Myles Long
Senior Project Write Up

Project Question: How can pedestrian accessibility surrounding South Beacon Hill and the light rail station be improved?

WORKING TITLE:

South Beacon Light Rail Accessibility

ABSTRACT

Geographical, and topographical barriers limit pedestrian accessibility to the light rail station in South Seattle for residents living between S Holden and S Cambridge St on Beacon Avenue. This project explores ways of overcoming these barriers. The project includes a site analysis of the impacted area, interviews with local residents about their travel habits, observations of foot traffic through the neighborhood, and an assessment of potential design solutions. The final report recommends the development of a new trail system that would increase the ease of pedestrian, bicycle, and wheelchair access to the station, while also providing a valuable new open-space amenity for the area.

PRODUCT SIGNIFICANCE

This project is significant to me because I grew up in South Seattle. I have seen Seattle grow and become a traffic-congested city, and want to shed light on an area I believe can be improved. By activating a pathway through the East Duwamish Greenbelt in South Beacon Hill, this will create prime accessibility to the light rail station for the residents amongst this area, as well as other travelers in route to their destinations. An urban pathway developed in an underutilized area such as South Beacon will create a sense of connectedness for the

neighborhood. This will directly impact the community positively because many of the residents travel to work in Seattle. This project involves the community, the environment, and planning through my methods of research. This project has been given more significance by granting the opportunity to live out the CEP major characteristics. By implementing universal accessibility in areas that lack the planning for it, it creates equity to the environment in which it stands because people from all walks of life will be able to access it. An example would be wheelchair access on the pathway, as well as "tactical paving" so the blind can feel where they are at certain points of the path. This project provides opportunities for community members and transit members to not only save time during their walks, but also be able to enjoy the community design within.

INTRODUCTION

Why is pedestrian accessibility needed in South Beacon you might ask? "Beacon Hill is home to 13,300 residents" (City of Seattle, 2016). Benefit Park is the local park in South Beacon, which is located across the street from the East Duwamish Greenbelt on 38th Street. The South Beacon neighborhood is under utilized compared to North Beacon, which has access to the Beacon Hill Station and town center. Although there is a station in the north, residents that live in South Beacon are more than 4.5 miles away from their neighborhood station. However, residents living near Benefit Park are only 0.7 miles away from the Rainier Beach station, and with a pathway through the greenbelt this would create better efficiency and even shorter distance! The greenbelt is regarded as "A wildlife habitat, rare plant reserve, scenic resource, community separator, urban passive-use natural area/greenbelt, park/open space or natural corridor and a passive recreation opportunity." (City of Seattle, 2017). This project aims to activate this greenbelt, by proposing a pathway for the residents of South Beacon to the light rail

station in Rainier Beach. By implementing a pathway, this will create universal accessibility to the light rail station in an area that is underutilized.

CONTEXT/BACKGROUND/HISTORY

The context of this project is based on accessible transit projects around the world such as Singapore's Alexander Arch Forest Walk, Barcelona's park Jardins De Menendez, Turkey's Eco Techno Park, and last but not limited to the University of Washington's Light Rail Station. It is understood that biking can be one of the easiest and fastest ways to connect you to your final destination after getting off the train. "A bridge over Montlake Boulevard NE, made for biking and walking, connects the station with the Burke Gilman Trail"(Roselyn, 2016). This has been vital to the South Beacon Light Rail accessibility project because by implementing a pathway through the East Duwamish greenbelt, it will designate greater accessibility to and from the light rail station to an area that underutilized. In addition, with bikes being welcomed on link trains, "Sound transit encourages you to ride your bicycle to its stations, and to park and securely lock your bicycle at the station." (Roselyn, 2016.) By doing this users are utilizing the amenities of the city and also being granted efficient access to the stations. By improving the greenbelt for the community, it will enable *placemaking*. "Placemaking helps fulfill local community needs and visions for a place which means that local residents are meaningfully engaged throughout the process of conceiving, planning, and implementing improvements." (Norris, 2016). South Beacon will benefit from this because it will give the community a place to engage with one another. In addition this co exists perfectly with my plan for community engagement in this project, asking questions about how the neighbors feel about their accessibility from the neighborhood and what they would want to see happen.

