

# Outdoor Sink

## Safe Parking Program at Lake Washington United Methodist Church

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A Grand Challenges Impact Lab Project



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## **Executive Summary**

People experiencing homelessness are faced with many challenges. They lack basic human needs for survival, such as shelter, food, and water. When the COVID-19 pandemic hit Seattle, businesses and other public buildings started shutting down<sup>1</sup> one by one as COVID-19 cases started increasing in the city. Since Seattle lacks public restroom facilities<sup>1</sup>, the pandemic made it more difficult for the homelessness community to find access to water since they relied on these public spaces in order to access sinks and restroom facilities for drinking water and personal hygiene. This is one of the many issues that residents at the SafeParking program at Lake Washington United Methodist Church are experiencing.

## **What is the Problem?**

The main problem we are tackling for the SafeParking program is the lack of access to clean running water for program residents to use for hand washing and for drinking water. There is not an outdoor sink to currently exist for the residents to use at night, and they cannot go inside the church to use the restroom facilities during the days where the building is closed as church hours are limited to Monday to Friday from 9:00AM to 3:00PM. The church is also closed on the weekends because of the shift to virtual church services.

Major publications like the Seattle Times have made several reports on the lack of outdoor sinks for the city's homelessness community. Sydney Brownstone, a frequent reporter of the city's homelessness crisis, reported that unlike LA or San Diego which both have constructed handwashing stations all over their city, Seattle lacks these mobile tools.<sup>3</sup> This was also the immediate problem that SafeParking had shared with us, and program residents have expressed concerns during our meetings and interviews with them. Everyone should have access to safe and clean water.

COVID-19 has exacerbated the inaccessibility of water for the residents as church hours are limited due to pandemic restrictions. This global pandemic has highlighted the importance of handwashing in order to protect individuals and the community from virus transmission.<sup>2</sup> The absence of a handwashing station for the residents makes it difficult for them to maintain personal hygiene. It also increases the risk of exposing themselves to COVID-19. In addition; our bodies are made up of about 60% water so chronic dehydration, especially during the summer months, can lead to negative health outcomes such as fatigue, high blood pressure, and arthritis.<sup>4</sup>

## **Who is our Customer?**

The main beneficiary of our project are the residents of the Safe Parking program at the Lake Washington Methodist Church. The residents are typically women and families who are living in cars experiencing housing insecurity. The length of stay for each vehicle varies with some being a day and others being months. There are circumstances in which some stay because they missed the ferry. They utilize the parking lot and the church resources without the fear of harassment or fines.

