

# **Western Sustainability Dashboard**

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## **Executive Summary**

### Problem Statement:

Western Washington University has adopted the Sustainability Action Plan, but there is no display exhibiting advancement of the plan. Visualizing the impact of the Sustainability Action Plan is critical in raising awareness to the greater campus community on the progress Western is making. Progress on the Sustainability Action Plan should be celebrated, and presented in a manner that is relatable to the community. Higher education is molding the next generation of graduates that are entering the work force with new ideas and new perspectives, many of which are based off the perception that we need to create an economy that is not based on fossil fuels. Higher education naturally serves as a platform to exemplify what sustainability means, and allows new ideas to organically mature alongside studious adults. The sustainability dashboard is an avenue to showcase what sustainability means at Western, while enabling the institution to demonstrate their adoption of sustainable practices to the community, and enabling individuals to develop a better understanding of where their actions have a direct impact.

Currently, Western has an online dashboard that represents energy consumption on campus. There are a few aspects of this dashboard that are done very well. The dashboard displays a lot of information on campus-wide energy impacts, the dashboard effectively shows trends over time, and it is clear that the dashboard is updated regularly. Although this is only a beta-version of the energy dashboard (it is still in development), this is not representative of Western's broader approach to sustainability through the Sustainability Action Plan. The greater campus community would deeply benefit from the awareness a sustainability dashboard would instill. Individuals in the community are missing a sense of personal impact on Western's sustainability progress.

### Description of Project:

The Western Sustainability Dashboard project will be a collection of indicators representing Western's progress on the Sustainability Action Plan. Through an interactive platform, community members will be presented with educational material to broaden their understanding of sustainability and be inspired to pursue sustainable actions. The online dashboard may use animated graphs to display information in a manner that supplements the users experience. The set of indicators that we have recommended are provided in the wire-frame (Appendix A). The main sustainability indicators are Community, Built Environment, and Education. Those are then sub-divided into seven different indicators based on Sustainability Action Plan objectives.

### Summary of Recommendations:

Through our research from a focus group and inventory (see Background Research), we recommend the next steps toward the development of a sustainability dashboard for Western. Those next steps include designing interactive icons for the dashboard, identifying key staff members on campus who may be responsible for updating the data regularly, and further developing the wireframe to present the metrics in a relevant manner that provides actionable items to individuals (sustainable practices to adopt). (See Recommendations for further details).

## **Introduction**

### Statement of Need:

This project aims to address the need to help the institution display the progress of Western's Sustainability Action Plan, and the need to help individuals gain a better understanding of where their actions have a direct impact. The final page of the University of Washington's Climate Action Plan highlights the need to create a sustainability dashboard, specifically for the purpose of displaying progress on the plan. When the University of North Carolina launched their Three Zeros Strategic plan for sustainability and equity, they created the dashboard as a Launchpad for promoting the new plan and educating their campus community. At Western there is a need for a tool that both conveys information on sustainable progress within the institution and raises awareness in the community on sustainable practices to adopt.

It is important for students, staff, and faculty to gain a greater sense of awareness on the sustainable initiatives this campus has adopted. In order to draw individuals from a wide range of backgrounds and disciplines, especially those who may not currently identify with the field of sustainability, there is a need to create a sustainability dashboard that displays metrics in a relatable and accessible fashion that broadens all individual's perspectives on what they can do to help the community be more sustainable. Designing visual aids and providing actionable items to adopt, are areas that have potential for expansion into various departments on campus in order to establish relatability with a diverse audience of individuals.

### Project Goals:

The ultimate goal of this project (provided in the initial scoping document) is to create alternatives for visualizing campus sustainability in a dashboard. Additional goals include developing a list of proposed metrics to include within the dashboard, drafting a report that includes exemplary solutions at other institutions, and designing alternatives for what the site might look like. In order to meet these goals, our project team determined that the fundamental purpose of our work this quarter will be to identify how the dashboard can best represent Western's progress towards a sustainable campus.

We tasked ourselves with additional goals that include finding out how to communicate information to a broad audience, how to best utilize visual aids, and how the dashboard should communicate a sense of importance to community members. In order to meet these goals, the dashboard should exhibit data in a way that inspires people to be involved in making a difference. Adhering to the community is a large aspect of this project. Lastly, we hope to develop lifelong sustainable habits among individuals the community.

It is important to note that we are in the early stages of this project. Further development may be done by the next campus planning studio class. Additionally, the Office of Sustainability research staff may be able to utilize the research we have completed in order to further explore these goals. Further goals may include (but are not limited to) identifying staff members within the university to place the responsibility on for consistently updating data, utilizing the Office of Sustainability Graphics Design and Web Development staff to help design the dashboard icons and web interface, and creating links to the sustainability dashboard from Western's homepage in order to broaden the audience-base and attract community members who are not already familiar with sustainability at Western.

## Background Research:

The wireframe we created for the dashboard is supported by the data we collected through the focus group and an inventory. Both the focus group and inventory cross reference sustainability dashboards of other institutions in the United States. Those institutions include the University of Washington, the University of North Carolina, and Dickinson College. We selected these dashboards based on a number of aspects. The University of Washington sustainability dashboard was selected because it is a similar public institution in terms of geography and dedication to sustainability (they adopted institutional strategies, similar to Western's adoption of the Sustainability Action Plan). The University of North Carolina sustainability dashboard was selected because they have a strong focus on social justice and equity, and their dashboard is extremely user-friendly and interactive. The Dickinson College sustainability dashboard was selected due to the simplicity of the dashboard and the metrics used.

The focus group research consisted of asking 6 volunteers to review 3 sustainability dashboards and engage in a critical discussion about what dashboards are more appealing and what features are more inspirational toward behavior change. This final report includes the data collected, the results of the discussions, and an analysis of the findings.