Beacon Hill is home to 13,300 residents, in 2009 the Beacon Hill and Rainier Beach Light Rail stations opened in South Seattle. Since then, the light rail has provided access from these neighborhoods to downtown Seattle, and soon to be all over Seattle. However, there is still a problem of universal accessibility in the South Beacon Hill neighborhood to the light rail station. The City of Seattle Neighborhood Planning is in charge of the land (South Beacon East Duwamish Green Belt), They have been a great point of contact when I was searching for better insight. Community members have been important because they are the ones impacted and involved with the land surrounding South Beacon Hill. Moreover, they will be the ones to care the most about this project because it is something that creates a benefit to their neighborhood. Guy Williams (Urban Development Manager) has been a stakeholder in this project because he has been my mentor for this project, and has knowledge in the Urban Sector has helped tremendously regarding Urban Pathways.

The history of Beacon Hill goes back to Van Asselt, the first settler in Beacon Hill. Illness and open spaces defined Beacon Hill in the early years of Seattle. “The buildings that mark it – Pacific Tower (formerly the U.S. Marine Hospital) and the Veterans Administration building – were both built to heal the nations veterans.” (Pulkkinen, 2017). Jefferson Park used to be Beacons largest open space and was a quarantine tent for the contagious ill. After it burned down, Seattle built a golf course on the land, which had been modernized overtime and still exist today. Homebuilding increased after World War II, Beacon grew more ethnically mixed, primarily Chinese, Vietnamese and Filipinos, which account for 46% of Beacon Hill’s population. Beacon is home to modest housing, nearby jobs, and downtown Seattle. Restrictive covenants in other parts of the city played a major role in helping to draw immigrants and people of color, especially Asian-Americans, to Beacon Hill in the 1950s. As time passed Beacon Hill

continues to remain ethnically diverse, and has implemented transit light rail station, library, and other amenities such as new restaurants serving ethnic foods. In addition, 60% of the residents in Beacon Hill speak a language other than English at home, according to 2010 census data.

"Beacon Hill has the largest Olmsted-planned and designed green space in Seattle – Jefferson Park, which marked its 100th anniversary in 2012" (APA, 2019) The residents value Beacon Hill's quality of life and are involved in neighborhood, public safety, transportation, parks, and other planning efforts that create a unified community. Beacon Hill has been growing overtime, and it is with all the efforts of the community coming together with the city to implement visions to the neighborhood. As the light rail is going on 10 years of being in Beacon Hill, the riders on transit has only increased. By providing efficient pathways through areas that are underutilized would increase the ridership, and accessibility for pedestrians that would otherwise use cars or take the bus.

LITERATURE REVIEW

For this literature review, I have researched accessibility to create an effective pathway for the greenbelt land in South Beacon Hill. I will be exploring the history of accessibility in my projected area as well as plans in the future with accessibility in the area of South Beacon Hill. By creating visual maps, and targeting diverse audiences, I have provided a better understanding for viewers of this project that display the best efforts of accessibility in an under-utilized area.

Accessibility measures are reviewed using a broad range of relevant criteria, including theoretical basis, interpretability and communicability, and data requirements of the measures. (Geurs, 2004). This impacts land use and transport strategies that are often evaluated by using accessibility measures. According to Karst Geurs (Geurs, 2004) "there are four components that reflect these methods for accessibility measures:

(a) Being the Land-use components reflects the land use system, consisting of the amount, quality and spatial distribution opportunities supplied at each destination (jobs, shops, health, social and recreational facilities, etc.).

(b) The demand for these opportunities at origin location is where inhabitants live and;

(c) The confrontation of supply and demand for opportunities.

(d) The transportation component describes the transport system, which covers the distance between an origin and a destination using a specific transport mode, such as amount of time travel, walking, and parking."

This leads back to the supply and demand, "The supply of infrastructure includes its location and characteristics, maximum travel speed, number of lanes, public transport timetables, and travel cost." (Geurs, 2004). "The temporal constraints are the availability of opportunities at different times of the day for people to participate in certain activities such as work and recreation." (Geurs, 2004). This a great base for South Beacon because during the rush hour times of 7am and 930am traffic is at its peak causing many constraints for travelers trying to reach their destinations. Delayed busses, and lack of accessibility for wheelchairs. The demand for accessibility in South Beacon is present. Although there is a vast amount of elder adults living in Beacon Hill, adults that are between the ages of 25 and 44 represent 65% of the neighborhood population. That is a lot of potential transit riders and active adults, who should be utilizing the accessibility to the light rail station.