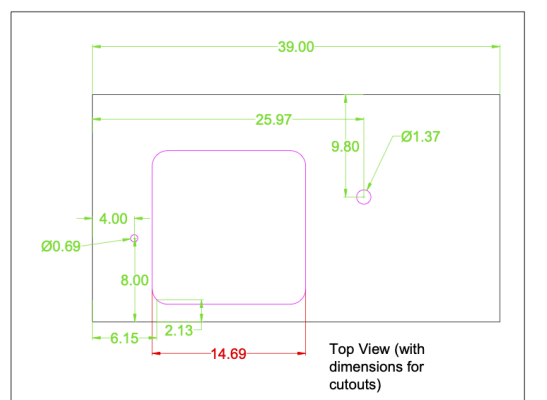
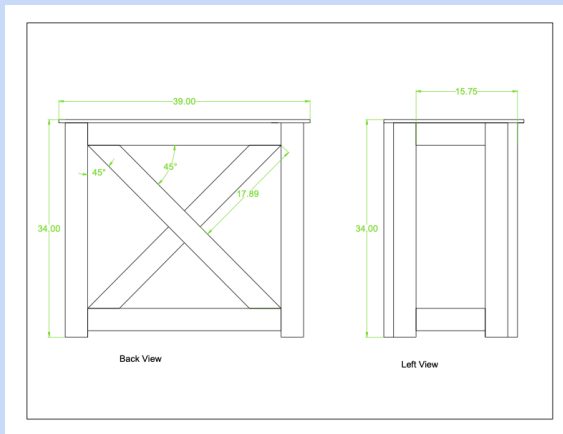
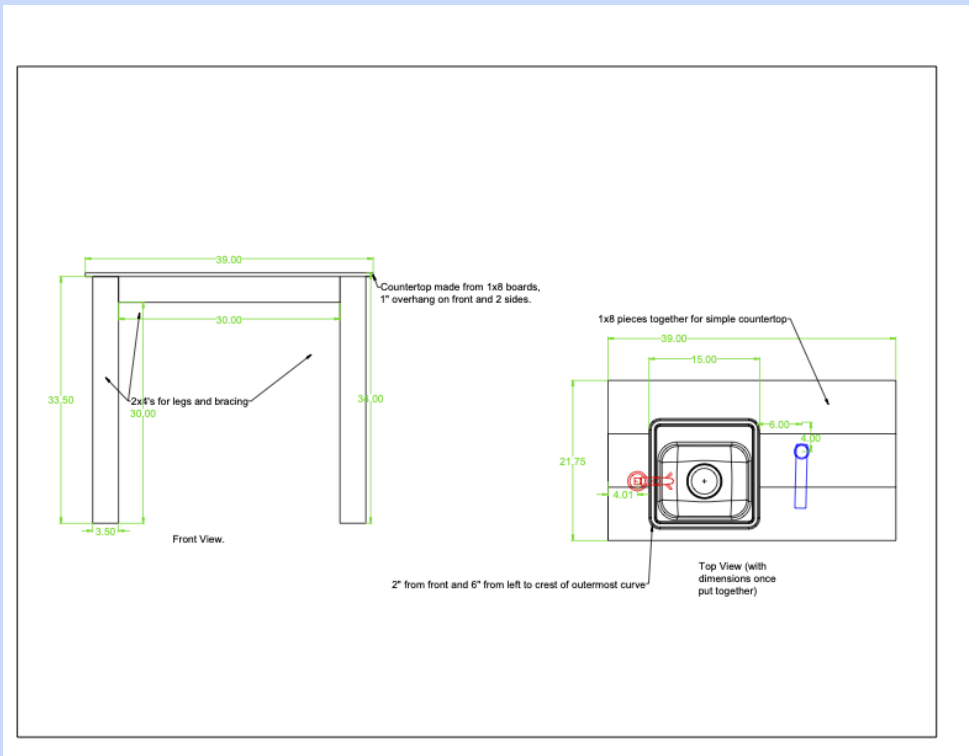
However, the solution is outside, so it is open for the churchgoers and the pre-school students and staff. There is a preschool that shares the property with the Lake Washington Methodist Church. The residents face this issue because the church closes for long periods of time which cuts them off from indoor water sources.

Sanitation has been an occurring issue, especially within the homelessness community. We were able to interview the residents of the Safe Parking program to ask if they thought sanitation and water access was a problem. There have been inputs in which some were dehydrated over the night and during the hot summers. Some could not wash their hands after gardening and they had dirt or feces on their hands. This shows this is an issue because it is affecting their daily lifestyle. The residents were not able to solve this problem because they might not necessarily have the resources to build a facility for sanitation and they might have other urgent priorities to deal with. Also, they do have ways to combat this issue such as using public facilities or hand sanitizer. However, hand sanitizer is not equivalent to running water. Also, public facilities are not always reliable, especially during the pandemic.

## **What is our Solution?**

Our solution is to build a hand washing station with a water spigot for filling water containers. The hand washing station will include an auto shutoff one button faucet with adjustable temperature, an electric hand dryer, a sink with a 5 in. deep basin, and soap dispenser. The sink will be installed in a table so that users of the hand washing station can set items down while they are using the sink. A water spigot is also included in our solution so that guests of the Safe Parking program can fill water containers whenever they want. The sink is made from stainless steel to provide a sturdy material that is easy to clean and requires little maintenance. The table is designed to be as simple as possible to allow for easy construction, as well as being built to allow for the sink to be ADA accessible. Under the table, the water pipes will be wrapped in heat tape and styrofoam insulation to prevent the pipes from freezing. On the ground under the sink a non-slip rubber mat will be placed to prevent users of the sink from slipping while washing their

hands. In order to prevent rain from falling on people as they use the hand washing station and debris or organic material from falling into the sink basin, an awning over the station is included in our solution. Since the sink is located in a dark area of the parking lot an overhead light with a motion sensor switch so the light turns on when the sink is in use. In order to prevent the light from disturbing people sleeping in the parking lot the light is dark sky compliant and shines straight down reducing the spread as much as possible.



After completing an initial design we discussed our proposed solution with members of the safe parking program, our advisor at the church, an electrician, and a plumber. The feedback we received was very helpful in targeting issues we had overlooked. Changes that came from the feedback we received includes, making sure the sink was ADA compliant, adding heat tape to the pipes, making sure the light shined straight down, making the sink basin shallower, and making sure to find a faucet with adjustable temperature.

