adolescents through this important transition stages in their lives.

Over the past decade, statistics show that Hawaii's crime index has been consistently listed within the top 20 as compared to the rest of the nation. Violence amongst youth has become the second leading cause of death for those between ages 10-24. Through analysis of crime data, surveys, and historical analysis, this research will determine the main types of juvenile crime incidents that occur among adolescents and teens between ages 6-17 in Hawaii, specifically on Maui. A study of how architecture correlates to crime and how different design aspects of a building can affect the number of crimes committed in a given area will be conducted through a literature review of existing knowledge, including Oscar Newman's comprehensive study on Defensible Space and Architectural Design for Crime Prevention, and the Crime Prevention Through Environmental Design (CPTED) approach.

In addition to existing knowledge on the subject of architecture and crime, surveys will be conducted in order to gain feedback from residents in the particular area of research. The combination of both existing and new knowledge gathered about architectural design and its correlation to crime will then be applied to recreational youth center design. The purpose of this research will be to provide guidelines for future youth facilities that will incorporate various architectural methods for creating safe spaces. The end result and goal of using architecture to create safe spaces for youths is to ultimately reduce crime in urban and residential areas on Maui.

The planning of residential and urban areas will also be analyzed in this research. Currently the city center tends to focus around commercialized and industrial areas such as shopping centers and business parks. The suburban residential areas are usually scattered around the outskirts of the city and are often overlooked in terms of financial support, maintenance, and security measures for places for young people to gather. Existing research shows areas that have residences and businesses located far apart (sprawl) tend to have more crime as compared to mixed-use areas that have a denser urban fabric. Creating pockets or nodes within residential and urban areas through the design of recreational youth facilities could alter the values of the society toward a more family-oriented rather than self-serving environment, of which people are preoccupied with their personal agendas disregarding the well-being of others within the community.

In a family-oriented environment, a sense of community is formed leading residents to develop territorial attitudes of their neighborhood and community facilities. With an elevated sense of pride and ownership for their environment, residents will be more likely to report any suspicious activity they observe. In many instances, youth engage in criminal activity because of personal or family issues, boredom, and/or lack of available activities and spaces which they can spend their leisure time. In communities which lack designated facilities for socialization, youth often resort to congregating on the streets where there is limited if any, adult supervision. Recreational youth centers will provide an alternative place for children and teens to spend their free time under adult supervision while still maintaining the feeling of independence, as opposed to a school-like environment in which they are constantly being monitored throughout the day.

This research will compare existing architectural design aspects and provide new ideas on how basic design principles can be altered to reduce crime. In theory, shifting the nodes of communities to facilities in the midst of residential areas will help to control crime due to surveillance nearer to homes, creating designated spaces which youth can learn valuable social and problem solving skills, and integrate youth and the community to form a stronger family-oriented society. Manipulation of the architectural details such as doors windows, etc. in addition to spatial organization and programming within the youth facility, are also important design factors which will contribute to providing a feeling of security in the neighborhood by eliminating isolated unsafe areas. Creating architectural “safe space” (through landscaping,

lighting, orientation, streetscape, etc.), for youth within a community, will provide an alluring alternative to loitering on the streets. How can the design, programming, planning, and aesthetics of such a facility appeal to youth ages 6-17 as a “safe space”, in order to become a node of the community and help to control crime in the surrounding area?

PART I: BACKGROUND

1. BACKGROUND/ FIELD OF STUDY

The transition from adolescence to adulthood is the most crucial part of a person's life. These are the years in which a child develops their own character, identity, morals, values, and social skills. Throughout history, children have spent their days playing outdoors, around their neighborhoods or at community parks, etc. The amount of vivid childhood memories of actively playing games and social interaction seem to be diminishing with each upcoming generation. Why is this phenomenon occurring?

In today's technologically advanced society adolescences and teens are connecting to the world socially through the World Wide Web and other digital media rather than physically interacting with one another. Within the past few decades, the amount of time spent participating in outdoor activities has been replaced with social media and sedentary behavior. Before the era of technology in which television, computers, and video games became the dominant source for entertainment, children had to entertain themselves in alternative ways. They were forced to use their imaginations to create games as a form of entertainment. By physically playing with one another, they also were able to develop social and problem solving skills at a young age.

Children learn behavior and imitate what they observe. For this reason, it is important for them to have strong positive role models in their lives as opposed to the unrealistic and many times negative images that social media portray. Many children have single parents who work long hours in order to support their family; reducing the amount of actual "family time" through which a child can flourish. Children need attention and if they don't receive it at home, they begin to search for it elsewhere. Recreational youth centers have provided a home away from home for adolescents and teens searching for a place of belonging.

Similar to most architecture building typologies, recreational youth centers developed out of necessity. There is not a specific date in history which can mark the first recreational youth center as the building typology and programming of such a facility has been continuously modified over the decades. Historically, the Young Men's Christian Association (YMCA) which originated in England towards the end of the industrial revolution is a plausible reference point for the foundation of the recreational youth center building typologies of today.

1.1 Young Men's Christian Association (Y.M.C.A)

The first YMCA was founded by George Williams and eleven of his friends in London (1844) as a way to escape the hardships of life through creating a religious based support group open to all members (men) of society.[1] Finding faith in a time of despair and turmoil brought about by the industrial revolution was an alluring idea to many young men. The difference between the YMCA and other religious based affiliations was acceptance of any man regardless of his social class. The formation of the YMCA was an important part of history breaking down the strict English social class system. Historically all YMCA's have been run strictly by volunteers. While each association maintains the original YMCA vision, they are able to easily adapt to local needs of their community. In 1851, the YMCA was established in North America by Thomas Valentine Sullivan, a sea captain who saw a similar need of "a home away from home" for the young men of the United States, particularly the sailors and merchants.[2] The first assembly was held in Old South Church in Boston on December 29, 1851.[3] This was the beginning of what was soon to become one of the largest associations in North America.

Soon after the YMCA was established in the United States, it began to extend its membership opportunities to college students. The first student organized YMCA began in 1856 at Cumberland University, Tennessee and was aimed toward helping students to gain leadership skills and expand opportunities. In the 1860's, the YMCA facilities expanded to include affordable and safe housing for young men making the transition from rural suburbia into the city. The first YMCA dormitory constructed in 1867 was called Chicago's Farwell Hall. As the popularity of the YMCA grew, the demand for lodging increased and soon the number of rooms doubled from 55,000 to 100,000 within a two decade period (1922-1944). By the mid-1890's, nearly 30 years after the Civil War had ended, the explosion of YMCA's throughout the country and around the world became so exponential it was accepted as an "urban phenomenon"[4]. Apart from providing affordable lodging for millions of young men throughout its history, the YMCA can be credited for many other things including the creation of basketball and volleyball as a sport, the foundation of many higher learning institutions. They have also provided aide in

[1] The Young Men's Christian Association, "the Y: YMCA," Last modified 2012, Accessed September 8, 2012, http://www.ymca.net/history/.
[2] Ibid
[3] The Young Men's Christian Association, "the Y: YMCA," Last modified 2012, Accessed September 8, 2012.
[4] Charles Howard Hopkins, *History of Y.M.C.A. in North America*, (New York: Association Press, 1951), 105.

worldwide natural disaster situations and crisis such as the Sept. 11 (2001) attacks, Hurricane Katrina (2005), Haiti Earthquake (2010), etc.

In combination with safe and affordable lodging, additional facilities included gyms and auditoriums for recreation. When the YMCA Movement began, it was solely based on religious, mental, and social philosophies. The physical aspect of the Movement was introduced in 1866 by William Earl Dodge, Jr. who proposed to expand the YMCA to include "the improvement of the spiritual, mental, social, and physical condition of young men."[5] The idea of adding a physical component to the YMCA vision required the development of a new building typology which could incorporate the new element. In 1869, the Twenty-Third Street Association Building (Fig. 1) erected in New York (a half million dollar project designed by architect James Renwick Jr.) was the first YMCA to integrate a gymnasium.[6] Exercise classes and activities were developed as an integral part of the program and became the primary model and pattern for future YMCA's of the next quarter of a century.

The YMCA was a predecessor to the Young Women's Christian Association (YWCA) which began in 1858 in New York City. This association was founded with a similar mission as the YMCA to provide affordable housing and career developing opportunities to young women. The current mission statement adopted by the General Assembly in 2009 states, "YWCA is dedicated to eliminating racism, empowering women and promoting peace, justice, freedom and dignity for all."[7] The first boarding house for student, teachers, and factory workers opened in 1860 in New York, New York. Soon thereafter, YWCA's began to open across the country fighting for women's rights.

Currently there are 2,686 YMCA's throughout the United States that collectively serve 21 million men, women, and children through providing affordable housing, exercise, and health and wellness programs. There are also 1,300 YWCA sites which serve over 2 million people, and globally reach 25 million women and girls in 125 countries.[8] All YMCA's and YWCA's are volunteer based and provide the largest form of non-governmental child care in the United

[5] Ibid., p. 106-107.
[6] Charles Howard Hopkins, *History of Y.M.C.A. in North America*, (New York: Association Press, 1951), 106-107.
[7] Young Women's Christian Association, "YWCA," Last modified 2012, Accessed September 19, 2012, http://www.ywca.org/site/c.cuIRJ7NTKrLaG/b.7515891/k.C524/History.htm.
[8] Ibid

States. [9] From an architectural stance, the YMCA/YWCA is the foundation of a building typology which focuses on providing a safe space for youth to spend their leisure time through the combination of both residential and recreational programming.

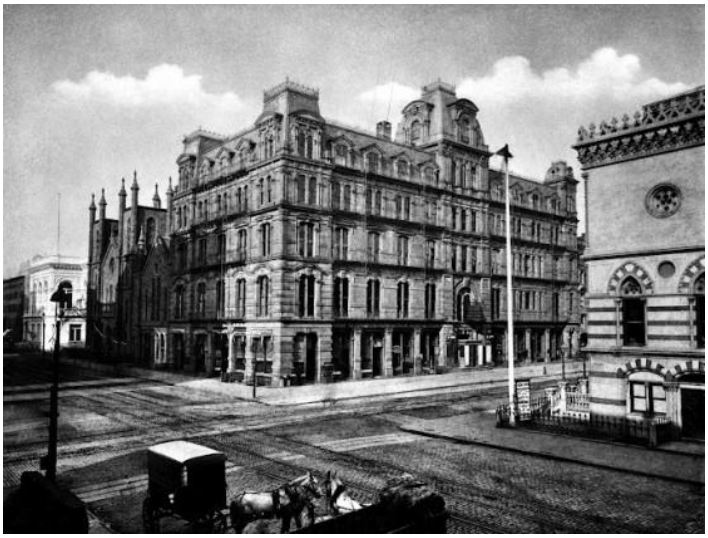

Figure 1: Twenty-Third Street Association building design by architect James Renwick Jr.

1.2 Boys and Girls Club of America (B.G.C.A.)

In 1860 during the culmination of the YMCA Movement, a new organization now known as the Boys and Girls Clubs of America (originally known as the Dashaway Club, and later the Boy's Club) was established in Hartford, Connecticut. The organization was founded by Mary Goodwin, Alice Goodwin, and Elizabeth Hammersley who believed that "boys who roamed the streets should have a positive alternative". [10] The Boys and Girls Club of America mission is "to inspire and enable all young people, especially those from disadvantaged circumstances, to realize their full potential as productive, responsible and caring citizens."[11]

The Boys and Girls Clubs of America (BGCA) is an international non-profit group offering after-school programs for over four million children. The BGCA has 3,400 clubs throughout the United States including Puerto Rico, Virgin Islands, and on Native American tribal lands. There

[9] "Amazing YMCA Facts!," Accessed September 8, 2012, http://www.rowanymca.com/YMCAFACTS.aspx.
[10] Boys & Girls Clubs of America, "Boys & Girls Clubs of America: Our History," Last modified 2005, Accessed September 8, 2012, http://www.bgca.org/whoweare/Pages/History.aspx.
[11] Boys & Girls Clubs of America, "Boys & Girls Clubs of America: Our Mission," Last modified 2005.

are also 400 clubs located on United States military bases internationally.[12] The BCGA has been working towards "combating juvenile delinquency"[13] through offering recreational activities and sports for youth as well as building character and developing other important life skills. The clubs are run by professional staff and volunteers and are open during after-school hours and on weekends.

In comparison to the YMCA, the BGCA is not a religious based association and is geared toward a younger generation from adolescents to teens. The first BGCA, originally called the Dashaway Club began in Hartford, Connecticut (1860) and was the "first recorded attempt in the United States to provide out-of-school activities for children."[14] A group of women in the town saw a need for extra-curricular activities to keep the young boys out of trouble while both parents were working. However, the club only lasted for a short period of time prior to the Civil War before it shut down. It was not until 1876 that the first Boy's Club was organized by E.H Harriman in the Lower East Side of Manhattan, New York. Harriman formed the "Boy's Club" after a visit to the Wilson Mission School for Girls, in which a rock was thrown through a window from a boy on the street and landed in Harriman's lap. He was later told that this was not an unusual occurrence as the "large number of street boys (who) had nothing better to do than tease the schoolgirls."[15] It was as a result of this incident that the "Boy's Club" was formed. By 1887, due to overwhelming popularity, the club moved into a five-story building.

Until the early 1900's, the expansion of the Boy's Club remained mostly in urban East Coast cities. In 1906, a meeting comprised of 53 Boy's Club representatives was held in Boston in order to unify the movement into what became known as the Federated Boys' Clubs. They made it their mission to spread the Boy's Club concept across the country giving young boy's everywhere the opportunity to improve their lives. Jacob Riis, a journalist and social activist born in Denmark, moved to the United States in 1870 and soon became the first president of the Federated Boy's Clubs organization. Using his journalism skills, he photographed "candid pictures of ghetto life in every dark corner" and wrote about the dirty living situations in the deprived areas within New York City in hopes of bringing these treacherous conditions to light.

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[12] Funding Universe, "Boys & Girls Clubs of America History," Accessed September 9, 2012, http://www.fundinguniverse.com/company-histories/boys-girls-clubs-of-america-history/.
[13] ibid
[14] Funding Universe, "Boys & Girls Clubs of America History," Accessed September 9, 2012.
[15] ibid

In 1890, Riis published his book How the Other Half Lives depicting the "plight of the city's poor"[16] which became a pivotal moment in the city's history leaving New York's affluent citizens feeling ashamed and ready to make a difference and address the problem. Riis was an advocate for youth and prominent leader in "fighting against child-labor laws, (supporting) health code regulations, the building of playgrounds, and making city classrooms available for boy's clubs."[17]

Although Riis was successful in leading the Federated Boy's Clubs and bringing attention to the hardships youth were experiencing during this era, the financial footing of the organization was left unstable at the time of his retirement in 1909. Attorney William Edwin Hall succeeded Riis as national president in 1916 and was left to manage 43 clubs with a small budget of $3,500. Hall accepted this position as the United States was entering World War I and remained dedicated to the organization for the next 38 years. Expansion became difficult but Hall continued to rally the support of various organizations such as the Chicago Union League Club to sponsor Boy's Clubs of their own. Following the end of the war was the Great Depression of the 1930's, in which the Boy's Clubs began to provide youth with not only the recreational activities and sports, but also fundamental necessities of the time including food and clothing. Hall footed much of the organizations operating expenses and many of the committed staff members took wage cuts despite the hard economic times which allowed every single club to remain open for the children.

Although times were tough, Hall's perseverance and dedication remained as he convinced friends such as Herbert Hoover to help with fund-raising and reorganization. Through Hoover's effective business management, the organization was able to establish the "National Associates of the Boy's Clubs of America" and become financially stable.[18] At the time of Hall's retirement in 1954, there were 375 clubs with a national budget of $8 million. In 1960, at the 100th anniversary celebration (since the founding of the Dashaway Club), the new national headquarter building was named the Herbert Hoover Building due to Hoover's considerable role in stabilizing the finances of the organization.

As times began to change, so did the Boy's Clubs organization. In 1950, the Boy's Clubs opened their doors to allow girls to participate in the program. The organization's goal of

[16] Funding Universe, "Boys & Girls Clubs of America History," Accessed September 9, 2012.
[17] ibid
[18] Funding Universe, "Boys & Girls Clubs of America History," Accessed September 9, 2012.

establishing 1,000 clubs with service to 1,000,000 children was accomplished by 1972. The name of the organization changed to Boys & Girls Clubs of America in 1988, (effective 1990) in order to reflect the amount of rapidly increasing girl membership which by that time had reached around 400,000.[19] In addition to supporting the growth of female membership, Thomas G. Garth, national director of the BGCA in 1988, focused on establishing clubs in areas which would benefit most. These included Native American lands, military bases, homeless shelters, shopping malls, and juvenile correctional facilities.[20]

The BGCA has continued to grow and has reached well over 2.5 million members in clubs across the nation. The organization has also adapted to the current technological times by partnering with Microsoft in 2,000 which gave a generous donation of $100 million in order make every club "technology able".[21] They have also used technology to research and determine the best possible locations for new clubs by analyzing the potential members/children in a given area. In the beginning, the Boys and Girls Clubs of America had some financial turbulence, but remained dedicated to its mission to youth and has become one of the top 100 non-profit organizations in America today.

1.3 Girls Scouts and Boy Scouts of America

Other non-profit organizations dedicated towards helping youth are the Boy Scouts and Girl Scouts of America. The Girl Scouts of America organization was founded by Juliette "Daisy" Gordon Low in Savannah, Georgia after meeting with Robert Baden-Powell, the founder of Scouting in 1911. The first girl scouts meeting consisted of 18 girls and was held on March 12, 1912. Similarly to the YMCA and YWCA, Low wanted to give young girls the opportunity to develop physically, mentally, and spiritually. Her goal was to connect the young girls with their communities and nature by bringing them out of their isolated residences and participating in outdoor activities such as camping, hiking, basketball, etc. in addition to teaching them life-long skills such as telling time by the studying the stars and first aid. Today the Girl Scouts of America organization has expanded nationwide with over 3.2 million current members and more than 59

[19] ibid
[20] Funding Universe, "Boys & Girls Clubs of America History," Accessed September 9, 2012.
[21] ibid

million Girl Scout alumnae. The organization is committed to improving society through their inclusive diverse membership "dedicated to every girl, everywhere".[22]

The Boy Scouts of America was incorporated a few years prior to the Girl Scouts of America on February 8, 1910. The first meeting to develop plans for the organization was held on June 21, and consisted of 34 national representatives of boys' work agencies. The meeting was held in the temporary national headquarters at a YMCA office in New York.[23] The Boy Scouts of America is committed to character building, developing personal fitness, and teaching young boys their responsibilities as a citizen. Development of community leadership skills is achieved through combining educational and life skills and values with fun activities. It is one of the largest value-based youth development organizations in the nation. The Boy Scouts believe that the youth of America are "a key to building a more conscientious, responsible, and productive society".[24] Architecture specifically designed for Boy Scouts and Girl Scouts of America consist of designated camping grounds throughout the nation as opposed to the YMCA/YWCA and BGCA clubhouse facilities. This recreational campground building typology is adaptive to the needs and goals of the scouting organizations.

1.4 KaBoom!

Founded in 1996 by Darell Hammond, KaBOOM! is another organization which is dedicated toward helping children stay socially active and physically fit by providing them with spaces to play around their neighborhood. The KaBOOM! mission is to "create great playspaces through the participation and leadership of communities. Ultimately, we envision a place to play within walking distance of every child in America."[25] Hammond, founder of KaBOOM! grew up outside of Chicago and was instilled with the values of helping those less fortunate whenever possible. The catalyst which drove Hammond to begin the KaBOOM! organization was an unfortunate incident involving two children who had suffocated while playing in an abandoned car. Hammond realized this could have been avoided had the children had a proper place to play. Upon this conclusion he created a simple vision of providing all children with a playground

[22] Girl Scouts of the United States of America, "girl scouts," Last modified 2012, Accessed September 19, 2012, http://www.girlscouts.org/who_we_are/history/.
[23] Boys Scouts of America, "Boy Scouts of America: History of the BSA Highlights," Last modified 2012, Accessed September 19, 2012, http://www.scouting.org/About/FactSheets/BSA_History.aspx.
[24] ibid
[25] KaBOOM!, Inc., "KaBOOM!: Our Mission & Vision," Last modified 2012, Accessed September 10, 2012, http://kaboom.org/about_kaboom/our_mission_vision.

within walking distance. With volunteers, organization, and support of a community, playgrounds can be constructed quickly and efficiently resulting in a safe place for children to play. Since it was established in 1996, KaBOOM! raised over $200 million and built over 2,000 playgrounds through the help of volunteers.

The problem identified by KaBOOM! is a term they coined as "The Play Deficit"[26] in which children are simply not playing as much as previous generations. The resulting consequences of children playing less are detrimental to not only their physical health, but intellectual, social, and emotional health as well. One contributing factor to children playing less is simply that the safe place to play does not exist or if it does, it is not in acceptable condition. New playgrounds being constructed are non-imaginative and a sterile environment in fear of potential lawsuits that may occur from an injury on the playground. Yet another reason is that children are preoccupied with computers, television, and other technology and media which promote a sedentary lifestyle. KaBOOM! has correlated the Play Deficit to a list of problems including: childhood obesity, attention deficit/hyperactivity, anxiety disorders and depression, violence and other behavioral problems, stunted social, cognitive, and creative development, lack of green spaces in cities and suburbs, fragmented communities, and failing schools.[27]

1.5 Peaceful Playgrounds

Since many schools have recently reduced the amount of recess time in exchange for more classroom education, there has been a unified effort by parents, staff, and students to save recess along with increasing the number of playground activities available. Peaceful Playgrounds is an organization which provides designed layouts for playground games which can be applied to blacktop surfaces for minimal cost with maximum results. Extensive scientific research has been conducted studying the correlation of playground markings and children's increased physical activity levels. Increasing the level of activity at a young age will help to reduce the epidemic of childhood obesity children are now facing. In addition to reducing childhood obesity levels, "Peaceful Playground" markings can also increase children's energy expenditure, while decreasing bullying, playground confrontations, and playground injuries.[28]

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[26] ibid
[27] KaBOOM!, Inc., "KaBOOM!: Our Mission & Vision," Last modified 2012, Accessed September 10, 2012.
[28] Peaceful Playgrounds, "Peaceful Playgrounds," Accessed September 12, 2012, http://www.peacefulplaygrounds.com/research.htm.

The spatial design of the Peaceful Playground layout is the most important element in conjunction with color. Using bright multi-colored markings on the blacktop creates a stimulating area enticing children to play. Designs that include games large enough for the entire class to participate promote inclusive rather than exclusive play resulting in fewer conflicts. The playground also allows children to resolve their own conflicts through games and physical activity rather than violent behavior helping to developing social reasoning skills. In 2008-2009 a study was conducted at Twin Peaks Elementary School in Tuscon Arizona to measure the impact on bullying after implementation of a Peaceful Playground. The results show a 32% decrease in peer mediations and a 39% decrease in bullying incidents as compared to the previous school year.[29]

[29] Peaceful Playgrounds, "Peaceful Playgrounds," Accessed September 13, 2012.

PART II: CRIME

2. YOUTH CRIME STATISTICS

The common factor behind the aforementioned organizations is the driving reason behind their development. Throughout history the issue of providing a safe space for youth to spend their time between school and home has been a reoccurring dilemma that is often overlooked. Although there are currently an increasing number of organizations that have formed which provide places for children and teens to be active and socialize, these intermediate safe play spaces are needed more than ever before. Not only has childhood obesity become a major epidemic in the United States, but juvenile crime rate within urban and residential areas has increased. There are many factors which contribute to these arising problems however one in particular can be related to architecture and is the main focus of this research. Providing recreational youth facilities within neighborhoods which lack safe spaces for youth can be a preventative measure towards future criminal behavior and obesity.

In the recent wake of the obesity epidemic, widespread research has been conducted on physical environments in association with childhood obesity and inactivity. While this research is of extreme importance, the issue of increasing youth violence has been somewhat neglected. Although childhood obesity and violence may seem dissimilar, the problems stem from related circumstances within the built environment. An architectural solution can therefore contribute to resolving both issues; however this research pertains strictly towards reducing juvenile crime rate in correlation to safe spaces.

Violence among youth is a serious issue as bullying and fighting can cause psychological trauma while robbery and assault can lead to injury or death. The criminal justice system tends to focus on convicting adults for violent acts, however violent behavior is learned at a young age. Orienting efforts towards reducing youth violence will also result in less adult criminal behavior. Violence not only affects a person physically and psychologically, but can also impact other things including the health of a community, health care costs, (decrease in) property values, and social services.[30] According to the Centers for Disease Control and Prevention (CDC) fact sheet of 2010, youth violence is the second leading cause of death in the United States

[30] CDC: Centers for Disease Control and Prevention, "CDC: Centers for Disease Control and Prevention: Understanding Youth Violence: Fact Sheet," Last modified 2012, http://www.cdc.gov/ViolencePrevention/pdf/YV_FactSheet2012-a.pdf.

between ages 10 and 24.[31] The following statistics regarding youth violence were also gathered from the CDC website:

- 5,764 young people age 10-24 were murdered--- an average of 16 each day--- in 2007.
- Over 656,000 physical assault injuries in young people age 10-24 were treated in U.S. emergency rooms in 2008.
- In a 2009 nationwide survey, about 32% of high school students reported being in a physical fight in 12 months before the survey.
- Nearly 6% of high school students in 2009 reported taking a gun, knife, or club to school in the 30 days before the survey.
- An estimated 20% of high school students reported being bullied on school property in 2009.

As previously mentioned, violent behavior is something youth develop from observation or as a way to cope with other disrupting issues in their home or school life. Some risk factors for youth participating in criminal behavior or violent activity include: Prior history of violence, drug, alcohol, or tobacco use, association with delinquent peers, poor family functioning, poor grades in school, and poverty in the community.[32] Although there are many contributing individual, family, peer/social risk factors, the one which is of most importance for the purposes of this research are those of the community. The CDC has identified the following as community risk factors for youth violence:

- Diminished economic opportunities
- High concentrations of poor residents
- High level of transiency
- High level of family disruption
- Low levels of community participation
- Socially disorganized neighborhoods

Another contributing factor not mentioned above but relevant to this research is architectural design elements which can either promote or discourage criminal activity. Changes made to the physical and social environment can address social and economic causes

[31] ibid

[32] CDC: Centers for Disease Control and Prevention, "CDC: Centers for Disease Control and Prevention: Understanding Youth Violence: Fact Sheet," Last modified 2012.

of violence.[33] Other prevention techniques suggested by the CDC is to implement more "parent- and family based programs" to create stronger relationships and open communication with their children in order to solve issues in non-violent ways. Social development strategies are also crucial in teaching children to resolve their issues without resorting to violent behavior. Lastly, providing a positive role model for the child through mentoring programs has proven effective in guiding youth to make the right choices.

3. OSCAR NEWMAN—DEFENSIBLE SPACE THEORY

Crime in correlation to architecture has always been a topic of discourse in the architectural field. However, other factors such as sustainability and creating a sense of place through critical regionalism seem to have a dominant influence in terms of design. Oscar Newman, architect and city planner has contributed greatly to this topic of architectural research. Newman has written numerous books regarding a term he coined as "Defensible Space" in effort to provide design guidelines for residential and urban development which would result in lowering criminal activity. His design strategies have been proven so effective over the past few decades that the U.S. Department of Housing & Urban Development (HUD) has adopted "Defensible Space" principles for all of their new projects.[34]

Oscar Newman begins his book on Defensible Spaces stating "The crime problems facing urban America will not be answered through increased police force or firepower."[35] He believes that it is due to poor urban planning and the disappearance of small-towns, which has led to the break-down of society in both their ability and responsibility to support and police activity within their neighborhoods. Newman's suggests that with the transition from small towns to "urban megalopoli"[36] society is now more dependent while also more vulnerable to one another. Despite the close proximity in which we live, the busy schedules and seclusion in high-rise apartment buildings have left us strangers to our neighbors. Newman sums up the problem by stating,

> "It is clear to almost all researchers in crime prevention that the issue hinges on the inability of communities to come together in joint action. The physical environments we

[33] ibid
[34] BRAVE NEW WURLD, "Defensible Space." Last modified 2009, Accessed September 14, 2012, http://www.defensiblespace.com/author.htm.
[35] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 1.
[36] ibid

have been building in our cities for the past twenty-five years actually prevent such amity and discourage the natural pursuit of a collective action." [37]

Cities were developed for those seeking independence, freedom, and choices within a relatively small radius. The concept seemed ideal and was alluring to those living in small towns that had a far commute to work. The negative ramifications of these densely urbanized areas were not realized until after the architecture and infrastructure had already been established. Within the city there was no real sense of a collective community, and community actions were now difficult to implement. Increase in police to monitor criminal behavior only added to the sterile environment and instilled fear rather than security in many citizens. Crime rates in the urban metropolitan areas skyrocketed leaving many middle-income families fleeing the city and seeking security in suburban areas. However, the sense of security did not last long, as the crime survey statistics of 1971 revealed the shifting of crime to the outer limits of the city.

Newman's theory of Defensible Space aims to restructure residential environments in order to return control to the community rather than imposing police law enforcement. This is achieved through reexamining human habitat as it exists now and how it has evolved along with the changing urban fabric. There are still existing areas within crime-ridden cities which have little or no crime. Newman compares and observes what causes these significant differences in crime rate deducing it down to the architectural layout of space. He states that, "Architectural design can make evident by the physical layout that an area is the shared extension of the private realms of a group of individuals."[38] By this he means that through spatial organization the intended user of the area and what it is used for can be perceived. Although a public or semi-public space, the surrounding residents feel a sense of ownership and can identify suspicious individuals who have negative intentions. In addition, these types of spaces which delineate an implied community ownership tend to deter criminals from even considering entering at the risk of being caught.

Newman's defines Defensible Space as "a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself."[39] The success of this model depends on the architecture creating an environment which the residents

[37] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 2.
[38] ibid
[39] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 3.

feel a sense of community and latent territoriality. The emphasis on a sense of community is important as residents will feel responsibility to report any criminal or suspicious activity in the area. The problem with today's society is that we are disconnected with one another and only concerned with personal agendas. Newman writes that "the indifferent crowd witnessing a violent crime is by now an American cliché."[40] The spatial organization and architectural elements can either discourage or encourage this sense of community in any given area. Creating spaces which allow for visual connection of the shared common space will allow for residents to police their own neighborhoods, providing extra security in addition to law enforcement. The term "policing" originated from a political concept of Western tradition meaning "the responsibility of each citizen to ensure the functioning of the *polis* (Greek city-state)".[41] The goal of defensible spaces is to return the feeling of security to individuals and families through improving opportunities of surveillance discouraging violent and heinous crimes.

Newman suggests ways in which design can influence self-policing activity by the following methods: delineating paths of movement, defining areas of activity through juxtaposition of internal living areas, and providing natural opportunities for visual surveillance.[42] Historically, residences in many cultures have used design methods to achieve territoriality within a space. Unfortunately, due to the speedy development of urban cities in the need to house a booming population, the traditional design intents of residential areas have diminished. The verticality of high rise apartments has limited the opportunities for natural surveillance and enforced the feeling of isolation from the outside world. As a result of this physical and mental separation, territoriality is then reduced to the single apartment or living space and residents are distanced from any criminal activity that occurs beyond their door threshold. Newman criticizes high-rise apartment developments as "containers for the victimization of their inhabitants"[43] with very few successful designs. He proposed medium-density housing of which the inhabitants can maintain control over their environment.

The four factors which Newman deems the most critical in creating secure environments are: Territoriality, Natural Surveillance, Image, and Milieu. As previously mentioned,

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[40] ibid
[41] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 3.
[42] Ibid, 4
[43] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 8.

territoriality of a space is important to instill a sense of ownership which residents are willing to defend and care for. This can be achieved through subdividing the common areas into zones adjacent to the residents allowing them to feel more responsibility and connection to an extended area outside their personal dwellings. Natural surveillance of the surrounding area can easily be accomplished through meticulously positioning windows which allow for visual connections between the interior and exterior space. The image of a building is portrayed through its form and architectural details which should not create spaces which others may perceive as vulnerable or isolated. Lastly, the selected building site should be carefully considered and placed within functionally sound urban areas, near activities which do not impose a threat to the residents.[44]

Newman suggests that the root cause of crime within cities is due to social stratification. Both criminals and victims usually do not have the economic and social opportunities and choices which would enable them to improve their current living situations. Newman observes that within the United States "the correlation of criminal and victim with poverty is unmistakable".[45] The opportunity for higher education is often denied to those who cannot afford it leaving a majority of the people in this lower strata feeling helpless and frustrated. Newman also notices that in addition to institutions refusing to reform to the needs of the lower social strata, the family institution is also crumbling.[46] The self-confidence of a person is highly reflective on the way they view their living conditions. Those that do not feel safe or secure in their home environments usually transfer that insecurity to other aspects of their life such as finding a job. The architectural design of a home, apartment building, or community can therefore influence the feeling of general competence or impotence of the inhabitants and their lives.

[44] Ibid, 9
[45] Oscar Newman, *Defensible Space*, (New York: The Macmillan Company, 1972), 13.
[46] ibid

PART III: CASE STUDIES

4. PRUIT-IGOE HOUSING PROJECT

The inspiration behind the Defensible Space theory began when Newman witnessed the construction and failure of the infamous Pruitt-Igoe housing project in St. Louis Missouri.[47] The housing-project is an example of how architectural design can immensely impact the amount of criminal activity in the surrounding area. Designed by architect Minoru Yamasaki, (also famous for designing the World Trade Center, NYC) the housing project was constructed in 1956 for young middle-class white and black residents segregated into separate buildings complexes within the project. The complex was named in honor of African American WWII fighter pilot, Wendell O. Pruitt, and former U.S. Congressman William L. Igoe. Pruitt-Igoe was a massive urban housing project consisting of 33 apartment buildings of equal height (11 stories) over a 57-acre site.[48] Yamasaki's original design consisted of a variety of high-rise, low-rise, and walk-up apartment buildings and incorporated innovative design ideas such as the "skip-stop" elevators. *Architectural Forum* critically acclaimed the proposed design as "the best high apartment" of the year in 1951. However, the project exceeded the federal cost limits forcing the design to be altered and uniform height limits were set to accommodate the budget.

Shortly after the completion of construction, the complexes were plagued with vandalism and crime. The architectural design was faulted for the main cause behind the overwhelming criminal activity. The innovative "skip-stop" elevators which were implemented to alleviate congestion within the corridor areas became a safety hazard as residents were forced to use the enclosed stairwells which harbored violent activity. Other design issues in addition to the dangerous circulation areas within the building complexes, was the lack of ventilation and poor air quality. The 2,870 apartments which were packed into the 33 buildings resulted in uncomfortable and congested living conditions with undersized kitchen appliances. In lieu of a centralized air-conditioning system, an expensive heating system was installed which led to budget cuts for other important building elements. Parking and recreational areas were minimal, and playgrounds for the children were only added in response to tenant demands. The arrangement of the green spaces within the complex created no sense of ownership by the

[47] Oscar Newman, *Creating Defensible Space*, (U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research, 1996), 9.
[48] The Economist Newspaper Limited, "The Economist: Why the Pruitt-Igoe housing project failed," Last modified 2012, Accessed September 23, 2012, http://www.economist.com/blogs/prospero/2011/10/american-public-housing.

residents, (Newman's idea of territoriality) therefore no one took care of these areas.[49] The once highly acclaimed housing project quickly gained an undesirable reputation which resulted in vacancies and eventually the demolition of the multi-million dollar ($57 million investment) project in 1976. Pruitt-Igoe is now known as "an icon of failure"[50] in its modernist design approach and high-rise housing solutions.

Figure 2: Pruitt-Igoe

Figure 3: Pruitt-Igoe Demolition

5. MEDELIN CITY

In St. Louis, Architectural design decisions were the demise of the Pruitt-Igoe housing project, however in Medellin, Colombia the architecture saved the city from despair. A few decades ago Medellin was known for its high crime rates and annual homicide rate reaching 381 per 100,000 (an estimated 32,000 murders per year).[51] The city gained reputation as one of the world's most violent cities, however due to an architectural urban renewal has now become a growing tourist destination.[52] The concept for the architectural revival in the city was "the most beautiful for the most humble"[53] in which multi-level urban projects were developed for

[49] Robert O. Keel, "Pruitt-Igoe and the End of Modernity," Last modified 2012, Accessed September 23, 2012, http://www.umsl.edu/~keelr/010/pruitt-igoe.htm.
[50] Alexander Von Hoffman, Joint Center for Housing Studies, Harvard University, "Why They Built the Pruitt-Igoe Project," Accessed September 21, 2012, http://www.soc.iastate.edu/sapp/PruittIgoe.html.
[51] Michael Kimmelman, "A City Rises, Along With Its Hopes," ***Architecture Review***, May 18, 2012, http://www.nytimes.com/2012/05/20/arts/design/fighting-crime-with-architecture-in-medellin-colombia.html?pagewanted=all&_moc.semityn.www&_r=0 (accessed September 23, 2012).
[52] Danielle Maestretti, "How Architecture Transformed a Violent City," *UTNE READER: The Best of the Alternative Press*, January 28, 2010, http://www.utne.com/Politics/How-Architecture-Transformed-a-Violent-City-Medellin-6481.aspx (accessed September 23, 2012).
[53] ibid

the city's poorest and most violent areas.[54] The city held public competitions for the new architecture projects giving the aspiring young architects of Colombia opportunities to showcase their talent.

