

Building an Inclusive Community: My Experience Creating an Innovative Playground



My Senior Project documents my experience coordinating the research and design of a new playground at the University Heights Community Center in Northeast Seattle.



Community, Environment and Planning

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Abstract

My objective was to design a new playground that responds to the different learning styles of children at University Heights (UH), including students with special learning needs. My first step was to research various types of surfaces and play equipment for the new playground. I was particularly interested in finding non-conventional play equipment that would encourage social activity, promote safety, and increase a child's motor skills during recess. From this process I selected the Imagination Playground system, a series of blue foam blocks that allow children to customize their own playscape. I also drafted site plans to articulate my playground proposal in a visual manner, and created a survey to find out whether my ideas would earn public support. Finally, I co-authored a successful grant application to build the playground at UH. Construction of the playground is slated to begin in June 2013.

Introduction: Building an Inclusive Community

Introduction

During my Senior Project, I researched and designed a playground for the University Heights Community Center (UH). This report is a summary of the work I completed over the past three years.

I began interning at UH in October 2010. At the time, the organization's playground was aging. Several pieces of play equipment had missing parts. A playground that was once an important source of recreation for neighborhood children was no longer able to serve that purpose. Furthermore, the playground did not accommodate to the particular learning needs for children who used it. The Academy of Precision Learning (APL) is a school for children diagnosed with learning disabilities across the autism spectrum. Despite being completely inadequate to meeting the learning needs of students, this playground was the only outdoor recreational space for some children.

When I started working at UH, the organization's Executive Director recognized my fascination in landscape architecture. She even asked me to help develop a new playground plan. What started as a small site plan grew into a ten month project. I researched play equipment, observed playgrounds, interviewed parents, and examined the best practices of playground design. Eventually, I discovered an innovative solution to creating a more inclusive playground. I presented my proposal throughout the community, and co-authored a successful grant application which will fund its installation.

My Senior Project captures my journey advocating for a more inclusive playground at UH. This report consists of five sections. I begin my report by discussing the context of my Senior Project. In this section I briefly explain the history of UH and its surrounding area. I state how the UH playground is not meeting the needs of children who frequently use it. Additionally, I describe the site conditions and use photos to illustrate the flaws within the playground. In the second section of this report I cover my Literature Review. I detail specific ways to improving public playgrounds. I explain how vital it is for UH to construct a playground that incorporates safety, social activity, and enhance a child's cognitive development. During my research I came across the Imagination Playground (Figure 6). The Imagination Playground is a series of foam blocks (Figure 6). This product allows children to customize their

playscape (Figure 6). I discuss the merit behind flexible play equipment. In addition, I tested the safety of several play surfaces. In the third section of my report I focus on implementing the methods of my Senior Project. This part features my project timeline and captures my observation of Salmon Bay playground. During my visit to the site, I made the discovery of multiple discrepancies (Figure 1-3). Using the data I ascertained the defects of Salmon Bay to help understand the underlying problems within traditional play equipment. In addition, I researched alternative pieces of play equipment and created a playground survey for UH. In the fourth part of my report I release my playground survey results. I also discuss my experience grant writing with UH. During the final part of my Senior Project I reflect on my experience working with UH to develop a more inclusive playground. I discuss the outcome of my Senior Project and my future plans.

I was diagnosed with autism when I was three. This project means a lot to me because it not only aligns with my career interests, but growing up with a learning disability has also allowed me to provide helpful insight on how to build an inclusive playground. During my Senior Project I was able to discuss my childhood experience designing intricate cities (using my Lego table). As I got older I realized that my learning disability has contributed to my strong problem solving skills. Throughout my childhood I faced obstacles that most people never encountered. This project gave me an opportunity to focus on my strengths by advocating for a playground which empowers others to design their own play structure.

Context

History of University Heights and Surrounding Area

The University District is an economically diverse neighborhood. Most of the housing surrounding University Heights (UH) are rental units. According to the 2010 United States Census, the median household income within the University District is less than the citywide average.

The University Heights School opened in 1902 and was renamed the University Heights Center in 1989. The site surrounding the building and its playground have been the center of the neighborhood's social activity for over a century. UH sponsors several major events such as Community Cleanup Day and the Street Fair. This building serves as a local hub for public hearings, fundraising events, art shows, and a frequent farmer's market. In 2010 UH was designated a National Register Historic Building by the United States Department of Interior.

Since the UH playground serves over 400 children from diverse backgrounds, it is important to design a playground that accommodates the needs of children with various disabilities. In particular it is home to the Academy of Precision Learning (APL) which is an elementary school for children diagnosed with a learning disability across the autism spectrum.

Site Conditions: Defects within University Heights Playground

UH comprises a full city block of 102,000 square feet (Figure 5). A small portion of the site (16,000 square feet) is dedicated to a future urban park, however the remaining site is used for elementary students and is owned by UH (Figure 5). In early 2012 I surveyed the UH playground. I identified a list of obvious flaws within the UH playground because discovering the defects along the surface allowed me to explore this issue even deeper in my Literature Review. Some notable flaws within this site include:

- Aging wooden structures and old play equipment
- Playground has a functionally obsolete wooden observation deck
- Some play equipment have missing pieces
- Playground has started to rust
- No soft flooring, area is surfaced with mulch, dirt, and asphalt



The old playground rusted.



The old playscape had missing pieces.

Literature Review: Playgrounds and Social Activity

The Imagination Playground is a great playscape design because it encourages socialization (Figure 6). Many children with autism including myself have struggled to build friendships with peers. According to a study released by *Springer Science and Business Media* children with autism are less likely to socially interact (Yuill, Strieth, et al. 1).

“Children with autism spectrum disorders rarely interact with others in free play situations. Children with autism showed fewer peer interactions than children with behavioral disorders and typically developing children, and made fewer social initiations than the other groups” (Yuill, Strieth, et al.1).

Several studies conclude that children with autism perform best in play environments that foster social cohesion. Play environments that promote group activities and peer interaction help disabled children assimilate in social settings. A study released by the University of North Florida concludes that traditional playgrounds fail to encourage critical social activity. Susan Matthews, a researcher, discusses the social dilemmas embedded in traditional playgrounds (Matthews 16).

“Play areas should foster and stimulate a child’s imagination. Another facet of social play is interaction with other children. The play environment should promote cooperation between children [because they] need to discover themselves in relation to others. Traditional play environments provide no provision for imagination, creation, and cooperation” (Matthews 14-16).

Traditional playgrounds typically contain fixed equipment such as swings, benches, and merry-go-rounds (Matthews 6). However, this design discourages children from collaborating with one another (Mathews 16). Traditional playgrounds typically use play equipment that focus on individual activities such as swing sets and monkey bars. In other words, traditional playgrounds do not encourage social activity because their play equipment is simply not designed for children to interact with one another. Diane Cardwell, a journalist for the *New York Times* discusses how the Imagination Playground encourages social activity (Cardwell 2).

“Developers of the Lower Manhattan project envision groups of children collaborating, for instance, loading containers with sand, hoisting them up with pulleys and then lowering them down to wagons waiting to be wheeled off to another part of the park” (Cardwell 2).

Since the Imagination Playground is not a real playscape, children will have to work collectively to create their own play structure (Figure 6). The Imagination Playground fosters teamwork and the power of many.

