

Seeing Green

An Environmental Mapping Endeavor at WWU

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1.0 Executive Summary

Western Washington University has long been a leader in sustainable practices and environmental efforts. One example of our leadership was the 2007 commitment to become climate neutral by 2050; Western being one of the first universities to do so. Western has a very significant variety of green activities, programs, and initiatives, we decided to place all of this information in one, easy to use, location. To further improve on our past accomplishments, we chose to implement a green mapping system as a feature on the Universities new mapping system.

Green Maps are locally created environmentally themed maps which serve as a communication tool and guide for sustainable living. Their purpose is to help communities become more knowledgeable and aware of their local surroundings. This map will be comprehensive and easy to use, helping the Western community to better understand the environmental features, sustainable projects, green offices, and environmentally certified buildings on campus.

We propose to contribute campus sustainability locations, landmarks and information to the main WWU map, in order to increase the awareness of our university's green endeavors. The current map lacks the presence of the environmental strengths of our university, one of the defining characteristics of Western. In working with the university's mapping team, we have begun the process of creating an interactive green mapping system.

1.1 Statement of Need

The Western Office of Sustainability has expressed the need for an updated map which promotes green features throughout the University in a concise and clear format. The current green map lacks both information and accessibility. We find that the current green map needs to be expanded and combined with the main map to deliver the greatest possible amount of information to its users.

We feel that this map will allow prospective students, and those new to the University, to better acquaint themselves with the green efforts and accomplishments of WWU which have made us a national leader in environmental sustainability. Prospective students touring Western will have the ability to access a resource that will allow them to identify and locate green features in the same way and in the same place as all the other parts of our university.

1.2 Organizational Information

In working on this project, our primary stakeholder was Professor Stefan Freelan, the leader of the university's GIS (Geographic Information System) Mapping team, who worked to implement the current mapping system. The Office of Sustainability was another primary stakeholder.

Secondary stakeholders include the general student population, staff, faculty, university server administrators, and most importantly, incoming and prospective students.

For this project, we divided the main responsibilities into two sections. Jamie was in charge of technical coordination, including communication with the GIS team and website administrators, and formatting raw data. Bill and Adam were responsible for research and synthesis, which included communication with organizations within and outside of the university, and the collection and analysis of potential map items.

1.3 Budget

For our primary goal, the only costs were our time and the time of our primary stakeholders. Each week, we each spent 3 hours in class and 2.5 hours outside of class working to finish this project in the timespan of the fall quarter.

2.0 Project Description

The map will include several sets of icons representing groups of locations with similar purposes. The groups we decided on are: Education, Energy Conservation, Pilot Projects, Recreation, and Recycling and Compost.

The education group contains locations that have a focus on educating students and the community about sustainability. Energy conservation contains projects and locations on campus that help to reduce the amount of energy that the campus consumes. Pilot projects encompass campus projects run by students, faculty, and staff which if successful, will become larger projects. The recreation group entails campus athletic locations that have made a commitment towards using green energy and having the lowest impacts on the environment. Recycling and compost includes the locations of efforts to encourage sustainable disposal of waste, recycling, and compost.

All these icons will be on a separate layer of the map. The main campus map has many layers, each of which makes visible a different set of icons. On this map, to select which layer or layers you would like to view, you click on a button labeled "Features" which activates a drop down menu which shows all of the layers in a list. Next to each of the layers label is a check box. When a box is checked, its corresponding layer is turned on. This shows the icons that are on the layer selected. This system allows a user to turn on as many or as few layers as they want to see. This is important because if every layer on the map was always on, it would be incomprehensible.

The icons that are currently on the sustainability layer are diamonds, stars and circles, all in the same shade of green. The diamonds represent the pilot projects, energy conservation, and recycling and compost. Circles represent recreation and education and stars represent green certified offices.

