



WORKOUT WHILE WAITING: INSTALLING FITNESS EQUIPMENT AT BUS SHELTERS

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COMMUNITY, ENVIRONMENT & PLANNING SENIOR PROJECT REPORT



Introduction

As more and more people move into Seattle for numerous reasons, the traffic gets worse and worse. It can take over an hour to get from Redmond to the University District in Seattle. Many people use public transportation to get places they need to be. What are people doing while they wait for their bus to pick them up? From personal experience, most people seem to be nothing but sitting down at the bus shelters and looking at their phones. Could there be a way to make use of open space around bus shelters so that people have the option to do something that would be beneficial to them? This project explores one way of using the space in the form of turning a bus shelter into a fitness zone, where exercise equipment is installed that people waiting for the bus can use.

Abstract

People in Seattle who use public transportation as their main mode of transportation accumulate a great amount of time waiting for public transit. Seattle's adult obesity rate has also nearly tripled since 1990. Could one solution to Seattle's obesity problem be found in the waiting time of bus riders? This project examines the feasibility of turning bus shelters into exercise zones. Specifically, this project was designed first to gauge interest of having simple and accessible exercise equipment installed at a University of Washington station bus stop, and, second, to find out which equipment passengers would want to see installed. This project required research on health, exercise, and bus ridership, as well as looking at case studies, surveying bus riders, and surveying gym users at the UW Intramural Activities Building. 80% of the people surveyed for this project were in favor of installing exercise equipment, and the two most popular devices people wanted were a pull up bar and assisted rowing and pushup

machines. Findings from this research are summarized in a report that also includes a series of recommendations and next steps.

Methodology

I have gained knowledge on topics such as health, exercise, transportation and bus ridership, by doing research for my project idea. I have looked at different case studies that include Seattle Fitness Zones and Reebok's "The Gym is Everywhere" campaign, and cases in both Mexico and Russia implementing a squat sensor that allows exercise for fare, in order to prepare recommendations in a report. All case studies involve exercise equipment being installed in outdoor public areas. I analyzed these case studies to be able to put forth recommendations for possibly implementing my project. The bus shelter location I chose to complete the study at is located on NE Pacific St & Montlake Blvd NE (UW Station by UW Hospital). I chose this certain bus shelter location due to the high usage it gets, as it is right on the campus of the University of Washington and also next to the University light rail station as well as the Intramural Activities Building. I went to this location and observed people waiting for the bus to get a feel for what people are doing while waiting. After researching the case studies, I came up with a list of possible equipment items to be placed as options in my survey. Then, I surveyed bus riders at the UW Station bus shelter to find out 1.) If they would like to see workout equipment installed at the bus shelter/do they think that they would use the equipment if installed. 2.) What type of equipment would they want to see? I also went to the Intramural Activities Building here at the University of Washington to give the same survey to gym-goers. At this point, I had acquired survey information on which equipment people would like to see installed at bus stops. In total, I surveyed 40 different people. Next, I compiled this data into

charts to better visualize the information. After seeing the top answers, I researched more into the benefits, possible exercises, and general cost of each top answer. Lastly, I compiled everything into a short report showing survey results, data on top results such as health value, cost to install, and possible exercises available.

WORKOUT WHILE WAITING SURVEY

1. Would you be interested in having simple and accessible equipment (from the list below) be installed at the UW station bus shelter?

- Elliptical machine
- Cardio stepper with adjustable resistance
- Step machine
- Chest and back press
- Squat press
- Pull-up and dip
- Assisted row and push-up
- Abdominal crunch and leg lift