This product challenges children to build their own playscape because it aims to strengthen the relationship between a child and his/her academic community. It is important for playgrounds to encourage social activity because this prevents children from being isolated. Group activity is essential to improving an autistic child's intellectual abilities because they are able to acquire additional practice toward improving their social skills. A study appearing in *Springer Science and Business Media* reveals when children with autism are included in peer activities they have a greater chance improving their social skills (Blauvelt-Harper, Symon, et al. 823). The study examined two young male children living with autism (Blauvelt-Harper, Symon, et al. 818). During recess the two children participated in a group activity with non-disabled peers.

“The inclusion of multiple peers as opposed to a single trained peer is one component of the intervention that likely contributed to the positive findings. Having a group of students supporting one classmate with autism may provide a better ratio and enhance the motivation for typical peers” (Blauvelt-Harper, Symon, et al. 823).

The overall findings conclude that both children improved their social initiations and peer interactions (Blauvelt-Harper, Symon, et al. 821). Additionally, both participants improved their turn-taking behavior (Blauvelt-Harper, Symon, et al. 821). Group activities are an important component to ensuring that children with learning disabilities have the opportunity to enhance their social skills. Peer interaction helped the two children integrate with their non-disabled peers. The Imagination Playground is an excellent foundation for playgrounds to foster social interaction because they allow children to learn from each other and experiment collectively.

Literature Review: Playground Safety

Modern playgrounds are better for children (especially with learning disabilities) because they are safer than traditional play structures. A safe park must incorporate age appropriate design and soft surfacing. A study featured in the *Journal of Urban Health* describes in great detail about the lack of playground safety (Powell, Ambardekar, et al. 403). The article reveals:

“Of all the injuries associated with playground use, 75% occur on public playgrounds” (Powell, Ambardekar, et al. 404).

Great learning environments are safe for children. University Heights (UH) houses a variety of learning programs for children across different age groups. It is important to note that any new playground at UH must incorporate Age Appropriate Design (AAD). AAD is a safety method used by playground manufactures to ensure that their play equipment meets the proper safety standards for a specific age group. AAD focuses on customizing the scale of play equipment because it was specifically designed for young children. The Imagination Playground blocks are soft enough for children to play with safely, yet they are durable to withstand the outside elements (Figure 6). One study included in the *Journal of Urban Health* sampled seventy-eight play areas in Chicago’s poorest neighborhoods (Powell, Ambardekar, et al. 405). Most of the playgrounds studied in Chicago were traditional playgrounds (Powell, Ambardekar, and Sheehan 406). The play areas contained a swing set, monkey bars, and an ordinary playscape. The *Journal of Urban Health* considers the lack of AAD a major contributor to playground injuries (Powell, Ambardekar, et al. 405).

“The design of 50% of equipment pieces/supporting structures allowed children to easily climb on the outside of the equipment to heights over 3 feet” (Powell, Ambardekar, et al. 405).

Roughly half the playgrounds surveyed in low-income neighborhoods did not meet the safety standards for many age groups. Unfortunately Chicago is not the only city facing this issue. Susan Matthews, a research analyst at the University of North Florida states how several playgrounds do not address the safety needs of broad age groups (Matthews 7).

“Elementary school playgrounds have been designed for middle elementary school age children (grades 3-6). The height of slides and height and wide bar spacing of overhead

ladder climbers are dangerous when used by younger primary children (grades K-2)" (Matthews 7).

It is evident that numerous playgrounds are not equipped to the scale of many children. The climbing equipment on the current play structure might become a safety hazard for some students. One parent whose son attends the Academy of Precision Learning (APL) at UH expressed his belief on how having an Imagination Playground will meet the needs and challenges of children regardless of their age group.

"The bridge, slide, and playground materials look like they could be used safely for a variety of ages. For the most part the Imagination Playground targets a younger elementary audience. I think its neat in a lot of ways" (Jaureguy).

Parents have expressed their support for the Imagination Playground design because it allows young children to be creative, but at the same time it ensures safety. The Imagination Playground has done an excellent job at limiting the number of on site injuries because of its shock absorbing flooring. Surfacing is an important way to mitigate playground injuries. The *Journal of Urban Health* surveyed several samples of wooden mulch across Chicago's playgrounds. They concluded that a majority of play areas with wooden chips are not safe for children.

"In play areas with wood chips as the surface material, 87% [of depth] was insufficient around/under at least one piece of equipment. In 19% of play areas one or more concrete footings were exposed. In 75% of playgrounds the surfaces where children were likely to fall had foreign objects such as trash or other debris" (Powell, Ambardekar, et al. 406).

Rubber mulch is an excellent alternative to improving a playground's surface. It is an eco-friendly material because it is composed of recycled tires. It is recommended by the United States Consumer Product Safety Commission that rubber mulch surfaces are at least nine inches deep ("Public Playground Safety Handbook" 10). One study in the United Kingdom solidified the fact that rubber mulching is the safest type of playground surfacing. In a study of 330 children aged between one and fourteen concluded that concrete and asphalt surfaces accounted for far more playground injuries than rubber surfacing.

"Children sustained significantly more injuries in playgrounds with concrete surfaces than in those with rubber surfaces. Playgrounds with rubber surfaces had the lowest rate of injury, with a risk half that of bark and a fifth of that of concrete. Bark surfaces were not significantly more protective against arm fractures than concrete. Rubber surfaces are safer than bark" (Kemp, Kemp, et al. 1874).

Rubber mulch is the best option for surfacing the new UH playground (Kemp, Kemp, et al. 1874). Shortly after researching several types of flooring, I met with parents at APL to share my proposal. I wanted to

collect their input on what they believed was the best option for the park's surface. During my meetings with Mr. Jaureguy, he explained his reason for wanting the new playground at UH to be equipped with rubber mulch. As a parent of a child with autism, Mr. Jaureguy's observation was:

"It appears to be a great option [based on safety data]. That product looks like it could be a longer lasting material and be overall cost-effective" (Jaureguy).

Rubber mulch is a shock absorbing material (Kemp, Kemp, et al. 1874). In other words, rubber mulch does not harm children on impact or as much as other surfaces like asphalt and wood chips (Kemp, Kemp, et al. 1874). Rubber mulch is not only environmentally friendly because it uses recycled material, but it is non-toxic ("Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds" vi). For example, according to the Environmental Protection Agency (EPA), rubber mulch does not possess high levels of lead ("Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds" vi).

"The average extractable lead concentrations for turf blade, tire crumb infill, and tire crumb rubber were low. Although there are no standards for lead in recycled tire material or synthetic turf, average concentrations were well below the EPA standard for lead in soil (400 part per million)" ("Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds" vi).

The EPA and many other organizations have stated that rubber flooring is a safe option for playground surfaces ("Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds" vi). Rubber flooring remains the best alternative because it is not toxic and performs best on preventing playground injuries (Kemp, Kemp, et al. 1874).

Table 1: Patterns of injuries on different types of surface in 1994. Sample of 300 children playing on public playgrounds in the City of Cardiff, UK.

Playground Surface					
Observed Number of Injuries	Rubber	Bark/Rubber	Bark	Bark/Tarmac	Concrete/Tarmac
Fractures	0	6	34	0	4
Concussion	1	0	2	0	5
Laceration/Abrasion	4	2	45	3	15
Other	1	2	9	3	0

Source: *The Lancet*

Table 2: Comparison of fractures and injuries from falls on to bark surfaces according to equipment (1992–94). Sample of 300 children playing on public playgrounds in the City of Cardiff, UK.