With longer life expectancies and an increasing elderly population, America has a growing percentage of people who have mobility problems, ranging from mild to severe. 27 percent of Beacon Hill's population is 65 years of age or older. With that, there needs to be

greater accessibility. “More people use wheelchairs than ever before, and that can pose problems for them if there are no ramps, if hallways are too narrow and if there are no bathroom facilities that they can easily use.” (McItire, 2016) By providing ramps, it helps provide a status that there will not be discrimination to people with disabilities. In addition to ramps, vertical platforms have been proven to help with accessibility. “Some stair cases are far too high for ramps, but a vertical platform lift serves as an elevator and allows people in wheelchairs or other disabilities to get to their destination” (McItire, 2016)

Urban pathways can form a vital linkage between city greenspace and parks, which can form the backbone of a greenway system.” These connections can be especially important in low-income communities where access to parks and greenspace is often limited.” (Trails, 12). This forms the idea that Beacon Hill could use a pathway through the urban greenspace to promote accessibility to the light rail, as well as being a transportation connection to other neighborhoods in the area. According to *Rails to Trails Conservancy,* urban pathways are shorter than 10 miles in length and are sometimes fragmented due to limited availability of right-of-way for development. By creating a sustainable pathway, connecting trails to cycle tracks and bicycle boulevards may make the transition from trail to street feel smooth and secure. By creating a safe environment for the pathway riders to ride their bikes, roller skate, walk etc., this will activate this area and serve as a community space.

Seattle Department of Transportation (SDOT) has created a bike map that is intended to aid people in Biking through the city of Seattle. The map shows locations of various bicycle facilities and related amenities. This is important in the process of this project because it enables knowledgeable information regarding the accessibility, which will better the transportation

through South Beacon Hill, and the greenbelt. By creating a pathway for bikes within the pathway for accessibility it will continue the flow of transportation. However, while riding bicycles "Route users should always ride with care for their own safety as well as the safety of all other users of the road or right of way." (Laird, 2018) This will help decrease the amount of hazards for the users who will ride bikes on the intended pathway.

The Seattle Light rail station is transforming the city. With the light rail reaching the University of Washington, riders from Beacon Hill have seen better accessibility to downtown and UW. Sue Morgan (a UW employee) who lives in South Beacon tried a local bus through the central district, then a crowded train-to-bus transfer under downtown from South Beacon Hill but those trips would take 1.5 hours. Ever since the University of Washington station opened it will now only be a 30-minute commute for her. "I will totally ride the light rail from Othello station" (Morgan, 2016). This is a demonstration of a transit rider that lives in South Seattle, and because the light rail is accessible to her, it subtracts a car off the road, and adds a transit rider.

The light rail station entry plazas will be community-gathering places and include open space, public art, and landscaping. "For Beacon Hill the community envisions new development with a diverse mix of housing types, including housing above shops, more compact development in the northern and southern part of the neighborhood." (COS, 2006). As Beacon Hill continues to grow the need for accessibility to the light rail station grows as well. By providing new development it will help expand and bring equity to the area, as well as neighborhood population increase.

The Beacon Hill station access and mobility study gives insight the station and neighborhood multi model access for circulation improvements. "Through community out reach and identifying urban design recommendations, this will help enable the solutions to fix the

safety, placemaking, activation, wayfinding, and equitable and universal access for residents." (Johnson, 2015) The information in this article gives a better perspective of how to understand the community priorities and identify potential funding partners. This became great advice when implanting community outreach methods during tis project. With that, I was able to gauge if the residents wanted a pathway that served as placemaking and equitable access.

In the destination-based planning for Beacon Hill "advocates from Beacon Hill hope to inspire other neighborhoods in Seattle to initiate destination based local planning so more families with children can safely and comfortably access their schools, parks and business by bike and on foot." (Alta, 2011). Residents that live on neighborhood greenways benefit from reduced vehicle speed and calmer through-traffic. These make these streets more attractive for those biking and walking which would help the studies of this project for accessibility. Moreover, by creating comfortable access to the schools, parks, and businesses it would only make sense to provide the best accessibility for the neighborhood by implementing a pathway to the light rail station.

North Beacon Hill has benefited from the neighborhood plan proposed in 1999. They have expanded with still being able to sustain the community's unique ethnic culture and history. "However, there are new priorities for Beacon Hill which include better shopping town centers, more accessibility and walkability to shops, parks etc." (Council, 2009) This correlates with accessibility through different ideas of design that should be implemented. This goes to show that North Beacon Hill has been the primary stakeholder for the residents living in Beacon Hill. With majority of the attractive new development being implemented, South Beacon Hill is still underutilized.