New public spaces including parks, libraries, and modernized schools were developed in the inner city's poorest areas in effort to reduce isolation and create social equality.[55] Alongside the new architecture, a metro for public transportation was also constructed connecting the rich and poor neighborhoods.[56] Behind the push for this major transformation of Medellin was the city's former Mayor Sergio Fajardo (2004-2007). Fajardo's father was an architect who raised him with insight of the impacts of architecture on society. In an interview Fajardo states:

> "From the time I was a child, it was clear to me what aesthetics meant as a tool for social transformation, as a message of inclusion. That is something that is often misunderstood here. Underneath it all is the most important word in all of those urban interventions in which architecture plays an important role: dignity."[57]

Dignity was the key in social reform of the violent city. Instilling dignity within residents who lived in fear of their surroundings was a difficult task to pursue. Fajardo has greatly accomplished this by creating a plan which united education and community development with infrastructure and beautiful architecture.[58] The architecture alone cannot reform a violent city, but in combination with equal education opportunities can transform a community. A recurring theme which can be seen (or lack thereof) in the previous case study of Pruitt-Igoe, and in the urban renewal of Medellin City is a sense of ownership. In Pruitt-Igoe, there was no sense of ownership for the public areas which led to vandalism and crime; in Medellin, the government provided the rich and poor with the same quality education, transportation, and public

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[54] Sergio Fajardo, (Former Mayor of Medellin City, Colombia), interview by Giancarlo Mazzanti, "The Artist's Voice Since 1981," *BOMB* , Record, 110-Winter 2010(2010), September 23, 2012, http://bombsite.com/issues/110/articles/3368.

[55] ibid

[56] Danielle Maestretti, "How Architecture Transformed a Violent City," *UTNE READER: The Best of the Alternative Press*, January 28, 2010, http://www.utne.com/Politics/How-Architecture-Transformed-a-Violent-City-Medellin-6481.aspx (accessed September 23, 2012).

[57] ibid

[58] Michael Kimmelman, "A City Rises, Along With Its Hopes," ***Architecture Review***, May 18, 2012, http://www.nytimes.com/2012/05/20/arts/design/fighting-crime-with-architecture-in-medellin-colombia.html?pagewanted=all&_moc.semityn.www&_r=0 (accessed September 23, 2012).

architecture, which increased the sense of ownership rather than isolating an impoverished community.[59]

The architectural reformation of Medellin was attainable through the support of Empresas Publicas de Medellin (E.P.M.) which is the main supplier of water, gas, sanitation, telecommunications, and electricity to the entire city including the slums. The profits of E.P.M. (approximately $450 million annually) go towards the construction of the new public plazas, schools, parks, and metro system.[60] However, transforming a city encumbered with criminal activity and violence through major construction of new architecture is not the most economically feasible solution for most areas without this financial support. What we can learn from Medellin City is "how urban transformation based on good architecture can reshape the mentality of its inhabitants".[61] The new architecture and renovations which are currently being designed and constructed in urban areas can use Medellin City as inspiration and an example of how architecture integrated with society is capable of changing behavior through its physical form and functions. Architecture can be used to educate the public and children for instance "the ground of a playground in a school can be morphed into dunes so that children may play with soft and hard materials and learn to differentiate them".[62] Architecture is more than just the physical mass which contains a program, but rather a symbol for the community which they can take ownership of and ultimately change a way of thinking.

6. KaBOOM!

On a more localized scale, community transformations have begun to take place around the United States as the KaBOOM! organization has tackled the problem of the play deficit for children. With the mission of having a playground available in walking distance for every child in America, KaBOOM! has made a tremendous impact on the lives of children and communities nationwide. The idea of community involvement in creating such a play space dedicated for children living in impoverished areas has not only benefited the youth but has also brought communities closer together. The following is an excerpt from the KaBOOM! Website in which

[59] ibid
[60] Michael Kimmelman, "A City Rises, Along With Its Hopes," ***Architecture Review***, May 18, 2012.
[61] Sergio Fajardo, (Former Mayor of Medellin City, Colombia), interview by Giancarlo Mazzanti, "The Artist's Voice Since 1981," *BOMB* , Record, 110-Winter 2010(2010), September 24, 2012.
[62] ibid

Californian resident Ruth Robertson describes her first-hand experience with KaBOOM!, and how her involvement with the organization has changed her life:

> "When our councilmember got with KaBOOM!, he invited the community out to a meeting about it. I attended with my son, and that's the first time in my life when I was actually included in something in my community.
>
> I came out to the Design Day, joined the planning committee. I was like, 'What do you need?' I was there. On Build Day, I was the concrete team Build Captain—I volunteered for that because no one else would. That build changed my life—I got involved in my community.
>
> I went on to volunteering... political campaigning in some of the roughest areas of Eureka. I knocked on doors in these really rough parts of town, but I saw all aspects of life, I saw poverty, I saw single parents not having a place to go to play... for them to then come to Hammond Park—the second most used park in Eureka—that's like 15 blocks away, but they walk it!
>
> Two years later I organized Spruce Up Hammond Park Day—man, the city resisted and resisted and then I finally we just did it, had a 100 volunteers show up, and we re-painted, planted trees, it was great... just great! To see people walk by, stop and volunteer. Other play opportunities often charge for recreation but this place was free and for all of us. When you see kids coming from broken homes, they don't have a choice… they can't be instrumental in change but when you see that people care enough to say, 'We wanna make a difference,' when you give them a safe place to play, it speaks volumes. It tells them you can do whatever you want."[63]

6.1 YMCA Camp H.R. Erdman

In 2009, KaBOOM! partnered with the YMCA of Honolulu in order to bring the first ever "Nature Built" playground to YMCA Camp H.R. Erdman. The playground was designed based on drawings by kids from the camp and the surrounding area and constructed by over 250 volunteers. The entire nature playground site is 29,000 square feet and features a "unique blend of natural elements in a landscape designed to serve as a community playground"[64] The playground not only functions as a recreational space for children, but also acts as an educational tool using Native plants and materials in order to teach children about

[63] KaBOOM!, Inc., "KaBOOM!: it starts with a playground." Last modified 2012. Accessed September 28, 2012. http://kaboom.org/category/blog_tags/impact_stories.
[64] KaBOOM!, Inc., "KaBOOM!: it starts with a playground." Last modified 2012. Accessed October 1, 2012. http://kaboom.org/blog/29000_square_foot_nature_built_playground_built.

environmental sustainability.[65] According to the KaBOOM! website, some of the integrated recycled and natural playground features include:

- A large fort partially made using previously cut down trees
- A jumping course created from recycled tires and mangrove stumps
- A slide embedded into the natural topography of a hill
- A maze consisting of native Hawaiian vegetation
- An edible forest including native Hawaiian plants
- A natural amphitheater/outdoor classroom
- A boulder garden of climbable rocks

Architect David Rockwell also helped to design an "Imagination Playground in a BOX"[66]- a combination of portable loose parts, sand, and water which aims to encourage creativity and interaction among children. This is an innovative example of how to create site-specific play spaces which are integrated within the landscape, educational, and community-based.

6.2 South Maui Park

Another playground which was a community-build effort in partnership with KaBOOM! is located in South Maui Community Park. The 44-acre park is located near existing schools (Kihei Elementary and Lokelani Intermediate) in order to give students more physical fitness opportunities in a safe environment.[67] In addition to the playground, the park includes soccer/utility fields, baseball field, night lighting, restrooms, benches, tables, grilling pits, etc. The second phase plans propose more soccer fields, two more playgrounds, pavilions, youth center, tennis and basketball courts, and a gymnasium.[68]

In order to understand which areas are lacking play spaces for children, KaBOOM! has begun to map out designated "areas of play" and "play deserts". Play deserts are defined as

[65] ibid
[66] KaBOOM!, Inc., "KaBOOM!: it starts with a playground." Last modified 2012. Accessed October 1, 2012.
[67] Jen Russo, Papuros, "Mauifeed: A Mauitime News Blog," Last modified 2012, Accessed October 1, 2012, http://mauifeed.com/maui-news/south-maui-community-park-kihei-elementary-school/.
[68] ibid

"neighborhoods that have many children and no place to play outside".[69] According to the Centers for Disease Control, as of April 2010 only one out of five children in the United States had access to a playground or park within a half-mile of their residence.[70] There is a noticeable correlation between areas which lack outdoor play spaces with low-income neighborhoods. Other possible correlations which can be discovered through mapping play desert areas are with HHI income (poverty and lack of play space), Race/ethnicity data, and rate of childhood obesity. According to the Department of Health and Human Services, the correlation between childhood obesity and Play Deficit is obvious. The percent of childhood obesity increases 29% in areas which lack playgrounds or parks.[71] The physical environment and social economic factors which contribute to play deserts are:

- infrastructure or other barriers (lack of crosswalks or sidewalks) which makes a play space inaccessible to children within walking distance (0.5 mi)
- Poorly maintained play equipment, leading to underutilization
- High crime rates in the neighborhood can discourage parents from letting their children play outside, regardless if there is a play space within walking distance.
- Availability to community; school playgrounds are often only available for students during school hours and are otherwise securely locked, therefore eliminating a place for children to play when school is not in session.

The mapping of play desert areas are important because although the concept of having more recreational spaces for youth can be understood at a macro scale, action cannot be achieved without knowing which neighborhoods need to be focused on. Once a play desert is mapped, local policy makers of that area and other non-profit organizations (i.e. KaBOOM!) can then effectively take action by building/improving playgrounds, creating more walkable neighborhoods through implementation of cross walks, stop signs, etc., and lastly focus on "efforts to reduce crime in general and more specifically staffing play spaces with adults".[72]

[69] KaBOOM!, Inc., "KaBOOM!: it starts with a playground," Last modified 2012, Accessed October 1, 2012, http://kaboom.org/map_play/what_play_desert.
[70] ibid
[71] KaBOOM!, Inc., "KaBOOM!: it starts with a playground," Last modified 2012, Accessed October 1, 2012.
[72] ibid

PART IV: DOCTORATE PROJECT STATEMENT

The idea of recreational planning has evolved over the decades in response to the development of cities and has adapted to the changing demands and needs of the people. Traditional recreational planning began with the intent to preserve open spaces for outdoor recreation. Prior to 1970, the main emphasis of recreational planning was placed on site design, organized competitive sports, and outdoor public spaces.[73] Parks and open green spaces were a necessary escape from the congestion and pollution of the cities and were often viewed as "pastoral retreats"[74]. Currently, recreational planning has expanded to include social and environmental factors such as: urban beautification, community development, historic preservation, environmental interpretation, multi-use public and private spaces, and other recreational programs.[75] Recreational planning is continually progressing as leisure activities are now being considered a human service with an emphasis on human development, creative play areas, integration of arts, culture, senior citizens, day care, adult education programs, etc.[76] Recreational planning which once began as a simple escape from the reality now encompasses a wide range of responsibilities to improve social and environmental conditions within metropolitan cities and suburban neighborhoods. The term "recreational youth centers" has since become outdated and has currently been replaced with "youth development centers" in order to reflect the wide range of goals and responsibilities that they now encompass.

The intent of this design research project is to contribute to the existing body of knowledge on how architecture can be used to reduce crime within a community through the creation of safe spaces for youth. The building typology that will be analyzed is design of youth development centers, as applied specifically to the Boys and Girls Club of Maui (BGCM) Clubhouse, and its relation to the community within the urban context. The selected community to test my hypothesis will be residential areas of Wai'ehu Kou and Paukukalo located in the coastal region of West Maui. The area was selected based on conditions which are applicable to the intent of this research. The area is densely populated with lower/middle-class residents and has high crime statistics in comparison to other communities on Maui. Design parameters for the new facility will be developed through analyzing existing youth development center typologies in combination with the needs of the identified community. If

[73] Seymour M. Gold, *Recreation Planning and Design*, (New York: McGraw-Hill Book Company, 1980), 5.
[74] Ibid, 6
[75] Ibid, 9
[76] ibid

results of this research and resultant design parameters are successful in small scale areas at the neighborhood/ community level, application at a larger scale to control the crime rate in towns, cities, and states is envisioned.

Sustainable systems and design will be incorporated into this project as the building design is further developed. After careful analysis of the microclimate, passive design strategies will be implemented to reduce energy consumption while educating youth on the various sustainable methods to enhance their future quality of life. Reuse of existing on-site structural building elements will reduce the amount of waste produced from demolition and divert it from the landfill. Material selection is a major component of creating a sustainable project as local and low volatile organic compound (V.O.C) materials such as flooring, paint, furniture, etc. should be selected. Integration of the facility with the physical site and surrounding neighborhood through public/semi-private/private and interior/exterior spaces, in addition to alternate transportation methods (biking, walking, etc.) to increase community connectivity will enable a site specific design which will garner support of the nearby residents.

Community involvement in the beginning design phase (i.e. design charettes, focus groups) will be crucial to determine what spaces would be valued and used most by residents. Conducting surveys can provide useful information about people's daily habits, interests, and opinions about personal feeling of safety. The information gathered through surveys will help to identify which areas feel unsafe to residents, and allow for these areas to be addressed in the design. Involving the community will not only result in a successful design that directly meets the needs of the users, but will also instill a sense of ownership in the residents and foster a sense of community.

The recreational building typology is emerging as an essential component of cities and urban residential areas. Youth Development Centers are the key to improving quality of life for future generations as they provide learning opportunities which extend beyond textbook education. These facilities provide safe spaces for youth to spend their leisure time while also offering opportunities that help to develop well-rounded citizens. Children are the future and the key to transformation into a society with the ability to make educated decisions. It is important that they have these opportunities at a young age which will guide them towards a better life and not one immersed with criminal behavior.

PART V: RESEARCH DOCUMENTATION

7. PROJECT OBJECTIVES

- Reduce crime in urban and residential areas by creating safe recreational spaces for children ages 6-17 that will enrich their lives while developing ethics and social skills.
- Reorganize structure of community toward family-oriented practices by incorporating multigenerational activities connecting youth with community role models.
- Use the BGCA clubhouse as a central node in neighborhood for physical activities/exercise and mentoring programs for youth
- BGCA can initiate new collaborative programs with children and volunteer mentors within the community
- Create versatile architecture which can be used by community when BCGA is not being used by youth. (dual-purpose facility or area, new building typology)
- Connect facility with community through delineating bike paths, fitness paths, etc. using the BGCA clubhouse as a centralized location to start and end.
- Activate pockets of poorly used space through creating smaller park areas or areas of interest (i.e. bike path rest stops, tranquility labyrinths, yoga areas, checkers/chess tables, etc.)

8. SITE ANALYSIS/ CONTEXT DOCUMENTATION

Paukukalo is a small community located on the outskirts of Wailuku, alongside Waiehu Beach Road. Its elevation is 33 feet above sea level, and approximate coordinate points are 20.909-latitude, and -156.488 longitude. The Paukukalo subdivision is the first homestead community on Maui developed by Department of Hawaiian Homelands (DHHL) in the 1960's.[77] It is an urban community with approximately 182 single-family homes with a precarious reputation among many Maui residents. The entire community encompasses about 61.0 acres composed of 10,000 S.F. lots.[78]

The selected site is adjacent to Paukukalo Park and Kamehameha Elementary School. There is an existing two story concrete masonry open air gymnasium consisting of perimeter

[77] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[78] ibid

columns and intermittent shear walls on the proposed site. The roof is framed with steel purlins and trusses covering a basketball court below which can be reused as a sustainable design element. The Boys & Girls Club of America, Maui chapter is planning to build a clubhouse on this site. The results of this research and design proposal may aide their process in creating a successful facility that will provide an appealing safe space for youth to gather, connect with the community, and provide positive role models that will guide them towards being responsible young adults leading toward a safer community.

8.1 SITE HISTORY

In the early 1800's, during the pre-contact and early contact periods of Hawaii, land was divided into what is known as an *ahupua'a*. This division of land extended from the mountain to the sea and was a way that to ensure a sustained lifestyle for every family. The Wai'ehu and Waihe'e regions were considered "centers of political power"[79] resulting in large populations within these areas. About 18 *heiau* (Hawaiian temple) existed in Waihe'e, and the cultivation of taro led to extensive irrigation systems and the wet-taro farm terraces in the slopes of West Maui Mountain.

Paukukalo is located in the Wailuku ahupua'a, and Wai'ehu Kou is located in the Wai'ehu Ahupua'a that extended from the cliff of Kapulehua to A'alaloa. The ahupua'a was divided into three different zones, Mauka, Agricultural, and Coastal. The *mauka* (mountain) zone was used to grow *koa*, and other trees or vegetation—of which wood was used to build canoes— that could be traded for food and resources from the coastal lying areas.[80] The area near the sea was owned by *ali'i* (chief)and was considered an area for refuge and pardon.[81] The slopes of the mountain were considered the agricultural zone which allowed for multiple terraces to be constructed easing farming and irrigation techniques. Yams, sugar cane, taro, sweet potato and other foods of this nature were cultivated in the agricultural zone. The coastal zone was mainly for dwelling and consisted of groups of houses (*kauhale*), temples (*heiau*), fishing shrines (*ko'a*), and fishponds (*loko i'a*).[82] The dryer climate with gentle ocean breeze encouraged fishing by canoe. The ahupua'a system allowed for trade between those who grew and cultivated crops

[79] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[80] Info Grafik Inc., "A community learning center: HawaiiHistory.org," Last modified 2012, Accessed December 4, 2012, http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&CategoryID=299.
[81] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[82] ibid

from the mountains with the fisherman of the sea resulting in a balanced and self-sufficient lifestyle.

In 1831, Protestant missionaries conducted the first census on Maui recording a population of 355 persons in Wai'ehu and 827 persons in Waihe'e Valley. Waihe'e Protestant Church was then established to service the large protestant population in the area where about 100-300 Hawaiians attended.[83] The church remains today and is on the National Register of Historic Places. In the mid-1800's, the entirety of the ahupua'a system changed due to the division and redistribution of lands known as the Great *Mahele* which occurred under Kamehameha III rule. With the increase of foreigners to the islands, Kamehameha III was pressured to change the ahupua'a land ownership system which was being criticized by Euro-American visitors as "backward and oppressive, resulting in 'a nation of shirks'"[84] and "forbid cheerful industry."[85]

With the aide of chiefs and Euro-American advisors, King Kamehameha III created the Hawaiian Bill of Rights in 1839, and the first constitution which acknowledged that both the "king and common people had some form of ownership in the land, aside from an interest in the products of the soil."[86] Shortly thereafter, the Great Mahele began (1840's) in which claims and ownership of land could be presented to the land commission and awarded by them. The land was divided into two main parts, the Crown Lands (land retained by Kamehameha III) and Government Lands (for the chiefs and people). The *Kuleana* Act of 1850 also enabled commoners to own small parcels of land as awarded by the Land Commission office. Although the Great Mahele was an effort to give ownership of land to the Hawaiian peoples, the goal was not achieved. Very few parcels were actually sold to Hawaiians and a majority of kuleana lands

[83] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[84] Diane Lee Rhodes, National Park Service, "Pu'ukohola Heiau NHS, Kaloko-Honokohau NHP, Pu'uhonua O Honauanau NHP: A Cultural History of Three Traditional Hawaiian Sites on the West Coast of Hawai'i Island," Last modified 2001. Accessed October 12, 2012. http://www.cr.nps.gov/history/online_books/kona/history5g.htm.
[85] ibid
[86] Diane Lee Rhodes, National Park Service, "Pu'ukohola Heiau NHS, Kaloko-Honokohau NHP, Pu'uhonua O Honauanau NHP: A Cultural History of Three Traditional Hawaiian Sites on the West Coast of Hawai'i Island".

that the Hawaiians did possess was soon lost or revoked due to inability to pay the high prices, inadequate farming conditions, and eviction by foreigners without due process.[87]

The Great Mahele also enabled foreigners to purchase land in the islands. In 1862, T.H. Horbron bought land in Waihe'e Valley to cultivate sugar cane and later founded the Waihe'e Plantation. The majority of the plantation workers were native Hawaiians who lived in the area, and in 1879 Waihe'e School was established to serve the growing plantation community.[88] The sugar cane industry in the Waihe'e and Wai'ehu areas flourished for the next 80 years. Wailuku Sugar Company purchased Waihe'e, Wailuku, and Waikapu plantations which later became known as Wai'ehu Kou. After sugar cane production began to diminish, the area was used for macadamia nut orchards. Today, Wai'ehu Kou is a single-family urban community encompassing 126.7 acres. There are approximately 364 single-family units which have been developed in four planning phases since 1993. Interspersed within the area are many graveyards for families of Hawaiian, Chinese, and Korean ancestry. Adjacent to the Wai'ehu Kou community is the Waiehu Golf Course which fronts the ocean shoreline.

8.2 CLIMATE/ NATURAL RESOURCES

The climate in the Waihe'e, Wai'ehu, and Wailuku region is consistently mild temperatures ranging between 64-84 degrees throughout the year, with a comfort index of 53 out of 100. The area averages about 31 inches of rain annually, 112 days of measurable precipitation, and 273 sunny days per year. There are also relatively consistent Northeasterly trade winds increasing the level of comfort.

[87] ibid
[88] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).

Climate	Wailuku, HI	United States
Rainfall (in.)	30.9	36.5
Snowfall (in.)	0	25
Precipitation Days	112	100
Sunny Days	273	205
Avg. July High	84	86.5
Avg. Jan. Low	64	20.5
Comfort Index (higher=better)	53	44
UV Index	9.9	4.3
Elevation ft.	303	1,443

Table 1: Climate in Wailuku, Hawaii

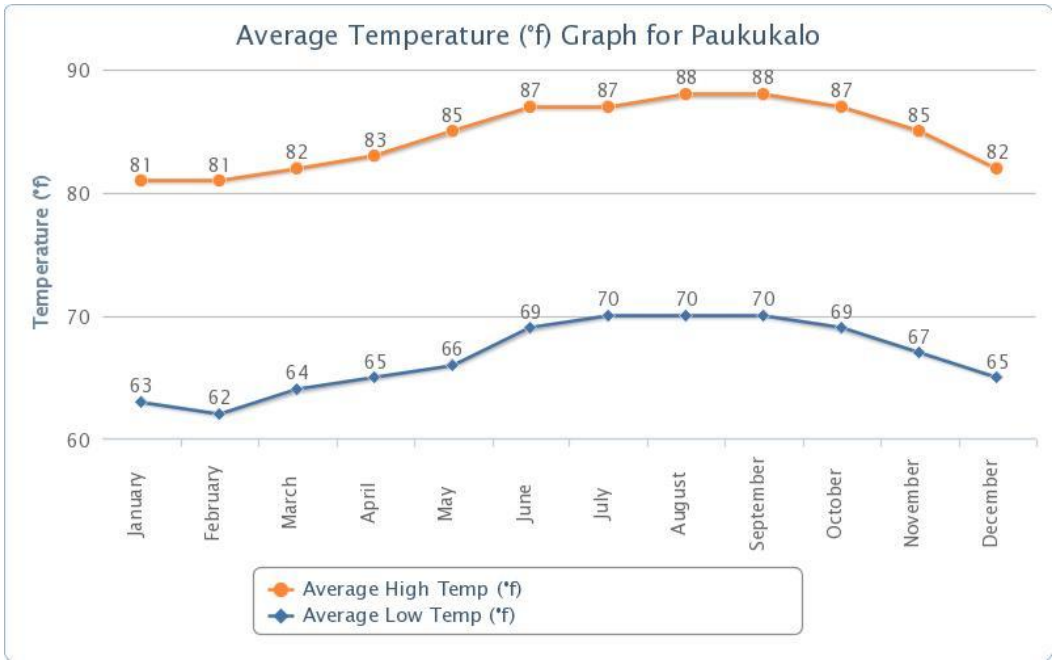

Figure 4: Average Temperature Graph for Paukukalo

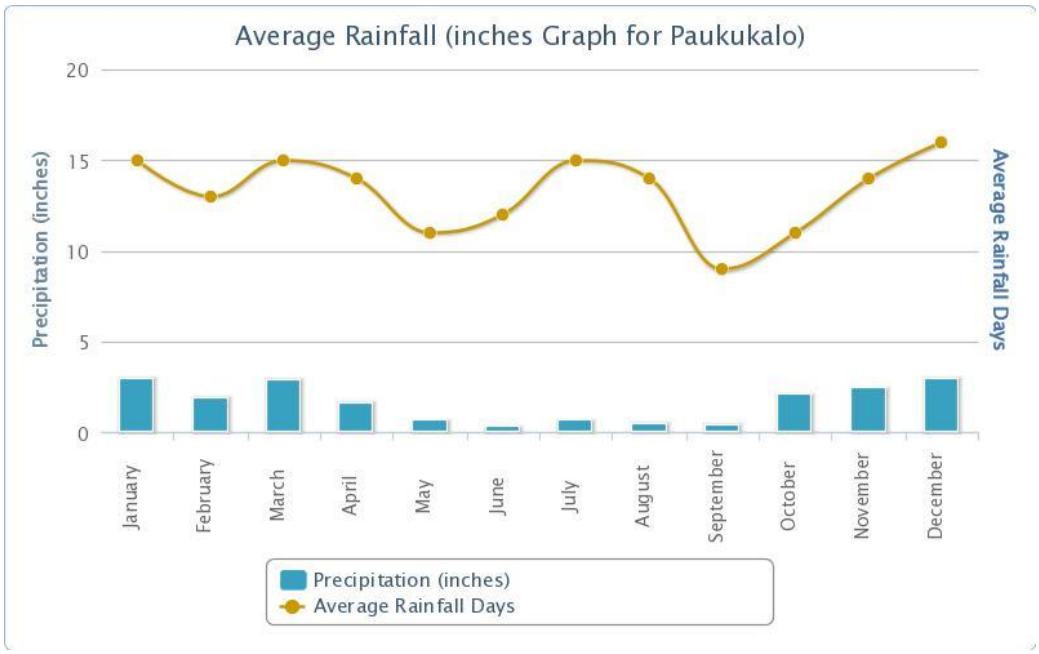

Figure 5: Average Rainfall Graph for Paukukalo

The soil in the Wailuku area and on-site are of the Pulehu-Ewa-Jaucus association, which is characterized as deep and well-drained, usually located on alluvial fans and basins.[89] The soil type specifically on the project site is Jaucas sand which is described as single grain, pale to very pale brown, sandy, and more than 60 inches deep with a rapid permeability rate and slow runoff.[90] In areas where there is little or no vegetation, wind erosion is of most concern as compared to water erosion which is minimal. The project site is located at 20.909 degrees latitude and -156.488 longitudes at an elevation of 33 feet above sea level, with an approximate slope of 5% from west to east. As previously mentioned, the Wailuku and Waihe'e regions were historically used for sugar cane cultivation (100+ years), and replaced with macadamia nut orchards beginning in the 1980's for the next 20 years. Today the vegetation has been replaced with single-family housing which consists of privately maintained yards, recreational parks, golf courses, and cemeteries. Paukukalo Park is adjacent to the project site and is a large grassy area maintained on a regular basis.

There are many perennial streams in the Wai'ehu and Waihe'e region which run from the West Maui Mountains (*Mauna Kahalewai*, translates to "House of Water") to the ocean. The

[89] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[90] ibid

four main streams that are known as *Na Wai Eha* (The Four Waters) are Iao Stream, Waihe'e Stream, Wai'ehu Stream, and Waikapu Stream. Wai'ehu Kou and Paukukalo areas are specifically served by Iao Stream and Wai'ehu Stream. Wai'ehu Stream has cultural significance, and Iao Stream is rated "an outstanding stream by the State of Hawaii"[91]. Both streams have substantial aquatic resources (including various native aquatic species and underwater environments used for public education and aquatic resource-based recreation), and were once associated with taro cultivation. Due to the multiple streams providing a continual fresh water source throughout the year, this region was historically considered the largest and most continuous *kalo* (taro) pond-field agriculture area in the Hawaiian Islands.[92] Recently, Iao Stream has become a popular tourist attraction providing many recreational activities such as hiking, fishing, swimming, nature/habitat study, parks, and scenic views.[93]

The overall air quality in Hawaii is good on 97% of days, with moderate air quality for 3% of days on average. Major air pollution occurs from volcanic activity on the Big Island resulting in sulfur dioxide and other gases being released into the atmosphere. The volcanic smog commonly known as "vog" in Hawaii, can affect air quality of the neighbor islands including Maui and Oahu depending on wind direction and speed. Factories (i.e. sugar cane) and mobile sources are other contributors of air quality pollution on Maui. There are no direct point sources of airborne emissions near the project vicinity.[94]

Air Quality Index:		**Air Quality Index**	
Percentage of days with good air quality:	97	0-50	Good
Percentage of days with moderate air quality:	3	50-100	Moderate
Percentage of days with unhealthful air quality for sensitive populations:	0	100-200	Unhealthful
Percentage of days with unhealthful air quality:	0	200-300	Very Unhealthful
Maximum AQI level in 2003	69	300-500	Hazardous
Median AQI level in 2003	19		
90th Percentile AQI level in 2003	35		

Table 2: Air Quality Index Maui County

[91] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[92] ibid
[93] Department of Hawaiian Homelands, "Paukukalo-Wai-ehu Kou," *Regional Plan*, no. June (2010).
[94] Munekiyo, Arakawa, & Hiraga, Inc., "Final Environmental Assessment: PAUKUKALO PRESCHOOL AND RELATED IMPROVEMENTS," Last modified 2001.

8.3 POPULATION DEMOGRAPHICS/ SOCIO-ECONOMIC ENVIRONMENT

The majority of population in Paukukalo is comprised of young families with children under 18. According to the 2010 United States Census Bureau data, 68% of the households contained married-couple families, while 22% were other families, and 10% of the people lived alone.[95] The age distribution within the community reflects the many young families of the area. Thirty percent of the population is 18 years or under, while 29% are between ages 25-44, and 11% are 65 and over.[96] Within the Waihe'e and Waikapu region are numerous designated Hawaiian Home Land areas resulting in a large amount of residences (approximately 45.5%) claiming Native Hawaiian ethnicity, with the remainder population being mostly of Caucasian ethnicity.[97] People living in the area usually are permanent or long-term residents. The 2010 census shows 97% of those surveyed were living in the same residence one year prior, 3% relocated from another area within Maui County, and less than 0.5% moved from another state or country.[98] In 2005-2009 a total of 83% of residents age 25 and older had graduated from high school, with 6% attaining a college degree, and 17% dropping out of high school.

The top three industries of which Paukukalo residents are employed include: professional, scientific, management, and administrative and waste management services (16%), Educational services, and health care and social assistance (16%), and construction (14%).[99] The main mode of transportation to work in the 2010 census is by automobile where 80% of residents drove to work alone and took an average of 14.4 minutes to reach their destination. Thirteen percent of people carpooled, 1% used public transportation (i.e. Maui Bus), 3% used other means of transportation, and 3% worked from home.[100]

The average median income in Paukukalo was $75,625, with the average income from social security at $15,164. In 2010, the median income per household of the greater Waihe'e and Waikapu area was $63,236, as compared to Maui County average income of $49,489, and the U.S. average of $41,994. The results show that the average income of the area is

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[95] U.S. Census Bureau, "U.S. Census Bureau: American Fact Finder," Last modified 2012, http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.
[96] ibid
[97] Department of Hawaiian Homelands, "Paukukalo-Wai'ehu Kou," *Regional Plan*, no. June (2010).
[98] U.S. Census Bureau, "U.S. Census Bureau: American Fact Finder," Last modified 2012, http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.
[99] ibid
[100] Department of Hawaiian Homelands, "Paukukalo-Wai'ehu Kou," *Regional Plan.*

considerably higher that other areas of Maui County, Hawaii, and the general population of the United States. The poverty rate in the area was low with 8% of the residents 65 and over under the poverty level, and only 1% of related children under 18 below the poverty level. Two percent of families and 8% of families with no husband present were also under the poverty level.[101]

The types of housing units within the Paukukalo Hawaiian Home Land area is 100% single-unit structures, 26% of those houses have been constructed since 1990 and are fairly new. There are no mobile homes or multi-unit structures within the Hawaiian Home Lands. Out of the 190 housing units in the Hawaiian Home Land area, about 87% were occupied by the owner, and 13% were rented. Forty-six percent of households had three or more vehicles, 27% had two vehicles, while 4% had no access to a vehicle for private use.[102]

To summarize the most pertinent information gathered from the results of the 2010 U.S. Bureau Census relevant to this research project, the following can be concluded:

1. The selected project site is encompassed by a large urban single-unit structure neighborhood
2. The majority of the population in consisted of young families with children under the age of 18
3. There is a large presence of native Hawaiian ethnicity within the surrounding neighborhoods
4. Majority of the population maintain a permanent residence
5. Residents rely heavily on personal vehicles as their main mode of transportation

9. CRIME IN HAWAII

Architecture can be used to house problems or to solve them. When it comes to the problem of crime, society tends to support the idea of locking up criminals behind bars to keep them off the streets. This solution results in the need for a continual amount of space dedicated to providing housing for criminals. Although creating a larger jail system creates jobs and supports the economy, it is ignoring the problem instead of addressing it. Sonia N. Isotov, principal of a Maui-based research and competitive analysis firm, believes that jails are simply

[101] ibid
[102] Department of Hawaiian Homelands, "Paukukalo-Wai'ehu Kou," *Regional Plan.*

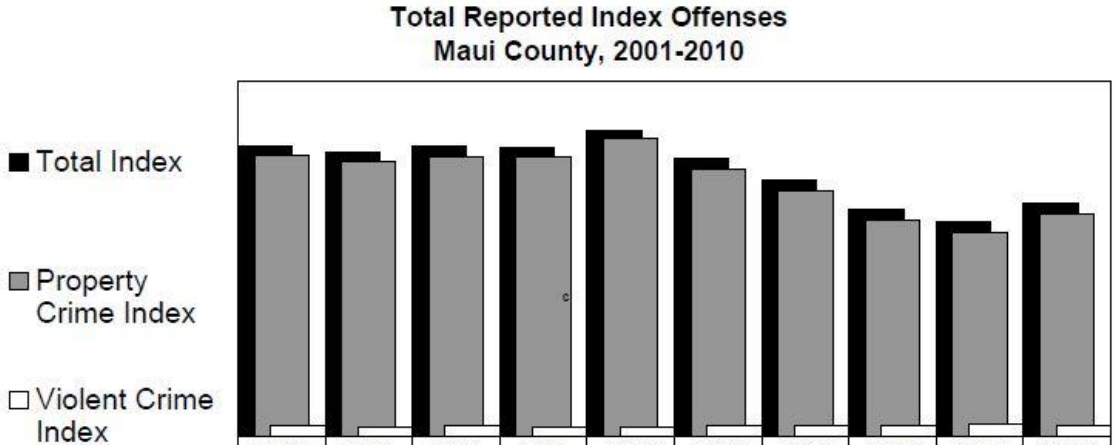
"holding cells that release the same criminals onto our streets to do the same crimes, if not worse, repeatedly."[103] An effort should be made towards figuring out ways that we can reduce the number of people being sent to jail rather than simply expanding the facilities to meet these needs.

On Maui, plans to build a $4.5 million new forensic facility in addition to constructing the first phase of a new multipurpose jail complex (estimated $235 million project) to be completed by 2013 are already in progress.[104] The new proposed correctional facility is to be located off of Mokulele Highway near the armory. This facility will replace the 30 year old jail that is currently holding 356 people, significantly over its recommended capacity of 209.[105] It is projected that within the next three years the facility will need to house approximately 670 prisoners.[106]

According to the Crime in Hawaii 2009 report which analyzed the 2008 crime statistics, there were was a total crime index decrease of 4.6% on Maui. The Crime in Hawaii 2010 report shows a decrease of 8.6% since 2009. The crime rate index is comprised of two categories of criminal acts: Violent Crime Index (Murder, Rape, Robbery, Assault), and Property Crime Index (Burglary, Larceny-Theft, Motor Vehicle Theft, Arson). Although the combined crime rate index is decreasing each year, the violent Index Crime rate has actually increased 3.9% within the past decade (2001).[107] If the overall index crime rate is decreasing, why is the County investing in expanding correctional facilities. Investments should be made towards programs and facilities that will contribute to decreasing criminal behavior and reducing the need for expansion of correctional facilities.

[103] "Maui County: By the Numbers," *Isotov Information Services*, 3, no. January (2011): 2.
[104] ibid
[105] "Maui County: By the Numbers," *Isotov Information Services*, 3, no. January (2011): 2.
[106] ibid
[107] Crime Prevention & Justice Assistance Division: Research & Statistics Branch, 2012 Annual Report (Crime in Hawaii 2010: A Review of Uniform Crime Reports).