## What are the Next Steps?

### Financial Security:

Although the Church that is home to the Safe Parking program has indicated they do not need solutions for the cost of this sink station, we still suggest the following should costs need to be covered for the continued maintenance required.

A metal money deposit box mounted on the wall near the sink station with labels indicating it is a donation deposit box. The following image is an example sign that could be posted. A full size version of this is included in the appendix.



Excluding the upfront cost of construction, the sink station will be relatively inexpensive to maintain. The primary maintenance costs will be electricity, water usage, and soap. As such, we believe that operating solely off of donations is plausible.

For the upfront construction costs, the approximate cost of each appliance is included in the chart under the Complete Supply List in the appendix. The total based on those, which includes the sink, drain, faucet, water bottle filler, hand dryer, soap dispenser, outdoor lighting fixture, heat tape and awning, is approximately \$2,250. Woodworking costs will depend on the choice of wood, carpenter and detail level. Similarly, there will be additional costs associated with the permitting process. Both of these costs can range from under a hundred dollars to several hundred dollars.

**Construction:**

In order to begin construction of the sink station, several key things still need to be done. The plumbing and electrical work for the water, drainage, hand dryer, and outdoor lighting require permits from the City of Kirkland. These applications can be done by a representative of the Church or an engineer representing the Church.

The application site can be found here: <https://epermit.mybuildingpermit.com/Default>

The inspection checklists can be found here:  
<https://mybuildingpermit.com/inspection-checklist>

The information on expected permit fees can be found here:  
<https://www.kirklandwa.gov/Government/Departments/Planning-and-Building/Building-Services/Building-Services-Fees>

While one of the trustees has indicated they intend to complete the plumbing and electrical work themselves, our team verified that the work can be completed with a local plumber. Our team was reassured that there should be no issues with the design.

Regarding the table for the sink station, there is still a need for an individual that can build the bench. The proposed design for the bench has been laid out, with the most important aspects being its ADA compliance in proportions, simple design for cost efficiency, and custom cutouts for the appliances. The table should be constructable by anyone with intermediate carpentry skills, or any professional woodworker.

We recommend using a local woodworker to construct the tabletop vanity to house the sink, barring a community member having the skills to construct it on their own.

Several good options in the area are:

*EW Custom Woodworking* in Sammamish: <https://ewcustomwoodworking.com/>

Their work has a large range, and they have experience with outdoor furniture.

*ISN Carpentry* in Kirkland: <http://isncarpentry.com/>

Their work is largely custom furniture built to fit the exact needs of the space you need.

Additionally, our team recommends the use of an “Intended Uses” poster. An example, shown below, explains the approved uses for the sink station, and highlights a couple uses we hope to avoid. A full size of this is included in the Appendix.



### Test it out:

Following the construction of the sink station, our group recommends the use of qualitative interviews for monitoring the effectiveness of this solution. The organization has not contributed any demographic information to the national database, the HMIS (Homeless Management Information System), nor is there recorded information on their guests. As such, a data-based approach would not work for them. However, through the use of qualitative interviews, the felt impact of the sink station can be gauged. Recommended interview questions are pictured below, with the full pdf included in the Appendix. Included in these questions is a short answer form, with questions that simply ask for number answers from a scale of 1-10. The intention of these is to provide values that can be evaluated and used for analysis. The other form includes questions that require written or verbal answers that are useful for explanations of the short answers.