Type of Equipment				
Type of Injury	Slide	Swing	Climbing-frame	Monkey-bars
Expected Fractures	23-24	19	20-22	6-8
Observed Fractures	8	9	30	23
Expected Total Injuries	39	32	34	11
Observed Total Injuries	16	17	48	35

Source: *The Lancet*

Literature Review: How Playgrounds Enhance Cognitive Development

University Heights and other program staff have expressed strong support for having a playground that enables children to develop their cognitive and motor skills. To create a park that enables children to utilize their motor skills it should have a central core and portable play equipment. The Imagination Playground has shown it improves a child's motor skills and cognitive development. A study included in *Springer Science and Business Media* concludes that play areas should incorporate an imaginative component (Yuill, Strieth, et al. 2).

“A circular ‘rail way’ track with ‘road’ crossing points was designed to foster pretend play and to give children an opportunity for repetitive play on motivating themes” (Yuill, Strieth, et al. Todd 2).

My original plan included a layout that centralized most of the play equipment along a central core. The park discussed in this case study details the appeal a circular layout has to children with learning disabilities. Similar to Matthews' proposal, the Imagination Playground contains;

“figure-eight-shape landscape, with sloping wooden ramps for running that connect a zone of sand to a zone of water. A structure would house the loose parts, including foam blocks, small boats, and collections of tubing” (Cardwell 3).

This layout enables children to freely explore the cognitive and natural elements of the park's landscape. The Imagination Playground channels most of the play equipment to a central area. This layout conserves additional space for children to engage in recreational activities. It also improves the park's overall organization because it prevents play equipment from getting scattered. My proposal creates a similar layout to the Imagination Playground because it directs most of the play equipment along a central core. My site plan incorporates a central play area which is surrounded with a greenbelt. I wanted to include a green space in my site because I believe that it is important for children to enjoy the natural elements of a landscape. One parent expressed his support to incorporating a similar feature.

“I think a centralized layout makes sense if density is limited. I think the greenbelt around the park's parameter is wonderful because it creates a natural space. It is a transition zone and does a great job at incorporating a balance between natural settings and a great play area” (Jaureguy).

Open space is a really important component of my plan. I want children to be able to have a place to play games and do outdoor activities. The greenbelt is going to be a flexible play area because the children

will be able to customize which activities they want to perform. The greenbelt is a great way to promote physical activity and recreation. Another important aspect to creating an interactive park is for children to create their own play structures. The Imagination Playground allows children to design and construct their own playground. Since the Imagination Playground comes in many pieces, the children will have their input influence the design of their playscape. Allowing children to customize their play equipment encourages them to start taking risks (Frost 8). In the article *The Dissolution of Children's Outdoor Play: Causes and Consequences*, Joe Frost explains how playgrounds shape the minds of children (Frost 8).

“The playground is a unique place where children can take risks in a challenging environment without depriving them of opportunities to gain ever higher levels of independence in thought and action” (Frost 8).

Playgrounds should extend a child's learning experience outside the classroom. The Imagination Playground provides children not only the opportunity to collectively construct a playscape, but it teaches them the importance of responsibility by guiding them through the consequences of making mistakes (Frost 8). Furthermore, children are learning how to create a stable structure for others to use. Each time a child assembles a block they are taking a risk. The essence of the Imagination Playground is for children to acquire the confidence in order for them to succeed in a challenging environment. Susan Matthews discusses the significance of having playgrounds challenge a child's motor skills (Matthews 10). Additionally, she stresses the importance of having children experiment with different play features.

“Adventure playgrounds have been described as places in which children are given free rein to develop their abilities” (Matthews 10).

Matthews stresses the fact that playgrounds should not be extremely structured places. Her article mentions that unlike traditional play equipment, children should have access to more elastic playing materials. She discusses how modern playgrounds are going to be customized by children.

“The idea of adventure playgrounds sometimes has been called junk playgrounds because the children play and build with scrap lumber and metal and cast-off objects of all sorts. The junk becomes forts, huts, tire swings and other projects all constructed by children” (Matthews 10).

The Imagination Playground in New York City has elements similar to what Matthews explained. Having portable play equipment allows children to create a playground that fits their needs. Having a versatile playground is more exciting for children living with autism because it allows them to utilize their motor

skills. When I was young I attended various schools and I personally enjoyed using Legos to construct intricate cities. Unlike a traditional playground, my Lego table tested my cognitive capabilities and allowed me to focus on completing large tasks. Simple toys like Legos can encourage children with different learning skills to interact with one another. The Imagination Playground is a large-scale version of Legos achieving many of the same learning outcomes and has the additional advantage of meaningful group play.

It is easy to transform a simple playground into a complex structure, however it is very difficult to break down a complex playscape. The Imagination Playground is an excellent approach to designing an interactive play area for children because it allows children to customize their playscape (Figure 6).

Portable play equipment is not only safe, but it helps children enhance their motor and cognitive skills (Cardwell 3). An important factor to improving childhood development is social activity (Blauvelt-Harper, Symon, et al. 821). The Imagination Playground was designed to foster group activity and teamwork (Cardwell 3). Children engaged in group activities have a better chance improving their social skills (Blauvelt-Harper, Symon, et al. 823).

My playground proposal embraces Age Appropriate Design because it consists of portable play equipment. It incorporates a central core for children to cultivate their motor skills and creativity. The proposed rubber flooring is also the safest play surface.

Table 2A: Ideal Playground Strategies				
Behavioral Goal	Function			
Social Activity	Promote Group Activities	Centralize Equipment	Team Work	
Safety	Age Appropriate Design	Soft Material	Rubber Flooring	Durable
Cognitive Development	Flexible	Collaborative Environment	Not Structured	Teach Design