9.1 MAUI COUNTY DATA/STATISTICS



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Index	8,174	7,986	8,179	8,117	8,615	7,821	7,224	6,371	6,048	6,563
Property Crime Index	7,883	7,725	7,868	7,848	8,363	7,528	6,911	6,085	5,715	6,268
Violent Crime Index	291	261	311	269	252	293	313	286	333	295

Figure 6: Crime in Hawaii 2010: A Review of Uniform Crime Reports

In 2010, the total Index Crime was comprised of 74.4% adult crimes, and 25.6% juvenile arrests. Honolulu's total Index Crime rate decreased 9.1% and was the lowest ever recorded since the collection of statewide data began in 1975. Similarly, Hawaii County Index Crime rate decreased 13.6% and was also the lowest ever recorded since 1975. Kauai County increased in violent crime rate (7.8%) but had an overall decrease in total Index Crime of 12.6%. Maui County had the highest property crime rates and total Index Crime rate (increased 1.3%) in the State of Hawaii.[108] Why is the Index Crime rate decreasing on O'ahu, Hawaii County, and Kauai, but increasing on Maui? There are an infinite amount of factors that contribute to criminal activity which can never fully be determined, but for the purpose of this design project focus will be placed on contributing factors of urban planning and within the built environment.

A closer analysis of the Maui County Index Crime rate will help to identify criminal activities occurring especially focusing on types of juvenile crimes. It is important to note the types of dominant crimes in order for preventative measures to be executed. The 2009 Maui County Crime Index compares the number and types of crime on Maui County to the other

[108] ibid

Hawaiian Islands (Hawai'i, Kaua'i, O'ahu) and United States. In comparison, Maui ranks higher than the national rate in rape, larceny-theft, and motor vehicle theft.

Maui County has seen a significant increase in the number of juvenile petitions within the past decade. A juvenile petition is similar to a criminal complaint in adult cases, and is defined as a formally charged case that appears on a court calendar.[109] Between 1998 and 2008, there was a total increase in number of petitions filed of 194% for males, and 200.7% petitions for females. The highest number of petitions (total of 817) was filed for property offenses. The percentage of youth drug and alcohol related crimes also ranks higher than O'ahu, Kaua'i, and Hawai'i.

Juvenile Petitions, Maui County

	2003	2004	2005	2006	2007	2008
Gender						
Male	1,011	879	746	699	2,306	2,208
Female	442	257	264	211	687	872
Offense Type						
Person Offenses	88	84	95	83	168	160
Drug Offenses	106	142	89	107	439	683
Sex Offenses	19	5	10	3	41	15
Property Offenses	292	309	252	222	731	817
Wpns/Intimidation	77	35	50	37	146	175
Status Offenses	377	237	184	154	711	538
Other Offenses	500	335	330	304	757	692

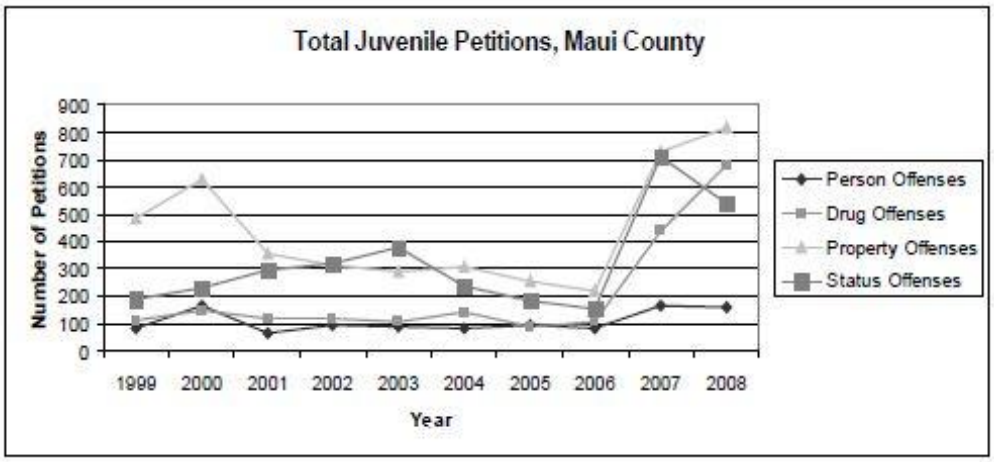


Figure 7: Maui County By the Numbers: Juvenile Petitions

[109] "Maui County: By the Numbers," *Isotov Information Services*, 3, no. January (2011): 19.

Drug and Alcohol Arrest, Maui County							
	2003	2004	2005	2006	2007	2008	2009
Drug Manufacturing/Sale							
Adult	116	58	59	76	67	76	82
Juvenile	15	5	12	6	1	8	4
Adult	87%	89%	80%	90%	94%	87%	92%
Juvenile	11%	8%	16%	7%	1%	9%	4%
Drug Possession							
Adult	513	471	444	426	461	420	518
Juvenile	101	97	68	90	153	183	147
Adult	84%	83%	87%	83%	75%	70%	78%
Juvenile	16%	17%	13%	17%	25%	30%	22%
Alcohol Related							
Adult	885	969	1,030	1,172	1,408	1,321	1,096
Juvenile	72	61	77	153	168	178	151
Adult	92%	94%	93%	88%	89%	88%	88%
Juvenile	8%	6%	7%	12%	11%	12%	12%

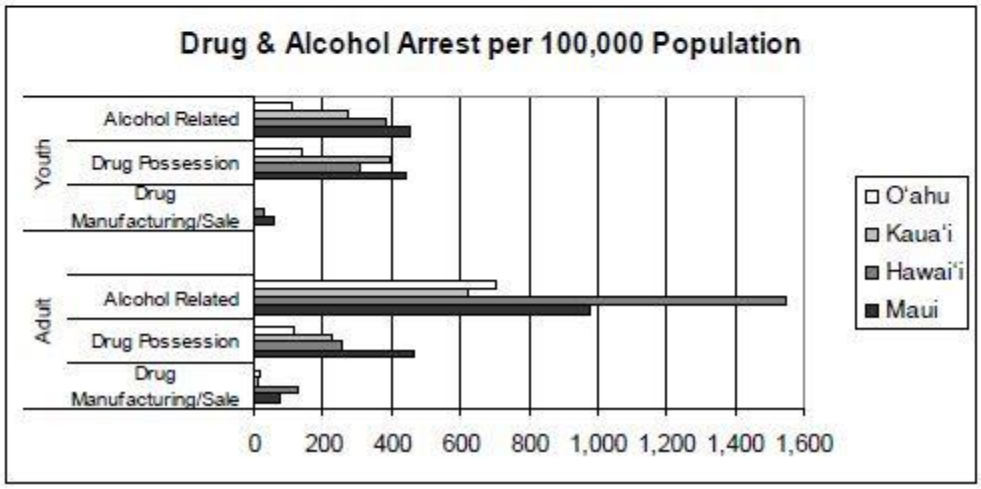


Figure 8: Maui County By the Numbers: Drug and Alcohol Arrest

In a 2003 Hawaii statewide high school (grades 9-12) student survey, it was concluded that the use of cigarettes, alcohol, and marijuana was initiated before the age of 14 in most cases. Alcohol was ranked the highest reported percentage of first time substance use as compared to tobacco and illicit drugs. The risk factors correlated to substance abuse stem from the home environment such as: exposure to family substance use, poor family supervision, lack

of parental sanctions, and parental attitudes favorable to substance use.[110] Approximately one in 13 students met the criteria for substance abuse or dependence, females and 12th graders ranked the highest percentage of use. Hawaii ranks higher than the national rate (10% of adolescents) for 12th graders that met the criteria for substance abuse.

High School Student Antisocial Behaviors, Maui County
(2003)

Student Antisocial Behaviors	9th Grade	10th Grade	11th Grade	12th Grade
Been suspended from school?	11.60%	9.90%	9.30%	9.10%
Been drunk or high at school?	14.80%	17.90%	23.00%	21.90%
Sold illegal drugs?	7.20%	8.30%	10.80%	8.60%
Stolen or tried to steal a vehicle?	4.50%	3.50%	3.90%	3.10%
Been arrested?	6.80%	6.70%	7.70%	6.60%
Attacked someone with intention to harm?	12.70%	7.20%	11.10%	9.70%
Carried a handgun?	3.80%	2.70%	4.70%	4.20%
Taken a handgun to school?	0.80%	1.60%	0.50%	0.30%

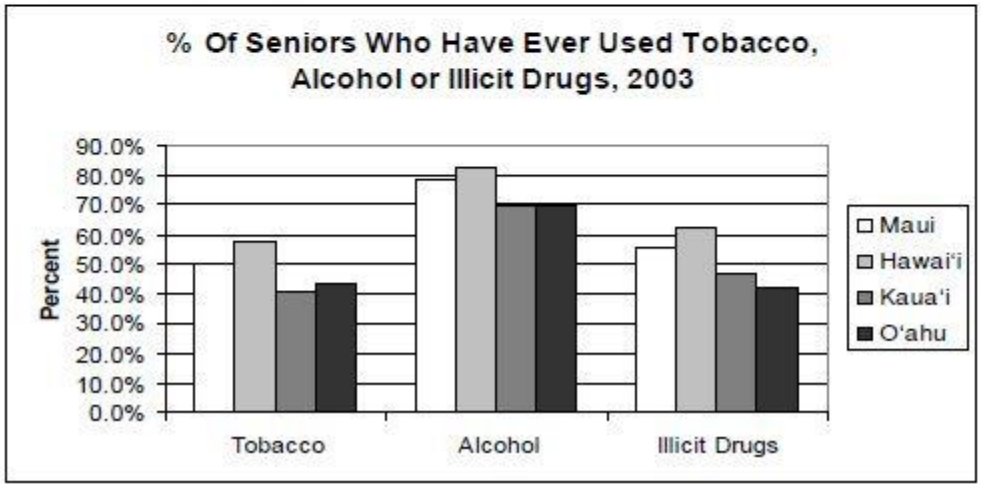


Figure 8: Maui County By the Numbers: High School Student Antisocial Behaviors

[110] "Maui County: By the Numbers," *Isotov Information Services*, 3, no. January (2011): 10.

Family Attitudes & Supervision, Maui County High School Students
(2003)

Family Characteristics	9th Grade	10th Grade	11th Grade	12th Grade
Poor Family Supervision	35.3%	32.4%	34.8%	46.0%
Lack of Parental Sanctions for ASBs	37.2%	37.3%	35.5%	30.4%
Parental Attitudes Favorable Toward ATOD Use	19.7%	19.5%	32.2%	33.8%
Exposure to Family ATOD Use	49.5%	40.1%	42.8%	45.3%
Parental Attitudes Favorable Toward ASB	33.4%	24.0%	33.9%	30.9%
Family (Sibling) History of ASB	42.6%	38.2%	43.1%	46.1%

ASB: Antisocial Behavior
ATOD: Alcohol, Tobacco, and other Drug Use

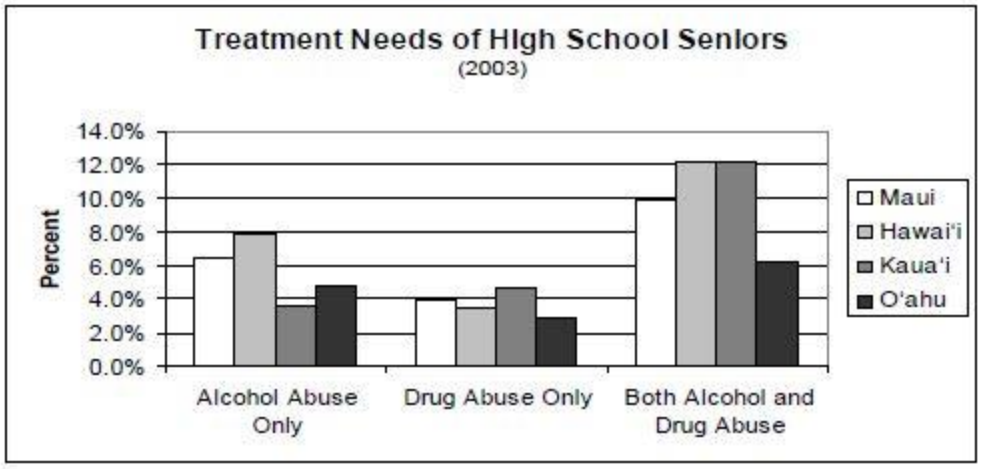


Figure 10: Maui County By the Numbers: Family Attitudes & Supervision

By analyzing the Index Crime reports within the past decade, it can be established that Maui County crime rate is higher than the national average and many of the neighbor islands. Using an analytical software and service company called Behavioral Analysis & Intelligence Resources (BAIR), a closer analysis comparing areas of amplified criminal activity on Maui can be conducted. Regional Analysis and Information Data Sharing (RAIDS) online is a regional crime map developed by BAIR which is available for the public to view all reported criminal activities that have occurred in their area. This mapping allows for law enforcement to connect with the community in order to reduce crime, create public awareness, and improve safety.

9.2 CRIME DENSITY MAP OF MAUI

Analytic data of the crime density mapping of Maui County shows that the majority of crime occurs in the downtown areas of Kahului and Wailuku. The peak time for criminal activity is around 9am and 9pm throughout the week, and 1-2am on weekends, with the most frequent day being Saturdays. The top five types of crime are categorized as: All other (51.6%), Disorderly Conduct (13.2%), Theft (5.6%), Vandalism (5.2%), and Residential Burglary (4.4%).

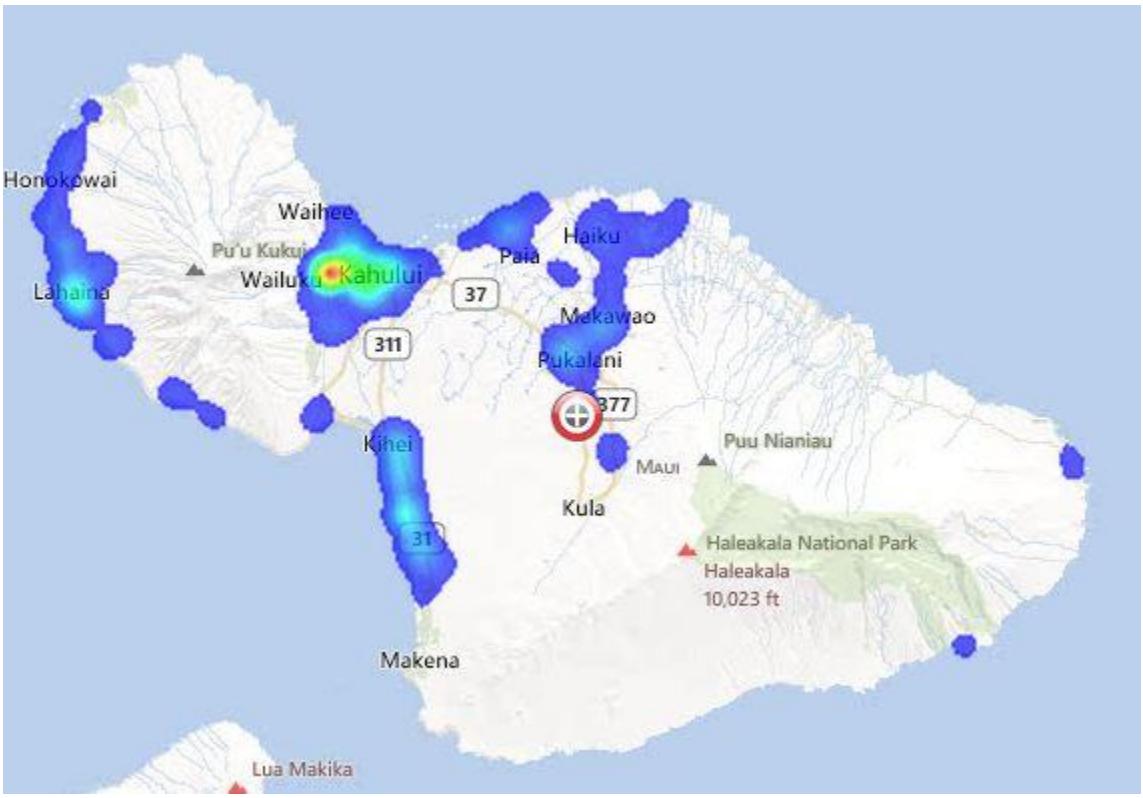


Figure 11: Crime Density Map of Maui

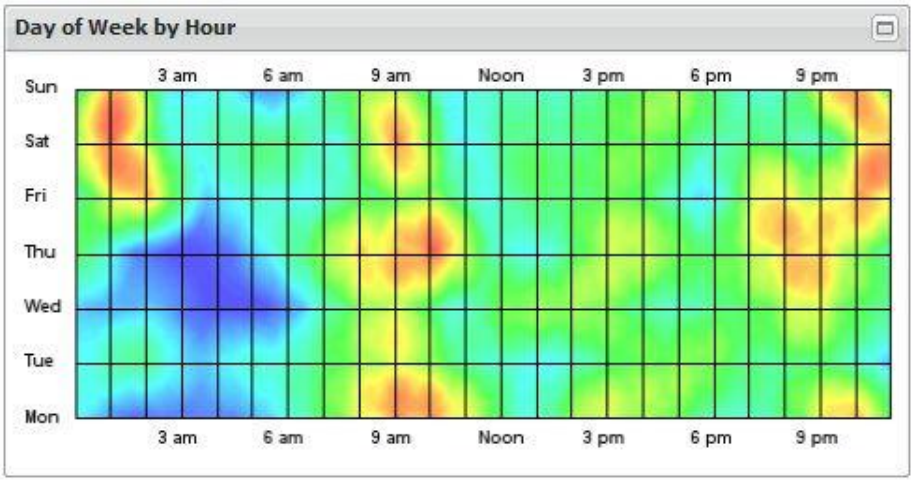


Figure 12: Crime Density Map: Day of Week by Hour

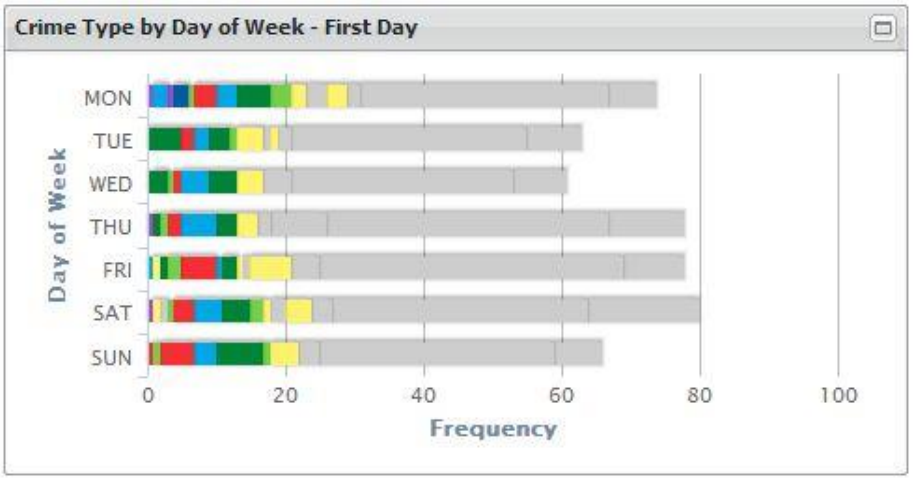


Figure 13: Crime Type by Day of Week

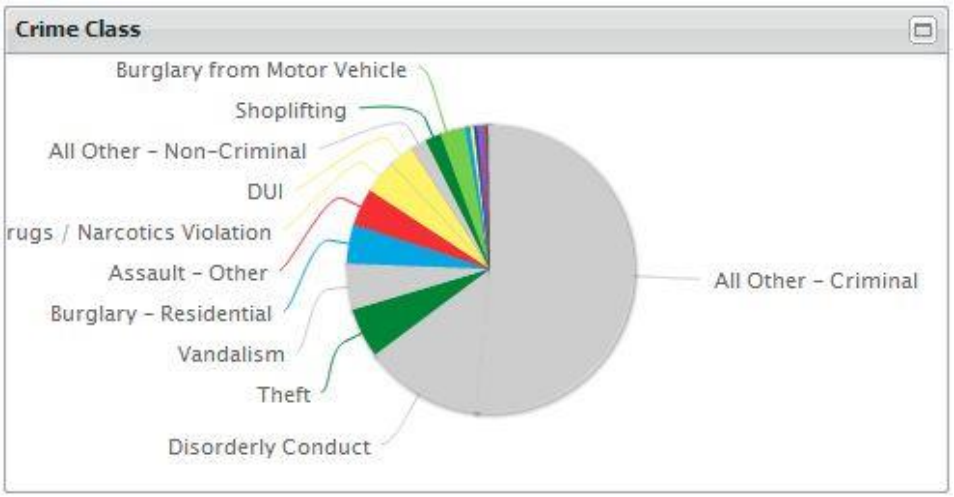


Figure 14: Crime Class

The selected project area of Paukukalo in the Waiehu region is predominantly residential with minimal recreational activities within walking distance for both youth and adults. There are two parks, Waiehu Terrace Park and Paukukalo Park, which are located closer toward the industrial area. In the residential area of Waiehu Kou, there is Waihee Park at the corner of Halewaiu Road and Kahekili Highway intersection. Although these residential areas are located near the ocean which provides options for numerous recreational activities such as fishing, swimming, surfing, paddling, etc., the access roads are minimal with limited parking and can be conducive to crime. There is a need for more recreational facilities and community organizations integrated in these typical suburban residential areas which can contribute towards a safer environment and community connectivity.

10. DESIGN APPROACH

In response to the new urban planning theory of "smart growth", which can be defined as "creating walkable environments through development of compact mixed-use areas"; a debate has emerged as to whether suburban residential areas have become breeding grounds for violence. American suburbia was once the idea of a utopian society where everyone could own their own piece of land with a front yard away from the city center, has led to urban and suburban sprawl of low-density housing. Architects and planners have found a correlation between the built environment and how people behave and feel.[111] Within the past two decades, there has been an increase in violence, school shootings, and other deadly attacks occurring in suburban areas. Could the suburban built environment be a factor of this increase in violent human behavior?

10.1 NEW URBANISM/ SMART GROWTH CONCEPTS

Andres Duany and Elizabeth Plater-Zyberk have developed a new approach to designing cities, towns, and neighborhoods, called "New Urbanism".[112] The idea of New Urbanism uses old European Villages as models of how to develop cities and neighborhoods to reduce traffic and sprawl. Duany and Plater-Zyberk believe that suburbia does not "foster a sense of community" and instead creates dangerous areas of seclusion, social isolation, and failure to

[111] Jackie Craven, About.com:Architecture, "Does Suburbia Breed Violence?," Last modified 2012, Accessed October 21, 2012, http://architecture.about.com/od/communitydesign/a/teenshootings.htm.
[112] ibid

communicate.[113] The image of a utopian suburbia has led to the development of gated communities. The purpose of gated communities was to create a feeling of safety for those living behind its gates; however these communities have only instilled fear of the world beyond the gates, and have secluded the residents within. Regional Planning professors of California, Edward J. Blakely and Mary Gail Snyder have researched and analyzed gated communities and concluded that these types of communities "lead to misunderstanding, stereotyping, and fear"[114]. Open communities allow people of different ethnicities and social status to interact and negotiate with one another building a mutual understanding, tolerance, and respect. The ideal city and neighborhoods are those that do not isolate its residents or create suburban sprawl, but integrate residents with their built environment in order to create a sense of community and security.

New Urbanism ideas need to be implemented at a planning stage, and therefore can only be applied to new communities. However, a vast majority of existing neighborhoods throughout the United States are organized in the suburban patterns that promote vehicular transportation as opposed to walking. These existing suburban neighborhoods need to be restructured to bring a sense of community. This research project will investigate ways that will foster a sense of community within existing urban and suburban neighborhoods in order to reduce social isolation, fear, and violence.

The Queensland Government in Australia has conducted extensive research on how to reduce crime through preventative measures within a community. They have established many guidelines on how to make public spaces safer, and involvement of the community to ultimately reduce crime. One of the first steps in creating a safer community is to get the residents involved through public meetings, surveys and questionnaires, forming community safety committees/safe project groups, or organizing community safety audit teams and workshops.[115] Everyone has different ideas of what areas feel safe or unsafe, therefore surveys and community safety groups should consist of elderly, men's and women's groups, and youth. Surveys and community safety group discussions will allow for identification of "hot spots" of crime within an

[113] Jackie Craven, About.com:Architecture, "Does Suburbia Breed Violence?," Last modified 2012, Accessed October 21, 2012.
[114] ibid
[115] The State of Queensland (Department of Local Government), "Queensland Government: Department of Local Government," Last modified 2012, Accessed October 26, 2012, http://www.dsdip.qld.gov.au/indigenous-councils/involving-the-community.html.

area which is an important step before preventative measures can be taken.[116] In addition to identifying hot spots where criminal activity occurs most frequently, another important step is to develop community goals such as reducing violence, safety of children, and developing a sense of pride in place through a well maintained community. Some suggested strategies for creating safe public spaces within a community are[117]:

- Adults and those in leadership positions within the community (i.e. teachers, counselors) act as good role models treating people with respect and without violence
- Build positive relationships between county, state, and community organizations
- Build and maintain public facilities
- Establish community volunteer groups for different parts of community safety (i.e. family support groups, safety audit teams, reporting of vandalism or graffiti)
- Give youth things to do such as school activities, recreation, community projects (i.e. public murals, vegetable gardens, youth forums, youth spaces, mentoring programs such as Big Bother Big Sister)
- Develop public education and awareness campaigns

There are two types of design approaches when developing safer communities and preventing crime. The first approach known as "situational prevention" is aimed at modifying physical environmental factors that provide opportunities for crime to occur. Factors that can be modified using this approach include: Provision and maintenance of urban infrastructure (i.e. Street lighting, community facilities), Responsibility for urban design and planning, management of public land (i.e. landscaping, lighting, street furniture), and traffic management (i.e. traffic calming)[118]. This approach includes principles from the relatively new design theory of Crime Prevention through Environmental Design (CPTED) (pronounced: *sep-ted*).

[116] ibid
[117] The State of Queensland (Department of Local Government), "Queensland Government: Department of Local Government," Last modified 2012, Accessed October 26, 2012.
[118] Jane Botfield: Creating Safe Spaces: Local Government Responding to Community Safety and Crime Prevention in Public Space (Local Government Association of Queensland), PDF.

10.2 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) APPROACH

In the late 20th century, the CPTED or 'designing out crime' theory was developed which incorporates Oscar Newman's Defensible Space guidelines. Prior to these concepts, the idea of architectural design and the built environment influencing crime was not seriously discussed. In the 1970's, the Law Enforcement Assistance Administration and the Department of Housing and Urban Development (HUD) teamed up to conduct several studies on how architectural design influences crime rate in urban housing projects.[119] The results of those studies proved "that by combining security hardware, psychology, and site design, a physical environment could be developed that would, by its very nature, discourage crime".[120]

The goal of CPTED concept is to minimize opportunities for crime to occur through integrating defensive physical design elements in the planning stages of a project. This is a cost-effective method that will allow for the intent and aesthetic of the original design to be realized, rather than adding on security hardware after the construction is completed which minimizes the integrity of the design. The types of crimes that CPTED strategies of a situational approach may reduce include graffiti, vandalism, assault, breaking and entering, and theft and trespassing[121].

The second type of approach toward community safety and crime prevention is "Social/Developmental Prevention". This approach focuses on preventing crimes that are not influenced by physical environmental factors, but rather by social disorder, or personal and/or social factors.[122] Change in the physical environment will not prevent crimes committed as a result of unstable mental, social, or emotional conditions. These problems may stem from various risk factors including: Family environments, schooling, income and employment, alcohol and other drug use, peer relations, and moral belief and other cultural influences.[123] The preventative measures taken must be focused on reducing these risk factors through programs and projects that aim to strengthen social bonds with family and community. Communities that have strong social bonds tend to take pride in their neighborhood environment and feel a sense

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[119] Robert A. Gardner, "Crime Prevention Through Environmental Design(revised) ," *Security Management Magazine*, April 1981, http://www.crimewise.com/library/cpted.html (accessed October 23, 2012).
[120] ibid
[121] Jane Botfield: Creating Safe Spaces: Local Government Responding to Community Safety and Crime Prevention in Public Space, PDF.
[122] ibid
[123] Jane Botfield: Creating Safe Spaces: Local Government Responding to Community Safety and Crime Prevention in Public Space, PDF.

of “ownership” over public areas, which results in care and protection over public facilities and creating a feeling of safety.

Another important social/developmental prevention strategy is involving young people in community projects. Most juvenile crimes committed are “expressive” in nature such as graffiti, and fights and vandalism.[124] A majority of these crimes are a result of boredom, frustration, anger, resentment and despair.[125] Developing youth related programs such as a Boys and Girls Club which offers recreational, social, and educational opportunities, will relieve youth of boredom and allow them to feel more connected to, and become an important part of their community.

[124] ibid

[125] Jane Botfield: Creating Safe Spaces: Local Government Responding to Community Safety and Crime Prevention in Public Space, PDF.

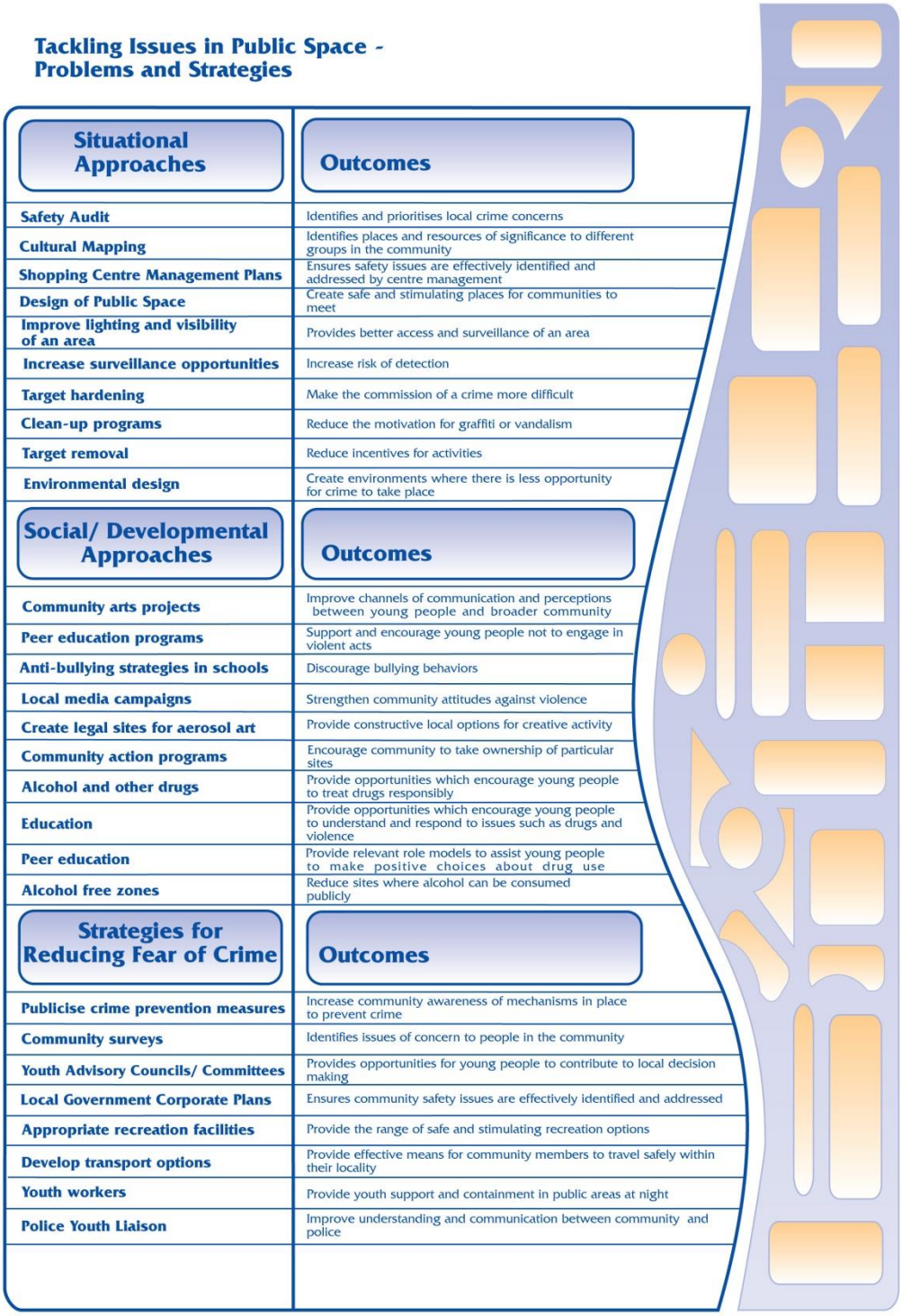

Figure 15: Creating Safe Spaces: Problems & Strategies

The design of the Paukukalo Boys and Girls Clubhouse will incorporate principles from the situational approach using Crime Prevention through Environmental Design (CPTED) concepts throughout the planning and design process. Important factors that will be considered in the project design include territoriality, surveillance, lighting, landscaping, physical security, creating a sense of place, signage, and traffic movement areas. The Social/Developmental approach will also be incorporated through the facilities programs which will focus on education and recreational activities that keep youth occupied in their leisure time, while also involving them with their communities and allowing for social bonding.

The first step toward fostering a sense of community in a low-density suburban neighborhood is to create a common area for youth and adults to gather which can be the catalyst in organization of communal activities. The project site is in the midst of the residential neighborhood and the proposed Boys and Girls Clubhouse will act as the central node that will manifest new programs and ideas. The Boys and Girls Club of Paukukalo also aims to serve youth in living in the Waiehu Kou Phases I-IV areas approximately 2-2.5 miles northeast. Transportation will be a crucial part in the connection between these two communities as there is a two-lane highway (Kahekili Highway) dividing the two residential areas.

Figure 16 (left): Ariel view of proposed Boys and Girls Clubhouse site in Paukukalo, Maui
Figure 17 (right): Enlarged view of proposed Boys and Girls Clubhouse site

The three main areas of focus for this design project are Sustainability, Safety, and Sense of Community. Initial ideas to create community connectivity through implementation of alternative transportation methods (i.e. bike paths, running paths), community festivals and programs, etc. will be briefly described in this research but allow for future growth in the relative area. The focus will be placed on the site-specific project of the BGCM Paukukalo

Clubhouse which will be a catalyst for other crime preventative measures to develop in the area. The following table describes methods which sustainability, safety, and sense of community will be addressed through this design project.

Sustainability	Safety	Sense of Community
Physical Building Components that use passive design methods	Using CPTED approach to design safe and secure environment	Provide guidelines for community involvement in design process of youth development center
Educating youth through sustainable environment for learning (i.e. Vegetable/Herb Garden)	Providing alternative "safe space" for youth to spend leisure time while under adult supervision	Incorporate multi-generational programs for responsible adults within the community to become mentors/role models for youth
Implementing new programs which teach about sustainability (i.e. gardening, culinary program, etc.)	Community involvement in design process will create sense of ownership over facility and neighborhood. Residents are more aware and willing to protect what is "theirs" (territoriality)	Initiate programs that emphasize uniqueness of the community/area to instill sense of pride and community identity

Table 3: Design Project Focus

PART VI: PROGRAM

11. PAUKUAKLO BOYS AND GIRLS CLUB STATISTICS/ EXISTING PROGRAM

11.1 LOCATION/MEMBERSHIP STATISTICS

The existing Paukukalo Boys and Girls Club is located at 657 Kaumuali'i St. in Wailuku, Maui. The club is currently operating out of the Paukukalo Hawaiian Homes Community Center, next to the Department of Hawaiian Homelands (DHHL) Office and Kamehameha Pre-school. The hours of operation are Monday-Friday from after school until 5:30pm. There are currently 260 registered members with an average of 85-95 members per day throughout the regular school year.[126] A majority of youth members are from the Paukukalo community or other nearby areas such as Waiehu, Waihee and Kahakuloa.[127] Other members travel from further areas such as Paia, Makawao (Kalama Intermediate School), and Pukalani (King Kekaulike High School) to participate in the successful afterschool program offered.