When one of the icons on the map is clicked, a small window appears beside it with information about that location. For the green layer, this information includes: the name of the location, the group it is in, a picture if applicable, a description of the location, and a link to further information.

2.1 Goals

Our goal is to organize all of the information regarding environmental initiatives, locations, offices, features and events from the university's website into a concise, understandable and accessible map. Accomplishing these goals will emphasize Westerns environmental focus, better inform campus tour guides and new students, and help those interested in environmentalism to find the resources they need to be successful

2.2 Methodology

We began by analysing green maps from other schools, as well as evaluating our schools current campus and green maps to decide what information we could add. To learn more about green mapping, we contacted Virginia Commonwealth University, Appalachian State University, and Brandeis University as well as Green Maps a non-profit organization that creates environmental mapping systems for communities, cities and educational institutions. Through our phone interviews we learned how to identify important stakeholders and the ways to most effectively establish mapping systems and methods for making these systems user friendly.

We then contacted stakeholders around campus who could either help us complete our project or get information about the items we wanted to put on the map. The key person we contacted at this point was Stefan Freelen, who, as head of the GIS mapping team, would be the person to implement the changes we developed.

Once we had established our contacts around campus, we used information from fellow university green mapping systems, campus resources and staff to collect the items we wanted to put on the new map. In the process of collecting that raw data, we put the information gathered in an easy to understand spreadsheet. This information was organized it into groups based on the icons that would

represent the items on the map. We then took this information to Stefan Freeland. From this he developed the icons and put the data items onto the new sustainability layer of the main campus map.

3.0 Future Work

Since our creation of the framework for the green layer, we have identified a number of future improvements. These could be accomplished by future groups, the Office of Sustainability as well as by the Western mapping team. Our initial improvements would be to to the icons. The map would benefit greatly from having icons that are more detailed and have a greater variety. Each group should have its own icon that gives a better sense of what it represents. For example, recycling and compost could be represented by the recycling symbol, and education by a book.

The green map could be expanded by the Office of Sustainability to include sustainable features beyond the main campus, including the city of Bellingham and beyond. A webmaster or future sustainable planning group could work with the mapping team to periodically update the map to include new features and projects on campus. The map could also be used as a catalyst for environmental education and outreach projects on campus. The mapping team could add a system to dynamically update club locations, which would help not only environmental clubs, but clubs in every department campus wide.

There is also the possibility in the future of advertising our map to the campus community. This could be done by a future group from the sustainability class, the office of sustainability or other offices. Advertising techniques could include printed maps, posters, information displayed near map locations, or QR codes.

4.0 Conclusion

Maps are universally understood and allow people to learn in spatially effective ways. Our additions to the university's map will fill the need expressed by Western's Office of Sustainability to promote the green features of our campus and be a useful tool to tour guides, prospective students, incoming freshman and anyone who wants to get involved with sustainability on the Western Washington University campus. We feel that implementation of a green mapping layer within the University's mapping system will greatly improve the access to information, opportunities for involvement in sustainable efforts and the image of our University as a leader in environmentalism for future and prospective students.

5.0 Appendix

List of items:

<u><i>Item</i></u>	<u><i>Building</i></u>	<u><i>Icon Group</i></u>
Huxley speaker series	Communication 125	Education
Environmental Studies Building Solar Array	Environmental Studies Building	Education
Huxley College of the Environment	Environmental Studies Building	Education
Fairhaven College	Fairhaven	Education
World Issues Forum	Fairhaven	Education
Vehicle Research Institute	Ross Engineering Building	Education
Outdoor learning center near the outback	South Campus	Education
Western's Office of Sustainability	Viking Commons 25	Education
AS Environmental Center	Viking Union 424	Education
ResRAP	All Residential Halls	Energy Conservation
L.E.A.D Program	Campus Wide	Energy Conservation
Green Roof	Miller Hall	Energy Conservation