Methods: Senior Project Timeline

Task Name	Start Date	End Date	Duration (days)	Comments
University Heights Internship	10/12/10	01/09/13	821	Start interning at University Heights (UH).
Research	02/10/11	07/18/12	525	
Research Play Surfaces	02/10/11	03/01/11	20	Began researching play surfaces and compared costs of various rubber flooring companies.
Draft Survey	02/21/11	04/29/11	68	Created first written survey to understand what stakeholders were looking for in the new South Lot project.
Research Play Equipment	03/16/11	01/18/12	309	Began researching various types of play equipment for the new playground.
Research Funding Opportunities	01/03/12	07/18/12	198	Assisted UH during the grant writing process and researched various funding options.
First Trip to Salmon Bay Playground	01/15/12	01/15/12	1	Made first trip to Salmon Bay Playground to research traditional playgrounds.
Playground Research Paper and Literature Review	01/18/12	01/27/12	10	Finished playground research paper. Examined various types of play equipment and discussed the Imagination Playground.
Play Equipment Pricing	02/01/12	02/15/12	15	Obtained quotes from several companies which sell play equipment.
Outreach	01/04/12	06/15/12	164	
Draft Posters	01/04/12	02/01/12	29	Designed a poster which allowed people within UH to vote on which elements they most preferred.
Parent Meeting 1	01/10/12	01/10/12	1	Showed APL initial ideas to redevelop the UH playground.
Develop Playground Abstracts	01/15/12	01/15/12	1	Drafted sketches and site plans to render the redevelopment of the playground.
Parent Meeting 2	01/23/12	01/23/12	1	Showed second draft of site redevelopment for the UH playground.
Finish Mary Gates Application	01/30/12	01/30/12	1	Submitted application for the Spring 2012 Mary Gates Leadership Scholarship.
Survey	03/24/12	04/27/12	35	Finalized playground survey and began distributing it to students, parents, and staff throughout UH.
Voting Process	05/08/12	06/01/12	25	Distributed ballots to people and prepared voting game. Asked people their favorite piece of play equipment.
Mary Gates Presentation	05/11/12	05/11/12	1	Presented playground project at the Mary Gates Spring Celebration.
Community Cleanup Day 2012	05/12/12	05/12/12	1	Share design project with people at the 2012 Community Clean Up Day.
Presentation to APL Parents	05/18/12	05/18/12	1	Presented survey and revised design to parents at APL.
Voting Results	06/01/12	06/15/12	15	Tabulated voting, Imagination Playground and RockBlocks Climbing Tunnel win plurality of support.
Finalize Project	07/13/12	05/16/13	308	
Preservation Board Meeting	07/13/12	07/13/12	1	Met with the Seattle Historic Preservation Board to discuss the Site Master Plan.
Large Project Grant	07/16/12	07/16/12	1	Submitted Large Project Grant Application.
Awarded Large Project Grant	10/04/12	10/04/12	1	UH received nearly \$100,000 in Large Project Matching Funds from the Seattle Department of Neighborhoods.
Second Trip to Salmon Bay Playground	01/19/13	01/19/13	1	Traveled to Salmon Bay Park and published a list of critiques to improve the site.
Finished Senior Project Rough Draft	02/20/13	02/20/13	1	Finished rough draft for Senior Project.
Phase 1 Editing	02/21/13	04/07/13	46	Finished first phase of editing for Senior Project. Caitlin Dean was the editor.
Senior Project Presentation	03/15/13	03/15/13	1	Presented Senior Project in front of the Community, Environment, and Planning major.
Phase 2 Editing	04/08/13	05/19/13	42	Finished second phase of editing for Senior Project. Dorothy Lengyel was the editor.
Senior Project Poster	04/24/13	05/07/13	14	Created poster for Senior Project night.
Senior Project Powerpoint	04/27/13	05/08/13	12	Finished Senior Project powerpoint.
Book Design	05/15/13	05/23/13	9	Senior Project undergoes the publishing phase.
Senior Project Night	05/16/13	05/16/13	1	Present Senior Project to public.
Senior Project Deadline	05/24/13	05/24/13	1	Submit final Senior Project Assignment to advisor.

Methods: January Trip to Salmon Bay Playground School

On January 19, 2013 I traveled to Salmon Bay Playground to examine the characteristics of traditional play equipment and research the site's play surface. I used Salmon Bay as my case study because the site's area and diverse play equipment are comparative to the UH playground. Salmon Bay Park is located in Seattle's Loyal Heights neighborhood which is an urban environment, however this neighborhood is predominantly composed of single-family homes (unlike the University District). Most of the children at the playground during my visit were between the ages of 2-8. The swings were the most popular piece of play equipment. During my visit I noticed that children did not interact with one another because most of the play equipment used could not facilitate group activities. Even pieces of play equipment that had the potential to foster group activities did not work in that manner. For instance, the jungle gym did little to encourage children to play with one another. Instead most children interacted with their parents. Playgrounds should facilitate opportunities for children to approach their peers because it will buildup their confidence to start friendships in school.

The play surface at Salmon Bay is equipped with wood chips. A major flaw of the site's surface is that it does not have enough depth to protect children during a fall. According to the Utah Department of Administrative Services Division of Risk, playgrounds with wood chip surfaces require constant maintenance (Marshall 3). One setback of using wood chips is that roughly a quarter of the surface must be replaced annually because this material decomposes due to weathering (Marshall 3). Figure 1 reveals several large patches of dirt throughout the play area.

Wood chips are not the best play surface because it does not have the ability to absorb as much shock like other loose-fill surfaces such as rubber (Table 1). The U.S. Consumer Product Safety Commission's *Public Playground Safety Handbook* recommends that wood chips be at least 5.5 inches deep to protect a child during a six foot fall (Table 3). During my visit I measured the depth between the play surface and ground using a ruler. I measured near the site's exterior corner and the main playground's six foot fire pole landing area. The depth of the play surface varied throughout the park. The play surface depth was roughly 1.75 inches near the fire pole landing and 1.25 inches near the site's

exterior. The surface near the playground’s fire pole does not have enough depth to protect children from falling (Table 3). Figure 2 shows the section of the playground I measured. When I went to measure the play surface along the swings I saw that the ground was exposed. Figure 3 illustrates how the swings are not adequately surfaced. Nearly one-third of swings had direct exposure to the ground. If a child were to fall off a swing, he or she would not be protected because the depth does not meet the U.S. Consumer Product Commission’s safety standards (Table 3).

Table 3: Minimum Compressed Loose-Fill Surfacing Depths

Minimum Compressed Loose-Fill Surfacing Depths		
Inches (of)	Loose-Fill Material	Protects Fall Height (feet)
6	Shredded/recycled rubber	10
9	Sand	4
9	Pea Gravel	5
9	Wood mulch (non-CCA)	7
9	Wood chips	10
5.5	Wood Chips	6.1

Source: U.S. Consumer Product Safety Commission

Figure 1



Patches of dirt like this one above reveal how the play surface needs better maintenance.

Figure 2



This image displays where I measured the play surface. The picture above shows a six foot fall between the playscape and ground.

Figure 3



The image above reveals how the swings are not properly surfaced. Notice the dirt exposure in this image.

Methods: Critiques to Salmon Bay Playground Site

1. Encourage Age Appropriate Design

- Shorten play equipment or increase depth of play surface to meet safety standards
- Add signage to clarify age range for each piece of play equipment

2. Incorporate Social Activity

- Integrate play activities so it fosters a more inclusive environment
- Provide children the opportunity to play in groups

3. Replace Aging Play Equipment

- Incorporate durable material into new play equipment
- Purchase equipment that can be stored inside during winter
- Add play canopy to protect play equipment from weathering

This image captures the deterioration of play equipment.



Methods: Selecting Play Equipment Alternatives (Introduction)

After visiting Salmon Bay Park I created a survey to ask students and teachers how they would vision a new playground at University Heights (UH). I selected five other play elements that would not only compliment the Imagination Playground, but provide additional recreation opportunities for the new playscape. The five pieces of play equipment that I assigned highest priority were: climbers, tunnels, balance structures, walls, and roofs. These features are vital to ensuring the project’s completion because they are essential to securing a safe and exciting playground. The play equipment that I collected were from PlayWorld Systems and Landscape Structures Inc.

Zoo Panel (Item 7)



Recycled Poly Wall (Item 20)



Balcony Deck (Item 18)



Table 4: Walls to Replace Mesh			
Item Name	Item #	Cost	Product Description
Zoo Panel	7	\$350	This item allows adults to supervise easily. It comes in many colors and is a great way to fix the broken mesh. It is difficult for children to get their hands caught in this material because the holes are relatively narrow.
Recycled Poly Wall	20	\$670	The wooden wall uses natural and recycled items. It also features an optional steering wheel.
Balcony Deck	18	\$930	This wall is available in several colors. This feature has an optional steering wheel. This wall has curves so it might be difficult to install on a linear playscape.