11.2 EXISTING PROGRAM

The club offers many different programs which focus on developing well-rounded youth such as career and education, character and leadership, arts, health and life skills, and sports, fitness and recreation. Since about 85% of the club's members are of Hawaiian or part-Hawaiian ancestry, the club offers programs which focus on the Hawaiian culture such as hula and ukulele. The different programs are divided according to age groups (i.e. Keystone Club- ages 14-17, Torch Club 11-13) which allows for social interaction, while also developing good character and leadership skills through participation in community volunteer programs. All members are required to participate in "club clean-up" daily and also partake in community service projects.[128]

Education is an important factor in ensuring a positive and successful future; therefore all members are required to participate in a two hour tutoring program afterschool (2pm-4pm daily, and 1pm-3pm on Wednesdays) called Power Hour.[129] Project Learn is another educational

[126] Boys & Girls Clubs of America, "Boys & Girls Clubs of Maui," Last modified 2010, Accessed October 28, 2012, http://www.bgcmaui.org/page11742828.aspx.
[127] Office of Hawaiian Affairs Community Grants Program, application regarding [Power Hour: Making Minutes Count], [Boys & Girls Club of Maui], from [Boys & Girls Club of Maui, Gina McLain].
[128] Boys & Girls Clubs of America, "Boys & Girls Clubs of Maui," Last modified 2010, Accessed October 28, 2012.
[129] ibid

program offered which incorporates fun educational games and activities to encourage learning in a creative way. In addition to community service, education, and culturally oriented programs, the club offers a culinary arts program which combines textbook education such as math and science, with hands-on learning to explore possible future career paths.

Although education and success in school is a priority at the Boys and Girls Clubs, it is also important that youth lead a balanced lifestyle and have knowledge of health, life, and fitness skills. The club offers a preventative program called SMART Moves/SMART Leaders that educates youth about the dangers of alcohol, tobacco, other drugs, and early pregnancy. Members also learn how to lead a healthy and sustainable lifestyle through gardening which teaches them how to live off the land and cultivate their own food. The Triple Play program is geared towards youth ages 9-17, and promotes health and wellness teaching youth how to handle stress, and maintain positive relationships.[130]

Lastly, adolescents and teens need an outlet for all their energy and release any stress from school through playing and having fun. This is addressed through the many sports, fitness and recreation programs the club offers. Outdoor recreational activities include flag football, sham-battle, basketball, swimming, softball, kickball, P90X, etc. Indoor activities offered are billiards, ping pong, foosball, Zumba classes, etc. There are often tournaments which allow youth to have fun while also learning the importance of good sportsmanship and how to be a team player. Each club has their own sports leagues, and often competes against one another promoting camaraderie between other youth on Maui.

These are just some of the programs that the Paukukalo Boys and Girls Club of Maui offer their members which focus on the aforementioned categories of: Character & Leadership Development, Education & Career Development, The Arts, Health & Life Skills, and Sports, Fitness & Recreation. With the growing number of members and multitude of programs offered, a permanent facility dedicated to the Paukukalo BGCM would be beneficial to the youth and community. Existing and future programs will be taken into consideration in the design of the new BGCM clubhouse in order to allocate the necessary spaces to accommodate the various activities.

[130] Boys & Girls Clubs of America, "Boys & Girls Clubs of Maui," Last modified 2010, Accessed October 28, 2012.

Paukukalo Boys and Girls Club Existing Program				
Career & Education	**Character & Leadership**	**The Arts**	**Health and Life Skills**	**Sports, Fitness, & Recreation**
Power Hour	Club Youth of the Week/Month	Ukuklele Lessons	Gardening (club garden)	Outdoor Recreation
Project Learn	Community Service Projects	Creative Arts Contest (weekly drawing, painting)	Girls Club	Inter-club Sports Leagues: (basketball, flag football, softball)
	Recycling Initiatives	Open Microphone		Off-site Activities: (Swimming pools, movies, beach parks, and recreational playgrounds
	Keystone Club	Culinary/Healthy Habits (cooking/baking)		
	Hawaiian Culture			

Table 4: Paukukalo Boys and Girls Club Existing Program

12. PROPOSED PROGRAM

12.1 TYPICAL BOYS AND GIRLS CLUB FACILITY BUILDING REQUIREMENTS

There are a wide range of Boys and Girls Club facilities throughout the United States varying in sizes from 2,000-60,000 sq. ft. The typical spaces of a clubhouse should incorporate the activities the Boys and Girls Club program offers; however the design and size of the clubhouse is dependent on the number of youth served, community support, and available land.[131] Many Boys and Girls Club programs operate out of existing buildings; therefore spaces must be retrofitted to adapt to the program needs. According to the Boys and Girls Club of America website, typical building requirements and estimated costs for new club facilities as the one proposed for the Boys and Girls Club of Paukukalo, Maui, are as follows:

[131] Boys & Girls Clubs of America, "Boys & Girls Clubs of America: Tour A Club," Last modified 2005, Accessed November 20, 2012, http://bgca.org/whoweare/Pages/TouraClub.aspx.

	Small Building	Medium Building	Large Building
Square Footage	5,000 to 12,000	13,000 to 25,000	26,000 to 40,000
Average Daily Attendance*	100-200 members	200-350 members	350-500 members
Total Membership	300 to 700	700 to 1500	1500 to 2300
Project Costs**	$400,000 to $1,000,000	$1,000,000 to $2,000,000	$2,000,000 to $3,000,000
Annual Operating Expenses	$60,000 to $150-000	$150,000 to $300,000	$300,000 to $500,000
Minimum Land Needed	0.25 to 0.5 acre	0.75 to 1.25 acres	1.5 to 2 acres
Land Needed for Ball Fields	2 acres	2 acres	2 acres

*Average daily attendance reflects the average number of youth served at any one time. Often members do not attend on a daily basis, but may visit the Club for their favorite activities (i.e., teens often visit the Club during "teen only" hours).

**Project costs include site development and professional fees. Land acquisition is not included. Often land is either leased or donated. Project costs are averages. Your area may be lower or higher. Due to Hawaii's location and cost of living, expenses for material and labor will be sufficiently higher than the greater United States.

Table 5: Typical Boys and Girls Club Facility Building Requirements

12.2 OVERVIEW

The programming of spaces within a youth development center is crucial to its success. Areas need to be divided into private, semi-private, and public zones for educational and recreational purposes. The facility should provide a level of comfort and safety in order for youth to choose to spend their leisure time at the clubhouse while not in school or at home. The existing Paukukalo Boys and Girls Club is currently open during after-school hours available for youth ages 6-17. During the hours that the facility is not in use by the Boys and Girls Club members, it should be available to the community for other activities/classes in order to promote interaction with one another and create a tight-knit community. By allowing the general public use of the facility, the building itself will become a central node in the community and programs which integrate youth and positive community role models can be implemented.

In order for the facility to accommodate areas for both Boys and Girls Club Members and the community, spaces that are primarily for BGCM members should be separated from those that will be used for community classes/events/activities. This division of youth and public areas will allow select spaces to be secured while others remain open for public functions. Allocated space for a multi-purpose room on the bottom floor will promote gathering of youth and the community. Other spaces which could have dual purpose for both BGCM and

community programs include: kitchen/cooking classroom, eating/lounge area, fitness room, meeting room, restrooms w/accessible shower, will also be located on the first floor. The first floor shall also include the main lobby/entrance and check-in desk for security measures. In addition, support spaces such as staff office, staff restroom, and servant spaces (mechanical/electrical room, elevator) will also be incorporated into the first floor design. The second floor program shall consist of spaces that will only be used by the BGCM members. These spaces include: game area, teen lounge, classroom, learning center, and restrooms w/accessible showers.

Proposed Paukukalo Boys and Girls Clubhouse Spaces

Youth Spaces	Community Spaces	Private/Service Spaces	Exterior Spaces
Game Area	Multi-purpose Room	Check-In Area	Herb/Vegetable Garden
Teen Lounge	Eating/Lounge Area	Staff Office	Eating courtyard
Classroom	Kitchen/Cooking Classroom	Restrooms	Bike path/rest area
Learning Center	Fitness Room	Electrical/Mech. Room	Outdoor classroom (Yoga, martial arts, dance, etc.)/ Amphitheater
	Meeting Room	Elevator/Stairway/Circulation	Nature Playground
	Main Lobby/Entrance	Storage Area	

Table 6: Proposed Boys & Girls Clubhouse Spaces

12.3 SPACE DESCRIPTION

Youth Spaces:

Game Area

The game area will be a main central space and allow for open circulation between the other spaces. There will be a direct visual connection between the game area and staff offices to allow for supervision. The space will accommodate large gaming equipment such as pool, foosball, and ping pong tables. The clear space needed around these activities will determine the placement of the tables and articulate the circulation area throughout the space. The feeling of the game area should be energetic, lively, and fun. The goal of the space is to encourage interaction with one another and help develop social skills.

Teen Lounge

The teen lounge will be smaller area creating a more intimate environment where teens (ages 13-17) can converse in small groups or one on one. The space will contain lounge furniture such as sofas, tables, armchairs that will create a feeling of relaxation. The goal of this area is to be a place of refuge for the members where they can openly express their thoughts, ideas, and creativity without judgment.

Classroom

The classroom is a place for continuing education and learning. The allocated space should accommodate a regular size class of about 20-25 students plus the instructor. The room will contain desks and chairs, dry erase board, shelves, and any other necessary classroom equipment. The space shall provide a clear direction of focus for teaching and acoustical purposes. Various educational activities may be held in this space such as the mandatory power hour tutoring program after-school. The goal of this space is to provide an efficient learning area for the members to study without distractions.

Learning Center

The learning center is a technology oriented space which gives members an opportunity to improve their computer skills. The space will accommodate multiple computers stations for the use of club members. In addition to computer equipment, the room should have good lighting, enticing displays of books and periodicals, and an area for reading and discussions.[132] Activities that occur in this area will encourage students to think about their future careers and stretch the limits of their imaginations. Acquiring computer skills and learning various computer programs at a young age will enable youth to further succeed in our technology based world. The goal of this space is to provide a positive motivational area for learning new technology.

[132] Boys & Girls Clubs of America, "Boys & Girls Clubs of America: Tour A Club," Last modified 2005, Accessed November 20, 2012.

Community Spaces:

Multi-purpose Room

The multi-purpose room will be the second main central space. This area will be a largely unobstructed space to allow for a variety of community activities. The furniture in this area will be movable allowing for reconfiguration of chairs and tables depending on the function taking place. The space itself will also be flexible through partition walls and pocket sliding glass doors to allow for a direct connection between indoor and outdoor areas if desired. The multi-purpose room will be a warm uplifting and welcoming space that embraces the community and youth.

Eating/Lounge Area

The eating/lounge area on the first floor will be adjacent to the kitchen/classroom space. This area will contain tables and chairs for those for approximately 20 people. The area will also have connection to the exterior to allow for indoor and outdoor seating to become a unified space if desired. This space will exude a feeling of tranquility and relaxation.

Kitchen/Cooking Classroom

The ground floor will include a cooking classroom and kitchen for a culinary program for both youth and community use. There will be full kitchen appliances (refrigerator, stove, oven, sinks) along with countertops, shelves, and cupboards for storage of utensils. The rooms will also contain tables and chairs for 18-20 students and the instructor. The area will have visual connections to the exterior to allow for views and natural daylight. The space will be a sanitary and sterile environment to abide by health codes. The goal of this space is to evoke creativity and imagination while introducing youth to possible careers paths in the culinary field and educating the community about sustainable lifestyles.

Fitness Room

The fitness room will contain large exercise equipment and free-weights. The space will be equipped with an air conditioning unit to be used when necessary; however there will also be operable windows to allow for the option of natural ventilation. There will be a mirrored wall for the users of the gym to ensure they are lifting with proper technique while also creating the

illusion of a larger space. The fitness room should give the feeling of motivation and confidence for all those that use it.

Meeting Room

The meeting room is a place where business is conducted in an efficient and orderly fashion. The room will include conference tables and chairs for 16-20 people. The room shall also include a large dry erase board and overhead projector for meeting purposes. The goal of this space is to provide a professional atmosphere for community brainstorming, communication, and productivity to occur.

Main Lobby/Entrance

The main lobby and entry is one of the most important areas of the facility. This space gives the first impression to all the users upon entering the facility. The area should be inviting and embrace all those who enter. The entry also provides an area for members to securely store their personal belongings through a wall locker system.[133] The space also depicts the overall atmosphere of the facility and should provide the users with a sense of safety and security. The entry and lobby should be energetic and vibrant to reflect the numerous and varied activities that occur in the facility.

Private/Service Spaces:

Check-in Area

The check-in area will be adjacent to the entrance/lobby and have a direct connection to the space through an open front desk counter. The check-in area is important to provide security acting as an access control point to keep track of those entering the facility. In addition this area is acts as a greeting and information center, and reinforces a sense of belonging through registration.[134] This space will only be accessible to staff as it will contain private files, databases, and computer equipment. The goal of the check-in area is to provide a sense of security for the users and keep the facility well organized.

[133] Boys & Girls Clubs of America, "Boys & Girls Clubs of America: Tour A Club," Last modified 2005, Accessed November 20, 2012.
[134] ibid

Staff Office

The staff office is for staff use only and will provide an area for employees to organize data and information in order to ensure the efficiency of the Boys and Girls Club program. This area shall contain furniture such as file cabinets, desks and chairs (for approx. 4 full-time employees with some additional seating). The staff office will also have a single unisex restroom for employee use only. The office area shall have views to the exterior and allow for natural day-lighting to improve the overall work efficiency and health of the employees. There will also be a visual connection between the staff office and clubhouse youth space in order to allow for constant supervision of youth activities.

Restrooms

There will be men's and women's restrooms located on each floor that will include the calculated amount of water closets and lavatories according to the number of users in the facility. The restrooms will also include an accessible stall to meet ADA standards, and an accessible shower. For purposes of sustainable design and education, low-flow fixtures, dual-flush toilets, and waterless urinals will be installed to minimize the amount of water used.

Mechanical/Electrical Room

Space shall be allocated for mechanical and electrical equipment (hot water heater, generator, and hydraulic tank, etc.) on the bottom floor of the facility. All building process systems shall use non-potable water for sustainable purposes.

Stairway/Circulation Areas

The existing building shell that will be reused is a double height space (approx. 25 ft.) therefore the resulting facility will also consist of two story and double height spaces. There will be an elevator and adjacent stairway to allow for vertical circulation throughout the building. There will also be secondary and tertiary stairways placed to meet building fire code requirements. The stairwells will be designed to meet building codes with fire-rated walls; however will also have visual connections to both exterior and interior spaces so as to reduce the opportunity for negative activity to occur in these spaces. The area is for movement and circulation and should not promote loitering. The building will have an open central floor plan

with adjacent areas (classrooms, meeting rooms, office, fitness room, etc.) that will allow for open circulation.

Interior and Exterior Storage

Sufficient storage is needed for holding outdoor game equipment (balls, cones, nets) and other supplies in the game area. The storage room shall contain shelving units, bins, and cabinets for supplies. There will also be a storage area connected to the multi-purpose room which may house janitorial equipment such as brooms, mops, vacuums, and other necessary cleaning supplies. Other spaces that may require room for storage (staff office, kitchen/classroom, meeting room, etc.) shall have built-in shelving directly within the space. Exterior storage space will also be included for gardening tools and other outdoor equipment that may need storing.

Exterior Spaces:

Herb/Vegetable Garden

Adjacent to the exterior eating area and the kitchen will be the Herb/Vegetable garden which will be maintained by the Boys and Girls Club members through the gardening and culinary programs. This area will be secured from the rest of the surrounding site but remain connected to the exterior through slatted fences and trellises that will deter criminal activity/ theft of agricultural produce. The feeling of this area shall be calming and allow for children to enjoy learning about different types of vegetables and edible plants that they can cultivate. The space is adjacent to the kitchen/classroom as these two spaces work hand in hand to encourage living a healthy and sustainable lifestyle. The outdoor eating area will also be visually connected to the herb/vegetable garden.

Eating Courtyard

The exterior eating area will be adjacent to the interior eating lounge, exterior vegetable garden, multipurpose room, and fitness room. This space will become a courtyard that allows for connection of activities. The courtyard shall contain tables, chairs, and benches for lounging and eating. The area will also be able to directly connect to the interior spaces (eating lounge/multipurpose room) through large sliding pocket doors that will allow for flexibility of program and transformable spaces. The goal of this space is to encourage social interaction and

mingling through a comfortable environment and multiple seating areas where people can mingle and enjoy the outdoor weather and scenery.

Bike Path/Rest Area

The exterior areas of the facility must be inviting to members and youth of the community and encourage community connectivity. There will be a proposed bike path that will connect the Waiehu Kou and Paukukalo Community (approx. 2.5 miles) and lead to the Boys and Girls Clubhouse. The clubhouse will act as the central point for starting and ending of the bike route which will encourage people to use alternative transportation along with connecting the community and the facility. There will also be an exterior rest area and bike racks for those whom the Boys and Girls Club is their destination or are simply in need of a shaded rest area. The goal of the bike path and rest area is to incorporate the BGCM clubhouse into people's daily routines, bring adults and youth out of their houses by providing an outdoor recreational activity, and encourage exercise and interaction with others community members. The bike path will also have positive environmental impacts in reducing the amount of traffic and carbon dioxide emissions, and allow for youth to reach the facility safely through designated bike paths (as opposed to the highway and roads).

Outdoor Classroom

The outdoor classroom will be an exterior space that is adjacent to the interior classroom. This space will be a large covered patio area that will accommodate atypical classes which require large movement and unobstructed space such as yoga, martial arts, dance, etc. The goal of this space is to allow for free-movement and activity making use of the tropical year-round weather which is a conducive environment for learning. Providing an outdoor classroom area reflects the site which the facility is located and creates a sense of place (as this programming element would not be reasonable in many other areas of the world due to environmental characteristics) which community members can take pride in.

Nature Playground

Since the BGCM Paukukalo club is open to youth from ages 6-17 there should be indoor and outdoor activities to accommodate all ages. An outdoor playground will allow for younger members of the club to interact with one another and develop social and problem solving skills. The playground may also be used as an educational tool by incorporating as many natural materials and elements as possible for youth to familiarize themselves with native plants etc.

13. PREVENTING CRIME THROUGH (BUILDING) DESIGN:

In addition to fostering a sense of community which is one of the main theories behind reducing criminal activity in a neighborhood; there are numerous physical elements and architectural concepts that can be applied to the overall design of a building which have proven effective.

13.1 SITE CONTEXT

The approach and the surrounding area of a building is the first factor which should be addressed to create a sense of safety. The way a building interacts with the surrounding environment through site lighting, exterior spaces, green-spaces, site plan, and traffic patterns impacts the way people perceive the area and will either attract or detract people from entering a space. The context of a site plays an important role in providing a sense of security which can affect the emotional well-being of people in the area. In a radio broadcast interview with Anna Minton, a British writer and journalist, she discusses the problem to many of the architectural approaches to safety today:

> [The architectural approaches] try to design out people doing apparently nothing, and it's exactly that which we need to keep in our cities. We need to keep spaces for people to wander around and to do whatever they feel like. What we need to keep is a greater trust between strangers.[135]

Minton is an advocate for maintaining parks, outdoor recreation areas, and other places which members of a community can mingle. This allows people to interact with one another,

[135] "Safety in cities and the architecture of fear," *Earth Beat,* September 17, 2009, Web, http://www.rnw.nl/english/radioshow/safety-cities-and-architecture-fear.

building trust and reducing fear, which fosters a sense of community. This can only be possible by maintaining the exterior spaces and providing a level of comfort and safety through its design. The question that architects must remember when designing a building is, "is it [the building] to be an 'island' that shuts out the rest of the crime-ridden surrounding area—driving people to isolate themselves from the rest of the community?"[136] Although the primary function of a building is to provide shelter, it must not seclude itself from the surrounding environment as this will enhance the level of fear for occupants and residents of the surrounding area. In order to address the issues of crime, many architects design buildings that "turn their built environments inward, to shut their occupants out from their surroundings"[137] This is reflected on a larger scale through the creation of gated communities as mentioned earlier. The key to reducing or eliminating this fear is to design the facility which addresses the site and invites the community to occupy the space. "In an ideal world, buildings should foster both security and community."[138]

13.2 ENTRY

One simple design strategy in which a building can be open to the community is to design outward facing entrances.[139] The application of this strategy has proven to be affective through a case-study of the Borneo-Sporenburg Project in Amsterdam, in which "all of the homes' doors face outward onto sidewalk which also face a larger green-scape".[140] Employing this strategy resulted in the residents tending to their front yard (beautification, planting flowers, etc.), allowing children to play outside, and consequently focused attention toward the street providing natural surveillance for the surrounding neighbors.[141] The outward facing placement of the entry door is a key design element which can control the direction of natural surveillance and instigate areas that are up kept and lively.

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[136] Maria Lorena Lehman, Sensing Architecture: A division of the Mill Design Lab, LLC, "Sensing Architecture: Designing Architecture for a Sense of Building Safety—Part 1," Last modified 2012, Accessed November 12, 2012, http://sensingarchitecture.com/2086/designing-architecture-for-a-sense-of-building-safety-part-1/.
[137] Ibid
[138] Maria Lorena Lehman, Sensing Architecture: A division of the Mill Design Lab, LLC, "Sensing Architecture: Designing Architecture for a Sense of Building Safety—Part 1," Last modified 2012, Accessed November 12, 2012.
[139] Ibid
[140] Maria Lorena Lehman, Sensing Architecture: A division of the Mill Design Lab, LLC, "Sensing Architecture: Designing Architecture for a Sense of Building Safety—Part 1," Last modified 2012, Accessed November 12, 2012.
[141] Ibid

13.3 SURVEILLANCE

Surveillance is one of the key elements to safe design. Areas that are visually connected to surrounding buildings will discourage criminal activity through fear of someone witnessing the crime. To ensure clear sightlines of public spaces and visual connections from surrounding areas, landscaping (shrubs, plants, etc.) should be kept low, pathways well-lit, and visually permeable fences if necessary to delineate a public area.[142] The proposed BGCM site is surrounded by residences to the West and South, the Hawaiian Homeland Community Center and DHHL Office to the north, and Paukukalo Park to the East allowing for many opportunities of natural surveillance during the day while occupied, however little surveillance at night.

13.4 STREET AND SITE LIGHTING

During the night, exterior lighting around a building and parking lot has a significant impact on the potential for criminal activity within an area. The three main purposes for exterior site lighting are to: 1) deter the intruder, 2) help the law-abiding recognize dangerous situations and make an appropriate response, and 3) help law enforcement personnel (should deterrence and response fail) describe the identity of the criminal.[143] There are many lighting factors that contribute to deterrence or visual awareness of a criminal act including the level and uniformity of brightness, glare, light source color, and range of the lit area. The level of brightness affects the visual clarity for the criminal and eye witnesses in the area. If the criminal believes that he/she has a great potential of being seen or identified, it may deter them from committing the criminal act. The uniformity of brightness and the range of the lit area are also important in order to ensure there are no "dark areas where a criminal can lie and wait."[144] Reducing the amount of glare enables a person's ability to notice other people around them increasing their overall awareness. Lastly, the color of the light is also important in order for witnesses or victims of a crime to accurately describe the perpetrator.

Research studies show that 90% of the time, an intruder can be detected (by guards who had adjusted to the night light levels) with a minimum vertical illuminance (lighting over

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[142] The State of Queensland (Department of Local Government), "Queensland Government: Department of Local Government." Last modified 2012. Accessed November 12, 2012, http://www.dsdip.qld.gov.au/indigenous-councils/making-public-spaces-safer-through-design.html.
[143] Peter R. Boyce, "Security lighting: what we know and what we don't," *LIGHTING Magazine*, December 1991, 12-18.
[144] Ibid

fences, etc.) of 10 lux.[145] In an instance that is unguarded (such as on a street) with someone walking towards you, studies also show 90% correct recognition with a vertical illuminance of 10 lux. In terms of facial recognition, it was determined that a face is unrecognizable beyond 17m (approx. 56 ft.) and the minimum distance required for accurate facial identification is 4m (approx. 13 ft.) with an illumination level of 10-30 lux.[146] For people to correctly describe colors (offender's clothing or skin) results show that low pressure sodium discharge lamps are inadequate while the color properties of high pressure sodium discharge lamps remain to be determined.[147] The recommended minimum uniformity for levels of brightness based on pedestrian street lighting is "an average horizontal illuminance of 5 lux with a minimum of 2 lux."[148]

However the main problem which affects uniformity light levels tends to be obstructions of light such as trees, bushes, and other obstacles on the site. Low lying shrubs and vegetation not only increases surveillance opportunities, but also allows for even distribution of light. Although lighting cannot physically prevent crimes, it is aimed at deterring criminals from committing the act in the first place through the psychological fear of being caught or identified. The intensity, uniformity, color, size, and many other elements of light contribute to instilling this fearful mentality in potential offenders.

13.5 INDOOR GREEN-SPACE AND COMMUNITY AREAS

In many hospitals the idea of bringing green-space indoors and fostering a sense of community has become a popular approach to reduce fear and promote feelings of safety.[149] Many studies have found a positive correlation between a patient's visual/physical connection to a green vegetated space and rate of healing process; for example, "patients with a view of a tree from their hospital room window recover significantly better than those with no view".[150]

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[145] Peter R. Boyce, "Security lighting: what we know and what we don't," *LIGHTING Magazine*, December 1991, 12-18.
[146] Ibid
[147] Peter R. Boyce, "Security lighting: what we know and what we don't," *LIGHTING Magazine*, December 1991, 12-18.
[148] Ibid
[149] Maria Lorena Lehman, Sensing Architecture: A division of the Mill Design Lab, LLC, "Sensing Architecture: Buildings that Cause Occupants to Feel Fear—Part 3," Last modified 2012, Accessed November 20, 2012, h http://sensingarchitecture.com/2163/buildings-that-cause-occupants-to-feel-fear-part-3/
[150] Ibid

In addition, providing communal areas creates a sense of community which can reduce anxiety and stress, and also may help to increase the rate of recovery. Although this idea of bringing green-spaces and community areas indoors has been mainly analyzed in terms of finding correlations between hospitals and the healing process, the effect it has on reducing anxiety, stress, and fear can be beneficial in various building types. By incorporating views to the exterior landscape along with green walls, levels of anxiety or stress for youth and community members visiting the facility may be reduced. These design methods can inherently create a sense of relaxation and foster feelings of safety.

14. COMMUNITY INVOLVMENT

According to the CPTED approach, the three most important factors to consider when designing a building are the Three-D's: Designation, Definition, and Design. An architect must understand how a person will experience and use a space; therefore the Three-D concepts are based on the functions and dimensions of human space as follows[151]:

1) All human space has some ***designated*** purpose.
2) All human space has social, cultural, legal, or physical ***definitions*** that prescribe the desired and acceptable behaviors.
3) All human space is ***designed*** to support and control the desired behaviors.

The common factor in all three of these concepts is "human space". The most frequent users of the space will be the community members. It is important to include the intended users in the planning stages of the design process so they are accepting of the new facility, and can provide valuable information and input as to what types of spaces would be most useful.

Prior to any type of architectural design, information must be gathered in order to ensure the building fits the needs of the neighborhood and community. Designing a building in attempt to reduce/prevent crime in the surrounding area goes one step beyond the typical building requirements, therefore additional research and data must be collected. The five main types of information that must be gathered in order to implement good CPTED strategies are:

[151] Timothy D. Crowe, *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*, (Boston: Butterworth-Heinenmann, 1991), 33.

crime analysis information, demographic information, land use information, observations, and resident or user interviews.[152]

The crime analysis of an area can be provided through crime mapping provided by the local police department to find hot spots where criminal activities occur most frequently. Demographic information describes the nature of the population in the general project area and is usually available at city planning departments or through the Census Bureau. Land use information such as zoning, building height limits, setbacks, etc. can also be found at city and planning departments, local councils, or government maps. Observations must be gathered through physically visiting the site and surrounding area in order to attain first-hand knowledge of how the existing areas are used (or not used), and which areas may present problems in the design process. In addition to observing the users of the space, observations may also include the following[153]:

- pedestrian vehicle counts
- on- and off street parking
- maintenance of yards and fences
- the degree of proprietary behaviors prohibited by residents and/or users
- the presence of either controlling or avoidance behaviors
- other potential indicators of territorial concern (i.e. percentage of window blinds drawn in homes and businesses overlooking parks or schools)

Lastly, one of the most important types of information is resident or user interviews. The best way to predict whether or not a space will be successful is to understand how the residents and intended users perceive certain areas. Conducting interviews allows the residents express their ideas of which spaces feel safe or unsafe to them and why. Many times, the areas which residents feel unsafe do not correlate to the crime maps of where the most criminal activity occurs. For this reason, relying solely on crime maps to provide the information of where "unsafe" areas are is not completely accurate. A combination of both crime mapping and

[152] Ibid
[153] Timothy D. Crowe, *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*, (Boston: Butterworth-Heinenmann, 1991), 37.

resident interviews will give a greater understanding of how different areas are perceived by the general public and to what extent the physical environment affects their behavior and reactions.

The crime analysis information and demographics of Paukukalo and the greater Wai'ehu and Waihe'e regions have been gathered and analyzed in the earlier portion of this research. Land use information will be collected in the next phase of this project and applied to the final Paukukalo Boys and Girls Clubhouse design. A community-based charette including: men, women, and elderly residents of the surrounding neighborhood, Boys and Girls Club youth members, Boys and Girls Club director, staff/employees, and other professionals from the Maui community (i.e. architect, planners, etc.), will be held prior to the design process in order to gain feedback and a community census of what types of spaces would be most valued.

Organizing a community-based charette can be difficult because numerous people are involved—all of which have strong individual opinions when it comes to discussing issues that are important to them. According to Kurt Mitchell of Kober Hanssen Mitchell Architects, the key points that will ensure a successful community charette is to establish ground rules, listen, and respect every person's opinion. Mitchell is an architect that has experience conducting community-based charettes for various architectural projects within different Hawaii communities. In the following interview, Mitchell describes the benefits and importance of involving community in the design process, and shares his personal experiences[154]:

Question 1: Can you describe the value and process of the focus group charette?

KM: One of the things I've learned is that focus groups have agendas. So ground rules and listening is key. A ground rule to is establish is that there some things that can't change, some things can be modified and others can absolutely be added or changed. This is called Ho'oponopono. It also shows that as group one has respect for what others think.

In everything we do we try to bring together those that are going to be impacted by what's developed. It can start as early as what will be the framework that will be used to work with to develop a plan or building design. It can be the development of a program. We are doing a private high school, where we asked the kids to volunteer and represent their peers as to what should this school should be. It wasn't just about design, but about the image carried forward. The senior class representative was the surprise. One would think because they are leaving they wouldn't care, quite the opposite. They were vocal because they wanted to be sure that the classes after them will benefit from their ideas. Paying forward.

[154] [Kurt Mitchell], "[D.Arch Project Questions]," e-mail message to [Liana Takamine], November 15, 2012.

When you do focus group charettes, be sure all groups have had a chance to participate. For the same school we had different charettes for the students, faculty and administrators, then a common meeting.

Question 2: What groups did you facilitate such meetings for (elementary, middle, or high school? Other facilities?)?

KM: We have done focus group community charettes and meetings for communities-small and large (Aiea Livable Communities, towns such as Kona, Pa'auilo and neighborhoods like Manoa and Waianae); for an elementary and a high school project, healthcare projects, housing projects and others.

Let me tell you a story. Although, I facilitated a series of meetings with this youth group, it wasn't for a facility, but I took away from this experience ideas that I continue to use in the development of community facilities. This group, which was one of Farrington High School's most violent gangs - the Cross Suns was on the verge of having several of its gang members either go to prison, be deported or find themselves dead. They approached and organization, which myself a several other business leaders sat on the Board for help. We applied for a small grant from the City, who gave this gang some money to develop a business, make a presentation to the banks, get a loan and start the business. They could have taken the money, bought drugs to sell on the streets and probably double or triple their seed money. They needed to learn how to be sustainable.

Our initial meeting with the gang's leaders was to shed their image and be known as a gang and we will start from there. They all (40) came to meet in my office. They varied in age (13-18), mostly boys and a couple of girls "the gangs girls." We set ground rules, such as my office is a place of business and need to honor that, if I'm putting in my time they need to attend and participate and that there are no bad ideas. My secretary thought it would never happen and she was shocked when they came to the next meeting – hairs cut, dressed very neatly, obedient and came with notebooks to take notes. I was dumbfounded, but we pressed forward to discuss business types and goals. I asked the leader how did he get everyone to conform. All he said remember this was a gang and I am their leader, they will do as I say.

So what did I take away from this, look for the positive comment threads. This is unusual to say, I know gangs are bad things, but they demand loyalty and trust, something most companies spend hours and money to achieve. Their leader looks after his gang, which most people look for in a family unit. Their goal to transition and be accepted into society. So the business they started and did for 10 years were graphic arts – why not – we took their graffiti talents and used in for something good. They all went on to get a higher education, one of the girls wanted to enter beauty contest, she did, won and used the money to further her education. At times the road got bumpy, but they trusted each other to help them through. The leader he finally got his PHD in social work and works with gangs – redirecting them.

To this day, I used what I learned from this experience, when I'm doing planning and design for the community. Look for the common thread, listen carefully to what is being

said, not literally but what is behind what is being said and how it can be used positively.

We are building a healthcare facility where we used focus group charettes and meetings during the programming, planning and design phase. Almost every building in Waianae has been tagged but these buildings have not. Why? It's their building, nuff said.

One more very quick story. We designed a high school on the Big Island and were going through various charettes based on the land being donated by a private land owner. We met with DOE, the Big Island school district and Big Island teachers, but no students. I requested that we include the students. After some push back they allowed. From the meetings with the students, we end up moving the high school site and never used one of the pre-selected sites.

Question 3: What type of experience do you have with youth groups?

KM: When it comes to designing facilities for any age group, they should be in the process. They know the peer group for which you are designing for.

For 10-15 years I have sat or sit on the following Boards – Adult Friends for Youth, Honolulu Community Action Programs, Hawaiian Humane Society, Pacific Buddhist Academy and various State Boards. As Joyce will tell you, I don't just sit on these Boards, I am very active. I like to know why and what we do and how it helps.

One thing I've learned about architects on Boards, besides advising on facility development, because or education is process oriented, we have the expertise to organize and put things in the right order and process them through.

By setting ground rules (such as *Ho'oponopono*), listening, and respecting everyone's opinions, Mitchell has been able include the participants of the community in the design process resulting in successful projects that are developed from, and directly address the needs of the community. Perhaps the most valuable piece of advice in conducting a charette and designing a community facility came in Mitchell's final statement:

One thing, be them. Architects tend to think of the built environment from their perspective. Remember what we design or don't design spurs action, conversations and impacts people socially, psychologically, positively and negatively. Sometimes it has nothing to do with the architecture.

In the past I have used this analogy on my designers. Take a physical space that has white walls, floors and ceilings and turn it into that so called "Hawaii Sense of Place" without changing the walls, floors or ceilings. Can you do the same and make a space crime free and safe under the same parameters? So take your architectural knowledge and think like a person.[155]

[155] [Kurt Mitchell], "[D.Arch Project Questions]," e-mail message to [Liana Takamine], November 15, 2012.

PART VII: DESIGN RESEARCH CONCLUSION

Crime statistics reveal that Hawaii is ranked among the top twenty in the United States with the highest crime rates. Alcohol and drug abuse are addictive substances that often lead to repeated criminal offenses. Rehabilitation and treatment programs are retroactive efforts in addressing criminal behavior; however, focusing on a proactive approach to crime prevention could be more effective. Many adults that are addicted to drugs or alcohol lead a lifestyle conducive to criminal behavior, and usually learn this type of behavior during their early childhood and teen years. This research identifies multiple factors including poor family role models, lack of parental supervision, boredom, and/or peer pressure, that often lead to delinquent behavior. A life of criminal activity is not a path that any person would deliberately choose to lead if given the choice. Unfortunately, in many instances there seems to be little other option. The purpose of this research and design project is to provide opportunities for youth to create a positive future for themselves and an alternative lifestyle devoid of crime.

Through analysis of various case studies, a positive correlation between the built environment and human behavior can be found. The perception of a building and surrounding site can foster or deter criminal activity in the area. However, the physical design elements of a building are merely a portion of what creates a sense of safety. The programming of the facility and fostering a sense of community plays a major role in providing a "safe space" for youth. The implementation of youth development programs, such as the Boys and Girls Club, can provide a central area within a neighborhood for youth to spend their leisure time and socialize under adult supervision. Positive reinforcement from adult role models within the community helps to instill good character and leadership skills developing youth into responsible young citizens.

The main goal of this research and design project is to provide guidelines that may reduce crime in suburban neighborhoods such as Paukukalo, through employing crime prevention techniques to program and architectural design. This design project is a combination of a youth development and community center aimed towards: 1) creating a sense of community, 2) feeling of safety, and 3) sustainability education. Creating a sense of community will be achieved through involving residents and youth in the planning stages of the project. Conducting surveys and holding community-based focus groups will create a sense of ownership for residents, and allows for a successful design which directly addresses user needs. Architectural design that embraces the residents and evokes a feeling of safety will attract people to the facility and encourage interaction between community members.