<p><b>Interview Questionnaire:</b></p> <hr/> <p>Hello, thank you for being willing to share your experiences with us. Our goal in asking these questions is to determine the experienced benefit of the new outdoor sink station. Please feel free to decline to answer any question, or pause or stop the interview for any reason.</p> <p>The following questions are intended to be answered using a scale of 1-10. 10 will indicate “Very strongly Agree” and 1 will indicate “Very strongly Disagree” unless otherwise stated.</p> <hr/> <ul style="list-style-type: none"> <li>• I wash my hands more than I used to:</li> <li>• I am dehydrated/thirsty less than I used to be:</li> <li>• I use fewer disposable water bottles than I used to:</li> <li>• I am sick less often than I used to get:</li> <li>• I am more comfortable than previously:</li> <li>• It is easier for me to get ready for work/school the day in the morning:</li> <li>• It is easier for me to get ready to sleep in the evening:</li> <li>• I am less stressed about hygiene than I was previously:</li> </ul>	<p><b>Interview Questionnaire:</b></p> <hr/> <p>Hello, thank you for being willing to share your experiences with us. Our goal in asking these questions is to determine the experienced benefit of the new outdoor sink station. Please feel free to decline to answer any question, or pause or stop the interview for any reason.</p> <p>The following questions are intended to better understand the numerical answers you gave to the previous questions.</p> <hr/> <ul style="list-style-type: none"> <li>• What changes in hand-washing habits have you noticed after having access to the sink station? Do you find yourself washing your hands more frequently, or approximately the same?</li> <li>• What do you use the sink for most frequently? Prior to the outdoor sink, how did you complete these things (indoor sinks while open, other bathrooms, hand-sanitizer, etc.)?</li> <li>• How would you describe your hydration before the sink was installed, and would you say that it is different or the same now? If different, how so?</li> <li>• How has having access to the sink station changed your habits with regards to drinking water? Do you find yourself using reusable water bottles more, or disposable ones less?</li> <li>• Has having the sink station alleviated any stress in your life? How so, or what aspects of your life does this effect?</li> <li>• Do you have any other comments, concerns or thoughts about the sink station that you would be willing to share?</li> </ul>
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## Sources