Log Balance Beam (Item 8)



Log Steppers (Item 3)



Bench Boulders (Item 9)



Table 5: Nature Inspired Balance Structures

Item Name	Item #	Cost	Product Description
Log Balance Beam	8	\$2,650	The first balance structure I examined is sold by Landscape Structures Inc. It can help enhance a child's motor skills because they would have to maneuver across a flat log.
Log Steppers	3	\$735	This item is a series of 18" logs that allow children to walk up. It allows children to challenge their motor skills. The log steps are not too high. I would recommend that one child uses this play structure at a time. The logs could also be used for sitting.
Bench Boulders	9	\$1,656	This product is made by PlayWorld Systems. It allows for both climbing and sitting. This play structure is smaller than the Log Steppers. Unless its used for sitting, I would only limit capacity to one child.

Mini Summit Climber (Item 2)



ABC Climber (Item 1)



Block Climbers (Item 6)



Table 6: Climbers			
Item Name	Item #	Cost	Product Description
Mini Summit Climber	2	\$95	This product attaches to 40" decks. The maximum fall height is equal to the deck height. This structure is simple and provides easy-grip handholds made of polyethylene. I would limit this climber to one child at a time.
ABC Climber	1	\$1,105	This play equipment can accommodate up to three children. It contains rails and attaches to the deck heights of 32, 40, and 48 inches. This climber resembles a leveled ramp.
Block Climbers	6	\$1,635-\$1,945	These blocks are 12" square, 8" high TenderTuff-Coated Steel blocks bolted together in a variety of configurations. It attaches to deck heights of 32 and 40 inches. I would limit this climber to one child at a time.

Wee Crawl Tunnel (Item 4)



Log Crawl Tunnel (Item 15)



RockBlocks Climbing Tunnel (Item 5)



Table 7: Tunnels			
Item Name	Item #	Cost	Product Description
Wee Crawl Tunnel	4	\$2,420	The first tunnel I found came from Landscape Structures Inc. This play structure is small and easy for children to maneuver. It is composed of metal and is painted violet and lime green. Since this structure is narrow, it could only fit one kid at a time.
Log Crawl Tunnel	15	\$4,750	The second tunnel I found is from Landscape Structures. This tunnel is composed of synthetic wood. It is a straight tunnel and lacks the curves of the previous tunnel. This tunnel would add natural elements to the playground because it resembles a tree log. I would recommend this capacity to one child.
RockBlocks Climbing Tunnel	5	\$3,667	This product is sold by PlayWorld Systems Inc. It is the largest tunnel and has holes for children to look out of. This tunnel offers climbing materials so it could serve many purposes. This tunnel is the most open and can accommodate many children at one time. This item has many layers and can be a simple or complex play structure.

Selecting Play Equipment Alternatives (Conclusion)

The play equipment that I shared would help fulfill the activities that the Imagination Playground could not accomplish. Since the Imagination Playground is composed of foam blocks, children would not have the ability to climb over their playscape (Figure 6). I wanted to incorporate physically challenging play equipment into my proposal because one parent expressed his belief that the new playground should promote physical activity. My proposal incorporates intellectual and physically intensive play equipment. The balance structures and tunnels are multi-use play structures that would stimulate a child's interest and creativity. My research focused on materials that are simple and compliment the existing play equipment. In May 2012 I presented these five categories at University Heights. I had people vote on which play equipment they most favored. Although the Imagination Playground is the primary aspect of my proposal, I decided to offer additional play equipment because it identifies other alternatives to redeveloping the current site.

Square Peak Tile Roof (Item 11)



Recycled Peak Roof (Item 12)



Table 8: Roofs			
Item Name	Item #	Cost	Product Information
Square Peak Tile Roof	11	\$1,055	This roof is a 55.75 x 53.5 inch roof that allows consumers to embed their logo.
Recycled Peak Roof	12	\$2,400	This roof has a tongue-and-groove design that ensures precise fit. This roof is available in many colors.

Methods: Survey Implementation

Early Background

Since early 2011 I have worked with University Heights (UH) to create a survey on playground redevelopment and a possible redesigned area. My survey goal was to ask students, parents, and staff across UH which pieces of play equipment they favored. In order to create my survey I cropped an image of the new construction site and divided it into fifteen quadrants. People were able to select up to three pieces of play equipment and circle which quadrant they would want to see the equipment placed. My survey created an interactive puzzle for people to customize their ideal site. It offered eighteen pieces of play equipment including the alternative play equipment, existing play structures, and the Imagination Playground. In addition, I asked respondents how many hours they were willing to volunteer in order for UH to qualify for community matching funds.

Survey Release

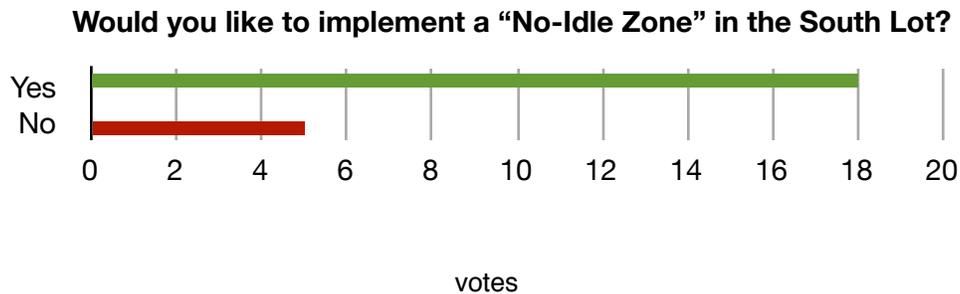
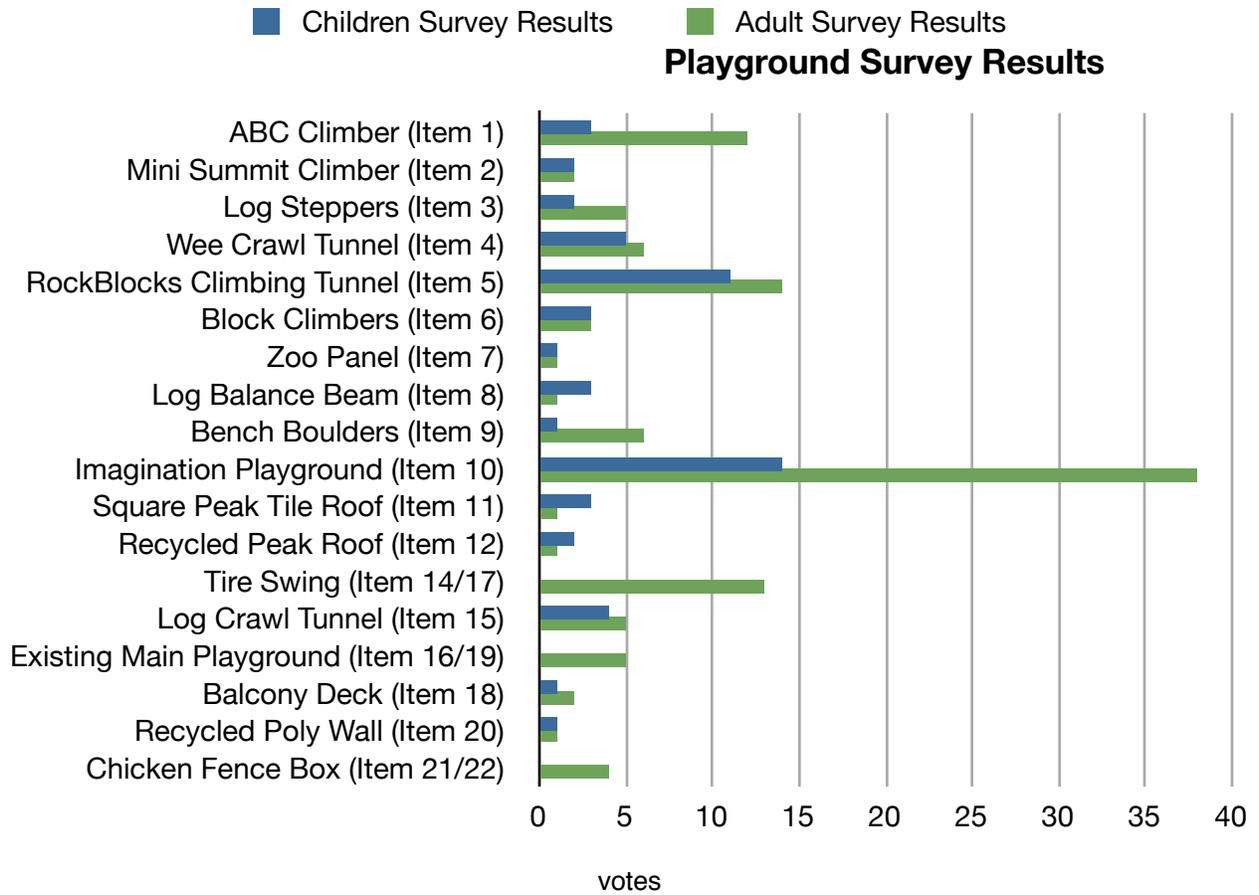
In April 2012 I finalized my playground survey. In order to prevent my data from becoming skewed I sampled people at several community events. My mission was to distribute as many surveys as possible and collect feedback. In May 2012 I presented my survey to Seattle residents at the Mary Gates Endowment Ceremony. Later that month I attended the University District Community Cleanup Day at UH. I discussed my project with volunteers at UH and asked them for feedback on my project. I also assembled a display board in the main hallway of UH to collect survey data.