Solar Demonstration Project	Viking Union	Energy Conservation
Parking Lot LED Lighting Retrofitting	Parking Lot	Energy Conservation / GEF
Wilson Library Circulation Desk	Haggard Hall	Green Offices (SOC, Sustainability Office Certification)
Environmental Health & Safety	Environmental Science	Green Offices (SOC, Sustainability Office Certification)
University Advancement Services	Old Main	Green Offices (SOC, Sustainability Office Certification)
Provost's Office	Old Main	Green Offices (SOC, Sustainability Office Certification)
Financial Aid Department	Old Main	Green Offices (SOC, Sustainability Office Certification)
Viking Supported Agriculture	Carver Gym	Pilot Project
Higginson Shower Timers Pilot	Higginson	Pilot Project
Late night shuttle	VRI	Pilot Project
Higginson pilot green dorm	Higginson Hall	Pilot Project / Energy Conservation
Static treadmills in the rec Center	Rec Center	Pilot Project / Energy Conservation
10x12 pilot program	Parks Hall, Arntzen Hall, Chemistry, Biology	Pilot Project / Energy Conservation
High Speed Hand Dryer	Environmental Studies Building, Miller Hall	Pilot Project / Energy Conservation
High Speed Hand Dryer	Artzen Hall	Pilot Project / Energy Conservation / GEF
Water Bottle Filling Station	Artzen Hall	Pilot Project / GEF
Water Bottle Filling Station	Rec Center	Pilot Project / GEF
Haggard Hall Paper Towel Compost Pilot	Haggard Hall	Pilot Project / Recycling and Compost / GEF
Fairhaven grass field	Across the street from Fairhaven dorms	Recreation
Buchanan Towers Bike Shop	Buchanan Towers	Recreation
Outdoor center	Viking Union	Recreation

Sehome Arboretum	Sehome Arboretum	Recreation
The Outback	South of Fairhaven dorms	Recreation / Education
Zero Waste	Arntzen, Fairhaven, VU, Zoe's, Academic West, Birnam Wood, Environmental studies center	Recycling and Compost
AS Recycle Center	Recycling Center 102	Recycling and Compost / Education
LEED Certifications	Wade King, Miller, Academic Instructional	

5.2 Case Studies

5.2.1 Green Mapping Systems

1) Contact name & position

Wendy Brawer, Founder of Green Map System

2) Purpose of the Project?

She helped create the first green map of New York in 1992 and began the global green map project in 1995. Brawer and her colleagues sought a way to use maps to help to help New York City residents become more connected locally and engage in sustainable development. She chose to use maps because she feels they are universally understood, resource efficient, provide a new world view and believes that people enjoy using maps.

3) Size and Cost of the Project

As an organization that works with communities, schools, Universities, the cost and size of projects vary depending on the size and overall mapping area covered. When working with Universities the cost is usually \$40 per student and is covered by funding by universities.

4) Timeline for project?

As with the size and cost, the timetable of project varies depending on it is being completed by communities, classes or individuals. There are a number of steps taken when they create a green map for a community. These steps include a community engagement process, research and information gathering. Brawer said that projects have been created in a weekend, but typically when working with students, the creation of a green map takes a semester.

5) Players/stakeholders involved?

The stakeholders and players often include City planning or tourism departments, municipal agencies as well as related NGO's and 'gatekeepers' (leaders in the community) In additional players include journalists, librarians and newcomers to the area.

6) Reception/perception of the project of the stakeholders?

People have been delighted to have a new way of understanding their local communities. Patterns of neglect have been more readily identities and people have become more connected with green spaces. "Helping people make connections across the city". It has helped like-minded professionals a way to network and open a whole other way of connecting.

7) Biggest challenges? (at least three)

Fundraising has, is and will always be the largest challenge. Green-maps are working to become more open in their funding. As a foundation they are working to support more individuals have a solid earned income as well as waiving student fees. Secondly she said that often the work they do is not quantifiable in dollars. Their work has become more technology.