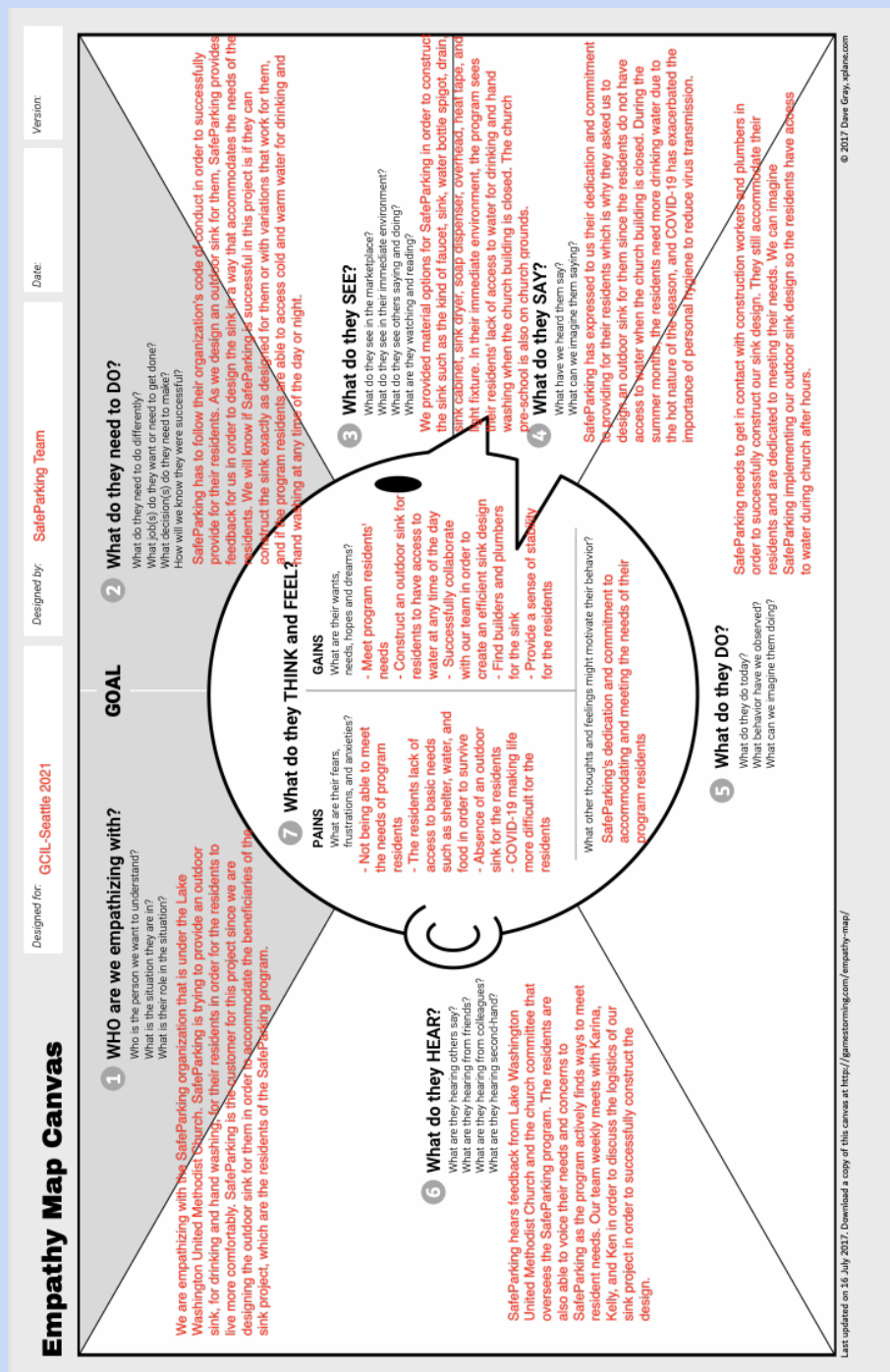
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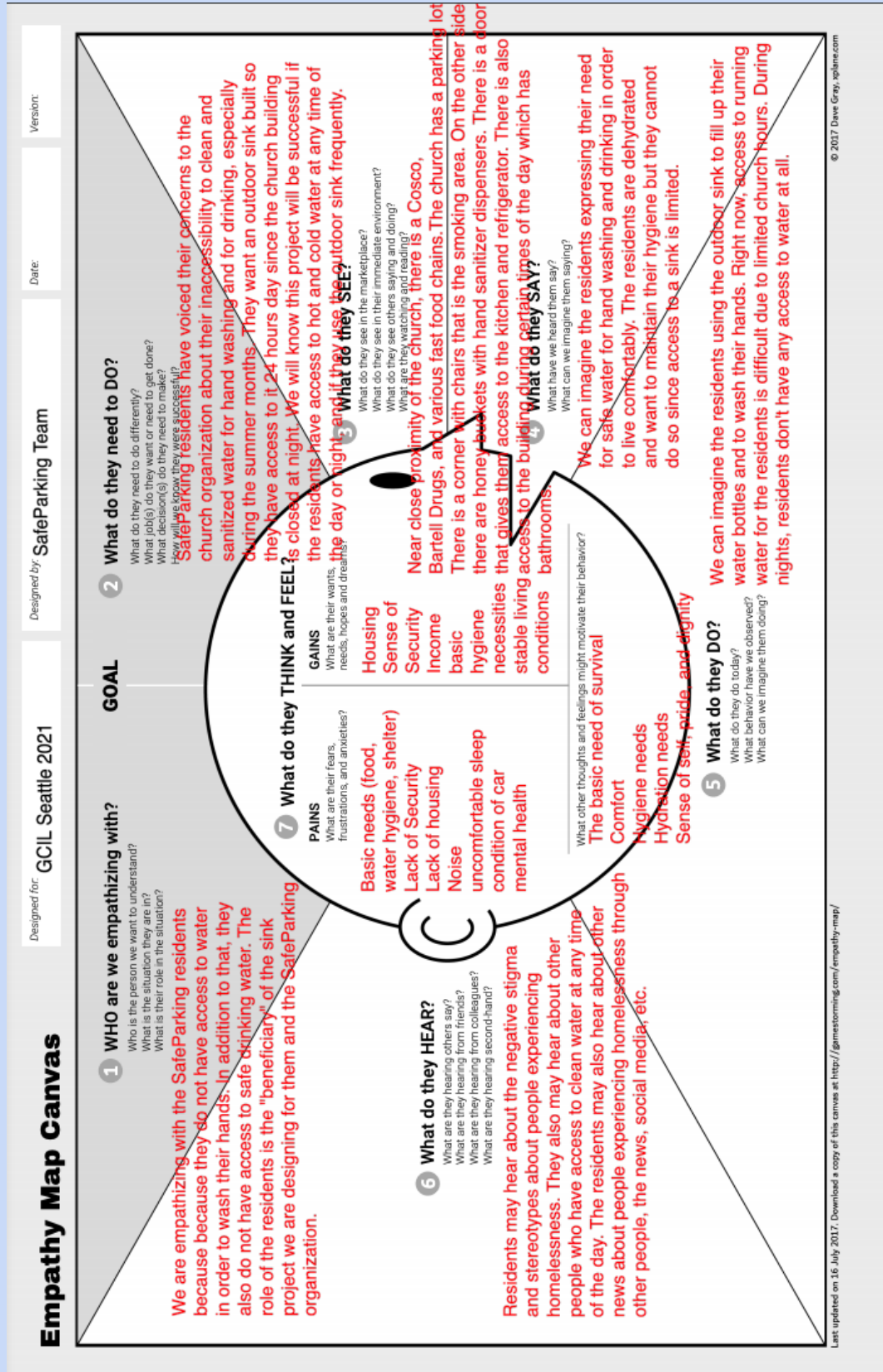
# Appendix

## Empathy Map

We have created two Empathy Maps, one for the Safe Parking organization and one for the Residents themselves.