I went to the Academy of Precision Learning (APL) which is a school that specializes in treating children with learning disabilities. In June 2012 I attended the APL Summer Party to share my project with students. I showed my project board and explained how the survey was designed to act as a puzzle. During my local exhibition I explained my project and distributed surveys to parents who sent their children to UH and APL. Roughly 40-45 families send their children to APL and 20 families participated in the parent social event (50% turnout). Each of the students initialed my board to select which pieces of play equipment they favored. I compiled my survey results in late June.

Overall the surveys had a total of fifty respondents from all sources.

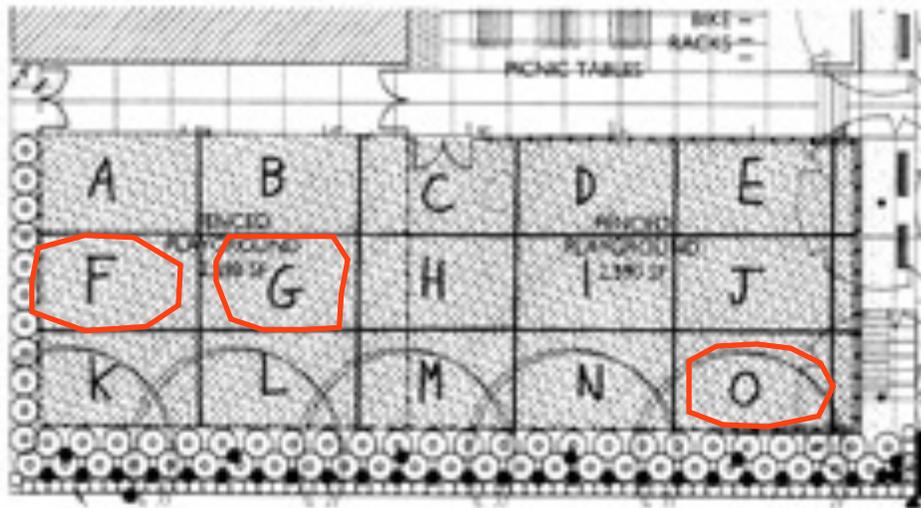
Findings & Implications: Survey Results Part 1 (Approximately 50 respondents)

The first question was the most important aspect of my survey because it asked people which pieces of play equipment they would most prefer for the new playground. The Imagination Playground won a plurality of support from both children and adults. Many adults were fascinated with the Imagination Playground because it had a unique appearance. I think parents were open to exploring different types of play equipment. The second question asked if a safety sign should be installed on the new site.

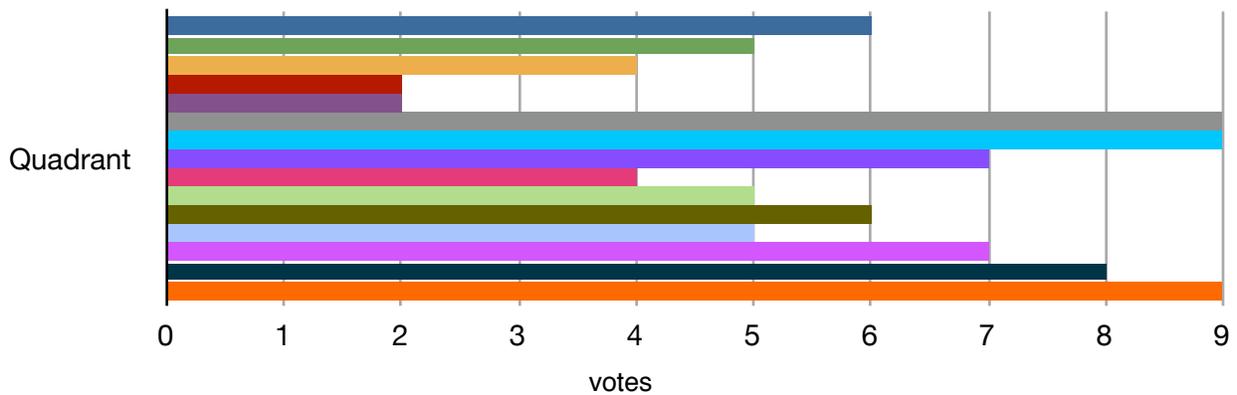


Findings & Implications: Survey Results Part 2 (Approximately 30 respondents)

In this question people selected their three favorite quadrants for open space. I included this question because I wanted to know the spatial preference for the new play equipment. I also wanted the new playground to have enough space for children to run around and play games. According to the survey results, most people wanted the open space to be located on quadrant F, G, and O which is the northern edge of the site.



Open Space Quadrants



Findings & Implications: Fundraising

Funding for the new University Heights (UH) playscape is ongoing. The playground project is a critical part of a Master Plan for landscape redevelopment. In July 2012 I helped UH during the grant writing process. My focus was to draft a work plan, compile narratives regarding the playground, and manage important information about the project. In addition, I collected signatures from people who were willing to volunteer in order for UH to qualify for Seattle’s Matching Funds Program (Table 9). On October 3, 2012 UH was awarded a \$99,974 grant from the Seattle Department of Neighborhood’s Large Project Fund. This grant will go to improving the playground, P-Patch, and main entrance.