The inventory research was guided by the collection of data from the other sustainability dashboards identified. The inventory was organized in a chart we created to record the indicators other schools are using, how they pertain to their respective action plans, and whether or not each indicator provides an actionable item for the individual to adopt.

## **Methodology**

Our methodology concentrated on utilizing a Focus Group and an Inventory. The focus group required 6 volunteers to test using the 3 sustainability dashboards from other universities (introduced in the Background Research section above), followed by answering a series of questions related to behavior change responsiveness. The questions were intended to assess the relatability of a sustainability metric, as well as the likelihood of behavior change. Focus group Questions are provided in Appendix B.

The focus group was intended to identify what it is about the selected sustainability dashboards that students, faculty and other stakeholders find easy to respond to and find inspirational to adopt new sustainable practices.

The focus group members were recruited from email networking throughout the university. Requests for volunteers were distributed throughout many departments in the Associated Students as well as Huxley College of the Environment and the Sustainability Office. The e-mail aimed to avoid terminology like 'sustainability' in order to draw in a wide range of students. It was our intention to have many voices heard in the formation of the dashboard, and the focus group was a way to facilitate that.

An inventory template was utilized to collect data on the sustainability dashboard indicators other universities use, whether or not each indicator is represented as an objective on their institutional sustainability plans, and whether or not each indicator presents the individual with sustainable practices to adopt. The results from the Inventory Template are in appendix C.

The reasons we used these methodologies were to strengthen the recommendations of our final report. We wanted to highlight the need to exhibit progress on the sustainable practices Western adopted, and our inventory template results show that other Universities created sustainability dashboards for this purpose. However, the sustainability dashboards from other universities that we examined did not present individuals with actionable items. This failed at providing the individual with sustainable practices to adopt, which is an important aspect that arose from the focus group discussions.

## **Results**

### Focus Group:

The focus group consisted of 6 volunteer students who navigated 3 different sustainability dashboards from various institutions. The three dashboards that the focus group looked at were from Dickinson College, The University of North Carolina and The University of Washington. The participants were asked a series of questions on each dashboard and prompted toward critical dialogue regarding dashboard usability and inspired sustainable behavior change. The focus group was formed to inform our recommendations toward the generation of a dashboard that would make a community member want to adopt new sustainable behavior.

To get a better idea as to the demographics of the students in the focus group the participants took a survey. The survey reveals that the group was relatively homogenous. While there were an equal distribution of male and female identifying members, the whole group identified as cis gendered and white. Diversity for opinion was found in the degree focus. Music, Mathematics, Recreation and Undecided were all represented majors in the focus group. None of the participants were in an environmental or sustainable program at Western which is an indicator of some diversity of perspective. The results of the survey and the questions with an outline of the participant dialogue can be found through the link in ‘Appendix B’.

Students valued the concept of a dashboard that was interactive, simple in design and contained content that was relatable to them. When asked more intentionally around what in the dashboards would influence them to make sustainable behavior change, the focus group participants unanimously agreed that parts of the dashboard that displayed student involvement and visuals on how the individual was able to have an impact were most inspirational. The focus group was in agreement that the three examples used were all to education based and that for them to want to engage in behavior change, they want to feel inspired to do so.

Example material on the dashboards that are inspiration focused are areas that represent student involvement. The students wanted to see how a small student action can make a bigger difference and examples of how this is being done already with opportunities to join. Beyond

that what the focus group participants wanted to see was a display that informed the user of the importance of sustainability.

Dickinson College was experienced as the least usable and attractive by focus group participants. The home page was considered messy with how much information there was all on a page together. The data set pages were considered too busy and mathematic. The Dickinson dashboard is a good example of information that is not interpreted for a wide range of people. This dashboard also was criticised for the low budget layout, it seemed unprofessional and unattractive.

## Measuring Our Impact to Build a Sustainable Future!

WELCOME TO DICKINSON'S SUSTAINABILITY DASHBOARD.

DICKINSON IS MONITORING OUR PERFORMANCE OVER TIME AND HOLDING OURSELVES ACCOUNTABLE FOR ADVANCING SUSTAINABILITY. THIS DASHBOARD ALLOWS USERS TO EXPLORE UP TO DATE PERFORMANCE METRICS FOR STUDENT LEARNING, CAMPUS OPERATIONS, AND COMMUNITY WELLBEING AS IT RELATES TO SUSTAINABILITY.



We are creating rich and varied opportunities for sustainability learning across the curriculum, both inside and outside the classroom.



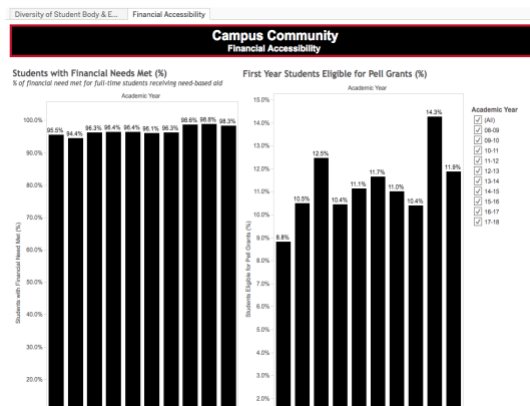
We are striving to use resources wisely, reduce our ecological footprint and reach our commitment for carbon neutrality by 2020.



We are working on campus and with communities near and far help create a future that is socially, economically and environmentally sustainable.

(Figure 1: Dickinson College homepage, focus group found to be messy and low budget.)