Ensuring a feeling of safety will be addressed through the physical design aspects of the building. This research identifies physical design elements and surrounding site conditions such as lighting type, spatial adjacencies, landscaping, placement of entry and apertures, visual connections, definition of boundaries, and signs, which can influence the way a space is used and perceived. By applying the Crime Prevention through Environmental Design (CPTED) approach which merges physical design and human behavior, the building and surrounding environment can discourage criminal acts.[156] This approach not only focuses on designing environments which prevent crime, but also to encourage healthy human behavioral development.[157] In addition to creating a sense of safety and place for community interaction, the facility will act as an educational tool towards sustainability. In the design development phase of this project, passive design techniques and materiality will be researched and applied to the building. This will result in reduced energy and water use, along with providing opportunities for youth and other users of the facility to view and experience ways of sustainable design.

This research reveals the history behind youth development centers and their success in guiding youth towards a healthy positive lifestyle. The crime analysis of Hawaii (in particular Maui), in comparison with the United States shows the need for action to be taken at an early age level in order to prevent future criminal behavior. Various case studies at different scopes such as the Pruit-Igoe Housing Project and Medelin City, prove that architecture can foster a feeling of safety and attract or deter crime within an area. Architectural solutions to crime prevention include approaches such as Oscar Newman's Defensible Spaces, and CPTED techniques. The next stage of this project will begin the conceptual and design development phases which includes site observations/analysis, community-based focus groups and surveys, and applying the crime prevention design techniques learned through this research.

At the conclusion of this stage of research, the historical and analytical information gathered supports the hypothesis and need for the proposed project in the Paukukalo area. Inventory of existing site conditions and background crime analysis has been completed along with providing spatial programming ideas for the Boys and Girls clubhouse. After further site analysis (physical observations), and community input (focus groups, charettes, surveys), the

[156] Jeffery C. Ray, *Crime Prevention Through Environmental Design*, (Beverly Hills: Sage Publications, Inc., 1977), 46.
[157] ibid

following design stage will be to synthesize existing site conditions, crime analysis, and programming to develop conceptual designs for the new facility. These conceptual designs will be developed further to create a master plan of which a detailed site and architectural design can then be produced as a final product.

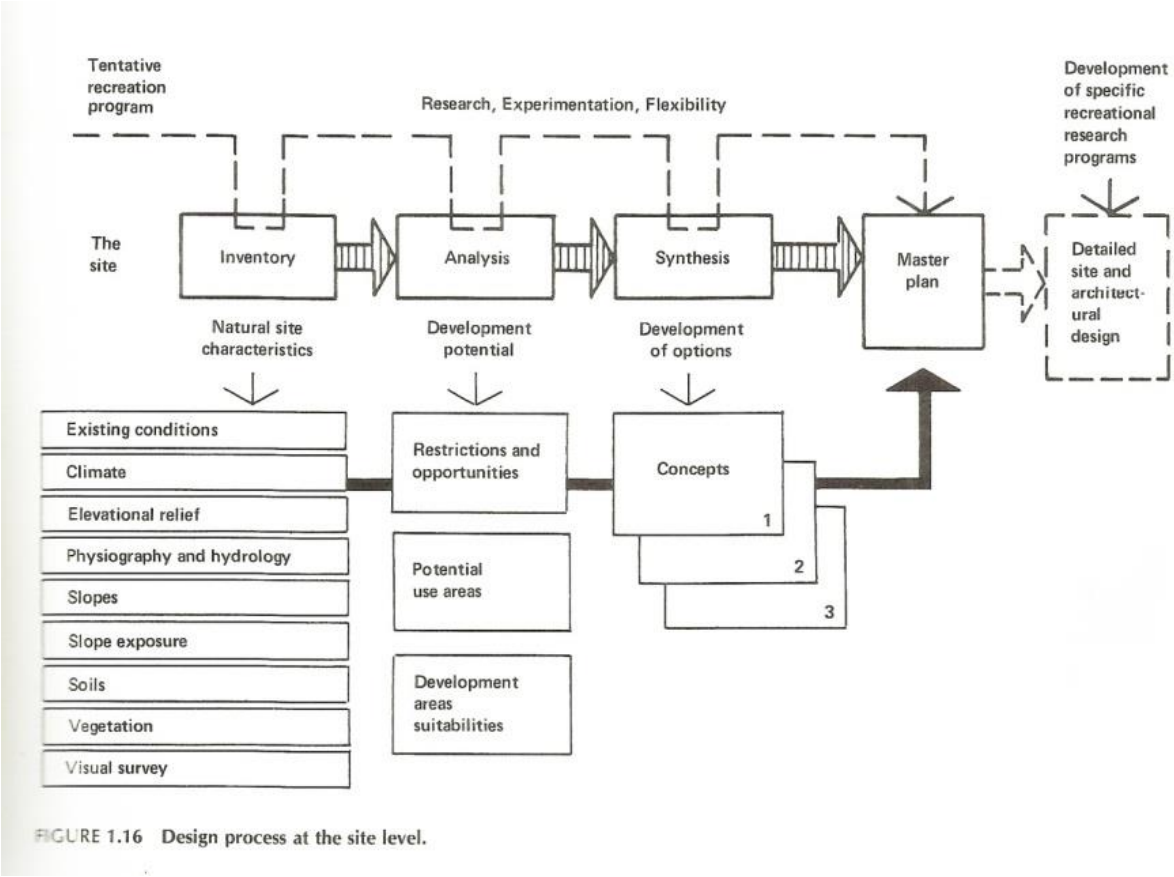


FIGURE 1.16 Design process at the site level.

Figure 18: Design process at the site level

PART VII: INTEGRATION OF DESIGN

15. DESIGN CONCEPT

Research on youth crime patterns identifies specific failures of particular existing architecture and urban design environments and principles. As mentioned, the theories of shifting the nodes of communities to facilities in the midst of residential areas, creating designated spaces which youth can learn valuable social and problem solving skills, and an integrated family-oriented society will help to improve and rehabilitate the futures of our youth. The design portion of this thesis works to bridge identified knowledge on existing architecture and urban design failures with theories of a safe and secure architecture through the design of a community center in Wailuku, Maui.

The goal of this design project is to develop an architecture typology that creates a safe and positive environment for youth to learn, relax, play, be creative, and to express themselves. For countless generations, children have grown up with a particular type of architecture that has a special place in their memories. It is this architecture which allowed them to become architects for a moment and exercise their imagination to build and create a space or "fort" of their own—the *tree house* concept.

The term "fort" is derived from fortress, or a place of security. Children imagine these spaces to create a sense of safety amongst the often overwhelming adult environment that governs their lives. What makes a tree house such a universal space for children to feel safe? The basic design principles of a tree house will be analyzed and used to generate a type of modern architecture that is attractive and represents a safe space for youth.

The initial thought when the term "tree house" is used would be an image of a tree. The idea of having that direct relationship to nature is of utmost importance. A tree house is more than having a distant view of the nature, but rather to be physically integrated into it. Having the ability to touch, smell, and hear the surrounding nature heightens other senses, creating more awareness to the immediate environment. This close interaction with nature is not always available to children in urban cities or densely populated suburban towns affected by sprawl where many trees have not been integrated into the landscape. Thus, creating a connection in these urban and suburban areas to nature is important for the youth that reside there. Such opportunity must be provided, creating memories of this connection. In the design of the Paukukao Boys and Girls Clubhouse, the large roof garden on the second floor will provide

this daily interaction between youth and the nature in addition to providing educational opportunities about sustainable living (i.e. growing and harvesting their own food). The trees in the outdoor courtyard area on the first floor will not only provide shade, but will also allow the youth on the second floor spaces to look out the window into the tree canopies and have the perception of being in a tree house.

What is so intriguing about tree houses is that the architecture must incorporate the existing "site" (tree) into the design. The symbiotic nature of building around an existing tree or structure creates an interesting challenge in which the designer has to create forms and spaces that he or she may not have otherwise developed in an empty landscape. This challenge not only preserves the history of the site, but it can also lead to inspiration of a highly site integrated architectural design. For this design project, the existing site has a two-story open-air basketball court with a hip truss roof. The design will preserve a majority of the existing structure in which the spaces will be inserted between existing columns and extended to create a new inspired form. Preserving the existing structure will also reduce the amount of construction waste on-site, save costs of rebuilding, and extend the lifecycle of the existing structure.

Another basic design principle of a tree house is that the building is not sitting on the ground. A building or structure which is elevated allows children to have a more expansive view of their surroundings, and the ability to watch for "intruders" without necessarily being noticed by those on the ground level. To be in an elevated space creates a feeling of security and can be liberating for the imagination. In this design project, the main youth spaces are located on the second floor with the large "game room" space located centrally over the multi-purpose room. The multi-purpose room on the first floor has large doors that, when opened will give the illusion of the second floor space completely elevated off the ground level. The main youth space will have large windows which will overlook the treetops in the courtyard below. The feeling of this space should be integrated with security, comfort, playfulness, and allow creativity to flow.

Many tree houses have balconies or ledges which can emphasize the idea of being high off the ground and create a thrilling experience, boosting a child's adrenaline. This idea is incorporated into the clubhouse design in some of the second level spaces which cantilevers past the first level. These pockets of overhanging spaces creates a feeling of separation from the "adult" world below and will be enticing to children as it provides a space of their own to

exercise their imaginations. From the exterior perspective, the cantilevered spaces on the second floor will emphasize the aesthetic illusion of an elevated building without completely isolating the spaces from the ground level.

Although a tree house is elevated off the ground, there remain supports that hold it up such as the tree trunk and branches. The design consists of two primary bars of space on either side of the building containing the private spaces (i.e. office, bathrooms, mech. /elec. Rm., director's office) and the community spaces (kitchen, eating area, meeting room, fitness room). The separation between program of community and youth spaces reflect how the community is the strong support for the youth. It also serves a functional purpose enabling the youth areas to be secured when not in use, while still allowing the first floor spaces to be kept open for community gatherings/functions.

Materials are an important tool for the aesthetic of a building that contributes to the overall experience. Warm, earthy materials will be used for the second floor youth spaces, while the first floor anchor spaces will be composed mainly of concrete masonry units to seamlessly blend in with the existing structure. The contrast between concrete and wood will help to create visual tension, as well as visual separation of the various spaces according to programmatic function. Clearly defining space through textures, colors, and material, will minimize confusion of the targeted user of the space and will help to create a more secured environment. Large glazed windows are mainly constrained to the second floor to reduce opportunity for vandalism and theft. The existing roof and steel trusses will remain exposed to allow for a high ceiling on the second level and display the harmonious integration of the old with the new structure. All the exterior paint and materials used will be selected to easily remove or deter unwanted graffiti. The visual cleanliness of a building has a great impact on how a building is perceived and its level of "safety" within the community.

The scale of the building shall not be disproportionate to the surrounding neighborhood. However, it should be one of the larger buildings in the area in order to create a hierarchy of importance and a visual beacon for identification. Since the facility will be a public space and contain various types of activities, the amount of space needed for the proposed program is substantial. The footprint of the building will be extended by 30' on the west and 15' on the east side to accommodate for the larger programmatic requirements. A second floor level will reduce the building footprint in half but will increase the height. The existing columns

and majority of the roof truss structure will be preserved except for the roof area over the game room space. This middle section of the roof will be slightly raised to create a hierarchy of space within the building. Half of this portion of raised roof structure will be removed to allow for natural light into the game room and create the open courtyard area on the first floor. The overall scale of the building shall not be imposing upon the surrounding site and intimidating to the users, but rather kept at a human and surrounding building scale and inviting to those of the community.

In addition to using the typology of a tree house, the design will also take architectural cues from the surrounding neighborhood to create a "sense of place" that is comfortable for the residence. People naturally feel more secure in places that are familiar to them. A new building can achieve this familiarity through use of "local" materials and architectural elements. Large covered exterior spaces such as *lanais* (balconies) are often incorporated into architecture in tropical areas to allow for natural ventilation (cooling) and sun shading, while also offering protection from rain. This design element is used to create a middle space for people to gather and mingle, which is often utilized in Hawaii. There are many covered exterior areas on both the first and second floor of the Paukukalo Clubhouse design that will create a "sense of place" resulting in a higher level of comfort and perceived security.

The aforementioned design ideas will be used to execute a building that feels secure, comfortable, and inviting to youth and the community without resorting to large metal gates, bars, or materials which result in hostile environments to deter crime. The perception of safety and security will be achieved through a familiar architectural typology ("sense of place"), visual textures, and materiality creating a family-oriented safe space for all members of the community to enjoy.

15.1 CPTED APPROACH & CREATING "SAFE SPACES" DIAGRAM (11X17 FOLD OUT)

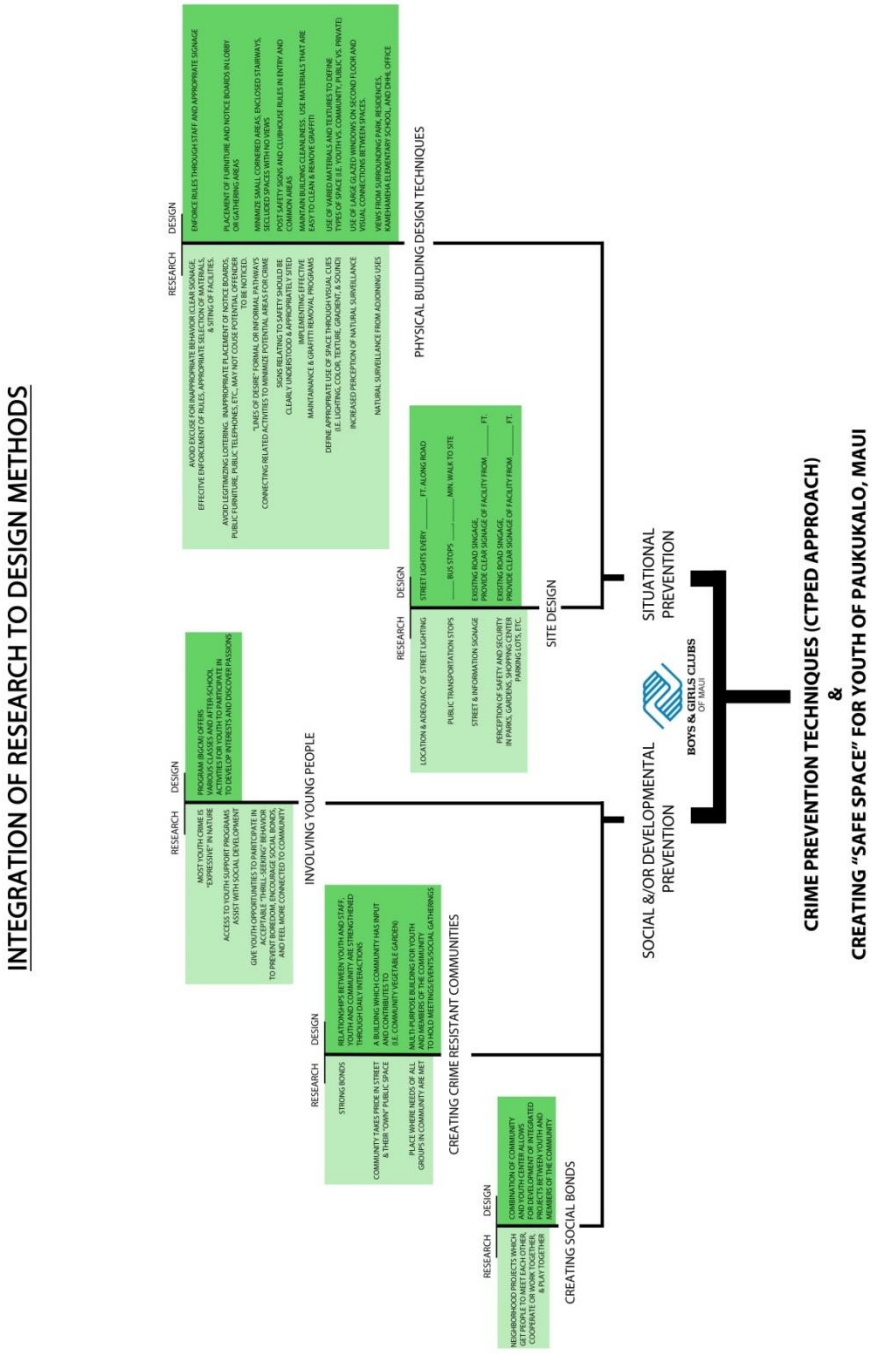


Figure 19: Crime Prevention Through Environmental Design (CPTED) Approach and integrated design methods

15.2 ORGANIZATION & GROUPING OF SPACES DIAGRAM (11X17 FOLD OUT)

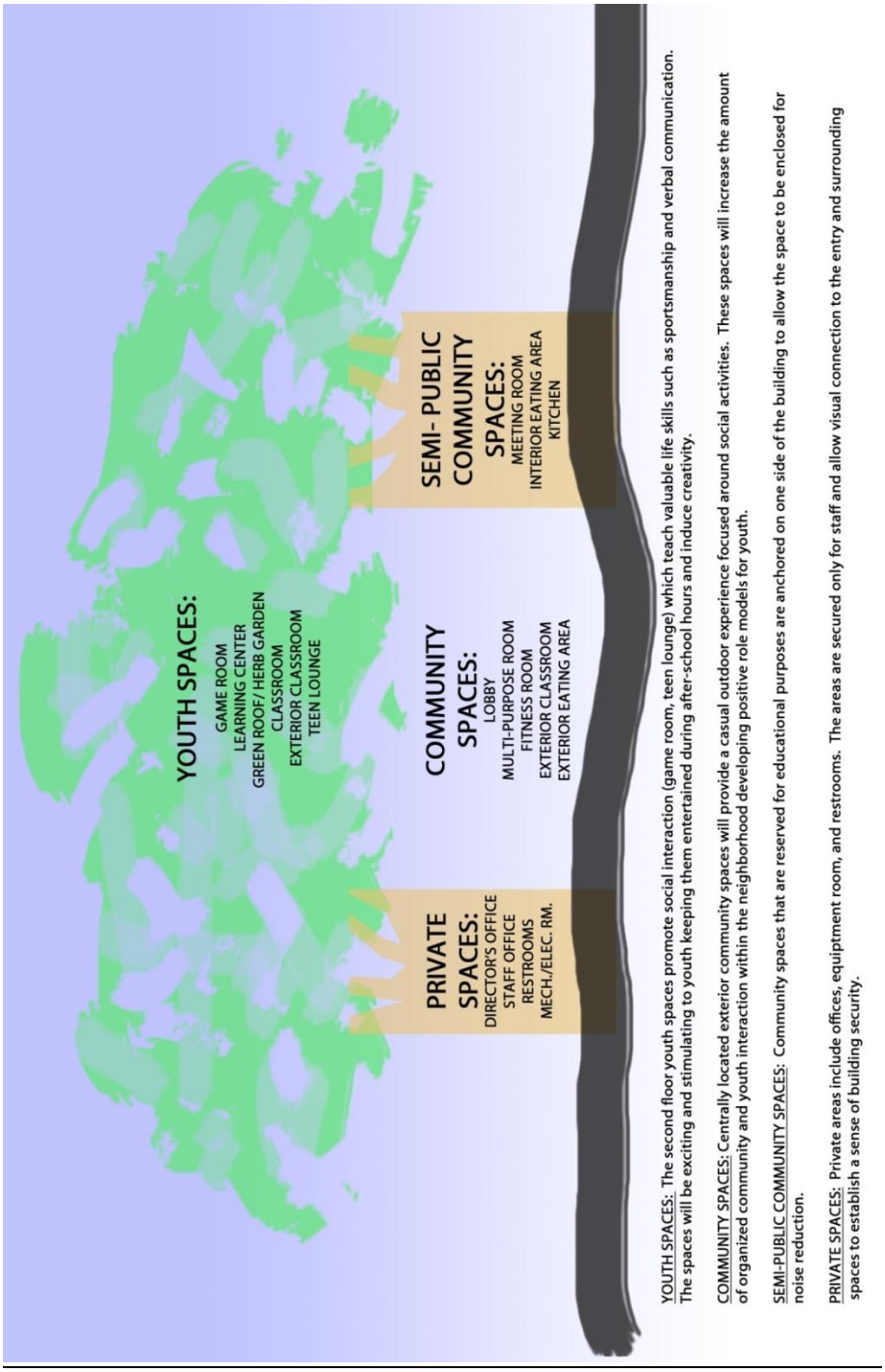


Figure 20: Conceptual division of public, private, and youth space diagram

16. CODE & ZONING FOR BGCM PAUKUKALO

OCCUPANCY LOAD SUMMARY

PER TABLE 1004.1 - MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT AND TABLE 1019.1 - MINIMUM NUMBER OF EXITS PER OCCUPANT LOAD

ROOM OCCUPANCY	AREA	SF PER PERSON	NO. OF OCC.
FIRST FLOOR			
LOBBY	166	5	34
STAFF OFFICE	448	15	30
DIRECTOR'S OFFICE	125	15	9
FITNESS ROOM	599	50	12
MULTI-PURPOSE ROOM	1,389	15	93
EXTERIOR EATING AREA	855	15	57
INTERIOR EATING AREA	434	15	29
KITCHEN	660	200	4
MEETING ROOM	478	15	32
MECHANICAL & STORAGE	397	300	2
TOTAL:	5551		302
SECOND FLOOR			
LEARNING CENTER	610	50	13
GAME ROOM	1,494	11	136
TEEN LOUNGE	729	15	49
CLASSROOM	648	20	33
EXTERIOR CLASSROOM LANAI	535	20	27
GREEN ROOF/HERB GARDEN	2,187	50	44
TOTAL:	6,203		302
TOTAL OCCUPANT LOAD:			604

PROJECT DESCRIPTION:
CONSTRUCT NEW YOUTH DEVELOPMENT CENTER

OCCUPANCY CATEGORY	III (TABLE 1604.5)
OCCUPANCY GROUP:	A-3 (Community Hall) (SECTION 303.1)
TYPE OF CONSTRUCTION:	1-A (TABLE 601)
ALLOWABLE AREA:	UNLIMITED (TABLE 503)
TOTAL ALLOWABLE AREA:	UNLIMITED
ACTUAL AREA:	6185 S.F.
ALLOWABLE HEIGHT:	2 STORIES OR 30 FEET
ACTUAL HEIGHT:	2 STORY

FIRE SPRINKLER SYSTEM: REQUIRED PER SEC. 903.2.1.2

FIRE RESISTIVE REQUIREMENTS FOR TYPE 1-A CONSTRUCTION
(2006 IBC, TABLE 601)

1. STRUCTURAL FRAME: 3HR
2. BEARING WALLS, EXTERIOR: 3HR
3. BEARING WALLS, INTERIOR: 3HR
4. NONBEARING WALLS AND PARTITIONS, EXTERIOR: 1HR
5. NONBEARING WALLS AND PARTITIONS, INTERIOR: 0HR
6. FLOOR CONSTRUCTION: 2HR
7. ROOF CONSTRUCTION: 1 1/2HR

EGRESS ANALYSIS

NUMBER OF EXITS PER TABLE 1019.1

EXITS REQUIRED: 3
EXITS PROVIDED: 3

EXIT WIDTH PER TABLE 1005.1

EGRESS WIDTH W/ FIRE SPRINKLER: 604 X .15=90.6"
EGRESS WIDTH PROVIDED: 90.6"

EXIT ACCESS TRAVEL DISTANCE

PER SECTION 1025.7 ASSEMBLY TRAVEL DISTANCE
MAXIMUM ALLOWED TRAVEL DISTANCE: 250 FT.
MAXIMUM ACTUAL TRAVEL DISTANCE: 102 FT

EXIT SEPARATION

PER SECTION 1015.2.1
DISTANCE BETWEEN EXITS REQUIRED IS 1/2 DIAGONAL MIN.
DIAGONAL= 56'-9"
1/2 DIAGONAL MIN. REQUIRED: 28'-4 1/2"
DISTANCE BETWEEN EXITS PROVIDED: 41'-0"

PROJECT DATA

T.M.K.:	2330050870000
LOT AREA:	70,942 SF
OWNER:	DEPARTMENT OF HAWAIIAN HOMELANDS
STATE LAND USE DESIGNATION:	RESIDENTIAL
COMMUNITY PLAN DESIGNATION:	RESIDENTIAL
COUNTY USE ZONE:	R-2

SPEC. MGT. AREA:	NOT IN THE SPECIAL MANAGEMENT AREA
FLOOD ZONE:	X-AREAS DET. TO BE OUTSIDE THE.2% ANN. FLD
BUILDING SETBACKS:	15 FT. FRONT YARD (REQ'D BY ZONING) 6 FT. SIDE AND REAR YARD (REQ'D BY ZONING)
BUILDING HEIGHT:	30' MAX. - DWELLINGS (REQ'D BY ZONING) *Variance or DHHL exemption may be required from the zoning height requirements for as-built condition
PROPOSED BUILDING AREAS:	FIRST FLOOR: 5,551 SF SECOND FLOOR: 6,203 SF TOTAL: 11,754 SF

Figure 21: International Building Code (2006) Check

17.1 VIEWS TOWARDS SITE (11X17 FOLD OUT)

Figure 21: Views towards existing park site

17.2 EXISTING/PROPOSED SITE LIGHTING

Figure 22: Views towards existing park site

17.3 EXISTING/PROPOSED VEGETATION

Figure 23: Existing and proposed landscape

17.4 EXISTING/PROPOSED TRAFFIC PATTERN & ON-SITE PARKING

Figure 24: Parking and traffic diagram

17.5 TRANSPORTATION MAP

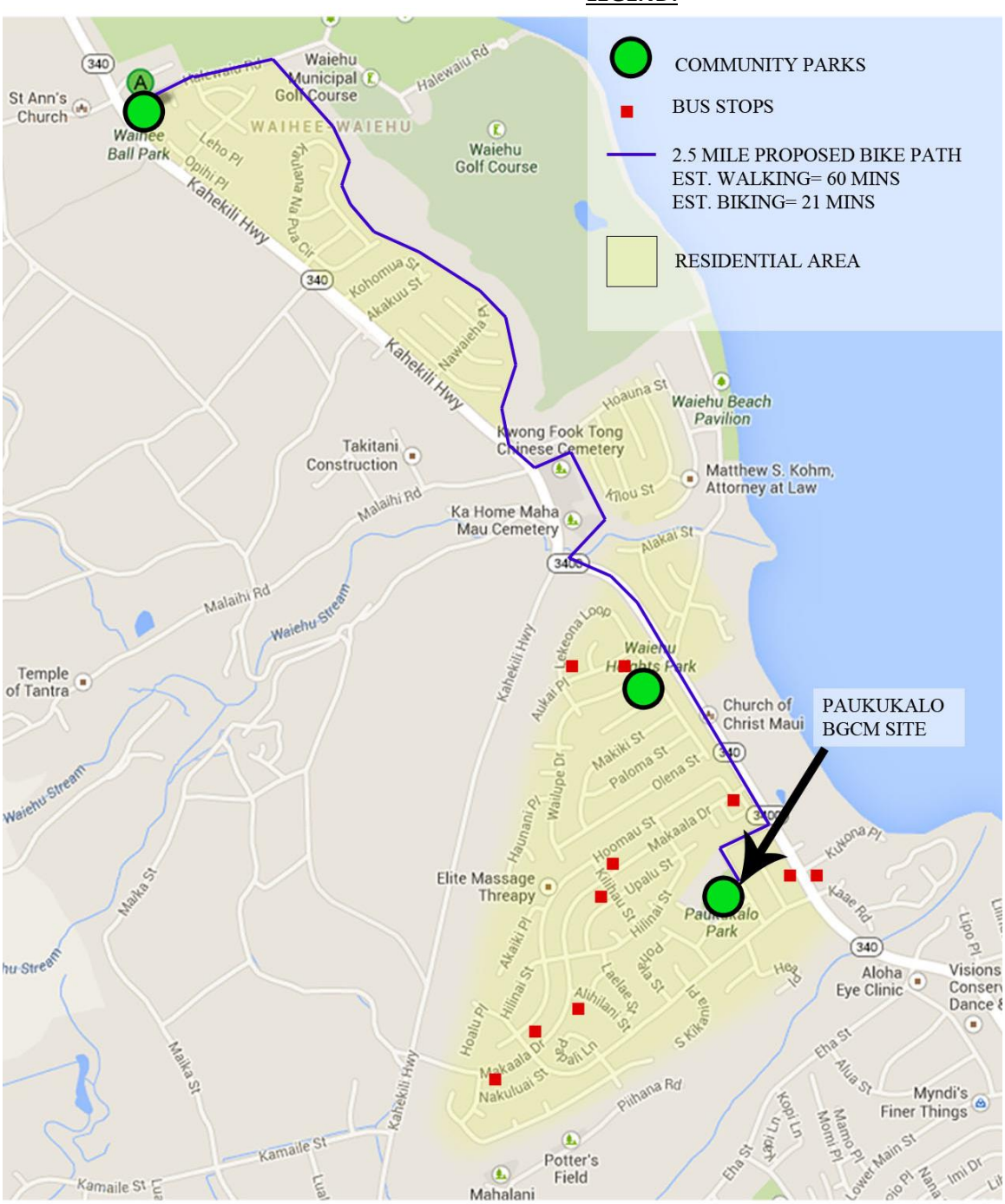


Figure 25: Existing bus transit and proposed bike path map

18. FLOOR PLANS

18.1 GROUND FLOOR PLAN

Figure 26: Ground Floor Plan

LEGEND:

1- LOBBY	7. MECH./ELEC. ROOM	13- STORAGE 2
2- OFFICE	8- STORAGE 1.	14- MEETING ROOM
3- DIRECTOR'S OFFICE	9- FITNESS ROOM	15- MULTI-PURPOSE RM.
4- STAFF RESTROOM	10- EXT. EATING COURTYARD	16- ELEV. MACHINE RM.
5- GIRL'S RESTROOM	11- INTERIOR EATING COURTYARD	23- ACCESIBLE RSTRM.
6- BOY'S RESTROOM	12- KITCHEN	

18.2 SECOND FLOOR PLAN

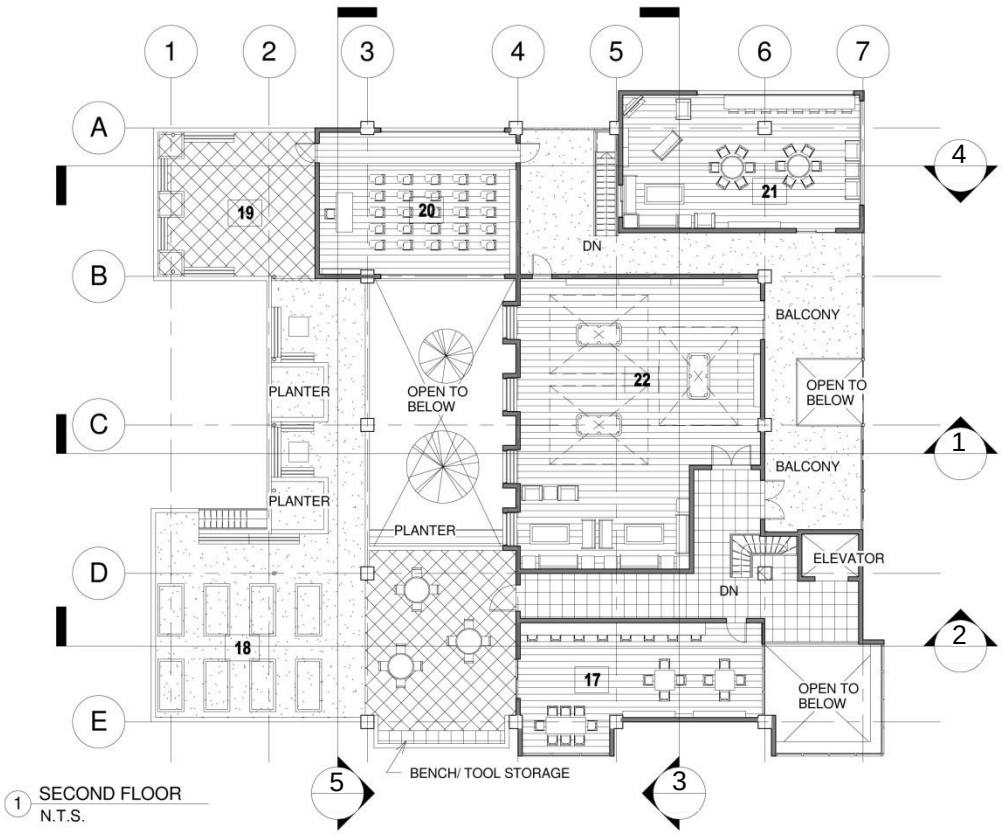


Figure 27: Second Floor Plan

LEGEND:

17- LEARNING CENTER
18- VEGETABLE/HERB GARDEN
19- EXTERIOR CLASSROOM
20- CLASSROOM
21- TEEN LOUNGE
22- GAME ROOM

18.3 SPATIAL DIAGRAM

Figure 28: Spatial Diagrams

19. ELEVATIONS

19.1 NORTH

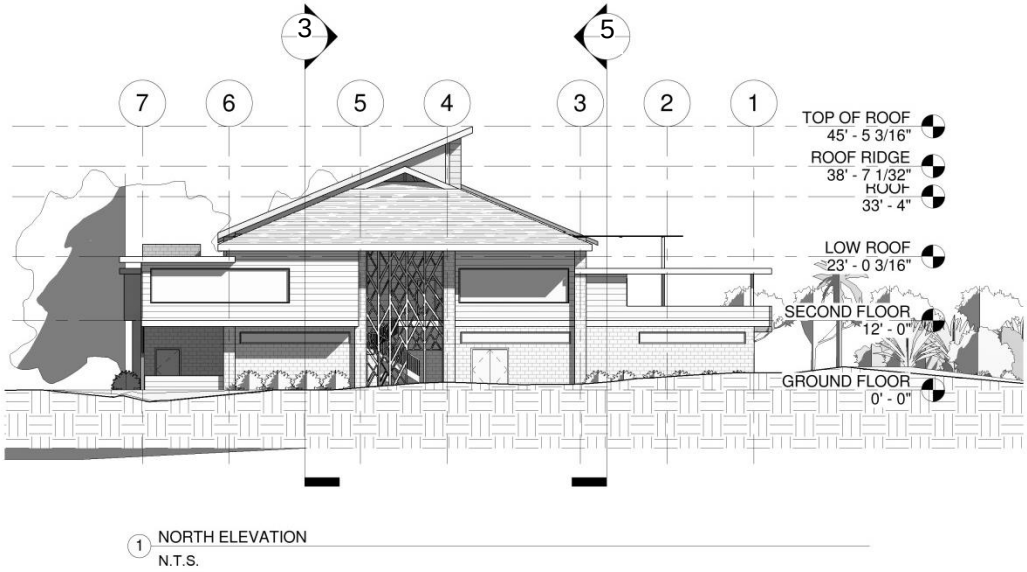


Figure 29: North Elevation

19.2 SOUTH

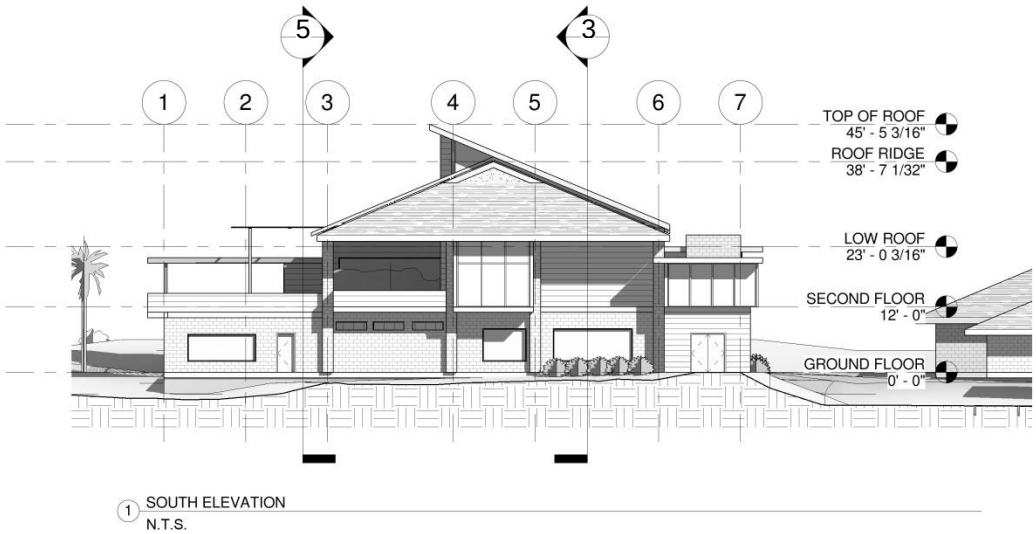


Figure 30: South Elevation

19.3 WEST

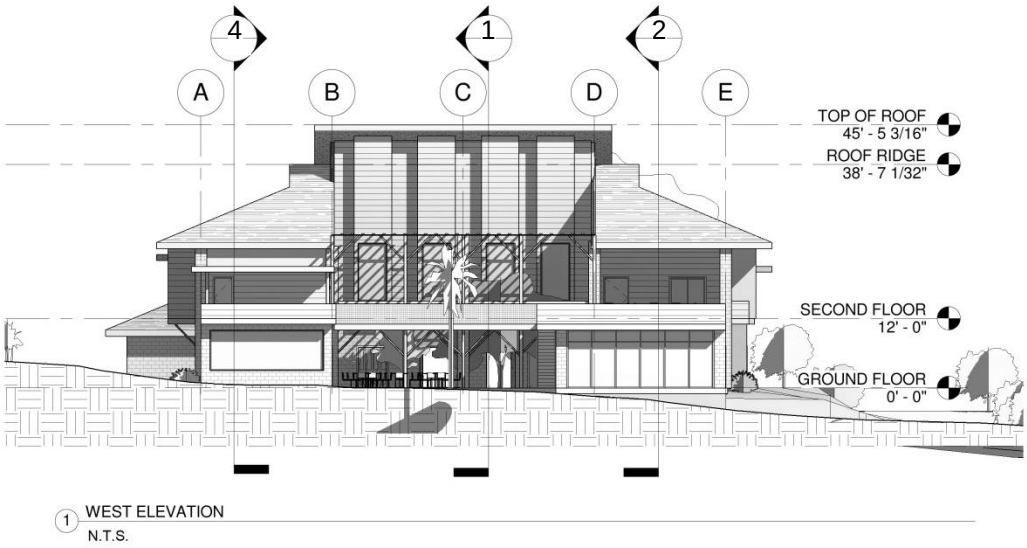


Figure 31: West Elevation

19.4 EAST

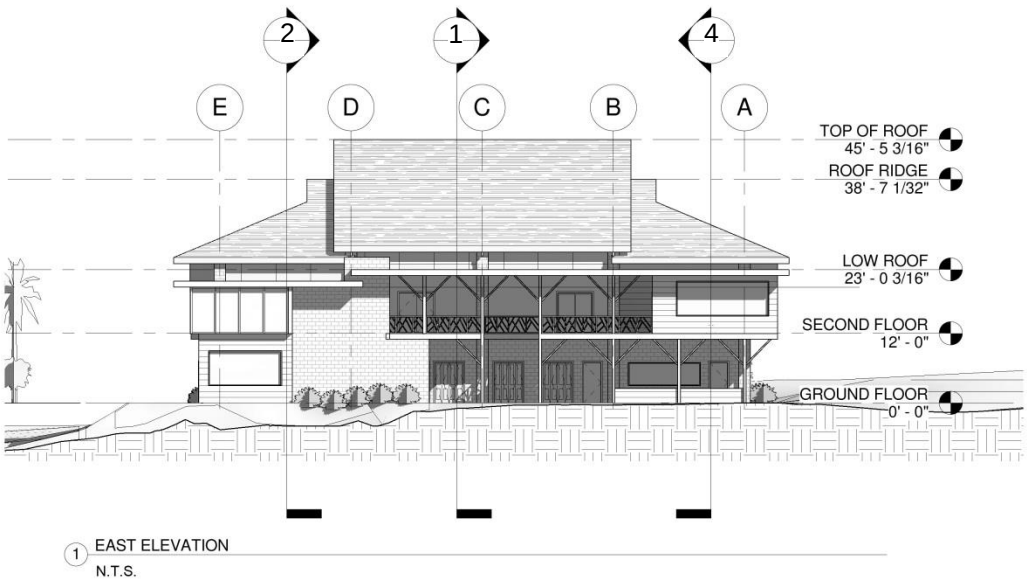


Figure 32: East Elevation

20. SECTIONS

20.1 SECTION 1

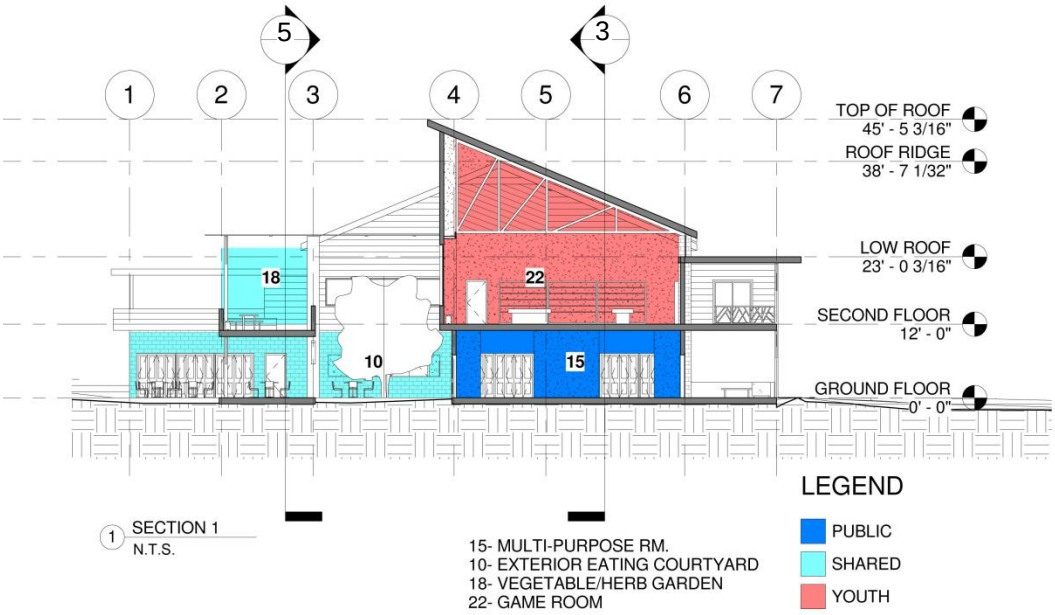


Figure 32: Transverse section

20.2 SECTION 2

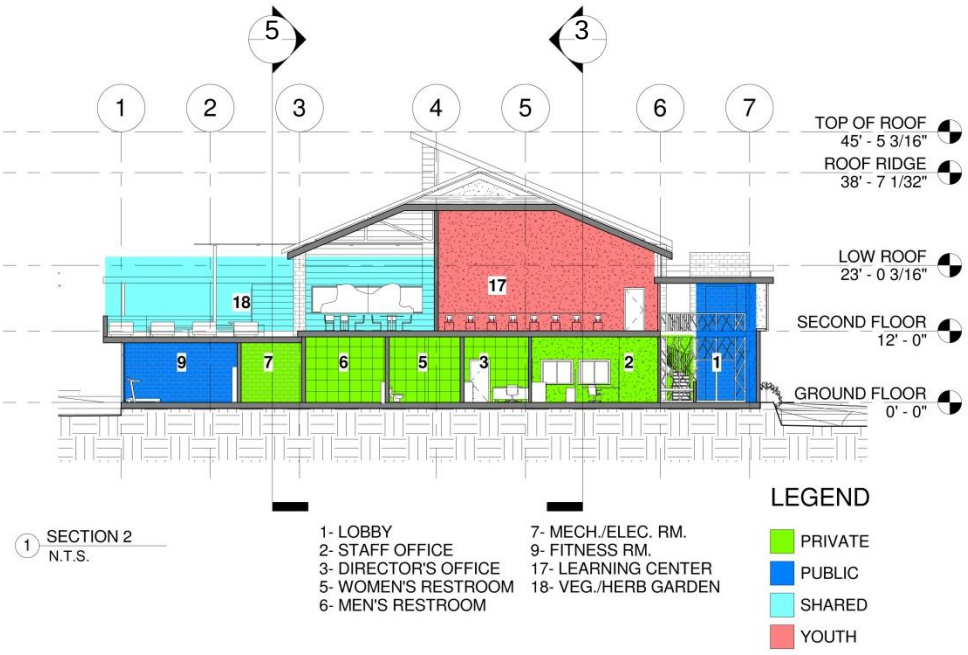


Figure 33: Transverse section

20.3 SECTION 3

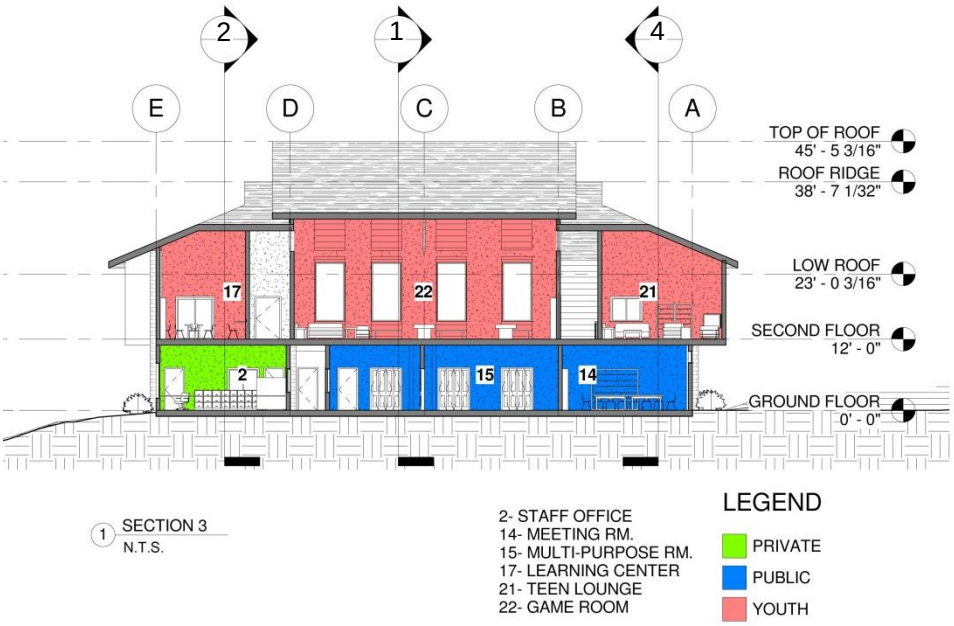


Figure 34: Longitudinal section

20.4 SECTION 4

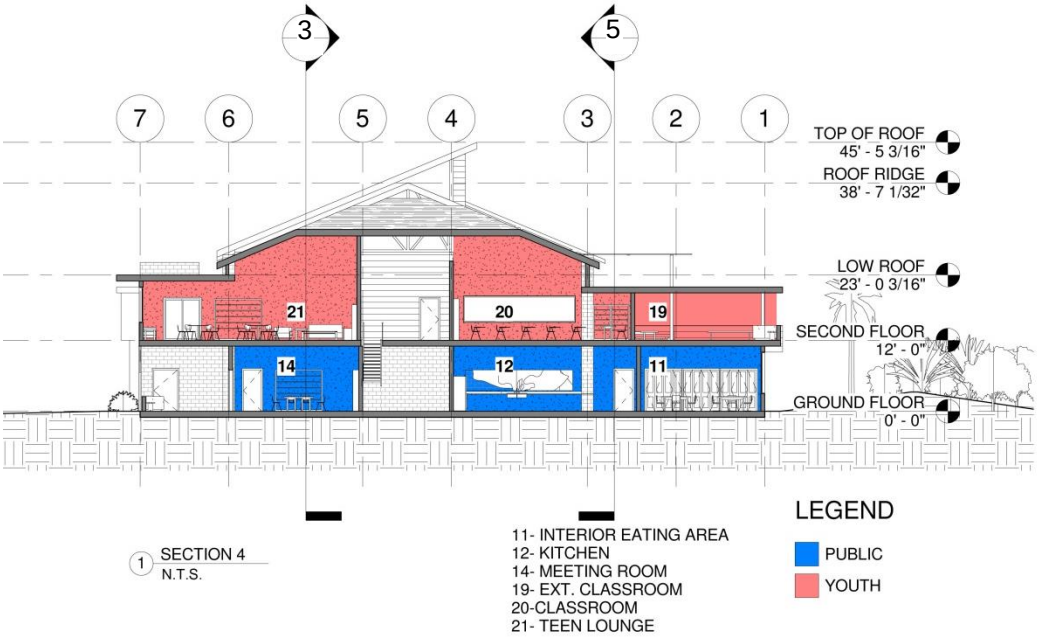


Figure 35: Transverse section

20.5 SECTION 5

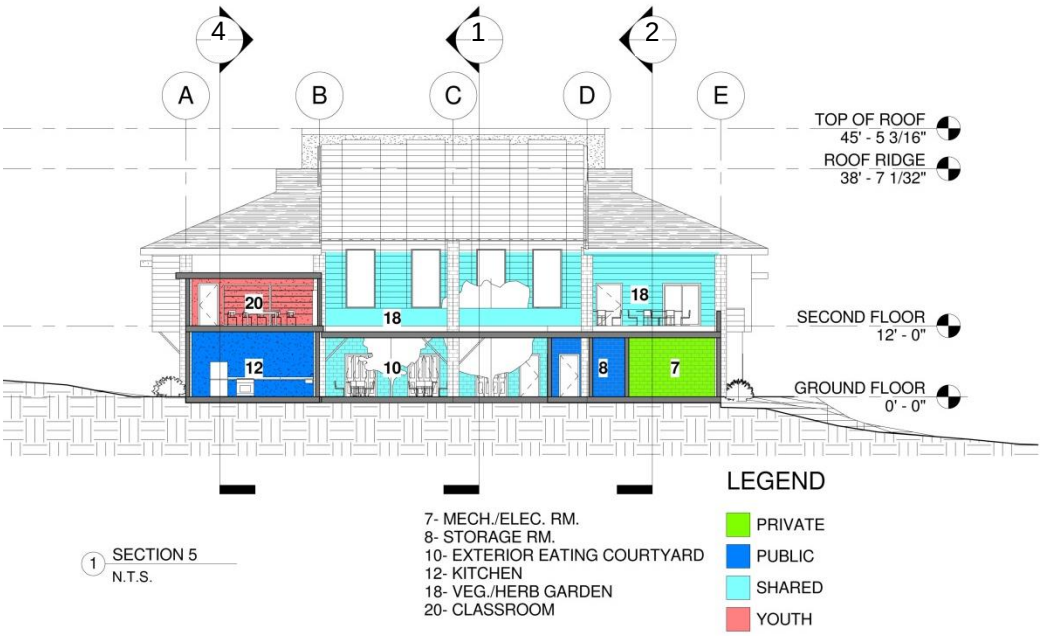


Figure 36: Longitudinal section

21.1 EXTERIOR PERSPECTIVES

OVERALL BOYS & GIRLS CLUB MAUI PAUKUKALO SITE

Figure 37: Site Perspective East

The selected site for the Boys and Girls Paukukalo Clubhouse is located in the midst of a suburban neighborhood. Location of the Clubhouse is important to create a hub for community interaction and maintain a family-oriented environment.

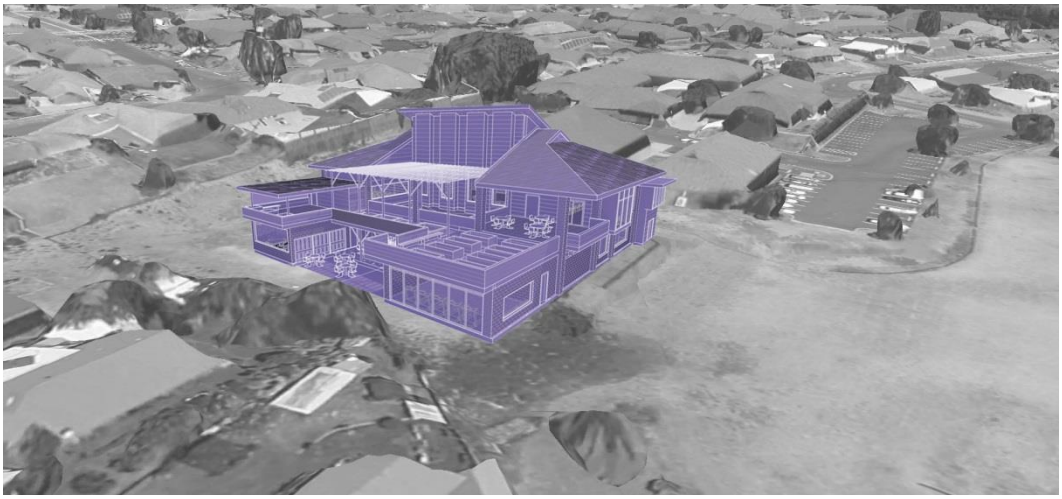


Figure 37: Site Perspective West

SOUTHEAST

Figure 38: Proposed parking and facility entry

The entrance of the clubhouse is located on the South façade of the building facing the park. The proposed parking lot is also located on the south entrance for easier accessibility from the park. Large windows on the second level allow unobstructed views towards the park activities and allow in natural light to learning spaces and the entrance lobby. Low hedges are used to emphasize the entrance while also providing a barrier for criminal activity. In addition, low vegetation allows for clear sightlines for natural surveillance between the interior and exterior of the building. Clear signs that can be read from a distance also help users to identify the use of the facility, as well as identify suspicious people.

SOUTHWEST

Figure 39: Southwest view of fitness room, and vegetable/herb garden

The southwest side of the building opens up to the surrounding residential neighborhood. The U-shaped exterior eating area is a communal space that could be used for large gatherings and is directly connected to the multipurpose room. Many of the other spaces on the ground floor and second floor also have direct visual connections to the courtyard increasing ability for internal natural surveillance of the building's users. The second floor plan has large roof decks on either side of the courtyard which allows for 180 degree unobstructed views of the surrounding site. The trellis provides sun shading over the exterior courtyard area while keeping the space below open for ventilation. Low hedges are kept along the windows of the fitness and interior eating areas to create barriers for potential intruders.

WEST (COVERED EXTERIOR EATING COURTYARD)

Figure 40: Exterior eating courtyard

The exterior courtyard is a space for community interaction to build stronger bonds and relationships. The multipurpose room connects directly with this exterior space through large folding doors. When opened, the two spaces become one seamless gathering area. The openness of the ground floor plan creates a perception of the game room area floating over the space below. Decorative aspects such as the children's tile mural along the roof garden bridge help the youth and community feel a sense of ownership over the building.

WEST (HERB/VEGETABLE GARDEN)

Figure 41: Herb/Vegetable Garden

The herb/ vegetable garden is located on the second level of the south side of building to ensure optimal sunlight for plant growth. This space is used for both community and youth horticulture education that can work hand in hand with culinary classes to teach how to live a sustainable lifestyle. A space that requires continuous care from the community such as a garden can instill a sense of pride and ownership over a public facility.

Figure 41: Herb/Vegetable Garden Covered Area

The “intermediate” spaces that are between interior and exterior areas are an important part of the Hawaiian culture and tropical architecture typology. These areas are widely used for casual gatherings in which people can enjoy the fresh air and cool trade winds. This covered space between the learning center and the vegetable/herb garden can be used as a preparation area, or simply a place to mingle and enjoy each other’s company and views of the adjacent park activities in protection from the sun.

NORTHEAST (MEETING ROOM/TEEN LOUNGE)

Figure 42: Northeast Perspective

The teen lounge is a space dedicated for teenagers to socialize freely with one another during their time between school and home. The space is visually separated from other spaces to give a sense of empowerment and independence to the teens, while still providing a safe space under adult management. The difference in materiality between the second floor and ground floor creates aesthetically pleasing creative tension and helps users to easily identify the difference in types of space. The integration of solid and void spaces also creates the perception of floating spaces similar to that of a tree house.

NORTH GATE (TEEN LOUNGE/CLASSROOM/EXT. CLASSROOM)

Figure 43: North Elevation

The north side of the building also faces the surrounding residential community. High windows on the ground floor allow light in while minimizing areas for potential break-ins. The second floor areas (teen lounge & classroom) above are more transparent, allowing users visual connections to the surrounding areas below. The central secondary vertical circulation is kept open for natural ventilation but secured by a decorative metal gate to deter breaking and entering.

21.2 INTERIOR PERSPECTIVES

LOBBY/ENTRANCE

Figure 44: Lobby Interior

The first space when entering the building is the double height lobby area. This is where all facility users are required to check-in at the front desk to monitor the occupants of the building. The lobby and check-in area are adjacent to the office spaces. The windows provide clear sightlines to those approaching the facility and the surrounding site.

GAME ROOM

Figure 45: Game Room Interior

The game room is a dedicated space for Boys and Girls Club members to utilize. The large bay windows overlook the eating courtyard below and connect the space visually with the tops of the courtyard trees **(Fig. 46)**. The space is divided into a game area and lounge area with coffee tables for board and card games. The structural trusses are exposed in this space showing how the existing building is incorporated with the design. Up lighting over the bay window seating area accentuates the verticality and spaciousness of the room.

Figure 46: Bay window seating at game room

LEARNING CENTER

Figure 47: Learning Center

The learning center space has a framed view towards the park and overlooks the lobby space. The large glazed windows allow natural light into the space which is more conducive to learning. Spaces are organized for both group and individual learning.

TEEN LOUNGE

Figure 48: Teen Lounge

This space is dedicated for the teenagers of the Boys and Girls Club. Having a space of their own to interact and converse freely without judgment is important at this stage in their development. Friendships and bonds can be created in this intimate safe space. The counter along the window creates a “coffee shop” type of space where people can work on their computers or homework individually if desired.

FITNESS ROOM

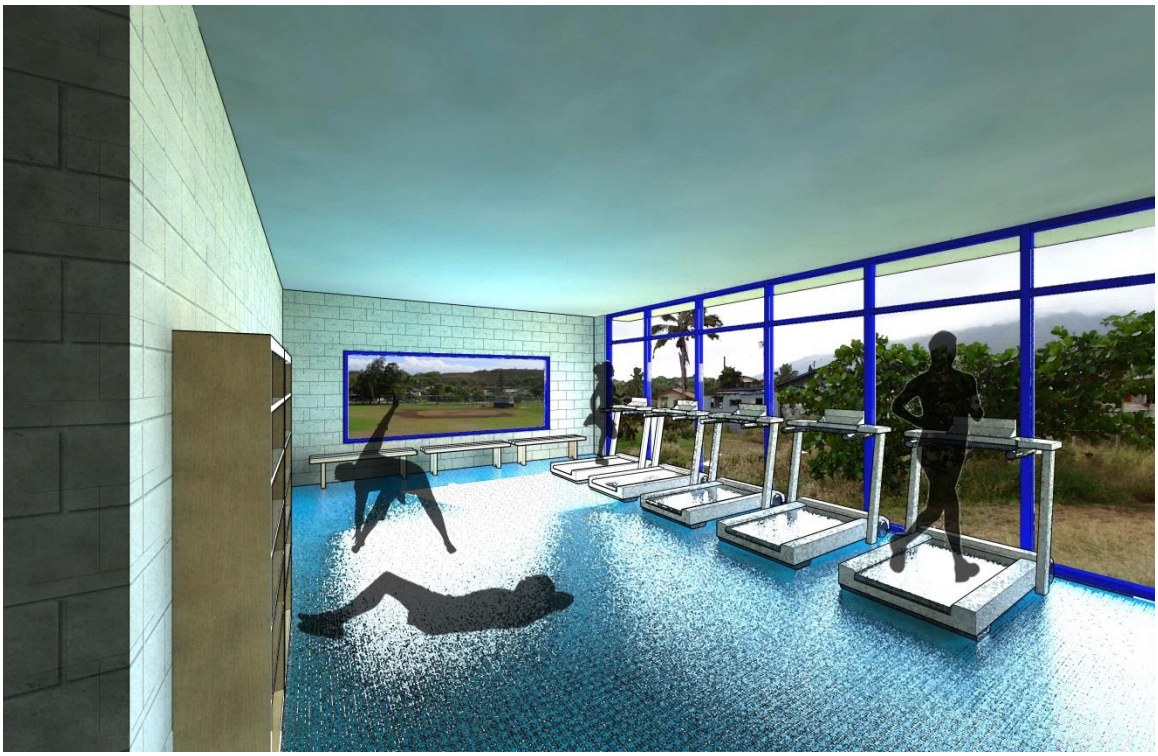


Figure 49: Fitness Room

The fitness room is for youth weight lifting classes and opens for community use during specified hours. The room is visually connected to the baseball field and the residential neighborhood.

EXTERIOR CLASSROOM

Figure 50: Exterior Classroom

The exterior classroom space is a large covered lanai area that can be used for outdoor learning or classes that require more space to move around freely. There is a 180 degree view of the surrounding site which helps to create a sense of place in the tropical environment. Seating areas and planters are intermittently spaced along the edge of the space to delineate the area and provide place for relaxation. The planters help to bring nature closer to the building users. Interwoven wood tile flooring provides a comfortable floor material and helps to distinctly separate the outdoor spaces between the class and roof garden areas.

PART VIII: DESIGN PROJECT CONCLUSION

The culmination of research on criminal behavior and crime prevention approaches in combination with the design research of youth development centers leads to the conclusion that the built environment has a correlation with the amount of criminal activity in a community. Architectural design and environmental design affects the way an area is perceived by users and the community. Thus, a psychological connection between the space and sense of fear or security is generated through architectural details such as lighting, materiality, line of sight, and environment.

Besides a building's design, the planning and programming of a facility can also contribute to the sense of safety within a community. In addition, a sense of safety can often be generated from the unity of a community, which is created through activities that everyone can participate in. An example of a close-knit and secure community can be seen in small suburban towns where neighbors are well-acquainted with each other, forming a neighborhood watch, as compared to those isolated in high-rise apartment buildings in the midst of a dense city. A facility which provides a space for organized community activities should be centrally located in the heart of a suburban town to enhance community unity and security.

The creation of a properly design, planned, and programmed community facility creates a sense of "territoriality", a term coined by Oscar Newman. The idea of having a public building in which the community takes ownership is critical to the development of a safe environment. In turn, members of the community will feel more obligated to notify law enforcement of any criminal activity in their public facility space. Case studies such as the infamous Pruit-Igoe housing project proves that the lack of "territoriality" over public areas with the addition of neglectful planned physical design elements leads to a crime ridden environment. The basic design principles of Defensible Space Theory and Crime Prevention Through Environmental Design techniques have been applied to communities affected by suburban sprawl, like Paukukalo, Maui, the selected site of the design project in this thesis. The architectural design works to minimize current and future criminal behavior and create a safer environment for youth.

Research reveals that youth development centers are facilities that have provided a safe haven for children and teens to interact throughout the past decades. These age groups value a space where they can easily gather, socialize, and develop their interests apart from home and school. These findings in combination with the design project for the Boys and Girls Club

Paukukalo Maui, has proposed a centrally located safe haven for youth and members of the community to take pride and ownership in. The proposed facility is at the heart and soul of the Paukukalo community.

Prior to the design portion of this thesis, three youth center case studies were selected based on the site's square footage and program size to compare and contrast identified architectural design elements. Analysis reveals that each design had a primary central space which represented an energy and aesthetic necessary for youthful programmatic needs. These case studies provided flexible spaces to accommodate evolving programmatic requirements and spaces critical for a creative learning process. Spaces along the edges of the buildings were transparent, creating a visual connection between the building's exterior and interior, showcasing its functions and activities. Interior glazing was also an important element which visually connected the spaces within the building, creating a sense of community between the users of the facility. Other important design features that shared a commonality were the use of a variety of materials to define spaces. The contrast between materials is used to create positive visual/aesthetic tension, as well as depict the functionality of the space within. Vibrant colors are often utilized to portray the energy of youthful programmatic needs.

In addition to case studies, data collected included existing building and site information from the land owners (Department of Hawaiian Homelands), and floor plans of existing Boys and Girls Clubhouse facilities on Maui. This data provided the basis of information for the types and size of spaces utilized for a typical Boys and Girls Clubhouse. The drawings of the existing building (structural elements such as columns and roof truss structure) on the Paukukalo site allows for the spatial square footages required for such facilities. Mapping of the residential area and transportation system revealed the poorly planned suburban streets that created roundabout paths for children in the area to access the selected site. In addition, the bus transportation system does not cater to children living two miles north of the site in the Waiehu Kou development. In order for the Boys and Girls Clubhouse to become the heart of a community, it is essential that it be easily accessible to the entire community. Therefore, a proposed bike path parallel to Kahekili Highway will connect the Waiehu Kou subdivisions with Paukukalo community. This will provide easier access to the facility and encourage physical activity amongst youth.

A major design challenge which arose during the design development of the Boys and Girls Clubhouse is the integration of the sense of community within the facility. The idea of having a central space for the entire community to partake in various activities was problematic because a typical Boys and Girls facility is secured from the public, strictly allowing members only to access the building. The challenge that was presented was how to design a space that can be open and inviting to the community, as well as a secured space for clubhouse members. The designed solution was through the separation of program between public community spaces and youth spaces. Youth spaces were located on the second floor allowing for these spaces to be secured when not in use. This also enabled the community spaces to remain open for other facility functions. Locating the youth spaces to the second level worked harmoniously with the design concept, which was based off the youthfulness of a tree house that isolates the second level from contact with the ground level. The perception of safety in a raised space, such as a tree house, is an inherent quality of its further visual proximity from those below. This also creates a physical barrier heightening the sense of security.

Another design challenge emerged in the materials used for the design of the facility. In terms of visual security, sightlines from the site's surrounding buildings play a crucial role in the perception of safety. Materials such as large glazed facades provide the most visual transparency between spaces but are not always practical due to security and cost. Information from discussions with Colin Hanlon, director of the Boys and Girls Clubs in Maui, led to the security concern of having large glazed panels on the ground floor because it can be easily broken into. This led to a design with solid walls and smaller openings on the ground level. In addition, large movable partition doors are utilized to allow the interior spaces to be completely open to the site when occupied. Windows are strategically placed to provide sightlines from important areas such as the director's office and check in area to the exterior park site. This allows adults to easily supervise the youth and activities happening around the proximity of the building, as well as monitor the people coming and going. The second level spaces have large glazed windows which allow the youth to have unobstructed visual connections to the surrounding area.

In summary, the design research process began with historical research on the development of youth centers and crime rates in the United States, specifically Hawaii. This research revealed the increase in juvenile crime rates and the lack of spaces dedicated to

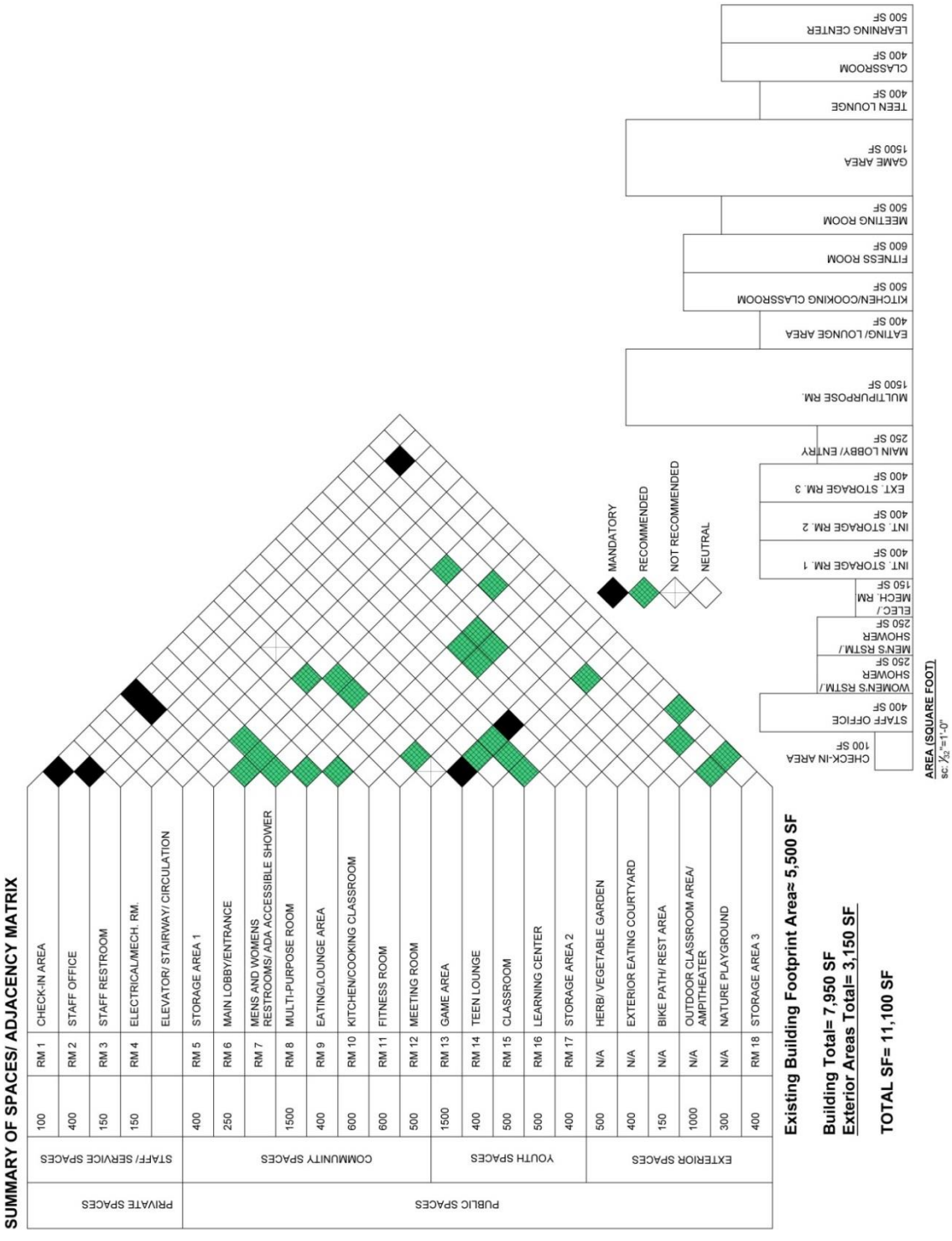
children in urban and suburban areas. Existing literature about crime prevention techniques included Oscar Newman's defensible space theory and creating safe space techniques (CPTED approach). This research supported the theory that architecture and environmental planning can be correlated with crime in an area. Questionnaire interviews were sent to multiple Boys and Girls Clubhouse directors around Hawaii to gather information on the types of spaces each club had and what is necessary for a clubhouse design. The responses generated from these questionnaires were helpful in providing new knowledge about programmatic clubhouse aspects as well as insights on desired spaces from personal experiences. A multitude of case studies were conducted throughout the research and the design phase about architecture designs that failed to create safe and secure spaces for its occupants, to cities that made significant enhancements to reduce crime through urban planning and architecture. In addition, case studies of youth center designs were completed prior to the design phase of the project. These case studies led to a better understanding of architectural design elements that failed and succeeded in creating safe spaces. In the design phase of the project, site specific data was collected, including the existing parking, structures, landscaping, site conditions, bus maps, and other pertinent data. The collection of site specific data such as cardinal directions, views, and future road/parking plans, gave insight for building orientation and spatial layout.

The design of the Paukukalo Boys and Girls Clubhouse follows the theory of creating safe spaces in suburban areas. Crime prevention design techniques work towards addressing levels of juvenile crime by providing better opportunities for youth. The existing literature and research correlates architectural design and crime primarily focuses on residential buildings in urban areas. This thesis applies the existing knowledge on crime prevention techniques to areas of suburban sprawl. Similar design elements that deter crime in residential buildings are then applied to a public building, a Boys and Girls Clubhouse, to create a safe and secure space for children when they are not at home or school. The notion developed from the research and design project is that shifting nodes of communities to the midst of a residential area will develop stronger community bonds and create a sense of territoriality over a common public facility. This helps to deter crime in a residential area. The current theoretical approach can be proven or disproven only through the design and actual construction of the Boys and Girls Clubhouse in the Paukukalo community. Once completed, the growth of community bonds and crime levels can be analyzed once again (periodically) to conclude its success.