Table 9: Volunteers Recruited for Community Matching Funds		
Service Hours Committed	Number of Volunteers	Expected Funds Raised
1 hour x \$20= \$20	4	\$80
3 hours x \$20= \$60	2	\$120
4 hours x \$20= \$80	5	\$400
5 hours x \$20= \$100	4	\$400
Total Volunteer Matching Funds		\$1,000

Table 10: Funds Attained by University Heights		
Funding Source	Amount	Status
Community Matching Funds	\$1,000	Awarded
Department of Neighborhoods Large Project Award	\$99,974	Awarded
University Rotary Club Grant	\$25,000	Pending

Going Forward: Final Update on Playground Project

University Heights received full funding (\$99,974) from the Seattle Department of Neighborhoods. The application for the Large Project Fund is highly competitive. Applicants are required to attend a community workshop and demonstrate how their project would benefit certain social, cultural, or economic groups within Seattle. The application for the Large Project Fund is composed of four sections which include having a proposed idea, neighborhood involvement, targeted outcomes, and project readiness. In addition, applicants for Large Project Funds are screened through a city and neighborhood review process. A representative from the Department of Neighborhoods has to ensure that each applicant has fulfilled their requisites. Once a staff member approves the application, it has to go through the city government for a final verification. Organizations are required to recruit volunteers to help implement their project. The city awards matching funds of \$20 for each hour of volunteer labor. University Heights (UH) has managed to recruit several volunteers to help move their landscape project forward. In August 2012 the exterior of UH was refurbished. By late 2012 volunteers began redeveloping the P-Patch near the building's main entrance. New trees have been planted and the site has also been surfaced with a new layer of mulch. In early 2013 volunteers began demolishing the old playground. At the same time, the funding contract from the Department of Neighborhoods was processed. As of March 2013, UH has signed the final contract and work on the new playground is expected to begin in June.

Personal Reflection: Steps to Success and Leadership Methods

The three essential leadership elements to ensuring the success of my Senior Project were focus, benchmarking, and that perfection is the enemy of progress. During my Senior Project I scaled back several of my ambitions and focused on tackling a series of bite size challenges. My ability to break down a goal into smaller tasks made my workload more manageable. I learned that it is better to experiment with smaller initiatives because I got more accomplished. In addition, I frequently used checklists to visually track my progress each week. Examples of specific tasks not described include:

- Developing whole sections of a grant application
- Creating a project schedule (appendix of paper)
- Assisting in with the preparation of a project budget

Designing a new playground was very challenging, however I decided to start simple and identify the obvious. Whenever I encounter a complex problem I try to identify the issues along the surface because it provides a solid foundation to my research (and the direction of my project). Despite the complexity of playground design, I believe that most complicated answers are closer than what our perception is willing to accept. In other words, I used benchmarking to find my project's inspiration. During my research, I examined what other cities were doing to create innovative urban spaces. The Imagination Playground in New York caught my attention because it fostered the same activities that I found intriguing during my childhood which were building blocks. Benchmarking allowed me to reach a defining moment during the early stages of my research because I realized that the Imagination Playground would be an excellent match for UH.

Additionally, I learned that the cost of inaction is far worse than the cost of making a mistake. A significant ingredient of my Senior Project success was that I started early because it provided me more opportunities to make steady progress. Shortly after meeting with my mentor I was delegated to creating a poster that displayed various elements of my proposal. The first purpose of my poster was to help me brainstorm ideas for my presentation. It shaped the way I organized my presentation and final project

display. Although initially I was inconclusive on how to formulate my poster, I collected simple components that I knew needed public input. Even though my poster was revised several times, I decided to start with something instead of nothing. Despite the fact that I made many mistakes, it was early enough that I was able to rectify the issue and present a better product later.

Personal Reflection: My Future in Community Development and Planning

My internship was unique because I was able to customize my work experience to match my career interests. I started my Senior Project being focused on designing a new public space. However, as time progressed I shifted my energy towards promoting my ideas using community development techniques such as fundraising and distributing surveys. My Senior Project experience was highly interdisciplinary because it integrated community development, landscape architecture, and urban design. Urban design and public policy are both essential elements to solidifying a strong planning foundation. Planners must have strong design skills because it helps articulate their message in a visual manner; however, planners also need to comprehend policy because it is essential to transforming someone's vision into reality.

My academic shift from design to community development resembles my personal journey when I started my education determined to becoming an urban designer. Over time I became more and more interested in public policy. I believe that changing my focus from urban design to community development has made my project more fulfilling because I had the opportunity to acquire additional experience in planning. Someday I hope to become an urban planner specializing in community development because it is closely aligned to social justice, political advocacy, and law. I am confident that my experience in neighborhood design will prepare me to continue solving the economic, social, ecological, and political problems facing communities across America.

The best part of my Senior Project was when I met with parents because I knew that their children were encountering the same educational obstacles that I experienced as a child. I really enjoy telling stories and learning about other people. My interest working with people was a major reason why my internship and Senior Project were a great match. Looking back, I am really thankful to know that someone believed in me. Throughout my life people have taken chances by providing me opportunities. Growing up with autism, I was fortunate to surround myself with people who continue to recognize my intellectual and leadership potential and next I can share those experiences in my professional work.

Appendix

Figure 4

Work Plan			
Responsible Person/ Group	Month Done	Year Done	Step/Activity
UH	September	2013	UH celebrates its 110th Anniversary. Playground is expected to be completed.
UH	July	2014	Building upgrades Phase 1 Restoration Completed.
Steering Committee	July	2013	Check-in on progress of playground project. Prepare for 110th Anniversary event.
UH Staff, United Way Volunteers	October	2011	Clear lawns and shrubs along east entrance.
UH, Conservation Corp.	March	2012	Cleared old site, removed debris, and prepared for construction. Removed useless elements in playground site.
UH	May	2013	Community Clean Up Volunteer Event.
UH Staff and Adams Asphalt	September	2013	Construction begins for the new playground.
Gabe Filer, UH Board	April	2012	Created Presentation Board for project.
Steering Committee	June	2013	Discuss construction of the new playground and review the events that occurred from the beginning of the year.
Steering Committee, Kristine Kenney, Geoff Berg, and P-Patch	December	2012	Discuss plans regarding the P-Patch project. Decide on cost, date, and other major project factors.
Gabe Filer, APL, and other tenants	May	2012	Distributed ballots to people and prepared voting game. I asked people their favorite piece of play equipment and location. Displayed flyer and large poster.
UH	October	2013	Document Steering Meetings, each work party, events, and centralize information. Organize volunteers, flyers, and social media.
Gabe Filer and APL	April	2011	Drafted first written survey to understand what stakeholders were looking for in the new South Lot project.
Gabe Filer	January	2012	Drafted sketches and site plans to render the redevelopment of the playground.
UH, Johnson Architecture, and CRN Paint	November	2012	Exterior siding repairs bidding, sealing paint, east entrance landscape, P-Patch reconstruction, and playground renovation.
UH Staff, Steering Committee	October	2012	Finalize list of volunteer events with Steering Committee. Begin planning demolition of P-Patch.