Organization Map:





## Theory of Change Model

### 1. What is the problem you are trying to solve?

There is a lack of access to sanitation, hot water, and drinking water outside the facility when the facility is locked.

#### a. Key assumptions:

- i. That the demand is there for water during these evening hours and that it will be used.
- ii. Access to hot and cold water is essential.
- iii. Residents do not have access to a handwashing sink
- iv. Residents do not have access to a stable supply of drinking water

### 2. Who is your key audience?

The residents of the Safe Parking program. They are vehicular residents, typically women and families.

#### a. Key assumptions:

- i. ADA compliant, families (different heights), freezing/weathering of the materials, needs to be adequate lighting, some have a habit of stuffing things down the drain which would affect the design of the sink. We also do assume other church members and broad community members may use the sink, but our primary target population are the residents of the Safe Parking program.

### 3. What is your entry point to reaching your audience?

We attended the monthly meeting to introduce ourselves, the project, and for feedback. Karina has also been a great point of contact to gain more information as well as connections. Kelly has been a strong representative for the residents, and Arden and Ken have been the spokesperson for the trustees/the interests of the church.

#### a. Key assumptions:

- i. Not everyone shows up to the meeting
- ii. That the people that showed up fully represent all residents, that those willing to speak with us is not a skewed representation.

### 4. What steps are needed to bring about change?

There needs to be a prototype or design solidified and approved by the Safe Parking program. We have decided to design an outdoor sink. We have talked to stakeholders to gain feedback.

#### a. What is the measurable effect of your work?

Resident satisfaction- We could do surveys to gain a better understanding of their feelings towards the outcome

- i. **Wider benefit:** Able to get feedback and ways the sink station can be improved from the community we are serving, learn how to better serve SafeParking residents and their needs. Additionally, it would provide a

great resource if other programs opted to implement a similar design/sink.

- ii. **Key assumption:** The sink can be improved if residents can provide feedback on ways to do so and how it can further be customized to meet their needs. Also, people are open to taking surveys.

**b. Measurable effect?**

Water usage- We can check water usage to see how much residents are using. Does the water bill reflect a change in quantity used between before and after implementation.

- i. **Wider benefit:** We can see how much water the program uses which would replace the major use of hand sanitizer. Having access to running water could improve sanitation. If we know how much more water is used than we can better estimate the frequency of using running water to clean hands versus hand sanitizer.
- ii. **Key assumption:** The water is used for intended purposes (handwashing and filling water bottles) only to accurately measure its usage. Because there are other uses, we will not know and this measurement would simply be an estimation.