The Beacon Hill Town Center design has been updated, they want special zoning to implement mixed used buildings for the community. The Town center has expanded and added the Beacon Hill library that brings some class and design to the neighborhood. Accessibility to these amenities are key to the Beacon Hill community. “Beacon Avenue carries over 11,000 cars a day” (Planning Development) the design for bike lanes and walkability are increasing and important for sustaining a flow. With over 11,000 cars a day on Beacon Avenue, and peak times during the week are from 730am-930am the accessibility can become stagnant at times by car. By implementing pathways for the bikes and walkability, this creates an opportunity for fewer vehicles on the road.

The advisory group meeting agenda gives details of the existing conditions in Beacon Hill regarding transportation issues, bike routes, streets and light rail stations etc. Neighbors would want to “Change the way bike facility is shown on Beacon Avenue and 15th Avenue South it is only a facility on one side of the street” (Muraki, 2018) This relates to the design of the project by discussing community wants and needs into the neighborhood plans. The request is to implement bicycle lines on both sides of the streets; this will create a safer environment for the neighborhood, as well as bikers passing through.

Areas around greenbelts and powerline trails can become neglected. With that comes growing trees and safety hazards. One cannot develop housing underneath right of way powerlines, but pathways can be implemented. This would be considering an easement or trail, along the right of way. “Trails are often built in utility corridors of all kinds from underground pipelines to electric powerlines overhead” (Holisco, 2003). This gives reason to the functionality of the pathway in the greenbelt. Although there are electric power lines overhead, a pathway can

still be implemented, as other neighborhoods in King County have implemented trails under power lines such as upper Rainier Beach.

Utility corridors have been designed for the purpose of accommodating sewer, water, and other utility lines to provide access for the maintenance. This article illustrates the complexities introduced when a greenway is designed and created in conjunction with a utility project. "Understanding and acting on the concerns raised by these groups reduces potential design and approval difficulties." (Wilting, 2012). By understanding the utility project, it will make for an easier approval because one already knows what one can and cannot have done.

"Urban greenways reflect more than a current landscape phenomenon or fad." (Searns, 1995). Greenways are constantly evolving through landscape form. They are spaces for parks as well as developing and growing urbanization. There are three kinds of generations for greenways, 1 being axes, boulevards and parkways that were the ancestral greenways, generation 2 will be trail-oriented and generation 3 will be multi-objective greenways. These play into the connection of the project through the greenway expansion of South Beacon that is trying to provide better accessibility to the light rail station.

People with disabilities can do more things when places are designed with full access to transit modes. Kafka provides information on accessible pathways for pedestrians in wheelchairs. In order for pathways to be considered accessible for wheelchairs according to ADA regulations, they must have "accessible outdoor flooring and ground surfaces must be stable, firm, and slip resistant." (Granite, 2017). To be classified as an accessible route, pathways must have a running slope no steeper than 1:20, and the width of the pathway must be at least 36 inches. In addition, an accessible route with width less than 60 inches must provide passing spaces at intervals of 200 feet. If your pathway contains any 180 degree turns, your turning space

must be either 48 inches, or 60 inches depending on the width of the pathway. This will have great benefit when dealing with universal accessibility for South Beacon Hill. A prime example of a pathway that implemented this would be the Alexander Arch Forest Walk in Singapore. It has turned out to provide great accessibility for people in wheelchairs, bikes, walkers, etc.

METHODOLOGIES

My first method was to observe, I went to the greenbelt, and Benefit Park in South Beacon to observe how people move to and from the space. Are they walking to get around? Sitting? Waiting for transit? Simply playing at the park? The answer was yes to all four. I made one-hour observations on Monday, Wednesday, and Friday during the week twice total, and one-hour observations on Saturday and Sunday twice total to compare to the weekday recordings. During the weekdays there is an average of 57 pedestrians active in South Beacon.

My second method was to utilize the research of accessibility to fulfil the universal accessibility aspect for South Beacon Hill's pathway implementation to the light rail station. Accessibility is the most essential feature of human design in the built environment. The definition of *accessibility* is the quality of being able to be reached or entered. With that, I discovered in order to implement a pathway through the greenbelt it would need to accommodate people from all walks of life. Meaning, there will need to be certain implementations installed such as "tactical flooring" at entry points that will provide accessibility for the blind to understand where they are. In addition, according to ADA regulations, in order for wheel chairs to be accessible they must have common materials for wheel chairs accessibility. "for wheel chair accessibility one must include asphalt and concrete" (Tiffany, 2017). By understanding

what is needed for wheel chair accessibility, anything else (walking, running, bikes, etc.) will all have access.