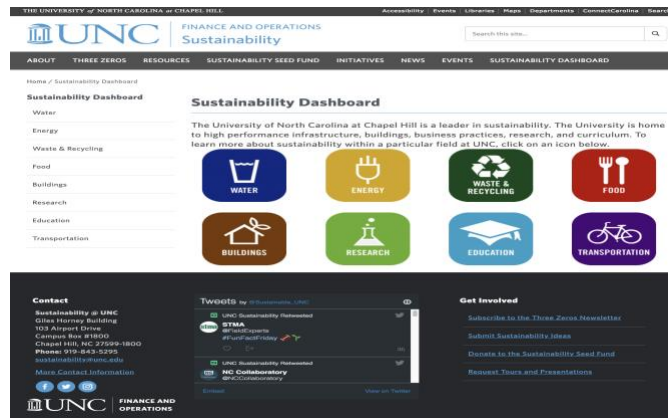
However there were features of the dashboard the participants liked. Within the Community section, the students noticed there were metrics for more complex sustainability features. For example, the dashboard measured student diversity and financial aid availability. The students also thought having pictures of student life in correlation with sustainability felt more relatable.



(Figure 2: Dickinson College Campus Community Dashboard displaying a broader perspective on sustainability with financial accessibility and diversity of student body as metrics)

The second dashboard the focus group looked at was from the University of North Carolina. This dashboard was a major improvement as far as design goes. The icons and simple

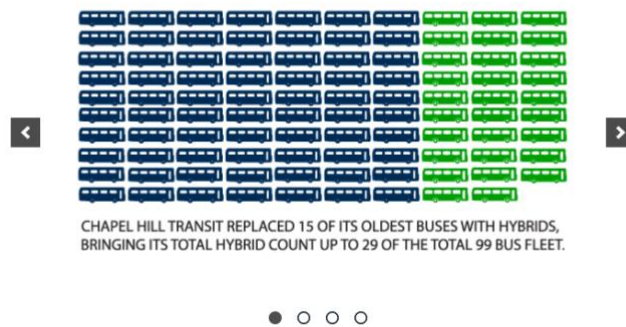
information displays throughout the dashboard. The simplicity of the home page, interpretive icons and the side navigation bar all contribute to how interactive the dashboard was to the participants.



(Figure 3: UNC Sustainability Dashboard homepage, displaying the simple iconography that focus group participants found the make the page more interactive. Also there is a ‘Get Involved’ section at the bottom of the page, building inspiration for focus group participants.)

The bottom of the UNC dashboard also features a ‘make a difference’ section that brought about a higher sense of inspiration for the participants. The participants did feel that it was not enough to have a small section on the bottom. One participant mentioned that all of the educational information in the metrics throughout the dashboard were useless if the student using the dashboard wasn’t already inspired to value sustainability.

## Transportation



(Figure 4: The Transportation section of the UNC dashboard which is a good example of how the information can be displayed in a way that is accessible to people with varying degrees of experiences and knowledge)

Another feature about the UNC dashboard participants liked was the way the information was sometimes interpreted in ways anyone could easily understand. For example, in the transportation section of the dashboard, the green bus conversion is represented with simple imagery of busses, some blue and some green. This sort of information display is a big contrast from the mathematical graphs that are often found throughout all of the dashboards.



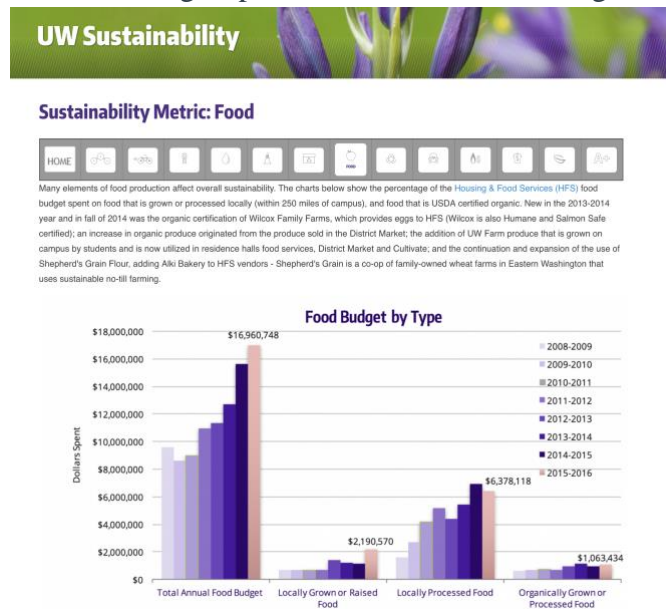
## Education



(Figure 5: The education metric of the UNC sustainability dashboard with an attractive graphic explaining the growth of sustainability related courses. But this information is not significant to a student who doesn't value sustainability or doesn't understand it's importance to the community)

The focus group agreed on a point of view that while the dashboard was good at translating data in a way that is understandable, the metrics are all educational as well. While education is important, the focus group didn't think that this was engaging to someone who didn't already care about sustainability. There was a lot of information about how UNC is becoming more sustainable, but what was missing was how the students were involved and why it was significant.

The final dashboard the focus group looked at was UW sustainability dashboard. This dashboard was the favorite in the focus group due to the interactive design and simple layout.



(Figure 6: The food metric of the UW Sustainability Dashboard provides data explanation that creates more student relatability. The graph is also an example of a mathematical display in relation to large sums of money which is found hard to relate to for the student)

The UW Sustainability dashboard displays a wide range of metrics like waste and education. The focus group liked the display of ‘Green Teams’ which is a data set of offices on campus that are making green pledges. Participants wanted to see this geared more toward student action and to have this sort of inspiration to be a more major component of the dashboard, not merely a sub category.

The dialogue of the focus group concluded that a Sustainability Dashboard that is easy to use and inspiring toward sustainable behavior change can be inspired by all three dashboards. The participants agreed that having a dashboard that is relatable, interactive and easy to understand were features in all three that increased usability. What repelled participant involvement in the dashboards were technical information, messy web design and arbitrary metrics. One thing that the participants agreed on that would create the most inspiration toward behavior change is the emphasis on inspiration. The participants wanted to see more student involvement, material that inspired them to care about sustainability and interactive ways for them to get involved.