**c. Measurable effect?**

The number of people who use it-either by counting the number or surveying

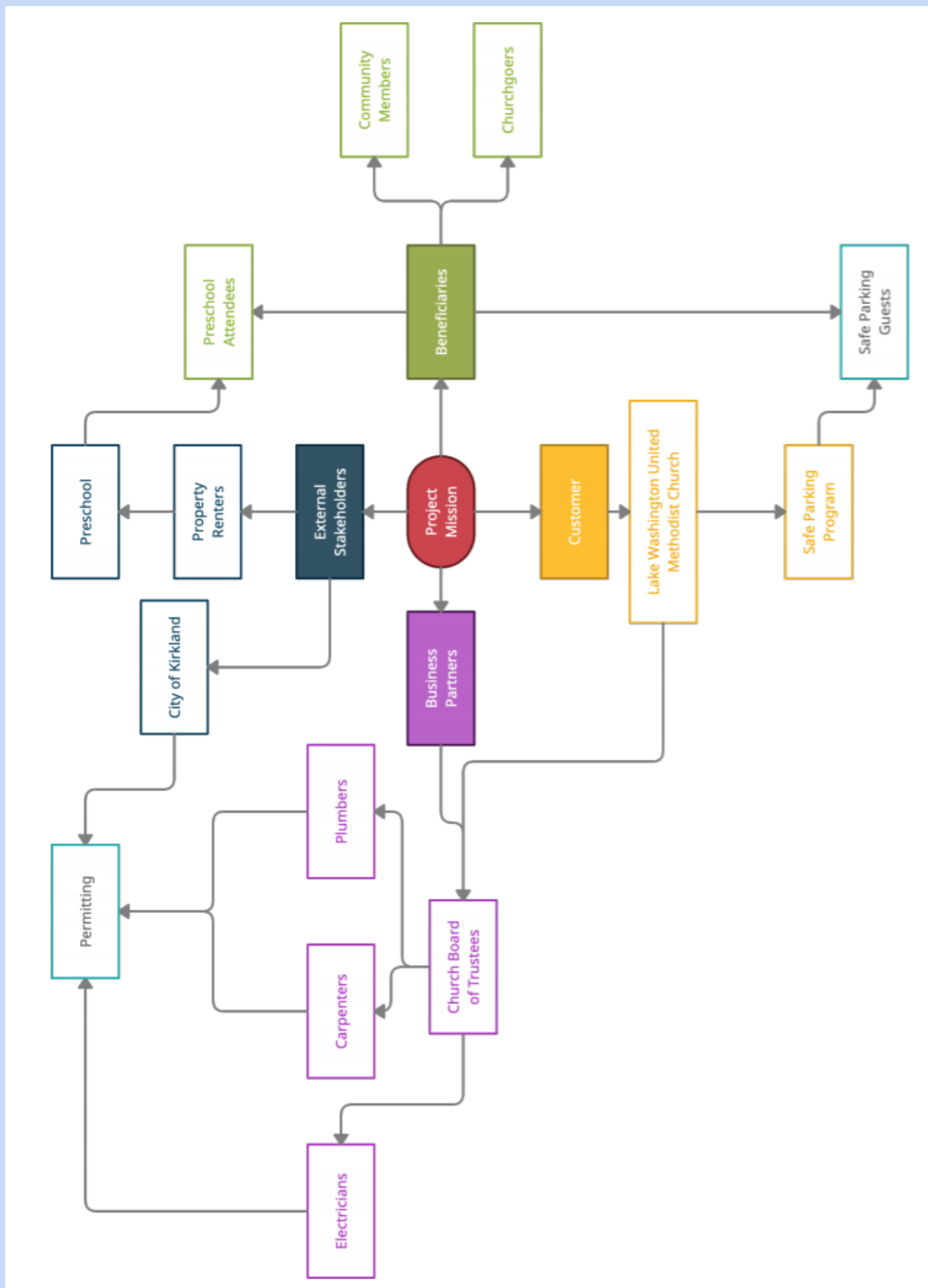
- i. **Wider benefit:** Measuring this instead of water usage could be used to help a wider audience and see how many residents are using it. This can be used to approximate the benefit of adding such facilities. This can give meaning to the other measurable effects. It could explain changes in water usage, and it would give more quantitative information than satisfaction surveys. The church tries to track the number of residents. So, if we track the number of people using the sink, we are able to calculate the proportion of residents who actually use the sink.
- ii. **Key assumption:** Everyone might not use it. The number of residents changes. Additionally, the features' importance vary seasonally - warm water is much more important in the winter, but the access to clean drinking water is extremely important in the warmer months to avoid dehydration.

**5. What is the long term change you see as your goal?**

The long-term change we hope to be a part of is an improvement in the comfortability and sanitation facilities for individuals residing in their vehicles at this Safe Parking location. This could improve health, self-esteem, and sanitation of the resident.

- a. **Stakeholders:** Safe Parking residents, Lake Washington United Methodist Church, Business partners (plumbing, construction, etc.)

# Systems Map



## Story in Seven Sentences

*Once upon a time*, there was a person named Ken who was living out of their vehicle that they parked at the Safe Parking program at the Lake Washington United Methodist Church in Kirkland.

*Each day*, the church would close for the night and Ken couldn't get to running water until the next day, which meant no hand washing or drinking water.

*Until one day*, the Safe Parking organization and UW GCIL students decided to tackle this issue and design and build an outdoor sink station that would have safe cold and warm water accessible at any time of day or year.

*And because of this*, Ken was able to wash their hands whenever they were dirty, and get drinking water when they were thirsty.

*And because of this*, Ken didn't get sick as often, and was able to avoid dehydration during the warm summer months.

*Until finally*, Ken was able to not worry about frequent illness, and was able to use their energy to focus on their personal life.


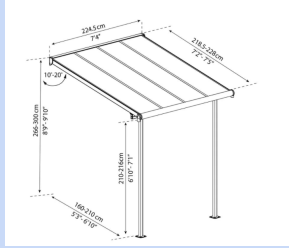
*And ever since that day*, Ken hasn't had to miss work or social events as often, and has been able to stay healthy and spend time with their community.