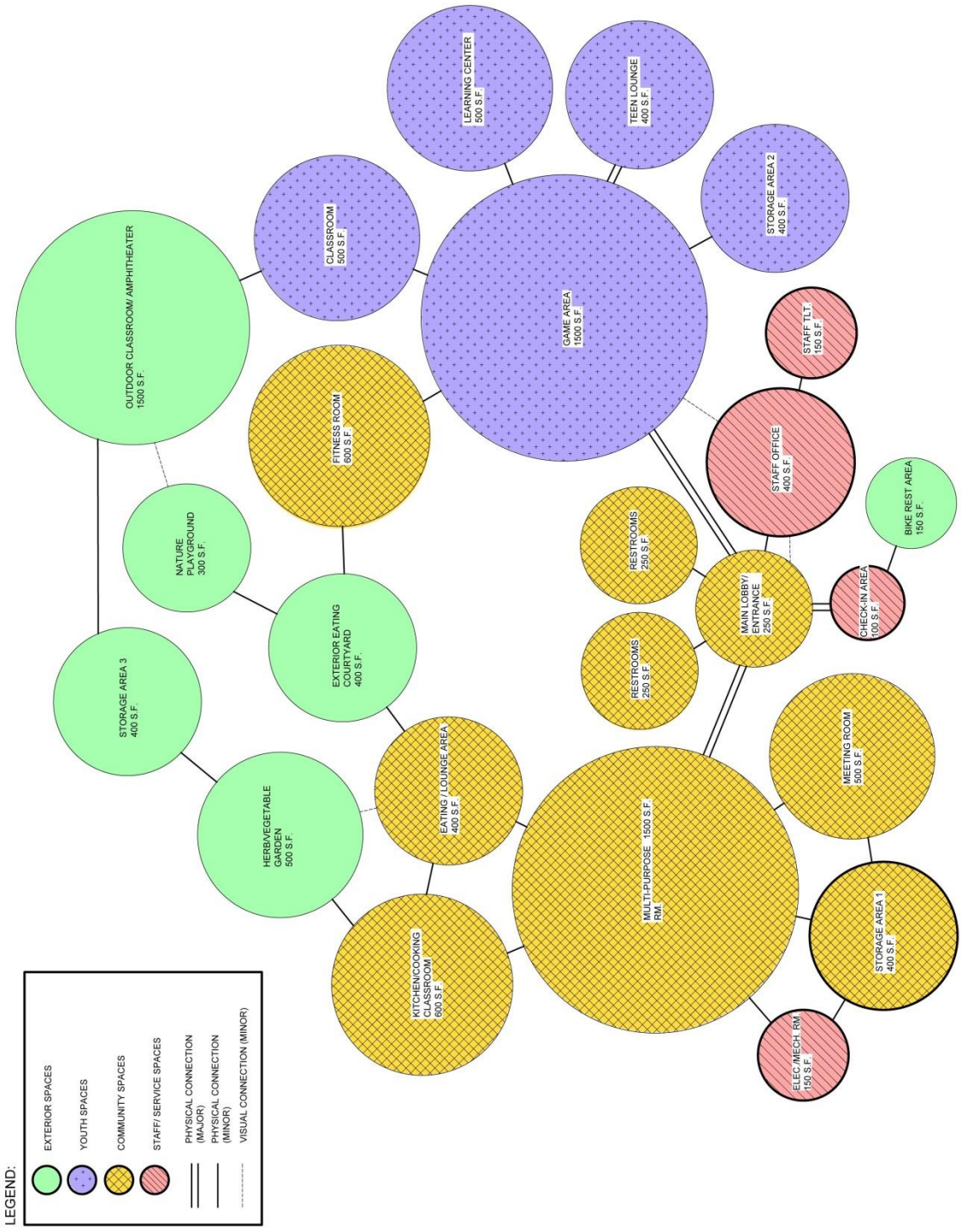
PART IX: APPENDICES

APPENDIX A: RECREATIONAL YOUTH CENTER TYPOLOGY TIMELINE

APPENDIX B: SPACE ADJACENY MATRIX & SQUARE FOOT COMPARISON



APPENDIX C: SPATIAL DIAGRAM



APPENDIX D: PARCEL SUMMARY

Parcel Summary			
TMK:	2330050870000	**Alt. TMK:**	
Domain:		**Type:**	PAR
Status:	EXST		

Parcel Master Address						
Address	**Frac**	**Prefix**	**Street**	**Type**	**PD**	**Suite**
655			KAUMUALII	ST		

Addresses		
Address	**Alias**	**Origin**
657 KAUMUALII ST 4P	ALIAS	PARCEL
661 KAUMUALII ST 4P	ALIAS	PARCEL

Owner(s)	
Name:	HAWAIIAN HOME LANDS
Address:	P O BOX 1879
	HONOLULU, HI, 96805
Phone:	
E-mail:	

Zone Code	Zone Description	Ordinance No.	Origin
R-2	COUNTY'S R-2 RESIDENTIAL DISTRICT		
SMA NONE	NOT IN THE SPECIAL MANAGEMENT AREA		
STATE URB	STATE URBAN DISTRICT	STATUTE205	
HHL	HAWAIIAN HOME LANDS (NO JURISDICTION)		

Height Limit:	No building shall exceed two stories nor thirty feet in height		
Yards:	Front: 15 ft.	Side: 6 ft.	Rear: 6 ft.
Side and rear yards for two-story buildings shall be ten feet in all residential districts			

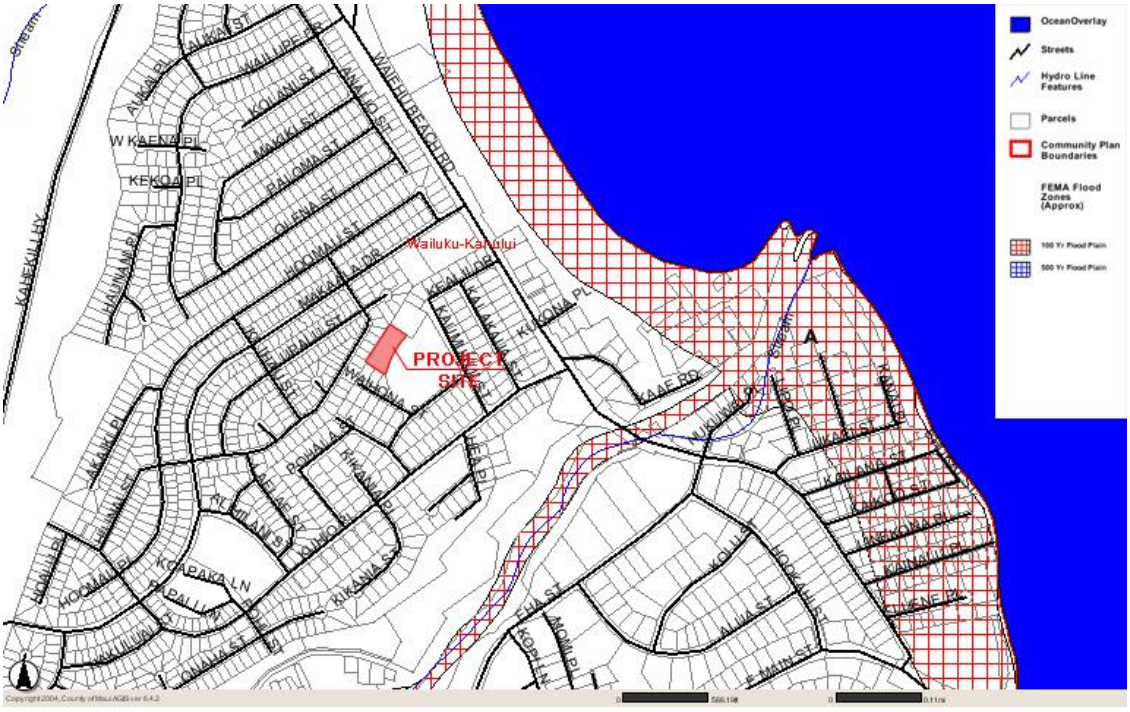
Attributes			
Front:	0.00	**Rear:**	0.00
Side 1:	0.00	**Side 2:**	0.00
Acres:	0.92	**SqFt.:**	40,022.93
Frontage:	0.00		
Flood:	X-AREAS DET. TO BE OUTSIDE THE.2% ANN. FLD		
Soil:			

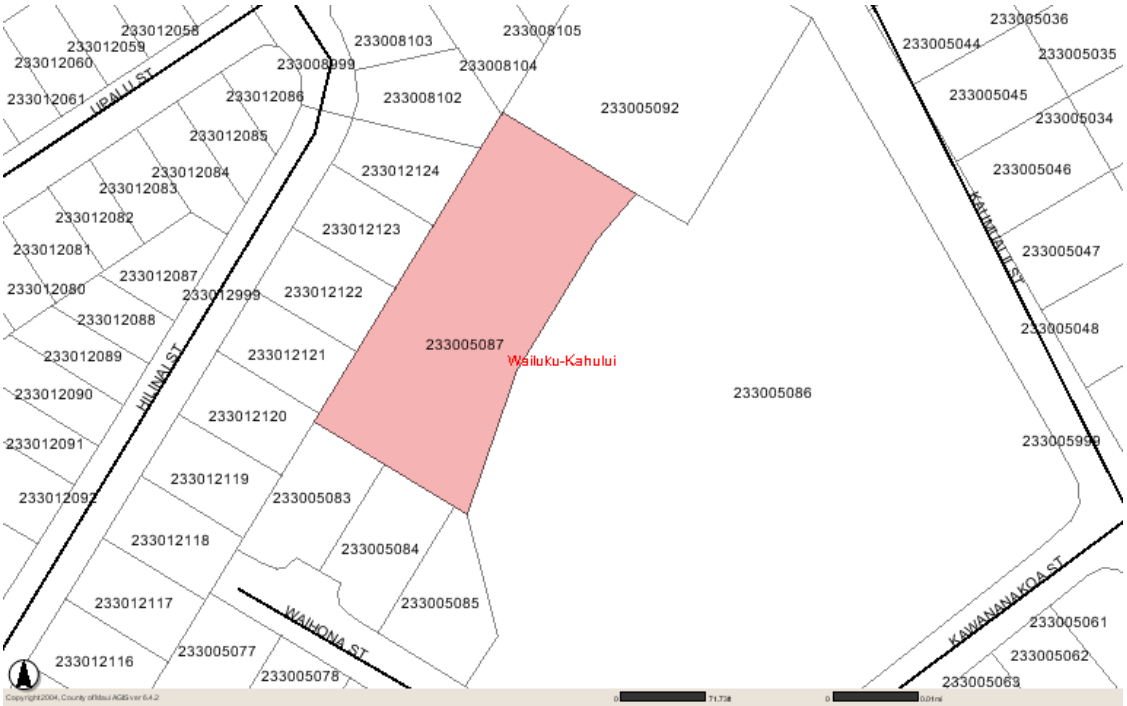
Slope:	
Seismic:	
Land Use:	

Struct/Improv Value:	1016500	**Property Value:**	0
Land Value:	100	**Exempt Value:**	1016600
Owner Occupy:			

Establishment(s)		
Str. Number:	**Name:** KAMEHAMEHA PRESCHOOL	
Establ. Num.: 888	**Address:** 661 KAUMUALII ST 4P	
Status: EXST	**Land Use:**	**Area:**
Str. Number:	**Name:** PAUKUKALO COMMUNITY CENTER	
Establ. Num.: 882	**Address:** 657 KAUMUALII ST 4P	
Status: EXST	**Land Use:** FOODEST AB	**Area:**

APPENDIX E: FLOOD ZONE & TMK MAPS





APPENDIX F: SITE LOCATION PLAN

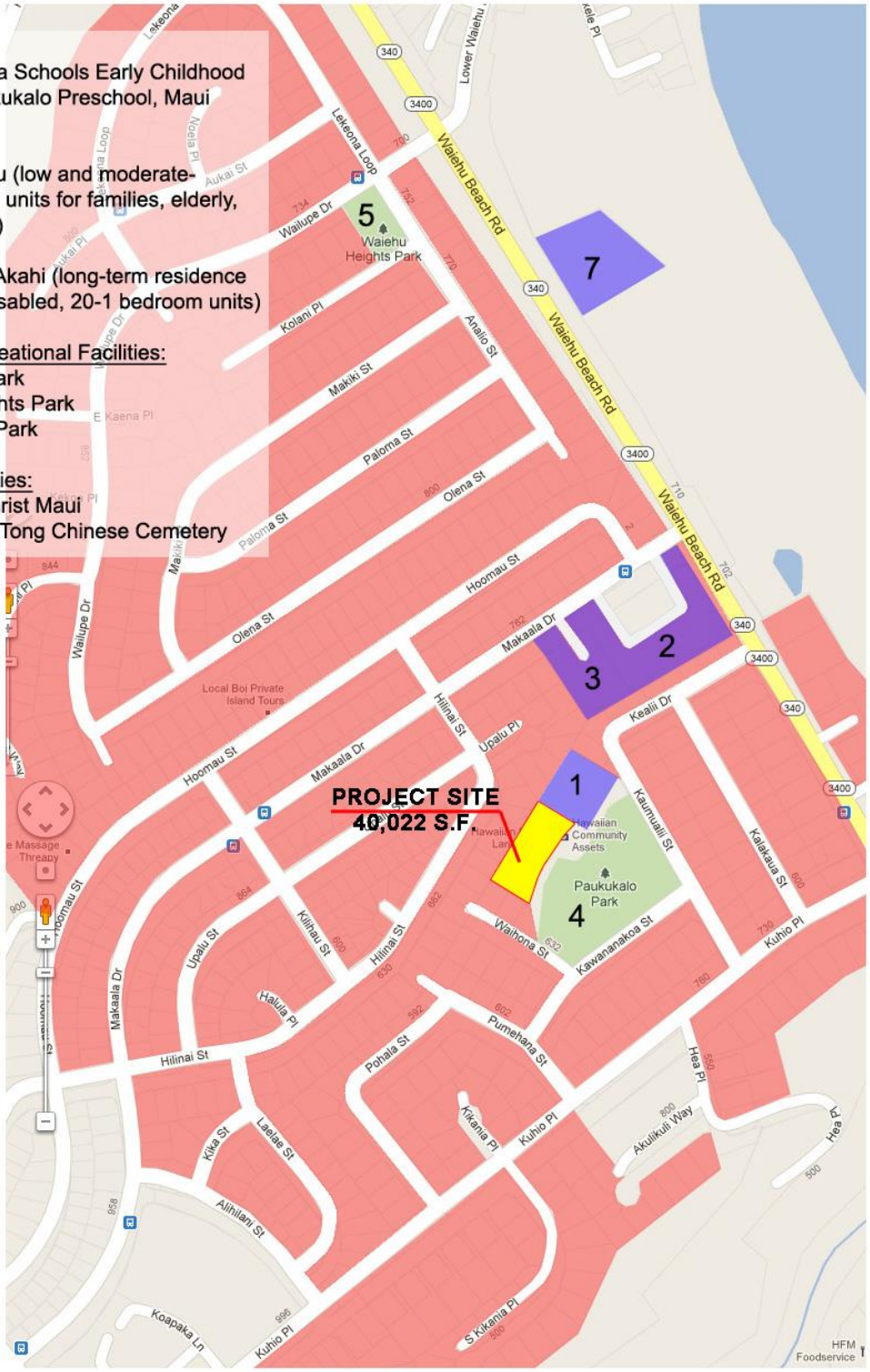
Schools:
1) Kamehameha Schools Early Childhood Education-Paukukalo Preschool, Maui

Public Housing:
2) Hale Mahaolu (low and moderate-income housing units for families, elderly, and/or disabled)

3) Hale Lokahi Akahi (long-term residence for physically disabled, 20-1 bedroom units)

Parks and Recreational Facilities:
4) Paukukalo Park
5) Waiehu Heights Park
6) Waihee Ball Park

Religious Facilities:
7) Church of Christ Maui
8) Kwong Fook Tong Chinese Cemetery



APPENDIX G: POWERPOINT PRESENTATIONS

PowerPoint Presentation 1: September 04, 2012 (see ARCH 546 Document in SoA Office)

PowerPoint Presentation 2: October 02, 2012 (see ARCH 546 Document in SoA Office)

PowerPoint Presentation 3: November 09, 2012 (see ARCH 546 Document in SoA Office)

PowerPoint Presentation 4: December 06, 2012 (see ARCH 546 Document in SoA Office)

PowerPoint Presentation 5: August 06, 2013 (pp.139-143)

PowerPoint Presentation 6: October 11, 2013 (pp.144-147)

PowerPoint Presentation 7: November 19, 2013 (pp. 148-155)

Active Youth & Passive Design

Addressing Crime through Design of "Safe Space" in Paukukalo, Maui

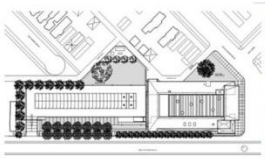
Liana Takamine
Fall 2013
Arch 548

Overview:

- Youth Center Design Precedents
  - The Gary Comer Youth Center (Chicago, Ill.)
  - Youth Center in Niafourang (Niafourang, Senegal)
  - Youth Centre in Amsterdam (Amsterdam, Netherlands)
- Design Concepts/Ideas/Sketches
- Existing Drawings
- BGCM Paukukalo Building Program
- Fall 2013 Schedule

The Gary Comer Youth Center:

- 2006, Chicago, Illinois
- John Ronan Architects
- 75,000 SF
- Main use for South Shore Drill Team and Performing Arts Ensemble (300 member dance group ages 8-18).
- Additional uses include various youth and educational recreational programs.

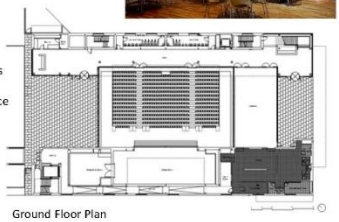


Site Plan

The Gary Comer Youth Center Cont'd:

Main Spaces are the "**Center of Energy**"
- Adaptable gymnasium
- Adjacent Cafeteria

"**Wrap-around**" Support Spaces:
- Arts & crafts
- Computer labs
- Dance rooms
- Recording studio
- Costume design shop
- Tutoring & study spaces
- Classrooms
- Office & exhibition space



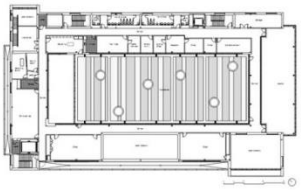
Ground Floor Plan

The Gary Comer Youth Center Cont'd:

- Support spaces organized in "flexible bars" that can be modified as the program evolves
- The bars terminate to "main spaces" on the exterior area of the building and used as a form of advertisement to the community of activities within
- Interior glazing
  - Allow visual access between different program spaces
  - Foster a sense of community
  - Create a sense of security for children

The Gary Comer Youth Center Cont'd:

- Classrooms, Exhibitions Spaces, Offices overlook roof garden
- Roof garden (24" soil) over gym/theater
  - Outdoor classroom area for horticultural programs
  - Grow and harvest vegetables and other edible plants
  - Crops are used in the culinary classes taking place within the facility
  - Collects and recycles rainwater, reduces urban heat island effect
- Skylights
  - Bring light to gym below



The Gary Comer Youth Center Cont'd:

- Colors/Materials
  - Brightly color fiber cement panels represent uniforms of South Shore Drill Team
  - Reflect the youthful orientation of the facility
  - Panels act as a rainscreen

Youth Center in Niafourang:

- Niafourang, Senegal
- Project Niafourang (Professors & Students)
- October-December 2011
- 100,000 NOK (Approx. 17,200 USD)
- Goal: Improve conditions for local youth and create job opportunities in village

Youth Center in Niafourang Cont'd:

- Program:
  - Computer room
  - Library
  - Multi-purpose room
- **Involvement of community** in building and planning stages created a **sense of ownership and pride** in the resulting building.

Youth Center in Niafourang Cont'd:

- Materiality
  - Walls built with hand-pressed blocks of compressed sand and little cement
    - Deep framed windows (seating areas)
  - Steel brackets custom welded in nearby village (roof)
  - Corrugated Aluminum Roof
    - Extends beyond walls
    - Provides shade/ Prevents rain
    - Areas of exterior relaxation
  - Angled wood planks
    - Blinds to prevent rain and direct sunlight

Youth Centre Amsterdam-Osdorp:

- 2011, Amsterdam, Netherlands
- Atelier Kempe Thill architects and planners
- Site area 150 SQM (approx. 1615 SF)
- Project area 285 SQM (approx. 3068 SF)
- Task: Create small youth/neighborhood center that is integrated into the existing tree population to maintain the green, lush areas between building blocks

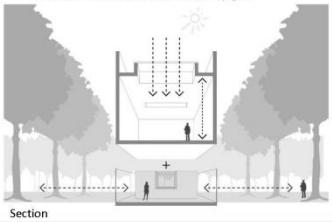
Youth Centre Amsterdam-Osdorp Cont'd:

- Ground Floor
  - Open completely to all sides through exterior glazing
  - Outside public area becomes part of interior (extends the small enclosed space to exterior)
  - "**Public Living Room**" of the neighborhood
  - Glazing allows for visibility of activities within facility and "stimulate(s) direct interaction with the public space."

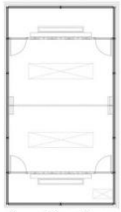
Ground Floor

Youth Centre Amsterdam-Osdorp Cont'd:

- Upper Floor
  - Community Hall
  - Fully enclosed, introspective space
  - Multi-functionality & Neutrality
  - Double height space with skylights for natural light
  - Whitish color to maximize effect of skylight



Section



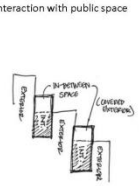
Second Floor Plan

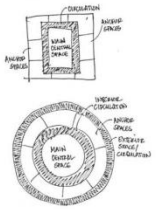
Youth Centre Amsterdam-Osdorp Cont'd:

- Open/Closed spaces
  - Determines building character and appearance
  - Enclosed space is brighter than open space
- Contrasting Materials/textures (visual creative tension between spaces)
  - Exterior
    - Smooth glazed transparent façade vs. rough scale-less solid polyurethane box
  - Interior
    - Rough concrete floor coated with layer of polyurethane
    - Acoustic sprayed plaster ceiling

Design Concepts/Ideas Derived from Case Studies:

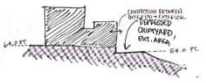
- "**Center of energy**" (main atrium space)
- "**Wrap-around**" support spaces
- **Flexible spaces** for evolving program
- Major anchor spaces located along edge of building to communicate energy to outside community. **Display of activities** taking place.
  - Stimulate direction and interaction with public space
- Interior glazing
  - **Visual connections**
  - Sense of Community
  - Comfort & Security

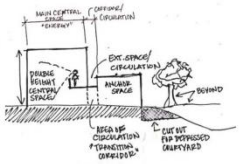




Design Concepts/Ideas Cont'd:

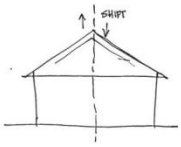
- Materiality
  - Colors portray **youthfulness/playfulness**
  - Use of natural materials, "**Sense of place**"
  - **Contrast materials** and textures to create visual creative tension between spaces
- Exterior spaces
  - Lanai
  - Roof Deck/ Roof Garden
  - Courtyards
- Use of **natural light**
  - Health and educational benefits
- Provide different "**levels**" of relaxation
  - Deep seat window pockets
- **Public v.s. Private** (Open/enclosed space)
  - "Public Living Room" for the community

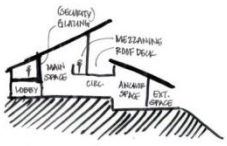




Design Concepts/Ideas Cont'd:

- Each part of program in a flexible "container" or anchor point
- Shifting of boxes to accommodate different spatial hierarchical needs
- Spatial adjacencies with "in-between" circulatory areas





Concept Statement:

"Create a safe space for youth and the community which reflects/encaptures the high energy levels of the buildings function, while simultaneously using building form to reduce energy consumption."

Program Overview:

Proposed Paukukalo Boys and Girls Clubhouse Spaces			
Youth Spaces	Community Spaces	Private/Service Spaces	Exterior Spaces
Game Area	Multi-purpose Room	Check-In Area	Herb/Vegetable Garden
Teen Lounge	Eating/Lounge Area	Staff Office	Eating courtyard
Classroom	Kitchen/Cooking Classroom	Restrooms	Bike path/rest area
Learning Center	Fitness Room	Electrical/Mech. Room	Outdoor classroom (Yoga, martial arts, dance, etc.)/ Amphitheater
	Meeting Room	Elevator/Stairway/Circulation	Nature Playground
	Main Lobby/Entrance	Storage Area	

Program:

- Total Floor Area Ratio (FAR): **7,950 SF**
- Total Site Area: **11,100 SF**

Private Spaces:

- Staff/Service Spaces
  - Check-in Area (100 SF)
    - Direct connection to entrance/lobby area (front desk)
    - Visual connection to exterior parking/entryway
    - Information center
    - Accessible only to staff
  - Staff Office (400 SF)
    - Approx. 4 employees w/additional seating area
    - Interior area accessible only to staff
    - Views to exterior, natural daylight
    - Visual connection to youth space for supervision purposes
  - Staff Restroom (150 SF)
  - Electrical Rm./Mech. Rm. (150 SF)
    - Located on the ground floor of facility
    - Accessible to staff only
  - Elevator/ Stairway/Circulation
    - Vertical circulation to meet building fire code requirements
    - Visual connections to interior and exterior spaces in stairwells
    - Promote movement and should not promote loitering

Program Cont'd:

Public Spaces:

- Community Spaces
  - Storage Area 1 (400 SF)
  - Main Lobby/Entrance (250 SF)
    - Secure space for belongings (lockers)
  - Men/Women Restrooms (ADA Accessible Shower 5-0" X 3-0" min.) (530 SF)
  - Multi-Purpose Room (1500 SF)
    - Alternate main control space
    - Flexible area for community activities
    - Connection to exterior areas
  - Eating/Lounge Area (400 SF)
    - Approx. 20 people
    - Interior/Exterior space
    - Adjacent to kitchen and classroom space
    - Flexible furniture
  - Kitchen/Cooking Classroom (600 SF)
    - Approx. 18-20 students/1 instructor
    - Interior space for both Youth and Community Use
    - Kitchen appliances (refrigerator, range, stove, sinks)
    - Visual connection to exterior
    - Sterile environment to meet health codes
  - Fitness Room (600 SF)
    - Conditioned interior space/ with option of operable windows
    - Views to exterior
  - Meeting Room (500 SF)
    - Approx. 16-20 occupants
    - Overhead projector/dry erase board
    - Ability to reduce amount of daylight

Program Cont'd:

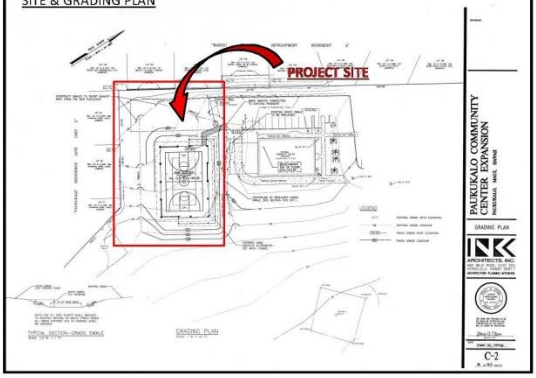
Youth Spaces

- Game Area (1500 SF)
  - Central interior space, used as circulation area between support spaces
- Teen Lounge (400 SF)
  - Interior space, used for small group conversations
  - Connection to exterior area for self-contemplation/relaxation
- Classroom (500 SF)
  - Approx. 20-25 students/1 instructor
  - Main interior area used to hold classes, area of little distractions
- Learning Center (500 SF)
  - Technology oriented interior space
  - Computers/electronics in a secured environment
- Storage Area 2 (400 SF)
  - Enclosed storage area that can be locked

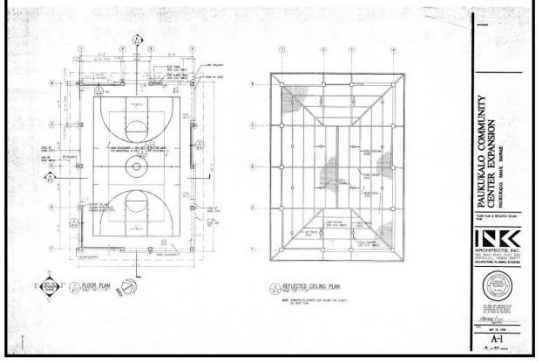
Exterior Spaces

- Herb/Vegetable Garden (500 SF)
  - Adjacent to exterior eating area and kitchen
  - Exterior area/semi-enclosed perimeter fence
- Exterior Eating Courtyard (400 SF)
  - Flexible seating
  - Connected to interior spaces (lounge/multipurpose room)
- Bike Path/ Rest Area (150 SF)
  - Connecting Waiehu Kou and Paukukalo Community (approx. 2.5 miles) destination to BGCM
  - Provide alternative transportation
  - Exterior rest area and bike racks
- Outdoor Classroom Area/Amphitheater (1000 SF)
  - Adjacent to multipurpose room and interior classroom
  - Covered area
  - Open unobstructed area to allow for free movement
- Nature Playground (300 SF)
  - Use of natural elements and materials (native plants) for educational purposes
- Storage Area 3 (400 SF)

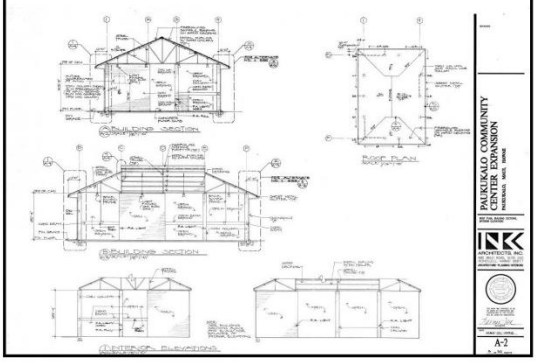
SITE & GRADING PLAN

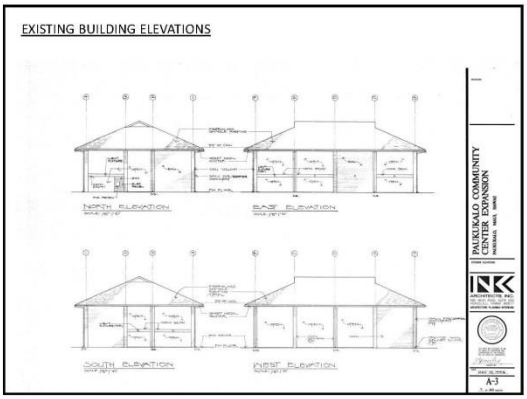


EXISTING FLOOR PLAN & EXISTING REFLECTED CEILING PLAN



EXISTING BUILDING SECTIONS, INTERIOR ELEVATIONS, & ROOF PLAN





UHM, FALL 2013 **DOCTORATE PROJECT ACADEMIC CALENDAR, LIANA TAKAMINE**

wk#		Fri	
1	Aug	30	Last day to change any committee member
		30	Compile previous formal/spatial models and/or precedents that inspire Doctorate Project design. (include graphic & verbal analysis explaining the aspects that will be reinterperated and incorporated into project, i.e.: architectural precedents, other natural/artificial objects, cultural practices/products)
2	Sept	6	Last day to file for Fall degree application
4		13	***Committee Meeting, this week (SEPT 6, 11AM)***
		13	Develop and finalize concept statement and begin conceptual design (after committee meeting discussion)
5		20	analyze sustainable design methods, crime prevention methods in respect to the selected design
6		27	Have final floorplan drawing completed
7	Oct	4	Begin 3D modeling of project for analysis
8		11	Submittal of Pass/Fail written D.Arch. Document to Committee as 75% complete
9		18	***Committee Meeting, this week*** Pass/Fail Defense: Oral Defense and Written D.Arch. Document
		18	Submittal of signed FORM III to Student Services Office
			Note: Pass Oral and Written Defense required to walk at Fall graduation
10		25	Complete 3D model
11	Nov	1	Have all Drawings (elevations, sections, details, renderings) completed
12		8	Submittal of 95% written D.Arch. Document to Committee
13		15	***Committee Meeting, this week***
			Last day for final Oral and Written Defense
			Submittal of signed FORM IV, required for Fall graduation
14		22	Make changes/corrections and finalize drawings (post-committee meeting comments)
15		29	Combine design project with final written document for submittal
16	Dec	6	Last day to submit complete D.Arch. Project documents (all copies and check) with signature page to
			Student Services Office with signature page to Student Services Office
			Submittal of completed and signed FORM V, required for Fall graduation
17		13	Required poster of project 24x36, maximum 2 boards, required for Fall graduation
		13	Required public presentation per UHM archawaii schedule
Sat		21	Commencement

Active Youth & Passive Design

Addressing Crime through Design of "Safe Space" in Paukukalo, Maui

Liana Takamine
Arch 548, Doc II
Fall 2013, 10/11/13

CONCEPT:

NATURE + NUTURE

+CONNECTING YOUTH WITH THE ENVIRONMENT
+CONNECTING BUILT ENVIRONMENT WITH NATURE
+SAFE SPACES -> TREE HOUSES -> PLACE OF THEIR OWN
+CREATIVE, COMFORTABLE, SECURE

+COMMUNITY SPACES (GROUND FLOOR)
- UNDER "TREE CANOPY" PROVIDING SHELTER
- OPEN SIDES CONNECT SPACE TO ENVIRONMENT
- COMMUNITY IS THE SUPPORT/TRUNKS FOR YOUTH GROWTH

+YOUTH SPACES (SECOND FLOOR)
- FEELING OF INDEPENDENCE
- ELEVATED (FEELING OF PROTECTION)
-SPACES BETWEEN YOUTH AREAS TO LET IN LIGHT BELOW (SIMILAR TO HOLE IN TREE CANOPIES)
- OVERLOOKING PARK AND COMMUNITY SPACE (VIEWS)

NURTURE YOUTH THROUGH A CREATIVE **SAFE SPACE** OF THEIR OWN BY INTEGRATING **NATURE** WITH PLAYFUL/YOUTHFUL ARCHITECTURE

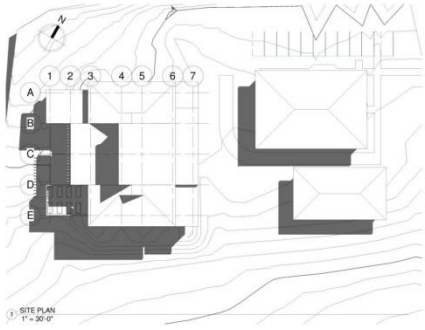
MATERIAL:

NATURE + NUTURE:
+FOUNDATION/ COMMUNITY
+BRANCHES/ OPPORTUNITY
+SHELTER/ SAFETY
+PHOTOSYNTHESIS/ LIGHT
+SUSTAINABILITY/ SELF SUFFICIENCY
+GROWTH/ KNOWLEDGE
+SHADOWS/ PLAYFULNESS

MATERIALS:
+WOOD
+CONCRETE
+GLASS
+GREEN WALLS

DESIGN THAT NURTURES A SAFE ENVIRONMENT FOR CHILDREN TO LEARN AND GROW WITH SUPPORT OF A COMMUNITY

SITE PLAN:

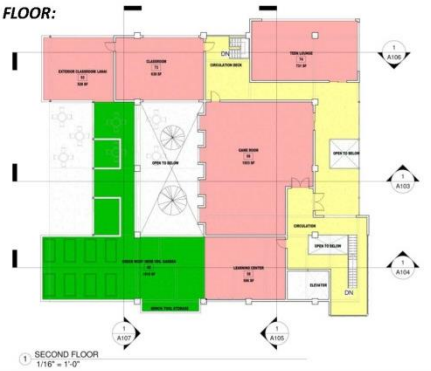


1 SITE PLAN
1" = 30'-0"

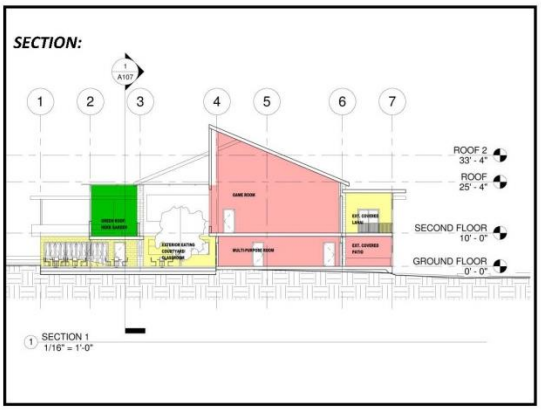
1ST FLOOR:

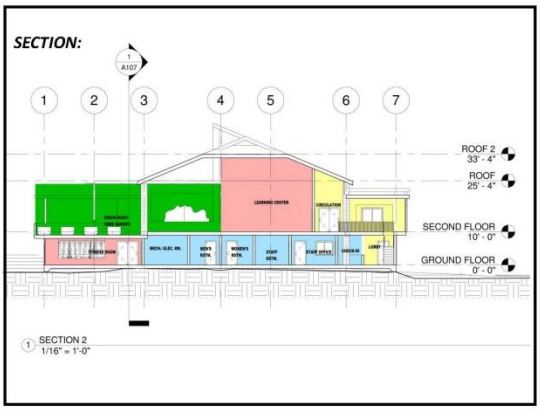
1 GROUND FLOOR
1/16" = 1'-0"

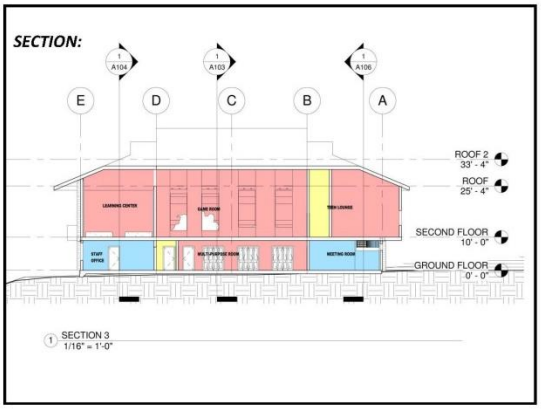
2ND FLOOR:

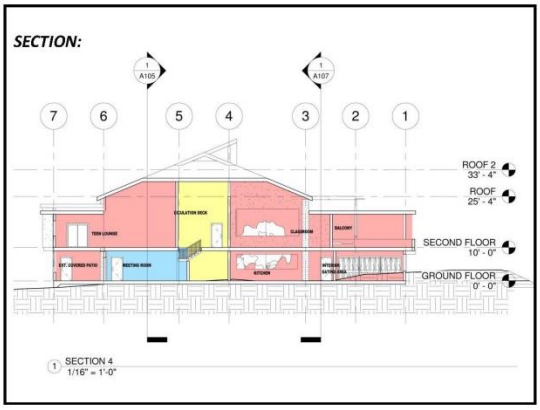


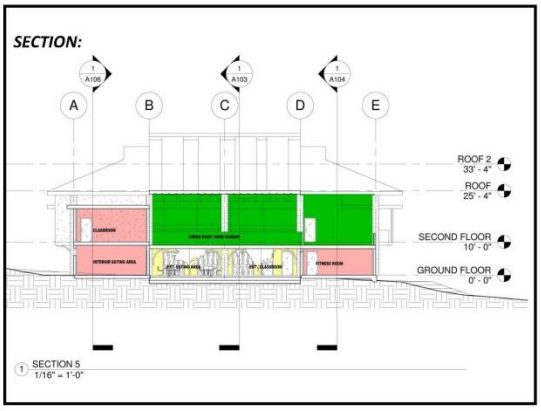
1 SECOND FLOOR
1/16" = 1'-0"

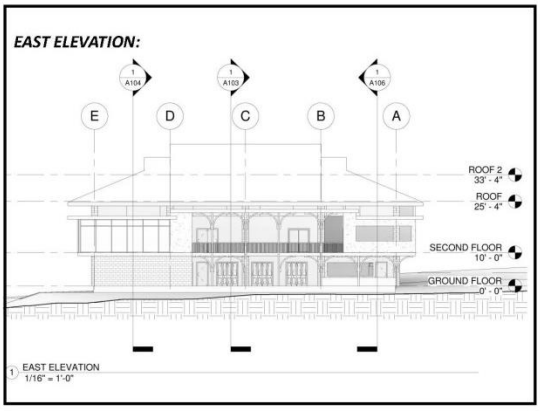

SECTION:
1
2
3
4
5
6
7
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
SECTION 1
1/16" = 1'-0"


SECTION:
1
2
3
4
5
6
7
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
SECTION 2
1/16" = 1'-0"

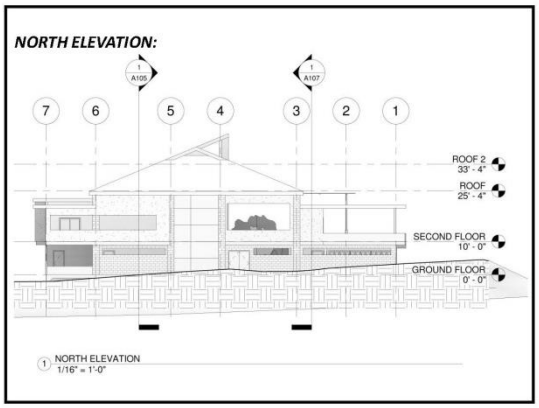

SECTION:
E
D
C
B
A
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
SECTION 3
1/16" = 1'-0"


SECTION:
7
6
5
4
3
2
1
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
SECTION 4
1/16" = 1'-0"

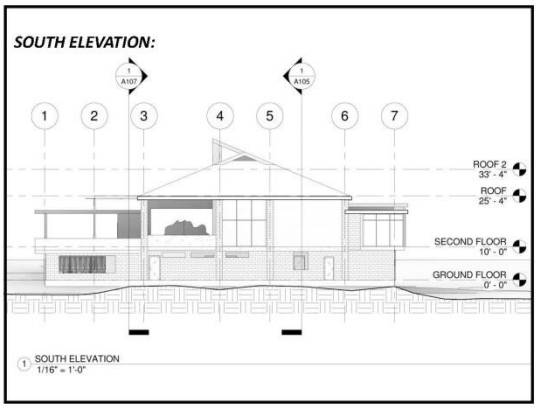

SECTION:
A
B
C
D
E
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
SECTION 5
1/16" = 1'-0"


EAST ELEVATION:
E
D
C
B
A
ROOF 2
33' - 4"
ROOF
25' - 4"
SECOND FLOOR
10' - 0"
GROUND FLOOR
0' - 0"
EAST ELEVATION
1/16" = 1'-0"

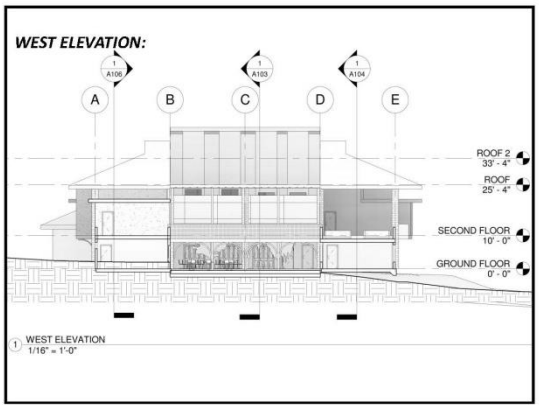
NORTH ELEVATION:



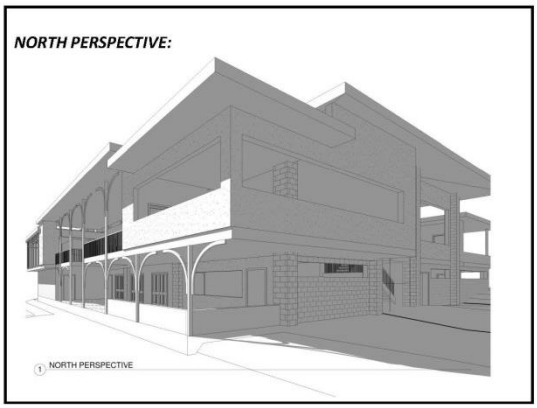
SOUTH ELEVATION:



WEST ELEVATION:



NORTH PERSPECTIVE:

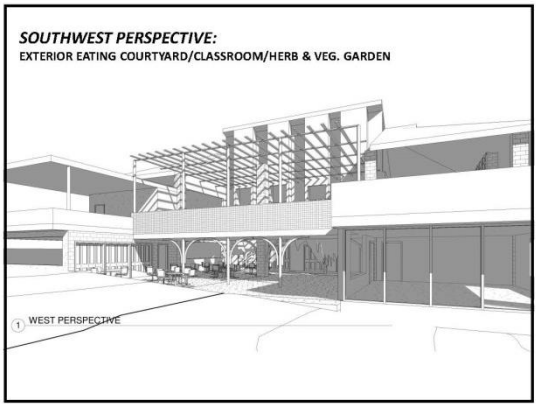


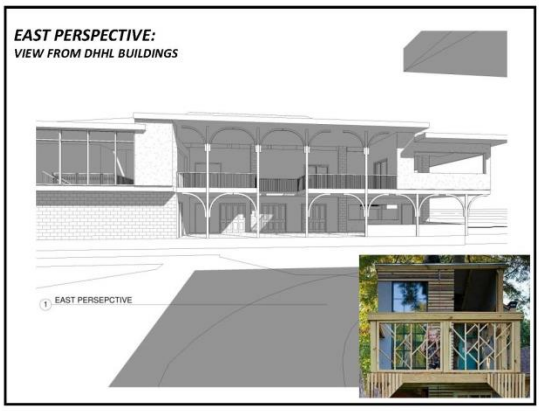
SOUTHEAST PERSPECTIVE:

LEARNING CENTER/ENTRY LOBBY

SOUTHWEST PERSPECTIVE:

EXTERIOR EATING COURTYARD/CLASSROOM/HERB & VEG. GARDEN




EAST PERSPECTIVE:
VIEW FROM DHHL BUILDINGS
1 EAST PERSEPCTIVE

NORTHEAST PERSPECTIVE RENDER:
TEEN LOUNGE

SOUTHWEST PERSPECTIVE RENDER:
EXTERIOR EATING COURTYARD/CLASSROOM/HERB & VEG. GARDEN

Thank You!

z

Active Youth & Passive Design

Addressing Crime through Design of "Safe Space" in Paukūkalo, Maui

Table of Contents

- Why Design "Safe Space"?
- Methods of Addressing Crime Through Design
- Site plan
  - Views
  - Existing/proposed on-site parking, traffic flow
  - Existing/proposed lighting
  - Existing/proposed vegetation
  - Bus and bike transit map
  - Wind and Sun Study
- Design Concept
- Organization of Youth vs. Community Space
- Floor Plans w/ furniture layout
- Elevations
- Sections
- CPTED Approach and Integration of Design
- Exterior Perspectives
- Interior Perspectives
- Conclusion

Why Design *"Safe Space"* for youth?

- Children are in need of a **space to spend their leisure time** between home and school hours with positive role models
- The current youth "hang-out" spaces are in urbanized areas such as shopping centers, parking lots, or neighborhood streets.
- Children begin to **"act out"** or search for attention when bored, often resulting in **juvenile crimes** and misdemeanors
- Many children **lack designated "play spaces"** (i.e. playground, recreational youth facilities) that are **within walking distance** of their homes
- Due to technology, social media, and the absence of designated areas for youth, there is a **"play deficit"(1)** where children are not playing as much as previous generations. Lack of physical play is detrimental to physical, intellectual, social, and emotional health.
- "The Play Deficit" can also be correlated to the following list of problems: Childhood obesity, attention deficit/hyperactivity, anxiety disorders and depression, **violence and other behavioral problems**, stunted social, cognitive, and creative development, **lack of green spaces in cities and suburbs**, **fragmented communities** and failing schools. (1)
- Juvenile crime rate has **increased** in urban and residential areas.
- Violence among youth is the **second leading cause of death** in the United States between ages 10-24 (2)
- **Low levels of community participation**, **socially disorganized neighborhoods**, and diminished economic opportunities are some factors that the CDC has identified as factors related to youth violence.
- The area of Paukukalo, Maui is a suburban residential neighborhood with little recreational activities within walking distance for youth.

Source:
(1) KaBOOM!, Inc., "KaBOOM!: Our Mission & Vision," Last modified 2012, Accessed September 10, 2012, http://kaboom.org/about_kaboom/our_mission_vision.
(2) CDC: Centers for Disease Control and Prevention, "CDC: Centers for Disease Control and Prevention: Understanding Youth Violence: Fact Sheet," Last modified 2012.

Methods of addressing crime through design:

- Community Factors:
  - Adults and those in leadership positions within the community (i.e. teachers, counselors) act as good role models treating people with respect and without violence
  - Build positive relationships between county, state, and community organizations
  - **Build and maintain public facilities**
  - Establish community volunteer groups for different parts of community safety (i.e. family support groups, safety audit teams, reporting of vandalism or graffiti)
  - Give **youth things to do** such as school activities, **recreation, community projects** (i.e. public murals, vegetable gardens, youth forums, youth spaces, mentoring programs such as Big Bother Big Sister)
  - Develop public education and awareness campaigns
- Physical Environmental Urban Planning Factors:
  - Provision and **maintenance of urban infrastructure** (i.e. Street lighting, community facilities)
  - Responsibility for urban design and planning, management of public land (i.e. landscaping, lighting, street furniture)
  - **Traffic management** (i.e. traffic calming)

Methods of addressing crime through design cont'd:

- Physical Building Design
  - **Approach of building** and surrounding area creates a **sense of safety**
    - Site Lighting
    - Exterior Spaces
    - Green Spaces
    - Traffic Patterns
  - Create spaces for **community to mingle** and **build trust** and understanding **rather than fear**
  - Design **"outward"** facing entrances which face a larger green scape to **control direction of natural surveillance**
  - **Clear sightlines** of public spaces/ visual connections from surrounding areas
  - Landscaping (low shrubs, plants, etc.)
  - Well-lit pathways
  - **Visually permeable fences** if necessary to delineate public areas
  - **Interior green areas** or visual connection to green spaces can provide a calming feelings, **reducing stress, anxiety, and fear**
  - **Three D's Concept:**
    - **Designate-** all human space has a designated purpose
    - **Define-** All human space has cultural, legal, or physical definition that prescribe desired and acceptable human behavior
    - **Design-** All human space is design to support and control the desired behaviors

Overall Site Perspective

655 Kaumualii St., Wailuku, HI 96793

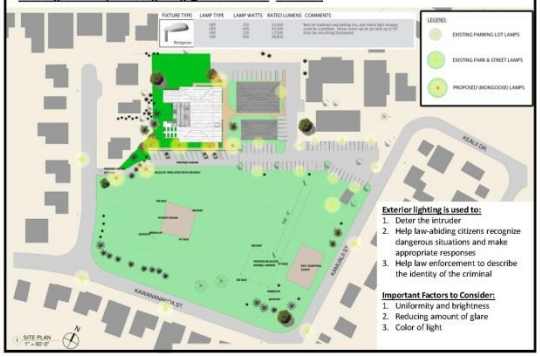
West Site Perspective

TMK: **2330050870000**
Zone: **R-2 (Residential District)**
Setbacks: **Front 15', Side 6', Rear 6'**
Height Limit: **2 stories or 30'**
(Variance or DHHL exemption may be required from the zoning height requirements for as-built conditions)

Views towards BGCM Paukūkalo Site

Proposed Parking and Traffic Flow through BGCM Paukūkalo Site

Existing and Proposed Lighting @ BGCM Paukūkalo Site



Exterior lighting is used to:

1. Deter the intruder
2. Help law-abiding citizens recognize dangerous situations and make appropriate responses
3. Help law enforcement to describe the identity of the criminal

Important Factors to Consider:

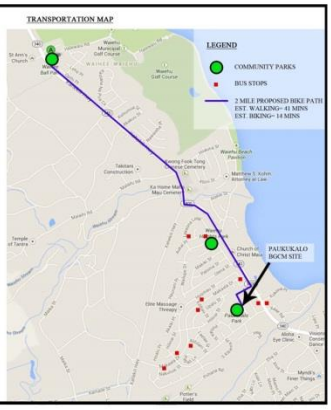
1. Uniformity and brightness
2. Reducing amount of glare
3. Color of light

Existing and Landscaping @ BGCM Paukūkalo Site

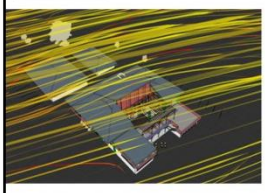
Low lying shrubs and vegetation increases surveillance opportunities and allows for even light distribution

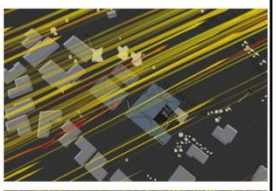
Proposed Bike Path

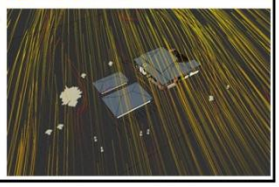
- Proposed new 2 mile bike path along Kahekili Hwy. to connect the residents of Waiehu Kou Phases to the BGCM Paukukalo Site.
- Provide a healthier alternative of transportation and give youth a more accessible route to the site.



Wind Simulation







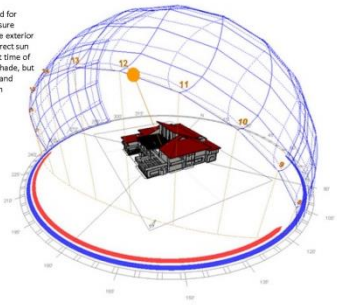
24 mph wind speed (light trade wind) through BGCM Paukukalo Site
Orange- slow wind
Yellow- fast wind

- Wind slows before reaching the building
- Wind is diverted to the sides of the building
- Orientation of building allows for a protected exterior courtyard space

Sun Path Diagram

Red- winter solstice
Blue- summer solstice

- Green roof located for optimal sun exposure
- Trellis protects the exterior courtyard from direct sun during the hottest time of day allowing for shade, but still open to light and natural ventilation



Design Concept:

NATURE+NUTURE

***Nurture** youth through a creative safe space of their own by integrating **nature** with playful architecture*

GOAL: *"To create a safe and positive environment for youth to learn, relax, play, be creative and be themselves."*

Children feel secure in architecture environments which:

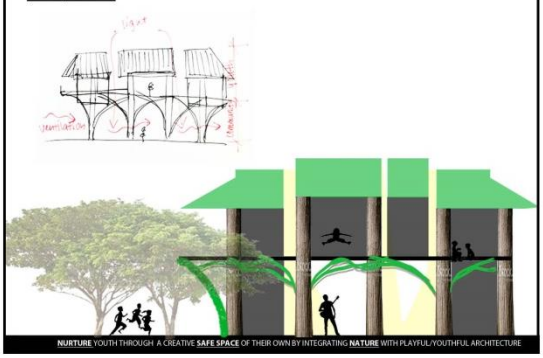
- They have created a space for themselves and have a sense of ownership
- Is separated from the large world of adults
- They are free to express themselves and their creativity through imagination
- Have color that stimulate their creativity
- They can be the "observer" rather than the one being observed

Architectural models of children's "safe spaces":
-Forts
-Treehouses

Applying Tree-House Design Elements to Physical Design:

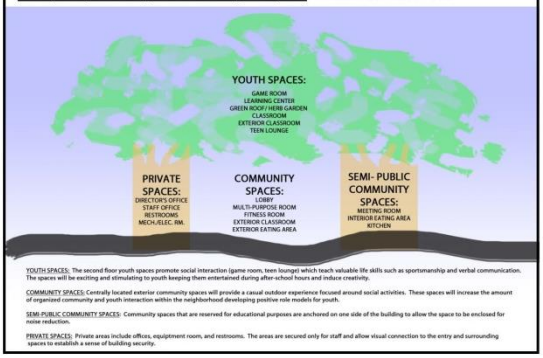
Treehouse Elements	Building Design	Comments:
Structure is built around existing tree (preserves tree/nature)	Clubhouse built within existing building structure (preserves history and building lifecycle/cost saving)	The designer is challenged to be creative in how he/she incorporates spaces into existing structure that otherwise may not have been designed
Elevated	Youth spaces elevated on the second floor (illusion of floating over the multi-purpose room when fully opened).	Elevated spaces can give a sense of security and provides a farther view of surrounding site.
Connected to nature (in the treetops)	The main youth game room space is visually connected to the tree tops of the courtyard area below.	Visual connection with nearby nature can be calming/relaxing and therapeutic
Balconies/ledges	Cantilevered spaces	Overhanging spaces at the perimeter of the structure accentuates the feeling of being elevated off the ground, and creates a thrilling experience to boost children's adrenaline. Creates pockets for children to claim as their own space apart from the adult world and a place to exercise their imaginations.
Trunk and branches support tree-house structure	Two main "bars" of community spaces are support for youth spaces above	The community is the foundation and support of the youth
Texture of tree and tree-house (nature vs. man-made)	Warm colors, and sustainable materials used for exterior building aesthetic (youth spaces) & concrete masonry units for community ground floor spaces.	High contrast between wood and masonry will define community and youth spaces.

Concept Sketch:



NURTURE YOUTH THROUGH A CREATIVE **SAFE SPACE** OF THEIR OWN BY INTEGRATING **NATURE** WITH PLAYFUL/YOUTHFUL ARCHITECTURE

Concept Diagram of Organization of Program Spaces: COMMUNITY V.S. YOUTH



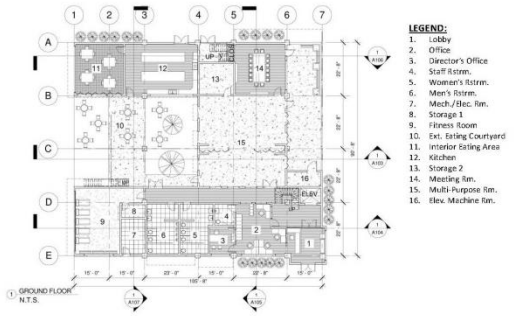
YOUTH SPACES: The second floor youth spaces promote social interaction (game room, teen lounge) which teach valuable life skills such as sportsmanship and verbal communication. The spaces will be exciting and stimulating to youth keeping them entertained during after-school hours and induce creativity.

COMMUNITY SPACES: Centrally located exterior community spaces will provide a casual outdoor experience focused around social activities. These spaces will increase the amount of organized community and youth interaction within the neighborhood developing positive role models for youth.

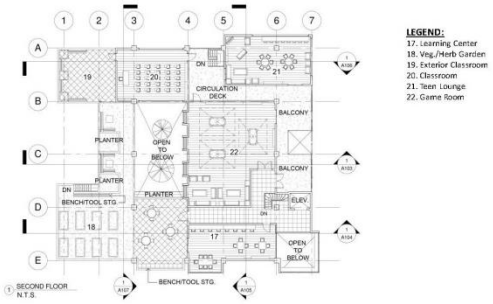
SEMI-PUBLIC COMMUNITY SPACES: Community spaces that are reserved for educational purposes are anchored on one side of the building to allow the space to be enclosed for noise reduction.

PRIVATE SPACES: Private areas include offices, equipment room, and restrooms. The areas are secured only for staff and allow visual connection to the entry and surrounding spaces to establish a sense of building security.

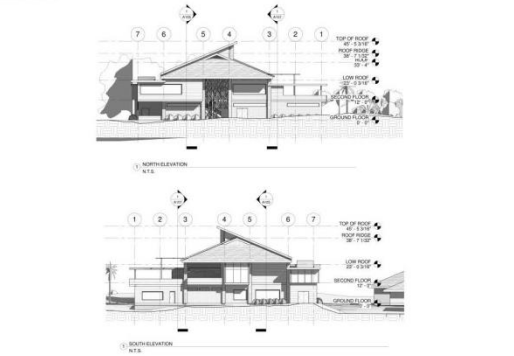
Ground Floor Plan



Second Floor Plan



Elevations



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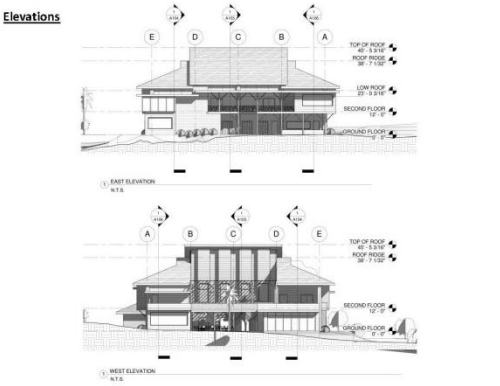

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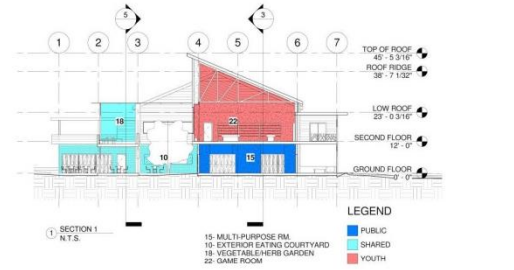

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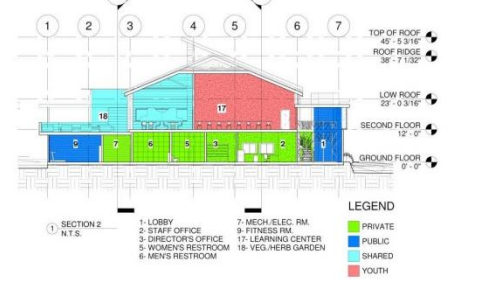

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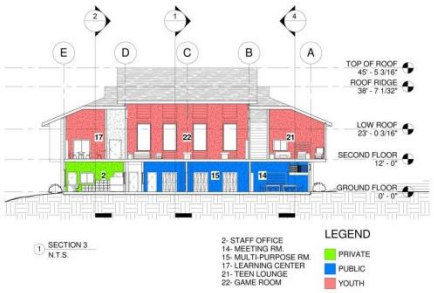

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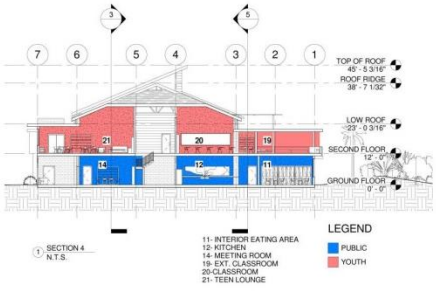

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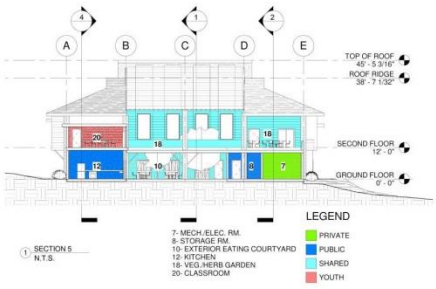
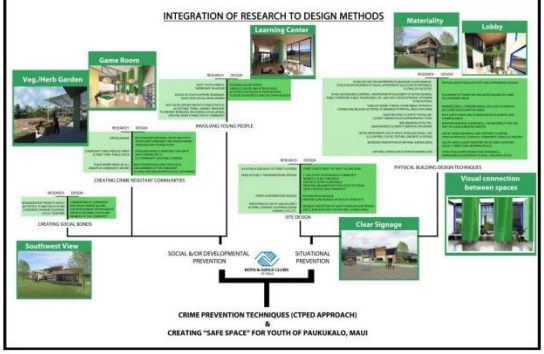




Social &/or Developmental Prevention:

Reduce a person's contact with risk factors such as (negative family environments, schooling, alcohol and other drug use, etc.) while increasing their resilience to make positive decisions for themselves. (3)

Creating Social Bonds

Research	Design
Neighborhood projects which get people to meet each other, cooperate or work together and play together.	Combination of community and youth center allows for development of integrated projects between youth and members of the community

Creating Crime Resistant Communities

Research	Design
Strong Bonds	Relationships between youth & staff/youth & community, are strengthened through daily interactions
Community takes pride in street and their "own" public space	A building which community has input and contributions to (i.e. community gardens)
Place where needs of all groups in community are met	Multi-purpose building for youth and members of the community to hold meetings/events/social gatherings

Involving Young People

Research	Design
Most youth crime is "expressive in nature"	Program (BGCM) offers various classes and after-school activities for youth to participate in to develop interests and discover passions
Access to youth support programs assist with social development	
Give youth opportunities to participate in acceptable "thrill-seeking" behavior	

Source: (3) The State of Queensland (Department of Local Government), "Queensland Government: Department of Local Government." Last modified 2012. Accessed October 26, 2012.

Situational Prevention:

Modifying the environments in which crime occurs through making crime more difficult, more risky and less rewarding to commit. Focus is on the design, organization and management of the physical and cultural environments of spaces which make them less conducive to crime. (3)

Site Design

Research	Design
Location & adequacy of street lighting	Street lights every 150-180 Ft. along the road
Develop public transportation options	11 Bus stops in Paukukalo Community (nearest .03 mi./7 min walk, farthest .09 mi/16 min walk). Proposed new bike path for youth to travel safely within their community
Street and information signage	Existing road signage, provide clear signage of facility from 50 ft. away to identify appropriate use of building
Perception of safety and security in parks, gardens, shopping center parking lots, etc.	Increase perception of safety through low well kept hedges and vegetation. Provide clear sightlines for natural surveillance.

Source:
(3) The State of Queensland (Department of Local Government), "Queensland Government: Department of Local Government." Last modified 2012. Accessed October 26, 2012.

Situational Prevention Cont'd:

Physical Building Design Techniques

Research	Design
Avoid excuse for inappropriate behavior (clear signage, effective enforcement of rules, appropriate selection of materials & siting of facilities.	Enforce rules through staff and appropriate signage
Avoid legitimizing loitering, inappropriate placement of notice boards, public furniture, public telephones, etc. may not cause potential offender to be noticed	Placement of furniture and notice boards in lobby or gathering areas
"Lines of desire" formal or informal pathways connected related activities to minimize potential areas for crime	Minimize small cornered areas, enclosed stairways, secluded spaces with no views
Signs relating to safety should be clearly understood and appropriately sited	Post safety signs and clubhouse rules in entry and common areas
Implementing effective maintenance and graffiti removal programs	Maintain building cleanliness. Use materials that are easy to clean and remove graffiti.
Define appropriate use of space through visual cues (i.e. lighting, color, texture, gradient, and sound)	Use of varied materials and textures to define types of space (i.e. youth vs. community, public vs. private)
Increased perception of natural surveillance	Use of large glazed windows on second floor and visual connection between spaces
Natural surveillance from adjoining uses	Views from surrounding park, residences, Kamehameha elementary school, and DHHL offices

South Perspective

Main entry to Boys & Girls Club Paukūkalo, Maui
- accessible parking & sidewalk
- clear visible sign above entry to identify proper use of facility
- outward facing entrance towards park helps to control direction of natural surveillance
- low hedges for unobstructed sightlines to surrounding site, help to emphasize entry point
- large glazed windows on second floor to bring in light and provide views to park

Southwest Perspective

Fitness Room & Exterior Eating Courtyard Area
- Opens up to surrounding residential neighborhood
- U-shaped courtyard used as communal space for large gatherings, connected to multipurpose room
- Surrounding spaces on second floor have visual connection to courtyard area (increased ability for natural surveillance)
- Large roof decks on second level provide 180 degree unobstructed views
- Low hedges along windows create barriers for potential intruders

Northeast Perspective

Teen Lounge
- Dedicated space for teens to socialize
- Visually separated/elevated space to give sense of empowerment and independence
- Difference in materials between ground floor community space and second floor youth spaces for visual creative tension and help to depict use of space shades
- Use materials that are easy to clean (remove graffiti) or are not inviting large blank areas for graffiti artists
- Integration of solid and void spaces creates perception of "floating" spaces similar to the concept of a tree house

North Perspective

North gate secondary exit
- North façade faces surrounding residences
- High windows on ground floor allow light while maximizing areas for potential break-ins
- Second floor areas are more transparent providing users with visual connections to the surrounding area below
- central secondary vertical circulation is open for natural ventilation but secured by a decorative metal gate to deter breaking and entering.

Lobby/Entrance

Lobby & Check-in Area
- Double height space
- Check-in desk where all users of the facility are required to check-in for monitoring purposes
- Secondary entry door and check-in for security. Decorative metal gate is perforated to allow for visual monitoring beyond lobby area
- Offices are adjacent to check-in lobby area

Game Room

Game Room

- Dedicated space for Boys & Girls Club members
- Divided into game area and lounge area for playing board games, card games, or conversing
- Exposed structural trusses show the integration of old and new building structure
- Up lighting above the tall bay windows emphasizes the verticality of the space

Bay window seating @ Game Room

Seating area at bay windows

- Bay windows overlook the eating courtyard below
- Visual connection with the tops
- Pocketed seating areas for comfortable individual space to read, listen to music, etc.
- Accents of vibrant colors can help to accentuate the youthfulness of the building program

Learning Center

Learning Center

- Framed views towards the park and overlooking the lobby space
- Large windows allow natural light into the space for a better learning environment
- Seating organized for group and individual learning

Teen Lounge

Teen Lounge

- Safe space dedicated for teens to converse and interact freely to build friendships
- "Coffee Shop" counter type along window provides area for teens to work on their homework or computers if desired

Fitness Room

Fitness Room

- For youth weight lifting classes on the ground floor
- Open to community during specified hours
- Visual connections to baseball field and residential neighborhood / West Maui Mountains

Exterior Classroom

Exterior Classroom Space

- Covered lanai space for activities that require space for movement (i.e. yoga, martial arts, dance)
- 180 degree view to surrounding site creates sense of place
- Benches and planters intermittently space along edge of space for areas of relaxation
- Planters bring nature in closer to the building's users creating a peaceful and calming environment
- Interwoven wood tile floor provides a nice outdoor floor and helps to distinctly separate this space from the roof garden areas

Exterior Courtyard

Exterior Eating Courtyard

- A space for community to build stronger bonds and relationships through interaction
- Multi-purpose room connects directly to this space through large folding doors
- The two spaces can become one seamless outdoor gathering area
- Open-ness of the ground floor gives the illusion of the second floor game room "floating" over the space below
- Decorative children tile murals can be used to give youth sense of ownership for the facility

Vegetable/Herb Garden Covered Area

Vegetable/Herb Garden Covered Area

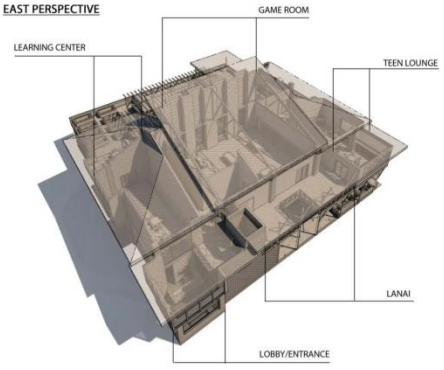
- An "intermediate" space between interior and exterior areas are important to the Hawaiian culture and tropical architectural typology
- Used for casual gatherings and places of conversation
- Place to enjoy fresh air, trade winds, and observe park activities
- Space can be used as a presentation area for horticulture classes

Vegetable/Herb Roof Garden

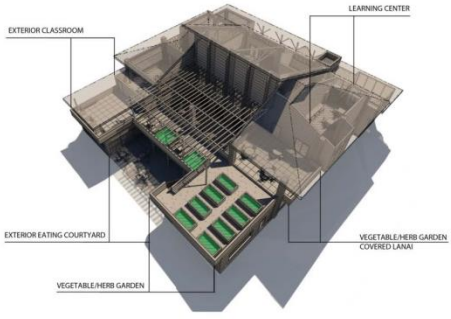
Vegetable/Herb Roof Garden

- Located on the south side of the building on the second level for optimal sunlight to sustain plants
- Combination of youth and community space
- Used for horticulture education that can work with cooking classes enforcing a healthier lifestyle
- Space requiring continuous care from community members such as a garden can instill send of pride and ownership over a public facility

EAST PERSPECTIVE



WEST PERSPECTIVE



Design Project Conclusion:

Research Findings:

- Culmination of research on criminal behavior and crime prevention approaches in combination with design research of youth development centers leads to the conclusion that the **built environment has a correlation with amount of criminal activity in a community.**
- **Architectural design** and **environmental design affects the way an area is perceived** by the users and community.
- A **psychological connection between space and sense of fear** or **security** is generated through architectural details such as lighting, materiality, line of sight, and landscaped environment.
- **Planning** and **programming** of a facility can also contribute to a sense of safety.
- A facility **dedicated for youth and community** to interact should be centrally located to **enhance community unity** and **security** within a neighborhood.
- Public buildings must have opportunities for **continuous community involvement** to **create a sense of "territoriality"** and pride over the facility
- The ideas of "Defensible Space" and "Crime Prevention through Environmental Design" can be applied to communities affected by suburban sprawl such as Paukūkalo, Maui to **create a safer environments for youth.**

Site Analysis Findings:

- Mapping of residential area and existing public transportation system revealed Paukukalo suburbs is **poorly planned for walking or biking.**
- No alternative transportation methods available to **connect the Waiehu Kou and Paukukalo** communities.
- Streets are organized for **vehicular traffic** with cul-de-sacs, **rows of houses** which block "thru" streets which could be possible connections to park from the surrounding neighborhood.
- Existing parking lot is **congested and inconvenient** with only one entrance and exit
- Site lighting is **minimal**

Case Studies and Design Project Findings:

- Analysis of youth centers reveal **central spaces exude energy** which is an important quality in youth centers and necessary for programmatic requirements.
- **Flexible spaces** are also **required for evolving programmatic** needs and **critical for creative learning process**
- **Transparent spaces** along exterior edge of building create visual connections between the exterior and interior showcasing the buildings activities and functions.
- **Interior glazing between spaces** allow for visual monitoring and connections and create an internal sense of community
- **Contrast of materials** create positive visual tension and can help to depict functionality of the space within
- **Vibrant colors** can be utilized to portray the energy of a facilities youthful program within

FIGURES & TABLES SOURCES

Figures:

Figure 1: YMCA OF GREATER NEW YORK, "the Y: YMCA." Last modified 2012. Accessed September 8, 2012. http://www.ymcanyc.org/association/timeline-entries/1860s/.

Figure 2-3: "the Pruitt Igoe myth." Accessed September 23, 2012. http://www.pruitt- igoe.com/press-materials/.

Figure 4-5: WeatherForYou.com LLC, "WeatherForYou.com:Paukukalo Park, Hawaii, United States." Last modified 2012. Accessed October 12, 2012. http://www.weatherforyou.com/reports.

Figure 6: Crime Prevention & Justice Assistance Division: Research & Statistics Branch. Crime in Hawaii 2010: A Review of Uniform Crime Reports, PDF. hawaii.gov/ag/cpja.

Figure 7-10: "Maui County: By the Numbers," *Isotov Information Services*, 3, no. January (2011): 9-11.

Figure 11-14: Bair Analytics, "RAIDSONLINE." Last modified 2012. Accessed October 21, 2012. http://raidsonline.com/.

Figure 15: Jane Botfield: Creating Safe Spaces: Local Government Responding to Community Safety and Crime Prevention in Public Space (Local Government Association of Queensland), PDF.

Figure 16-17: Google , "Google Maps." Last modified 2012. https://maps.google.com/?hl=en.

Figure 18: Gold, Seymour M. *Recreation Planning and Design*. New York: McGraw-Hill Book Company, 1980.

Figure 19-50: Liana Takamine-Author

Tables:

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Table 4: Boys & Girls Clubs of America, "Boys & Girls Clubs of Maui." Last modified 2010. Accessed October 28, 2012. http://www.bgcmaui.org/page11742828.aspx.

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