Key takeaways from the focus group can be understood as things about the dashboards that work toward a platform that is easy to do and inspires positive behavior change, and things that don’t work toward these goals.

Things that work:

- Relatable information
- Simple platform design
- Opportunities for involvement
- Inspiration to care about sustainability
- Representation of the WHOLE student body
- Complex representation of sustainability
- Language that anyone can understand and agree with

Things that don’t work:

- Technical jargon
- Low budget platform image
- Mathematical graphs
- Education on subjects without reasons someone should care about the information.
- Sustainability language use

### **Inventory Template:**

The Inventory Template was originally intended to collect information on sustainability dashboards at other universities that can later be compared to an inventory of Western’s Sustainability Action Plan. The plan was to collect data on which indicators were used on the dashboard, a value proposition for each indicator used, and how the data was collected in order for the dashboard to display progress on each indicator used. However, our group found it

difficult to collect this type of information because the people involved in many indicators were hard to get a hold of. Secondly, value proposition can be an opinion and we did not want to make assumptions that might skew our results later. In response, we met with the Campus Sustainability Planning Studio Instructor and she advised us to reformat our inventory to include broader information that could be collected by observation.

The Inventory Template was redesigned as a chart that lists each metric that other universities use for their sustainability dashboards, whether or not it pertains to their respective action plans, and whether or not it presents the individual with sustainable practices to adopt. We incorporated the action-ability column into the template after learning in our focus group that participants desired content to be actionable. This inventory can be found in appendix C. Through this exercise, we found that 2 of the 3 universities (University of Washington and University of North Carolina) used their sustainability dashboard to be a representation of the campus sustainability action plan. Because they have successful dashboards and because Western's Sustainability Action Plan is based on sustainability indicators, it makes sense for Western's dashboard to be a representation of our campus sustainability action plan.

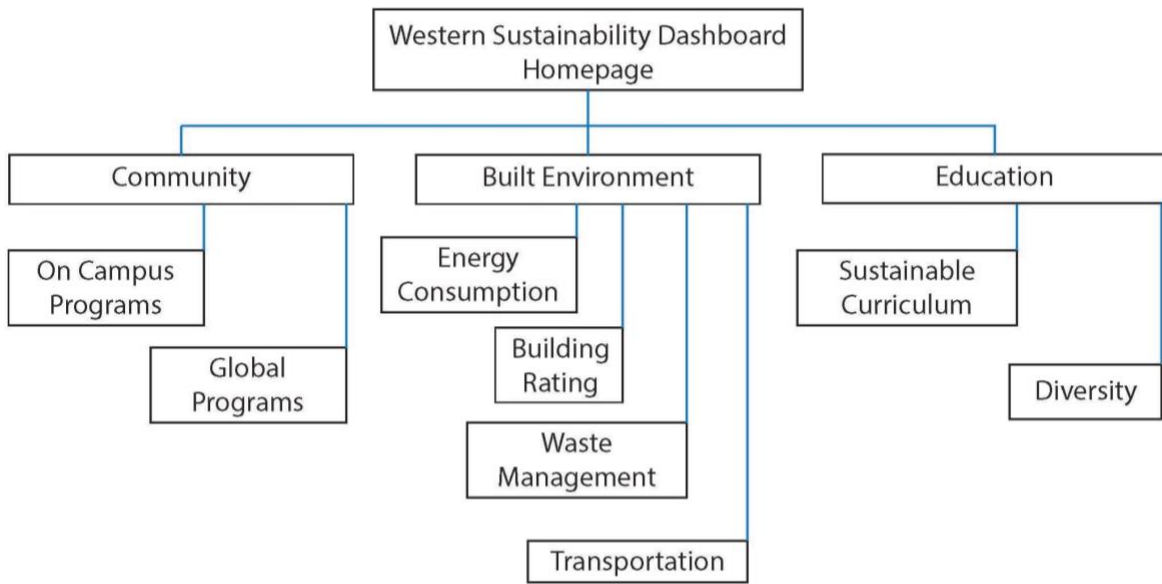
The next step was to create, an additional table to organize the key strategies and objectives of Western's Sustainability Action Plan. Laying out Western's inventory helped us realize that Western already has some great key metrics that can be used in the sustainability dashboard. Indicators like, carbon dioxide emissions, energy consumption and transportation methods were already being measured, they just needed to be put into a format that individuals in the Western community can relate to. After an inventory of Westerns Sustainability Action Plan was complete, we were able to cross reference this data with the inventory template of other schools in order to help formulate a set of key indicators that can be used by Western as a starting point for the sustainability dashboard. A hierarchy chart will be found in the recommendations section.

## **Recommendations**

The dashboard can present data in a manner that contains a sense of relatability to an individual (one person's impact) and relatability to a community (everyone's impact). We hope that an individual can go to the online Western sustainability dashboard and track progress on the Sustainability Action Plan as well. We would like to make the dashboard as user-friendly and relatable as possible so that every community member can find something of value to them.

As stated earlier, it is important to note that this project is in the early stages of development. Because of this, our recommended indicators are presented as a broader topic. The next campus planning studio or perhaps a student research group through the Office of Sustainability can continue the progress of this project by pinpointing relevant metrics, understanding best representation methods, coordinating a campus community to maintain data, and refining the accessibility of the site.

The results from the inventory template inform the metrics for the Western Dashboard. It is recommended to think beyond the inventory template and consider adding more metrics around social justice like the focus group showed interest in. Social justice metrics are a more accurate representation of Western’s values and understanding of sustainability. Metrics that represent student body diversity, equity in the ethnic studies department and financial accessibility are some examples to consider. Below is a layout of indicators that can be used as a baseline for Western’s sustainability dashboard.