**Complete Supply List**

Item Name	Image	Cost	Link
Sink		\$114	<a href="https://www.elkay.com/products/d11516.html">https://www.elkay.com/products/d11516.html</a>
Drain		\$75	<a href="https://www.elkay.com/products/lk8.html">https://www.elkay.com/products/lk8.html</a>
Faucet		\$345	<a href="https://www.symmons.com/products/scot-faucet-slc-6000/">https://www.symmons.com/products/scot-faucet-slc-6000/</a>



Water Bottle Filler		\$168	<a href="https://www.fisher-mfg.com/product/12726">https://www.fisher-mfg.com/product/12726</a>
Hand Dryer		\$590	<a href="https://palmerfixture.com/product/hd0935-e-cotap-deck-mount-high-speed-hand-dryer/">https://palmerfixture.com/product/hd0935-e-cotap-deck-mount-high-speed-hand-dryer/</a>
Soap Dispenser		\$7	<a href="https://catalog.tarheelpaper.com/p/DE98127/Deb-ProLine-Proprietary-Dispensing-System-1-L-White/">https://catalog.tarheelpaper.com/p/DE98127/Deb-ProLine-Proprietary-Dispensing-System-1-L-White/</a>
Outdoor Lighting Fixture		\$135	<a href="https://www.kichler.com/kichler/products/outdoor-lighting/outdoor-wall-lights/outdoor-wall-lights-no-arms/3000-k-led-outdoor-lantern-bkt/">https://www.kichler.com/kichler/products/outdoor-lighting/outdoor-wall-lights/outdoor-wall-lights-no-arms/3000-k-led-outdoor-lantern-bkt/</a>

<p>Heat Tape for Outdoor Plumbing Work</p>		<p>\$27</p>	<p><a href="https://www.acehardware.com/departments/heating-and-cooling/heaters/heating-cables/33511">https://www.acehardware.com/departments/heating-and-cooling/heaters/heating-cables/33511</a></p>
<p>Awning</p>		<p>\$778</p>	<p><a href="https://www.homedepot.com/p/Palram-Sierra-7-5-ft-x-7-5-ft-White-Patio-Awning-Cover-703348/300541570#overlay">https://www.homedepot.com/p/Palram-Sierra-7-5-ft-x-7-5-ft-White-Patio-Awning-Cover-703348/300541570#overlay</a></p>

**Donation Flyer**

# Thank You

**For whatever you can contribute to help  
maintaining our community sink!**



<https://creazilla.com/nodes/69616-hand-washing-clipart>

<https://www.pngaaa.com/detail/895091>

## Intended Uses Flyer

# OUR COMMUNITY SINK

Please help us keep our shared space clean!



- The facilities are great for handwashing, filling bottles, and getting ready for the day
- Please avoid washing dishes and clothes or bathing in the sink



<https://creastila.com/nodes/69616-hand-washing-clipart>  
<https://www.pngaa.com/detail/895091>  
[https://www.clipartmax.com/png/middle/467-4677199\\_icons-clipart-laundry-hand-wash-clothes-icon.png](https://www.clipartmax.com/png/middle/467-4677199_icons-clipart-laundry-hand-wash-clothes-icon.png)  
[https://www.clipartmax.com/png/middle/9-99967\\_dirty-dishes-clipart-cliparts-co-dirty-dishes-in-dishwasher.png](https://www.clipartmax.com/png/middle/9-99967_dirty-dishes-clipart-cliparts-co-dirty-dishes-in-dishwasher.png)  
Poster Design: Canva.com

## Interview Questionnaire

### Interview Questionnaire:

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- I wash my hands more than I used to:
- I am dehydrated/thirsty less than I used to be:
- I use fewer disposable water bottles than I used to:
- I am sick less often than I used to get:
- I am more comfortable than previously:
- It is easier for me to get ready for work/school/the day in the morning:
- It is easier for me to get ready to sleep in the evening:
- I am less stressed about hygiene than I was previously:

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- How would you describe your hydration before the sink was installed, and would you say that it is different or the same now? If different, how so?
- How has having access to the sink station changed your habits with regards to drinking water? Do you find yourself using reusable water bottles more, or disposable ones less?
- Has having the sink station alleviated any stress in your life? How so, or what aspects of your life does this effect?
- Do you have any other comments, concerns or thoughts about the sink station that you would be willing to share?