2. If yes to answer 1., which two equipment would you most be interested in?



Literature Review

Case Studies

I began by looking into exercise equipment being installed in some irregular places other than gyms. One example of this is Reebok's campaign, The Gym is Everywhere. For part of this campaign, Reebok, along with JCDecaux Columbia, turned six bus shelters in Bogotá and Cali, Columbia into pop-up gym stations that included pull-up bars, stairs and other pieces of fitness equipment, making it easy for commuters to squeeze in a workout while waiting for the local transportation to arrive. An article about this campaign titled *Reebok Transformed Bus Stop Ads into Temporary Outdoor Gyms*, authored by Laura McQuarrie in 2016, states that "an increase in healthy and active living has resulted in the installation of many outdoor gyms in locations around the world." There is a trend that we are beginning to see and that is the want for being healthy and active. This trend can be seen in different parts of the world. *Moscow Subway Station Lets Passengers Pay in Squats*, written by Andrew Bender in 2013, explains how "passengers can vie to pay their fare [for the Vystavochaya Subway] in exercise." Instead of achieving the subway fare the standard way with money, a ticket machine with a special squat sensor allowed riders to attempt to do at least 30 squats in under two minutes to get a free ticket. For those who complete the 30 squats, they achieve a sense of personal satisfaction and sometimes cheers from bystanders. This positive reinforcement to exercising might lead to people choosing to be healthier in other parts of their life. The article also states that according to the Russian Olympic Committee, there is a very strong enthusiasm towards the alternative, healthier option to receiving the ticket fare. This squat for ticket fare approach can also be seen happening in Mexico. An article written in 2015 by Kate Carter titled, *Mexico's latest way to beat the obesity epidemic: make commuters do squats for free subway tickets*, begins by stating

“In 2013, Mexico squeezed past the United States to become one of the fattest nations on the planet – with 32.8% of the population classified as obese, according to a UN report.” The Mexican government installed 30 motion-sensitive machines at subway stations, similar to the case in Russia, where commuters can complete 10 squats (rather than 30 in Russia) to receive a free ticket. The article mentions that while 10 squats a day is unlikely to burn a great number of calories, the government’s hope is to “start a virtuous circle.” Similar to what was mentioned for the Russia case, by doing the 10 squats, it might lead to making healthier decisions such as taking the stairs instead of the elevator or escalator. A snowball effect, if you will. A study done in 2008 titled *Financial Incentive-Based Approaches for Weight Loss: A Randomized Trial*, by Kevin G. Volpp, Leslie K. John, Andrea B. Troxel, et al, came out with the conclusion “the use of economic incentives produced significant weight loss during the 16 weeks of intervention that was not fully sustained” meaning the attempts by these countries to try and become healthier could be successful. If we narrow the search to Seattle, Washington, we can still see exercise equipment in places other than the ideal gym enclosed with walls and a roof. According to the City of Seattle website, “Outdoor exercise equipment can be found at these parks: Atlantic Street Park, Bitter Lake Reservoir Open Space, Delridge Community Center, Georgetown Playfield, Hiawatha Community Center, Hing Hay Park, Hubbard Homestead, John C. Little, Sr. Park, Montlake Community Center, Powell Barnett Park, Rainier Beach Playfield Play Area, Sam Smith Park, University Playground, Van Asselt Community Center.” Between 2018 and 2020, equipment is to be installed also in Brighton Playfield, Georgetown Playfield, North Rainier Landbanked Site, and Pratt Park. Seattle Parks and Recreation, The Trust for Public Land, The Seattle Parks Foundation, and MOMentum all worked together to bring these free outdoor gyms, which are called Fitness Zone areas, to parks in Seattle. Every Fitness zone is equipped with “top

quality, durable exercise equipment appropriate for teens and adults of all levels of fitness.”

Fitness zones are not just a Seattle entity. They can be found across the United States of America in places such as California, Colorado, Florida and New Jersey. A Seattle fitness areas brochure also can be found on the City of Seattle website, stating that the “Parks include a mix of these types of equipment: Elliptical machine, cardio stepper with adjustable, resistance, step machine, chest and back press, squat press, pull-up and dip, assisted row and push-up, abdominal crunch and leg lift.” These sources and research show not only that having equipment installed in outdoor places, is possible, but also that having equipment installed at bus shelters is also possible. After observing and studying the bus shelters at NE Pacific St and Montlake Blvd NE, I would even say that there is plenty of space for some of the simple fitness equipment that is seen in these sources.