In order to maintain a relevant dashboard, data will need to be updated regularly. Doing so will require the university to coordinate groups in the Western community who can be responsible for consistently updating the data. Inspiration for this process can be drawn from the interview with Maralyn Ostregan (Appendix D) where she explains the process in finding data sources for the UW dashboard.

Delivery of the dashboard will require an agreeable platform. By interviewing the developers of the Sustainability dashboards at the University of Michigan and the University of Washington, we learned there are two different options for platform. There are platforms that are run by external sources, like Drupal, pipsrewards and milkcrates. These prefab dashboard producers are easier to maintain but lack in personalization. On the other hand, there is the option to hire a programmer to develop our own platform which would create a custom project and may require more involved maintenance for the site.

The next team who is continuing this project will need to focus on platform scoping and consider how this might play into the budget and maintenance. In an interview with the developer from UM, we learned that externally managed dashboards might have a larger price on

them but they also can create easy ways to keep data updated and will cover the costs of site maintenance and repair. These are all considerable factors when engaging in platform scoping in the future development of the Western Dashboard.

In order to generate a dashboard that can broaden our user base as much as possible, there will need to be thoughtfulness in the dashboard content and design. The focus group and insights from meetings with our Sponsors, directed us towards realizing the importance of designing the dashboard to be action based, inspirational and in general unbiased. Having a bias towards language and information that is typically associated with people who are well versed in sustainability, can alienate community members who are from different backgrounds. This is counterintuitive to our goal of being more inclusive, so a dashboard that sticks to universal information is imperative.

We recommend considering reframing the Western Sustainability Dashboard toward the direction of Western Community Health Dashboard or something that avoids using language that is exclusive to people who identify with concepts of sustainability. Maintaining a sense of political neutrality and avoiding framing the dashboard in a liberal mindset will bring together a more diverse community.

Project timeline:

Judging from our project example interviews, this project will likely take over a year to complete. Since the dashboard did not come into fruition this quarter, we are passing off our research, data and recommendations to another group that will then work on the dashboard moving forward.

### **Monitoring and Evaluation**

Monitoring the success of this project will be crucial to creating a compatible dashboard. Using web analytics to measure the flow of online traffic will help project participants gauge which aspects of the project need improvement. Ideally, the dashboard will be an ongoing project that grows with the Western community.

There are various other ways we can track progress, but those are yet to be determined due to the early stage of the project we are currently working on.

### **Budget**

Things to consider in the budget are start up costs and maintenance costs. These figures will vary depending on what platform the project utilizes and how easy the chosen metrics will be to maintain accurate data.

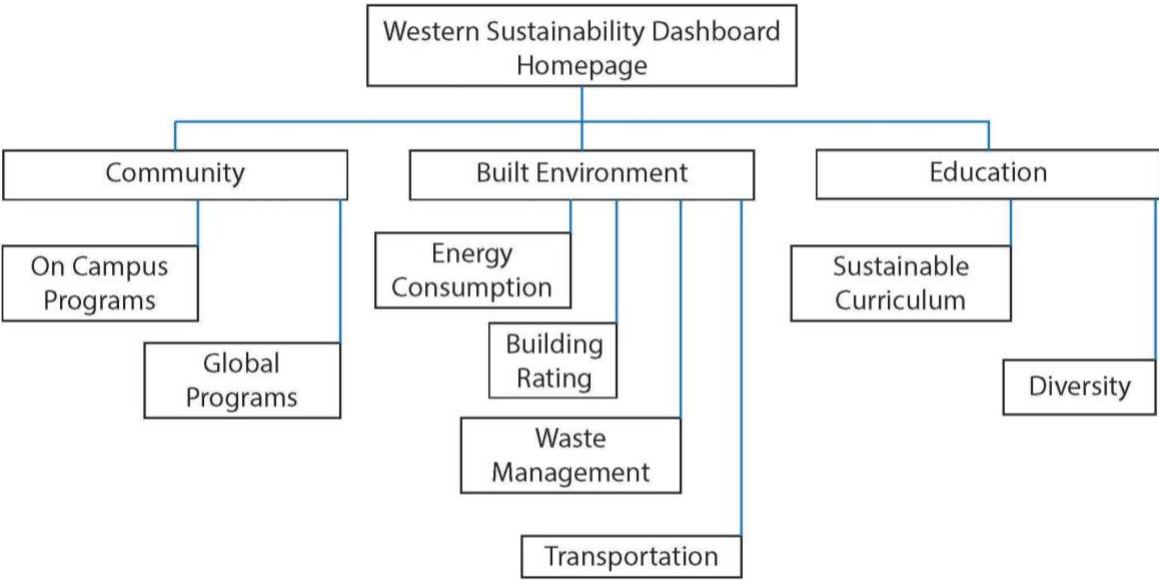
The University of Michigan had an initial design and building cost of \$75,000 in which they had a programmer design their own platform through Drupal. The maintenance costs on this platform is \$10,000 a year. This is considered by the UM developers to be a higher end of the cost scale for the development of a dashboard and if using a different platform, the costs would most likely be much lower.

## **Conclusion**

After considering multiple case studies, it is clear that Western may benefit from its own online sustainability dashboard. By having an accessible and inclusive dashboard, the western community can find a place where they can all actively involve themselves in the community sustainability and well-being. If the dashboard is framed in a way that emphasizes unity, involvement and positive impacts, while avoiding to much focus on sustainability and green movements, the western community can be brought together through the Western Dashboard.

This will not only help community awareness of the Sustainability Action Plan, but readers will also be informed on participation methods. Because the site will be designed with the casual reader in mind, community members will feel like they have a direct impact on sustainability. The dashboard will be inspirational, action based and use inclusive language. It is important for the students, faculty, and staff to gain awareness on the sustainable initiatives this campus has adopted. Indicator and metric recommendations have been laid out in a wireframe format that may help future project participants pursue the dashboard. Plans for data sourcing and maintenance will need to be formulated with a design geared toward community inclusiveness.