In my third method I created several maps of the project surrounding South Beacon near the East Duwamish greenbelt and the light rail station. These maps provide visual interpretation of the site, where the problem is, locations of residents that are affected, and the solution path to the light rail station. Through this method it is designed for the viewer to be able to understand the location of this project, and the pathway that will create faster commute times and placemaking for the neighborhood. In order to fully understand this method I first went back to the site in person to get a "on the ground feel" of the area. After that I created the maps digitally, and made a legend for the viewers to understand the highlighted color throughout the maps. To continue, I also implemented pictures examples of other successful pathways that are built and flourishing around the world. By doing this, it represents the ideas and concepts of what can be done in the greenbelt of South Beacon Hill.

My last method I attended 3 neighborhood advisory group meetings at Jefferson Community Center in Beacon Hill. These meetings are only held once a month on the first Tuesday of every month. The age of attendees that were often present was a range from 20-75 years of age. During my time there I was able to listen to the upcoming plans for Beacon Hill such as more bike lanes, easier access to parks and schools. After that I was able to inform the group that I am doing a capstone project on this neighborhood, regarding light rail accessibility. I then was able to give surveys out to some of the residents after explaining the abstract of this project to them. The question on the survey simply asked "Do you want the pathway? Yes, No, Maybe" " Do you believe a pathway being implemented would benefit this area of the

neighborhood? Yes or No? By visiting the neighborhood meeting I will be able to ask about possible bike lane implementation to add to accessibility. “The Decision to not have bike lanes on Rainier Ave S may lead to more bike traffic on Beacon Ave” (Chavez, 2018).

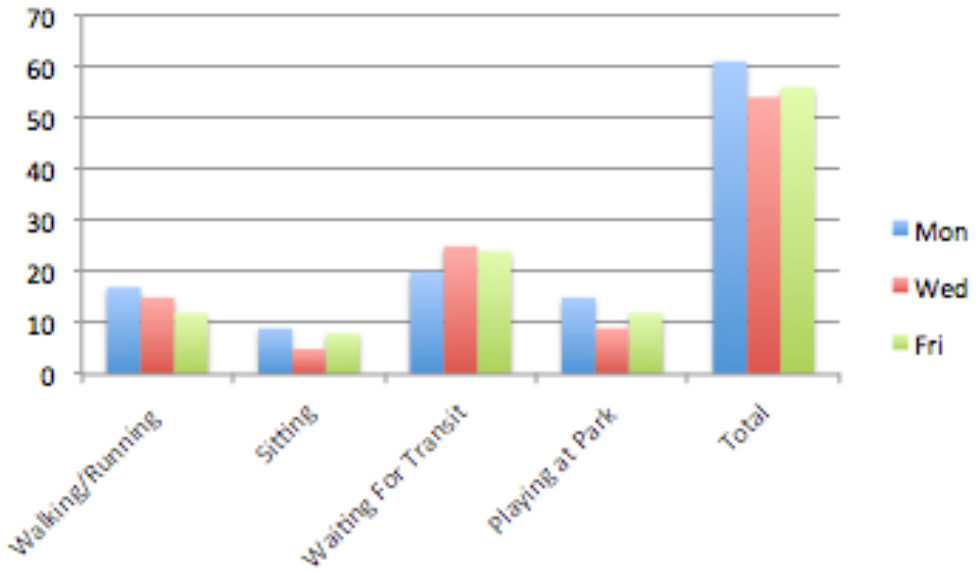
FINDINGS

After conducting all the work in this project I have found that Urban Pathways are being implemented in many underutilized areas worldwide, changing the culture into activated pathways. 82 percent of the attendees at the neighborhood meetings said yes to the pathway proposal for South Beacon Hill. Claiming they agree the pathway would bring benefits to the neighborhood such as better access to the light rail station, as well as social connectedness to other neighbors. However, in this process I have found that community outreach to the South Beacon hill neighborhood can be difficult at times due to the language barriers. The main language besides English that is spoken in the Beacon Hill neighborhood is Mandarin.