Bus Statistics

The next big topic in for my senior project has to do with bus statistics. This includes data such as wait times for the bus, public transportation satisfaction, as well as my personal observations of subjects who are waiting for the bus at the NE Pacific St and Montlake Blvd NE bus shelter. According to the King County METRO website, “Metro’s ridership was up 0.6% compared with 2016. Total ridership on KCM-operated services (Metro + KCM-operated STX + Link) increased 3.2% over 2016.” On the same website you can find the statement “The Seattle area had the second highest total transit growth among all large U.S. metropolitan areas in 2017, and had the highest in 2016.” Both of these statistics show the increase in usage as well as the heavy usage of public transportation in Seattle. With more and more people continuing to take public transportation, the opportunity for exercise equipment to be used is increased. Something

else that can be found on the King County METRO website is a graph titled *Average Weekday Transit Boardings*, that clearly increases in boardings from 2017 to 2018. A 2014 article, found on the METRO: For Transit & Motorcoach Business website, titled *U.S. commuters wait approximately 40 mins. a day for public transit*, writes about a report by a leading public transit app called Moovit. New York City, Los Angeles, Boston, San Francisco and Chicago were all cities that the report took data from. While Seattle was not one of the chosen cities for this study, I feel as though all the before mentioned cities along with Seattle, are major cities. The report states, “People in major U.S. cities wait approximately 40 minutes per day for public transit, costing them 150 hours per year.” It also states “This accounts for 31% of their commute time.” This article does a strong job showing details from the report. The report has a humorous section titled *The Waiting is the Hardest Part*, that talks about the relationship between the long waits and the dissatisfaction with public transit of the people who were surveyed in the five major cities. The report states that “31% of the people surveyed [were] dissatisfied with public transportation.” The average person commuting by public transport in those five cities has 40 minutes of spare time while waiting for the bus. When I went and observed the bus shelters at NE Pacific St. & Montlake Blvd NE, one thing I wanted to look at was what people waiting for the bus were doing. The number one most common thing that people were doing while waiting for the bus might seem easy to guess. A very high percentage of people waiting for the bus were either sitting while playing on their phone, or standing still while playing on their phone. To add on to that, almost every person who was not playing on their phone was staring off into space. I saw very little to no social interactions happening. People were very quiet and non-social while waiting for public transportation. From my observations, I would conclude that the majority of people waiting for the bus seemed bored, impatient and fidgety. Some people either shaking their

leg repeatedly or somewhat wading back and forth in place. The wait times were long enough to permit some of the waiters to do some effective physical exercise. An experiment was done with college students riding public transit to UCLA were presented with the choice to either pay 75 cents to travel right away, or wait an average of 5.3 minutes for a free ride. The report for the experiment titled *Waiting for the Bus*, states that “Eighty-six percent of riders chose to wait rather than pay. Their behavior suggests that the disutility of time spent waiting for a free ride is less than \$8.50 per hour” (Hess, Daniel B., et al. 2004). The results of this experiment show that people would rather wait longer for the bus to arrive than pay to travel right away. This idea, combined with the idea that people are waiting long times for public transit, makes me believe that installing exercise equipment, again, is a great idea. People don’t want to pay more for the bus to arrive right away. They would rather wait, but while they wait, they seem bored. By installing exercise equipment, those who are waiting would be presented with the option of something to do, other than play on their phone, or just sit and stare. One gentleman waiting for the bus at NE Pacific St & Montlake Blvd NE, told me that he plays on his phone because there is nothing else to do and that he thinks those are the thoughts of most people waiting for the bus.

Health

The next large topic in my senior project is health. My first source in the topic is *The State of Obesity in Washington* website, which is ran by the Robert Wood Johnson Foundation. One fact from the website states that “Washington has the 13th lowest adult obesity rate in the nation, and the third lowest obesity rate for youth ages 10 to 17” (Robert Wood Johnson Foundation, 2017). Compared with the rest of the nation, Washington ranks towards the less obese side. This paints Washington in good light, but the same website states that “Washington’s

adult obesity rate is currently 27.7%, up from 18.4% in 2000 and from 10.1% in 1990” (Robert Wood Johnson Foundation, 2017). So while it is true that Washington is less obese than most states in the United States of America, it is also true that Washington’s obesity rate has been rising since 1990 to 2017.

Public Space

Lastly, I looked into public space and inclusion through access to public space. What is a public space? According to an article titled *Inclusion Through Access to Public Space*, “A public space refers to an area or place that is open and accessible to all peoples, regardless of gender, race, ethnicity, age or socio-economic level” (UNESCO). Well-designed public spaces allow for social mixing, civic participation, recreation, and a sense of belonging.