**Appendix A: The Wire-Frame Plan**



## Appendix B: Focus Group Questions

Participant Survey: <https://goo.gl/forms/dX6ahuvBbHU51RVu2>  
Results

Timestamp	What is your major?	What year in school are you?	Are you a non-traditional student?	Please describe your gender identity	Additional Information	Please describe your race/ethnicity
11/27/2018 15:06:29	Music Education	Freshman	Maybe	Female		White
11/27/2018 15:07:13	Undecided	Freshman	No	Male	Upper middle class, both parents have graduate degrees	White
11/27/2018 15:07:14	Mathematics (not declared yet)	Freshman	No	Female	No	White
11/27/2018 15:10:13	Recreation	Senior	No	Cis Female		Caucasian
11/27/2018 15:10:19	Undecided	Junior	No	Cis-gender Male	Heterosexual, middle-class	Caucasian



## Focus Group Question Guide

Individual dashboard questions:

### 1. UW

a. <https://green.uw.edu/dashboard>

c. Without thinking, click on the first thing you think of...what did you click on? Do you have ideas as to what it might be that made you want to click there first?

Electricity

Water - main interest

Greenhouse gases -

Food - maybe the position of the icon or the apple is appeal

Food -

Green Units - leaf icon

d. Click on the first icon (Greenhouse gases), take a moment to look at the page...what do you interpret from the information?

Declining greenhouse gas emissions

Noticing the larger graph which is useful for the visual learner, you can click on the dots for more in depth information.

Clearly portrays that there are three different types of emissions but not too much at once. Being able to dig deeper.

Had to read the blurbs at the top to understand the graphs, the bolded words helps make sense of the main points.

Not enough description for the graphs, not laid out in a nice way.

Wants it to not be so close to the graph, be better if it was off to the side or below the graph.

Wants more redundancy between the blurb and the visual. The blurb is referring to what is being shown but isn't describing the data.

The graph alone doesn't work for everyone. The graph shows more information than the blurbs.

There is some terminology that is not described like "baseline"

Vertical text is hard to read.

e. From this page, what is the next thing you want to click on? Why?

f. Click on the skull and crossbones, what do you interpret from this page?

g. Click on three random various pages and pick the one that inspires you the most to adopt new sustainable behavior.

1. Landfill Reduction

- a. Shows the stuff sent to the landfill and the stuff that was being changed so the change in impact can be easily seen.
- 2. Green Teams
  - a. Shows how students can make a difference
  - b. Has a map of little green teams on campus
- 3. Green Teams
  - a. Why are they certified?
  - b. What are they doing to make a difference?
  - c. Super informative, not lacking.
- 4. Commuting
  - a. Isn't presenting a lot of information, so they were able to understand everything it was trying to say in a short amount of time.
- 5. What can I do? Green Event
  - a. Applicable to anything to your life whether it be a get together or a wedding or a focus group, you can learn how to make a difference.
- h. What could be added or taken away to make this website easier to use and understand?

## 2. Dickinson

- a. <http://www.dickinson.edu/sustainabilitydashboard>
- b. What are the first thoughts that come to your mind when you see this dashboard?

Not super attractive, more to look at in the sub categories. Maybe this home page simplicity draws the user into the deeper layers of the website.

Amount of white space is uncomfortable, same with UW dashboard. Something other than blank white would be nice on the eyes. It feels unprofessional or empty.

This is all just data. They are saying what they are doing but the user wants to know what is applicable to them. How is this relevant to the user.

Likes that there is a definition for what a sustainability dashboard is.

Likes that there is images for the tabs but the layout could be better. It seems empty. The images are taken on campus actually doing sustainability community actions which is great to see because it shows that everyone could be involved.

Text on the top and tabs on the bottom does not draw you in as much. UW was very front and center.

It looks like they took it from a template while UW really looks like they made it their own. It looks to generic. The cute little icons on UW drew you in and looked creative.

It doesn't look like it was made with as much attention to detail as UW like the centeredness and symmetry.

The slogan at the top seems unnecessary.

Attention was immediately drawn to the three pictures at the bottom, ignoring everything else

c. Close your eyes for 5 seconds and when you open them, what is the first thing you look at? Click what that thing is. What about the icon do you think made you want to click on it?

Learning pictures are the drawing points and also brings a point of relevance.

Climate action subconscious part of the user wants to find a point of action.

Community, image draws, it feels like you don't have to do anything in school but can be found all around you.

d. Now that we are in that icon, what in this page draws your attention the most? And why? Click that item

e. Looking at the graphics in this page, What do you interpret from the information presented?

f. How does the information make you feel?

g. Is anyone drawn to reading the text at the top of the pages, why or why not?

h. What do you think should change in this dashboard that would make it more interesting to you?

i. Take a few minutes to click around to a few more places in the dashboard to see some more information...Does any of the material you've seen inspire you to adopt new sustainable behavior? Why or why not?

j. What could be added or taken away to make this website easier to use and understand?

### **3. UNC Sustainability Dashboard**

a. <https://sustainability.unc.edu/dashboard/>

b. What are your first thoughts when you look at this dashboard?

c. What is the most attractive thing to you about this home page and why?

The icons are color coded instead of the homogenous UW dashboard. Still maintains the cleanliness.

Text between the dashboard and buttons be somewhere else, it doesn't contribute to the page.

The addition of color to the icons is nice, but feels cramped. The footer bar without scrolling adds to the feeling of being cramped.

The shades of white and grey could use a little color.

Colors are great but at the top the tab that says 000 is attractive because it is a little vague.

d. What are you curious about on this page?

The plant coming out of the roof of the building is interesting, not just a normal house.

The research page shows a good active base in sustainability.

The get involved section is good to pull in not only students but also parents.