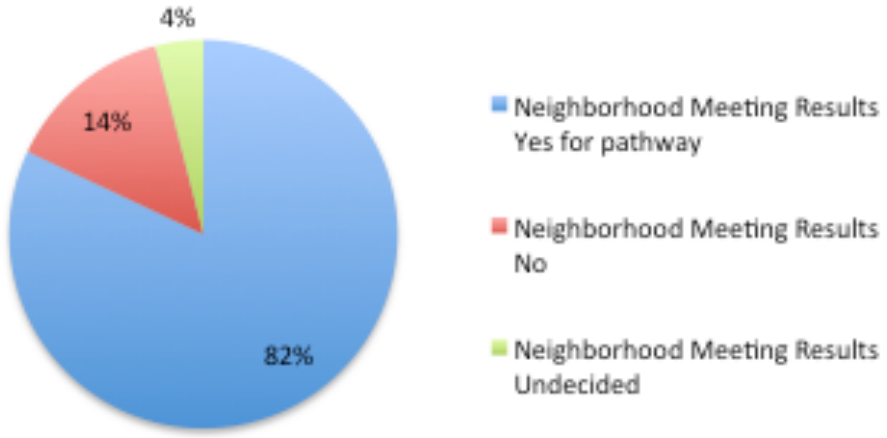
More findings throughout this project were the health benefits of greenspaces. Greenspaces improve the mental health, including reduced levels of depression by being able to be around nature. It also has “benefits to your physical health by reducing stress, and improving blood pressure” (Smith, 2009). By implementing the pathway, this will increase people’s physical activity. Greenspaces also improve air quality, which adds another benefit to the project.

RESULTS

Observation Method Results: Based on 1 hour observations 2 times total at Benefit Park.

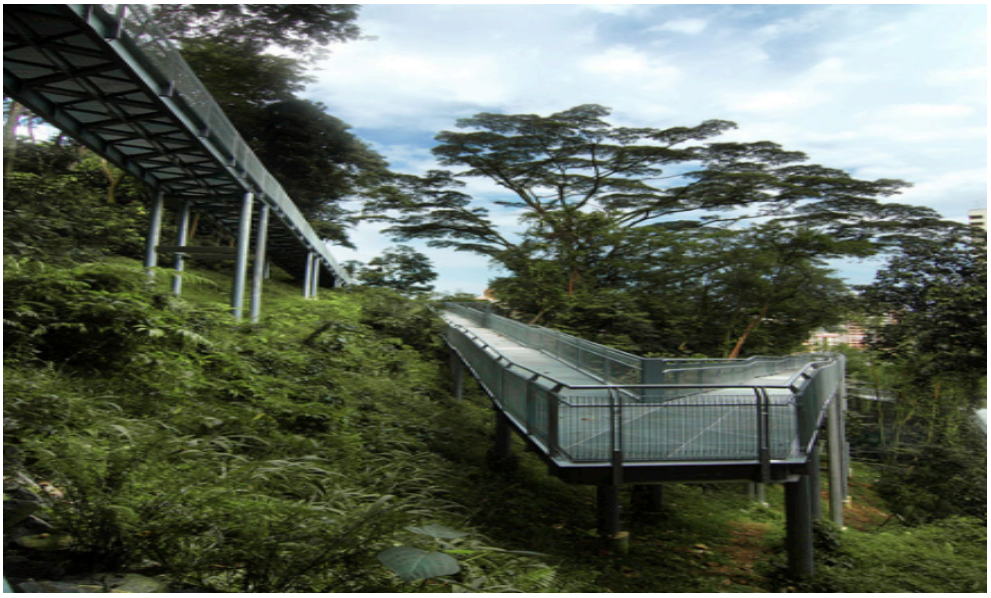


Neighborhood Meeting Results: Results are based on 3 Neighborhood Meetings at Jefferson Community Center, for a total of 50 surveys.



SUCCESSFUL SPACES:

Alexander Arch & Forest Walk In Singapore



Benefits: Elevated pathway enables the greenbelt to remain present allowing it to grow around the path to keep the area as natural as possible. The extended spaces at the turns are viewing pockets for bird watching, and site seeing. The pathway has a slow slope enabled for wheelchair accessibility.

Park Jardins De Menendez Y Pelayo In Barcelona

Benefits: This Park was once just a grassy hill; they utilized the slope to make it wheel chair accessible. They added stairs but also have slight slopes designed for wheelchair accessibility, similar to the Alexander Arch. However, by design they kept the original grass and landscaped the park. This has activated an under utilized hill and open space in Barcelona.