8) If you could do the project over again, what would you do differently/what advice do you have for our team?

If some of their work could be done over again, she said that having a stronger business model that is sustainable and able to adapt to changes.

- 9) How is the project progressing now?

Green-maps currently are working in 65 countries and with hundreds of Universities.

- 10) Related future projects?

A recycling map of New York City is being created as well as ongoing work on the NYC green map. Greenmapsny.org. The organization is working on an open initiative which will transform their ability to collaborate, create partnerships and increase their impact to enhance the future of sustainability in much more informed and effective ways to address fundamental issues. Crisis mappers: crisismappers.net, conic crisis, instead of acute.

- 11) Unintended consequences?

When working with maps a common consequence is that people have begun to work from unoriginal ideas.

5.2.2 Appalachian State University

- 1) Contact name & position

Crystal Simmons, office of sustainability, communications and outreach, Appalachian State

- 2) Purpose of the project?

The purpose of the project was to tell the story of sustainable energy and operation on campus to be used on a walking tour. Another purpose was to put this information online.

- 3) "Size" & cost of the project?

The cost was zero because a communications intern was the project leader and the project involved the google map of campus.

4) Timeline for project?

The project started in May 2011 and was completed in August 2012

5) Players/stakeholders involved?

Crystal Simmons, Ben Wofford, Webmaster, and the communications department.

6) Reception/perception of the project of the stakeholders?

The reaction has been positive so far but the map has not been used much.

7) Biggest challenges? (at least three)

The biggest challenges were figuring out how to use the tool, what the web design should be like.

mobile app

what you want to put on the map

8) If you could do the project over again, what would you do differently/what advice do you have for our team?

Get more people involved in helping out the project

9) How is the project progressing now?

The project is basically done but will be expanded as new items come online and there are plans to put on social networking sites.

10) Related future projects?

no

11) Unintended consequences?

too early to tell

5.2.3 Brandeis University

1) Contact name & position

Leah Lumpkin Brandeis University, the Campus Sustainability Initiative - Sustainability Coordinator

2) Purpose of the project?

“Institutional memory”. All information in a nice and concise way. Visually show everything on campus. It is a nice way to summarize everything happening on campus.

3. “Size” & cost of the project?

Cost was not a factor, because all of the work towards the map came from previous works and knowledge base. 11x16 500 copies around campus.

4) Timeline for project?

The creator of the map, was involved in 90% of its creation. Time was more the electronic aspect of designing it.

5) Players/stakeholders involved?

The creator Jana, seemed to take the entire project upon herself and didn't really involve others.

A lot of information with other groups, made information much more concise and put it into a map. Could have made it more of a collaborative process, consult with different departments. 2nd integration. Engage with more stakeholders, otherwise a one man effort.

6) Reception/perception of the project of the stakeholders?

Can't speak to the reception with faculty. Everyone that has seen it or mentioned it has been positive, great conversation piece, great resource to bring to any meeting. Gives copies to people. Physical map is a nice piece of collateral. Easy and creates a good relationship. Last ditch effort before she left, it was not a roll out process. Sharing with a lot of people.

7) Biggest challenges? (at least three)

Speculate in retrospect she could have used this way to engage additional people in the process "here is what I know, what else can I know?" Greater involvement was not done! Challenge how do you manage that process of asking people so it's not time consuming and it's a beneficial process. The whole aspect of how to keep it updated seems like a huge challenge. How to update. Putting it in a manner in which other people can edit it. Wasn't thinking of future classes of student, interns in the sustainability office?

New solar project, trying to figure how to update. Connecting it with a physical place on campus. Showing people the campus map, really important. Great reference source. Thinking about how to make it easy to update, not a static item.

8) Related future projects?

Not enough time. Utilizing it as a tool for everything.

9) Unintended consequences?

Making sure it is managed, accessible. Communication. Once people left how it will be continued.