Sidebar menu is easy to navigate, easier and cleaner than the graphics of UWs.

Having the sidebar is a little different than a sub header menu but the rest of the content feels cramped, maybe having it narrower on the side would be better.

e. Click on education...what does this tell you about sustainability? How do you feel this relates to your personal behavior?

It's unclear how education is connected to sustainability. It seems a little irrelevant. It could be presented better.

Curious on who the information is targeted toward.

f. Click on food...What about this page do you like? What on this page is easiest to learn from? What do you think is useful on this page and why?

Name dropping on the education tab without linking to resources. There was a lot of information that no one knows what it means. The food tab has links for more information.

Having all the information in one block of text isn't helpful. Suggests putting it into slides.

g. Take a few minutes to click on to different pages...which ones do you find to be the most useful? Which ones do you find apply to your personal life the most? Do any of these inspire you to adopt new sustainable behaviors?

h. What could be added or taken away to make this website easier to use and understand?

#### **4. Overall questions**

a. Between the three dashboards, which one did you think was the easiest to understand?

UW- icons are easy to navigate plus the utility bar with the drop downs

UW - simplicity and also has links to the excel files so there is access to all the numbers

UW - drop down menus

UW - less crowded space

UW -

The back to dashboard button in UNC is really helpful that UW could use.

b. Which one was the most fun to click through?

c. Did you find inspiration to change personal behavior from any of these? What behaviors?

UWs drop down menus creates more accessible information.

All of them were lacking because the participant wants to know what they can do about it. They offer data and what is happening but they want to know how it's relevant to them and what are the resources for them to take action

All of them were focused on education before inspirational. If the student isn't already engaged in sustainability then they probably wouldn't care.

The first thing they see needs to be relevant and inspirational.

UNC has tweets which are relevant and keeps people clued into what is happening.

UW has the last updated information which is too old.

There needs to be more about Why is this important? What you can do?

d. Which out of these three was your least favorite? Take a moment to revisit it and tell me what it is about this you don't like.

e. Which out of these three were your favorite? Take a moment to revisit it and tell me what it is that makes it so?

**Appendix C: Inventory Table Template**

<b>Western SAP</b>		
<b>Category</b>	<b>Indicator</b>	<b>Value Proposition</b>
Curriculum and Research	Sustainability Courses	The quantity of sustainable information being offered is a representation of potential knowledge amongst the community
Campus and Community Engagement	Regional and Global Programs	By visualizing the outreach Western has beyond campus is a good measure of our engagement in the broader community
	On-Campus Programs	Participation in on campus programs can be measured to represent the flow of information within the community
Student Life	Sustainability Pledge	A simple count of pledged community members will indicate how many people are being reached
	Alternative Transportation	Quantitative values of students taking the bus and/or biking can be an indicator of access that students have to alternative transportation
Built Environment	CO2 Emissions from Electricity/Natural Gas	This value will indicate our environmental impact through energy consumption
	Usage of Electricity/Natural Gas	Measuring our energy efficiency will show the impact of any changes we make to the system. Secondly, this is an easy indicator to measure
	Cost of Resource Consumption	Money Saved is a good motivator, also gives readers a different view on the quantity of resources being saved
	Sustainability Status of Buildings on Campus	The sustainability rating of buildings will let us know where we need to improve efficiency
Dining Services	Real Food Challenge	

	Quantity of Sustainable Food	Buying sustainable food sets an example for students.
Grounds	Irrigation Water Usage	Using certain plants for landscaping requires less water. This allows water to be directed where it may be more needed.
Procurement	Agency Owned Vehicles	
Transportation	Student Mode Choice	
Waste	AS Recycling Center	By measuring the pounds of waste being processed through the recycling center, we can better understand where waste is excessive.
	Hazardous Waste	Making sure hazardous waste is being disposed of properly is a priority. However, reducing hazardous waste consumption is vital for the environment.
Investments	Total Investments	By monitoring where our money is being invested, we can choose to support sustainable causes.

<b>University Case Studies</b>					
<b>University</b>	<b>Was the Sustainability Dashboard created to show the community progress on the action plan?</b>	<b>Indicator</b>	<b>Pertains to Action Plan Goals/Objectives</b>	<b>Provides Actionable Items for Individuals</b>	<b>Explanation</b>
University of Washington	Yes	Greenhouse Gases	Yes	No	
		Commuting	Yes	Yes	Adopt more sustainable commuting practices
		Electricity	Yes	No	
		Water	Yes	No	
		Building Construction	Yes	No	

		Paper	Yes	No	
		Food	Yes	No	
		Landfill Reduction	Yes	Yes	Sort recyclables and compostables
		Hazardous Waste	Yes	No	
		Utility Cost	Yes	No	
		Disposal Cost (Avoided)	Yes	No	
		Green Teams (Green Units)	Yes	No	
		Sustainability Grade	Yes	No	
University of North Carolina	Yes	Net Zero Water	Yes	No	
		Zero Waste to Landfills	Yes	Yes	Sort recyclables and compostables
		Net Zero Greenhouse Gases	Yes	Yes	Adopt energy-saving practices
Dickinson College	No	Learning	Yes	Yes	Take sustainability related courses
		Operations and Environment	Yes	No	
		Community	No	No	



## Appendix D: Case study dashboard interview

### Interview 1:

Interviewee: Maralyn Ostergren, Information Design Specialist in the Information School at UW.

Interviewer: Renna Fir

University of Washington's Sustainability Dashboard, Interview with Maralyn Ostergren, Information Design Specialist in the Information School at UW. Dashboard was established in 2009, Maralyn was brought on to come up with the dashboard. Has interest in climate action and has been creating imagery.