Eco Techno Park in Turkey

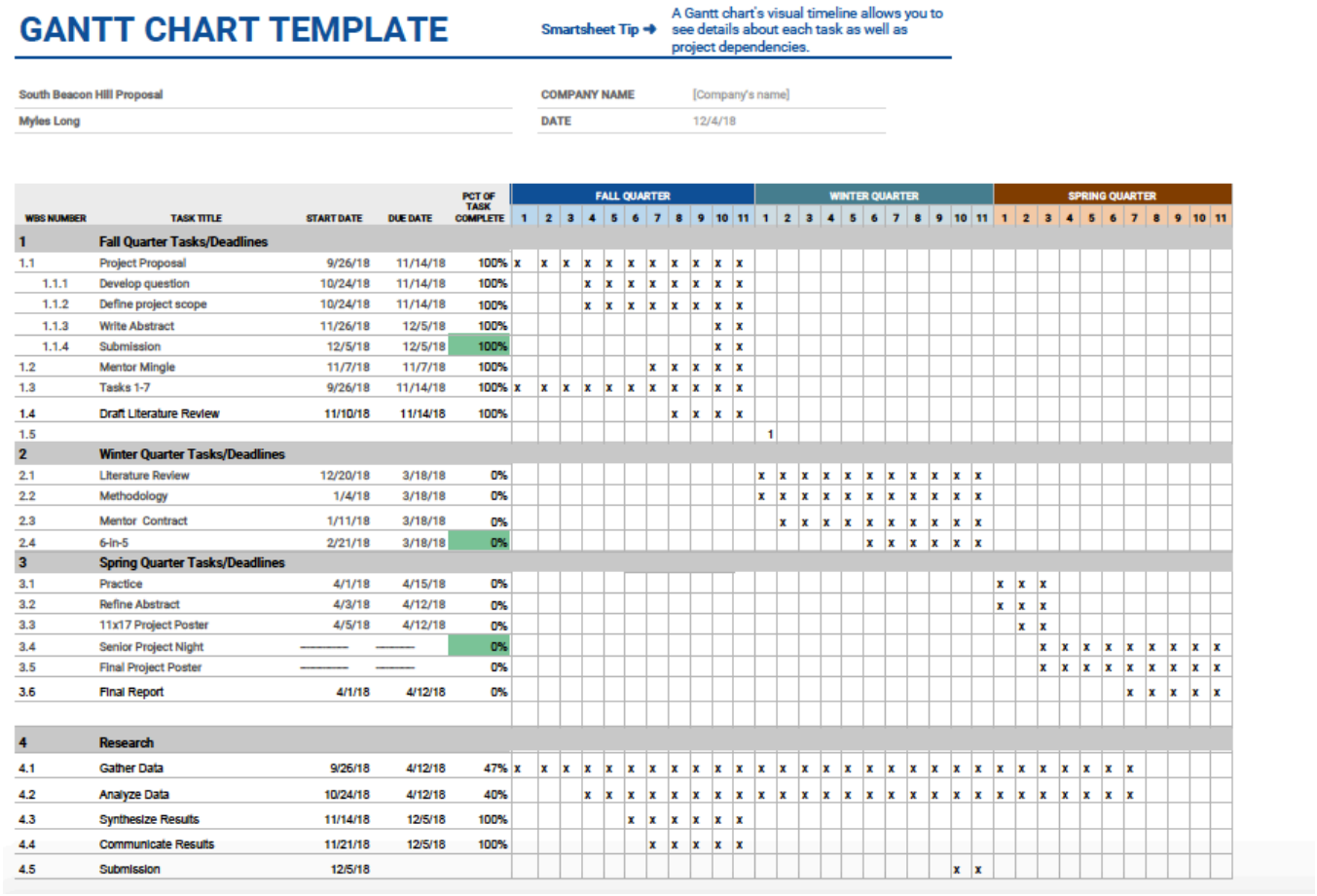
Benefits: This park in Turkey is next door to an event center. Serves as a primary placemaking establishment park for the pedestrians around. People walk this park, as well as play music, eat lunch. It gives the people in the area a place to be which has now activated a once under utilized mound.