Gabe Filer, UH	June	2012	Finalized voting. Imagination Playground and red tunnel win plurality of support.
Volunteers, Donations, and UH Staff	May	2009	Received roughly 70 Clean Up volunteers.
Gabe Filer	January	2012	Finished Playground Research Paper. Examined various types of play equipment and discussed the Imagination Playground.
UH Staff, Steering Committee	September	2012	First meeting, discuss next outreach steps, organize additional meetings. Plan first Work Party.
UH Staff and City Departments	September	2009	Held meeting to brief on Phase 1 Restoration and obtain input on the building's design process.
Steering Committee	November	2009	Held public meeting and allowed people to provide input on the building's design process.
UH Staff, Seattle Parks Department, and HBB Architects	August	2011	Held public meeting and allowed people to provide input on the building's South Lot design process.
UH	December	2013	Matching Fund Work Complete.
UH Staff and Seattle Parks Department	January	2013	Meet with City Parks Department to finalize schedule.
UH, Theresa Lord Hugel	June	2012	Met with Chamber of Commerce, Roosevelt Alliance, and NE District Council to discuss grant application.
UH Board	May	2009	Met with students, residents, and business owners to discuss the building's restoration.
UH Staff, Seattle Parks Department, and HBB Architects	July	2012	Met with the Seattle Historic Preservation Board, ARC, and SPR. Site Master Plan and park reviewed.
Volunteers, DON, UH, and Community	May	2012	More than 120 volunteers registered for Community Clean Up day. Draft 2 design plan displayed.
UH	December	2013	Once documents are finalized, send information to Department of Neighborhoods for review.
UH/Alumni	April	2013	Order new play equipment.
UH Volunteers	November	2012	Organize a volunteer event during Columbus weekend (Friday before). Dismantle P-Patch and prepare beds.
Steering Committee	February	2013	Plan Work Party 2.
Steering Committee	March	2013	Plan Work Party 3.
Steering Committee	April	2013	Plan Work Party 4.
Gabe Filer	May	2012	Presented playground project at the Mary Gates Spring Celebration.
Gabe Filer and APL	May	2012	Presented survey and second design to parents at APL.
UH	November	2010	Received grant from Seattle Parks Opportunity Fund.

UH Staff	November	2011	Removed overgrown trees in front of the building to clear way for exterior repairs.
UH and Kristine Kenney	October	2011	Schematic Plan Draft 1 completed.
Gabe Filer	January	2012	Showed APL initial ideas to redevelop UH playground.
Gabe Filer	January	2012	Showed Draft 2 with Methods to redevelop the UH playground.
UH	April	2013	Spring Break Work Party (Friday before vacation).
Gabe Filer, Geoff Berg	February	2012	Started application draft for the Neighborhood Matching Grant.
Steering Committee	December	2012	Steering Committee plays game.
Steering Committee	January	2013	Steering Committee reviews playground surveys, selects play equipment, finalizes a budget, and makes a decision.
Gabe Filer	January	2012	Submitted application for the Spring 2012 Mary Gates Leadership Scholarship. My project detailed the redevelopment of the UH playground.
UH, Gabe Filer, Geoff Berg, Kristine Kenney, and Roger W.	July	2012	Submitted Large Project Grant application.
Kristine Kenney	February	2012	Submitted schematic 2 site plan for the overall site including playground, Farmer's Market, and South Lot.
UH	June	2013	Summer Volunteer Event for APL school.
SDOT, Johnson Architects, and KPFF	May	2012	The SDOT approves a plan to improve transportation access by changing the site's parking and driveway access.
National Park Service, Washington state, and UH Staff	December	2010	The University Heights Community Center officially designated as a National Historic Property and State Landmark by United States Department of Interior.
UH, P-Patch, Kristine Kenney, Geoff Berg, and Sandy Pernitz	May	2012	UH met with members of the P-Patch to discuss the building's future landscape. Talked about the future garden plots and water system.
UH Board, Consultant, and Staff	February	2011	University Heights Acquires Building from Seattle Public Schools.
UH	October	2012	Verify if SEPA applies.
UH and National Trust PSE Grant	December	2011	Work is completed. Upgrades include insulation, window restoration, lighting replacements, ADA upgrades, and community room restoration.
UH Staff	December	2009	Worked with Metro Transit and tenants to refine the parking plan and shift certain bus stops.
UH, Metro Transit, SDOT, and Legal	November	2009	Worked with SDOT and tenants to overhaul the transportation plan.

Appendix

Figure 5

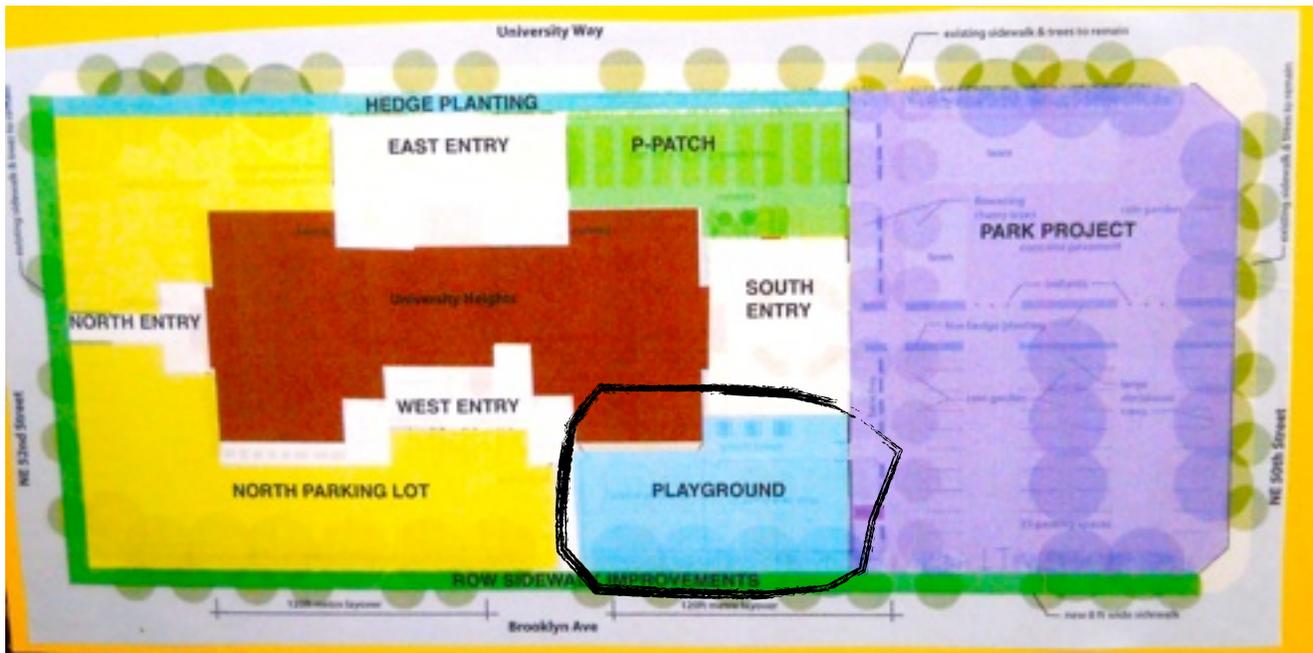


Figure 5 illustrates the site plan of University Heights. The area shaded in blue shows the location of the playground project.

Figure 6



This is an image of the Imagination Playground in New York City. This playground was built in South Street Seaport.

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