- What inspired the project?
  - Department Sustainability Office culture of defining goals and finding metrics to track those goals. Wanting to track effectiveness of office and sustainability effort.
- What were some of your biggest challenges?
  - Biggest challenge was the lack of extra resources, they couldn't ask 'what should we measure' but 'what are we already measuring' to prevent becoming a larger burden to people on campus. There was a lot of time spent digging around for data that connects to sustainability.
- How were sustainable metrics determined for your campus? Did a committee decide? A person? Team? Were they determined to follow a university plan?
  - Associate Vice President and other people in the sustainability office brought it to the environmental stewardship committee and various other people to weigh in.
  - When needing to narrow down the mass amounts of information, they tried to track things that were able to be continued being measured over time and what they thought would be most important
- What systems are in place to keep the data updated and what incentive do participants have?
  - These things have evolved over time. Data is needed to be kept in excel so more people with simple skill sets can keep it posted.
  - There was one original person, Maralyn who was the master who had to sit down with a new manager who she walked through all the processes.
  - There was no incentive besides nagging people
  - Working with the idea of having an application online where people can input data into the system instead of going out and getting it.
  - Establishing contacts in various units and gathering them all together to talk about how they are doing with various metrics "stars metrics"
  - STARS. Sustainability tracking and rating system
  - Moving toward using tablo, visualization software package, to keep data updated live.

- What did the team structure look like to complete this project? What indicators of success have been measured? Has traffic to dashboard increased? Is there actual change? How much can be attributed to the dashboard?
  - Watching web page hits, and it gets a lot of attention that has been increasing.

Based on the answers from this interview, I think the next step in our project is to identify metrics and data sources. It seems the most essential piece in all of this was identifying what data was important and how to find data to support the desired metrics. I think to put together a list of main contacts for the different data sources would be a good next step as well. To find out who would know where to find the information and have them joined in a collaboration to input data together.

### Interview 2:

Interviewee: UNC Office of Sustainability Outreach Coordinator

Interviewer: Spiridon Pappas

- 1)
  - **Name:** Maddie (preferred not to provide last name)
  - **Title:** UNC Office of Sustainability Outreach Coordinator
  - **Contact Information:** UNC Office of Sustainability Phone: 919-843-5295
  - **Why I chose this person to interview:** For my case study interview, I chose to interview a University of North Carolina- Chapel Hill Office of Sustainability staff member. This staff member was the most appropriate person to contact regarding the UNC sustainability dashboard. Although their job title is “Outreach Coordinator” this person had been working on the sustainability dashboard for over a year. This is the sustainability dashboard I used for my project examples/case study assignment at the beginning of the quarter
- 2) This staff member let me know at the beginning of the conversation that the UNC Sustainability dashboard I had been conducting research on prior to the interview (the example used for my project examples assignment) is about to shut down. This is due to two main reasons; the sustainability dashboard hadn’t been updated in a long time, and UNC has created a new sustainability dashboard that reflects a more holistic representation of sustainability. <https://threezeros.unc.edu> is the link for the new dashboard that the interviewee answered the questions on.
- 3)
  - **What inspired the project?**
    - a. Campus diversity Professor/counselor committed three big goals to the university in 2016 (these are the “three zeros” goals)

- b. When this happened, the focus of the sustainability office shifted to prioritize these three sustainable development goals
  - c. The need to work carefully to collect data on these three goals
- **What were some of your biggest challenges?**
  - a. There are so many different ways to accomplish these goals and so many different avenues to go down. Constructing a framework of what to prioritize and what to invest time in, in order to best address their goals/agenda, was one of the biggest challenges.
- **How were sustainable metrics determined for your campus? Did a committee decide? A person? Team? Were metrics determined to follow a university plan?**
  - a. This started with the diversity professor's/counselor's goals in mind. There were technical expert teams assigned to each specified goal. These technical expert teams were people at UNC (faculty and staff) with the most appropriate expertise to determine how to best capture data for these goals, including determining what metrics to use.
- **What systems are in place to keep the data updated and what incentive do participants have?**
  - a. The system most commonly used is similar to the AASHE STARS assessment. The UNC Office of Sustainability has achieved Gold STARS. The team working on the sustainability dashboard borrowed this format for collecting a lot of their data, since it jives very well with the three zeros goals. The various technical experts contribute most of the data. These technical experts don't receive additional incentives; this is simply a high priority for the university.
- **What did the team structure look like to complete this project?**
  - a. The Office of Sustainability handles the sustainability dashboard, in collaboration with a diversity office that was created for the course three zeros goals. The Office of Sustainability mainly handles the dashboard. Their OS staffs a director, an outreach coordinator (interviewee), a greenhouse gas specialist, and a projects coordinator. From this core team, they convened the technical experts teams along with a sustainable advisory committee (made up of faculty, students, and staff), and a steering committee (to determine funding for the project). The OS in collaboration with these two committees and the diversity office, all communicate their goals to the technical experts. Although many people are involved, the office of sustainability core team is tasked with being the sustainability dashboard project managers.
- **What indicators of success have been measured? Has traffic to dashboard increased?**
  - a. Since the new dashboard hasn't been launched yet, this was difficult for her to answer. She is hoping it will be a lot more interactive and easy to keep updated, so that people can follow along and feel like they can personally impact the results of these goals.

- b. Indicators: they use google analytics to check web traffic, and social media platforms to track their pages.
  - c. They have setup several meetings with various groups and departments on campus to make presentations about their sustainability dashboard to campus at large.
  - d. In terms of remaining successful, their hope is to continue to receive ongoing feedback from people at the university, as well as more good ideas on projects and initiatives. The amount of feedback and project ideas they receive will be an indicator of how effective their campus outreach is.
- **What was the scope of the project in terms of time?**
    - a. This was hard for her to answer, because they are not at the finish line yet. She said they are super close to finishing, but they started working on this project in Feb 2018, and the OS team has been working on it full time since then. They also have two interns that work on the dashboard. She estimated it will take at least a year from start to finish.