Results and Lessons learned

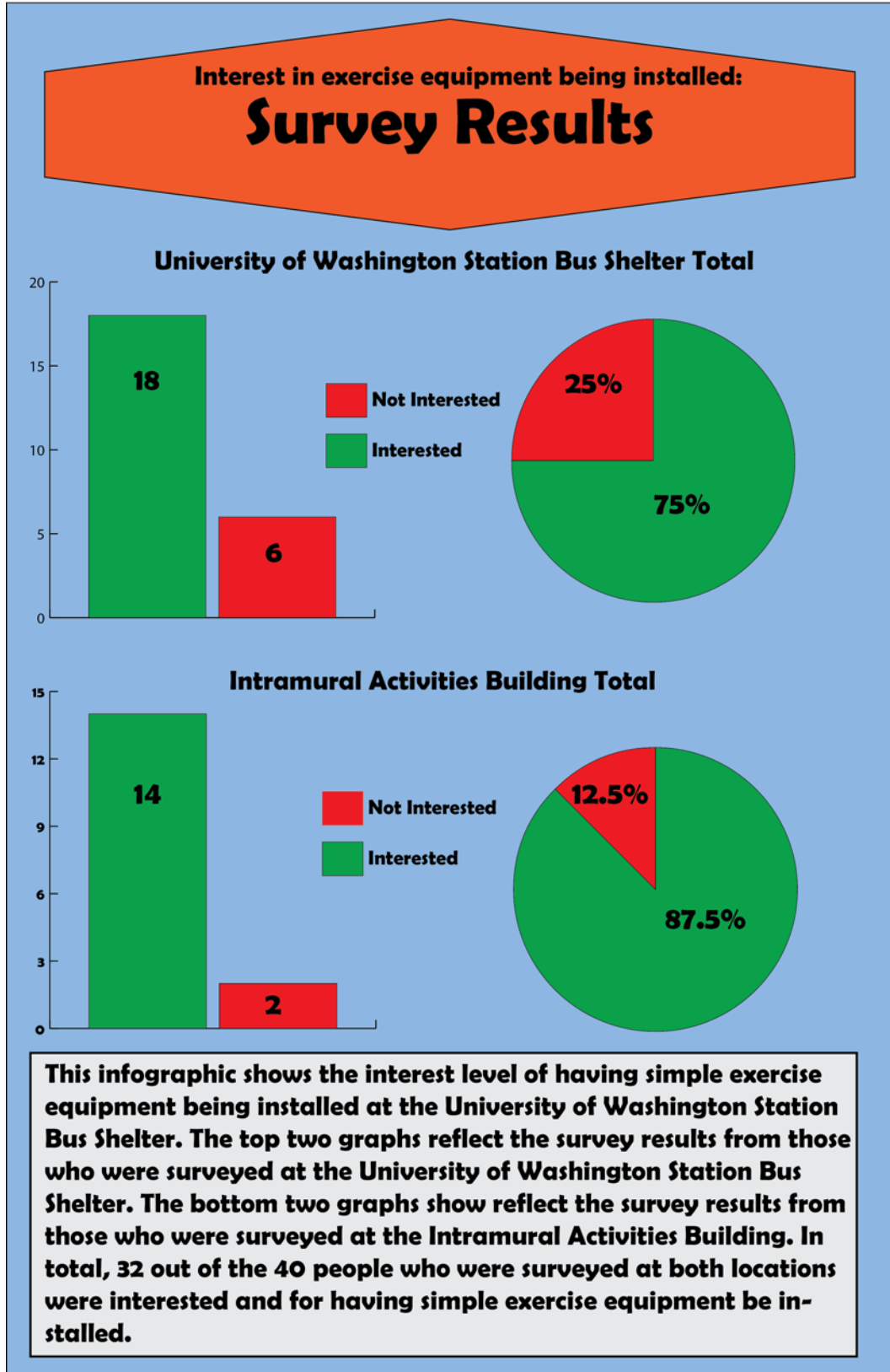
Surveys

- Initial survey results from February showed less interest than expected. I believe that this was due to the poor weather.
- Secondary results from March and April showed a significantly higher level of interest
- Totals:

UW Station Bus Shelter Total		
Interested	Not Interested	Percentage Interested
18	6	75% (18/24)
UW Station Bus Shelter Winter		
Interested	Not Interested	Percentage Interested
6	4	60% (6/10)
UW Station Bus Shelter Spring		
Interested	Not Interested	Percentage Interested
12	2	85.7% (12/14)

Intramural Activities Building Total		
Interested	Not Interested	Percentage Interested
14	2	87.5% (14/16)

Survey Results shown as charts



In total, 32 out of 40 people surveyed were in favor and would use the equipment if it was an option for them. That is 80%. From the people who I surveyed at the Intramurals Activities Building, 14 out of 16, or 87.5% were in favor and would use the equipment if it was an option for them. 18 out of 24 of the people surveyed at the UW Station bus shelters were in favor and would use the equipment if it was an option for them.

Observations

The most common thing that I saw during my observations was people using their phones. Many people were either just sitting down or standing up, looking around off into the distance or at their phone. The only type of physical activity would be the ones sitting down and fidgeting their legs while they wait. The overall moods that I sensed from my observations were quiet, bored, non-social, non-talkative, impatient and fidgety.

Benefits of Popular Equipment

The two most selected pieces of equipment from the survey results were the assisted row/push-up machine and the pull-up and dip bar. Both pieces of equipment have been seen installed at outdoor locations, including fitness zones at parks around Seattle. Benefits of the assisted row/push-up machine include that it strengthens upper back, lower back, shoulders, biceps, and forearms. It improves cardiovascular fitness and flexibility. Lastly, it reduces stress. Benefits of the pull-up and dip bar include that it helps build muscle, helps burn fat, strengthens several muscles such as biceps and back and it improves posture. The pull-up and dip bar pricing starts around \$100, but this does not include the price of installation. The price for the assisted

row and push-up machine starts around \$150, but again this does not include the price of installation which would raise the price.

From this project, I learned that the interest level for simple and accessible equipment to be installed at the UW station bus shelters is high, from both bus passengers and UW IMA gym goers. One big takeaway is that the usage of the equipment could possibly be less during colder months, as the people who I surveyed during Winter had a lower level of interest than those surveyed during Spring. From this project, I also learned that installing fitness equipment at the bus shelters is not the most accessible option. Due to this last fact, I think it makes sense to explore different options of using the space next to the University of Washington Station bus shelters. While the project findings were not exactly what I was hoping for, they still show the possibility for the unused space next to the bus shelters at UW Station to be filled with a beneficial item to the users of the public space.

Next Steps and Reflection

Now that I am nearing graduation here at the University of Washington, I have been working on this project for an entire school year. It has been a huge process through Fall, Winter and now Spring. After completing this portion of the project, I believe that a next step would be to look into finding other, more accessible to all users of the public space, options to be implemented into the space next to the University of Washington Station Bus shelters. This summer I will be working with the City of Carnation Planning Department. I am going to pitch the idea of setting up a 1-day event, or potentially longer, where equipment is brought in to a small, flat park that currently has no use. Turning this unused park into a fitness zone could be

used for events. The Sno-Valley Senior Center is extremely close to the park as well so it's possible that they would sponsor an outdoor fitness zone session. As of right now it is just a speculation but once I start working fulltime again, I will start the attempt. My found knowledge on what makes a successful public space will help me create other ideas other than fitness zones that could benefit the public at a higher level.

In reflection on the project, if I'm being honest, I wish I would have selected a different project at the beginning of the entire process in Fall 2018. When first selecting what to do for my senior project, I thought long and hard about potential options, but there were none that I was extremely excited or passionate about. From this, I landed with my first project idea and started the quarter working on assignments with that project in mind. Late in Fall quarter, with guidance from the instructors, it was decided that this project would not be feasible in the constraints of time. Also with the help of the instructors, we came up with the current project idea of creating fitness zones at the UW Station bus shelters. I then started working on assignments with the current project idea in mind. It eventually got to the point where I felt like it was too late for me to try and completely pivot and start over with a new project idea. I stuck with it but it wasn't a very exciting idea for me, so I was not extremely passionate about it unfortunately.

Overall though completing a major project like this that lasted an entire year really helped me grow as a professional and will certainly help me in my future career.

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