CONCLUSION

In conclusion implementing a pathway through the East Duwamish Greenbelt in South Beacon will solve the lack of pedestrian accessibility surrounding South Beacon and the light rail station. Beacon Hill has neighborhood plans to expand bike lanes, add more housing, and increase with population now and well into the future. The pathway implementation will provide the residents with shorter commutes to the light rail station; increase transit ridership, which will lead to fewer cars on the road polluting the environment. In the literature review of this project I was able to discover other greenspaces in the world that were underutilized and redeveloped by adding urban pathways. The examples would be the Alexander Arch in Singapore, Park Jardin y Menendez in Barcelona, and Echo Techno Park in Turkey. The observation methods in this project enabled me to go out into the field and see how people interacted with the space. There were always people walking and running, waiting for the bus, sitting down at the park, or at the park playing. The maps created for this project give great visuals of the problem area, and the solution, which is vital to the understanding of the project. Moreover there have been challenges in this project such as language barriers during the community meetings. This was something I wasn't aware of heading into this project and have now realized; I have to be more aware of that when dealing with different cultures. I have learned a lot of history, and culture about this project through research and hands on experience, as well as ways to establish accessibility.

TIMELINE OF PROJECT

I used this Gant Chart to keep track of my process of this project throughout the 2018 year! I found this very helpful in keeping track of my progress, when I completed a goal during the week I would make an X through the boxes. This helped me stay organized with my project over the course of time.



GANTT CHART TEMPLATE

Smartsheet Tip → A Gantt chart's visual timeline allows you to see details about each task as well as project dependencies.

South Beacon Hill Proposal		COMPANY NAME	[Company's name]
Myles Long		DATE	12/4/18

WBS NUMBER	TASK TITLE	START DATE	DUE DATE	PCT OF TASK COMPLETE	FALL QUARTER										WINTER QUARTER										SPRING QUARTER									
					1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
1	**Fall Quarter Tasks/Deadlines**																																			
1.1	Project Proposal	9/26/18	11/14/18	100%	x	x	x	x	x	x	x	x	x	x	x																					
1.1.1	Develop question	10/24/18	11/14/18	100%				x	x	x	x	x	x	x	x																					
1.1.2	Define project scope	10/24/18	11/14/18	100%				x	x	x	x	x	x	x	x																					
1.1.3	Write Abstract	11/26/18	12/5/18	100%										x	x																					
1.1.4	Submission	12/5/18	12/5/18	100%										x	x																					
1.2	Mentor Mingle	11/7/18	11/7/18	100%							x	x	x	x	x																					
1.3	Tasks 1-7	9/26/18	11/14/18	100%	x	x	x	x	x	x	x	x	x	x	x																					
1.4	Draft Literature Review	11/10/18	11/14/18	100%								x	x	x	x																					
1.5																1																				
2	**Winter Quarter Tasks/Deadlines**																																			
2.1	Literature Review	12/20/18	3/18/18	0%												x	x	x	x	x	x	x	x	x	x											
2.2	Methodology	1/4/18	3/18/18	0%												x	x	x	x	x	x	x	x	x	x											
2.3	Mentor Contract	1/11/18	3/18/18	0%													x	x	x	x	x	x	x	x	x											
2.4	6-In-5	2/21/18	3/18/18	0%																	x	x	x	x	x											
3	**Spring Quarter Tasks/Deadlines**																																			
3.1	Practice	4/1/18	4/15/18	0%																							x	x	x							
3.2	Refine Abstract	4/3/18	4/12/18	0%																							x	x	x							
3.3	11x17 Project Poster	4/5/18	4/12/18	0%																								x	x							
3.4	Senior Project Night	————	———	0%																									x	x	x	x	x	x	x	x
3.5	Final Project Poster	————	———	0%																									x	x	x	x	x	x	x	x
3.6	Final Report	4/1/18	4/12/18	0%																												x	x	x	x	x
4	**Research**																																			
4.1	Gather Data	9/26/18	4/12/18	47%	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
4.2	Analyze Data	10/24/18	4/12/18	40%				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
4.3	Synthesize Results	11/14/18	12/5/18	100%						x	x	x	x	x	x																					
4.4	Communicate Results	11/21/18	12/5/18	100%							x	x	x	x	x																					
4.5	Submission	12/5/18																							x	x										

4	**Research**			
4.1	Gather Data	9/26/18	4/12/18	47%
4.2	Analyze Data	10/24/18	4/12/18	40%
4.3	Synthesize Results	11/14/18	12/5/18	100%
4.4	Communicate Results	11/21/18	12/5/18	100%
4.5	Submission	12/5/18		
5	**Mobility Maps**			
5.1	Create the mobility map	12/10/18	1/7/19	0%
	By creating the mobility map I will track the accessibility of the neighborhood.			

6	**Traffic Maps**			
6.1	Create the Traffic Map	12/10/18	1/7/19	0%
	By creating traffic maps I will be able to record the levels of traffic at different times of the day.			

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