DALHOUSIE UNIVERSITY
Inspiring Minds

Campus Food Gardens

3502 Greening the Campus Final Report

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Abstract:

Through this report, our group attempted to provide students, faculty, and the surrounding community of Dalhousie's campus with an image of sustainability consistent with Dalhousie's greening the campus goals. This report is meant to assess the economic, physical and social feasibility of implementing food gardens on Dalhousie's Campus. Measurements of the physical and environmental parameters were taken to assess if the proposed location, the gravel plot west of the Killam Library, was suitable for such a project. A focus group was conducted along with interviews and email questions to assess the social feasibility of the project while costs relative to similar university projects and relevant equipment were tabulated. Support from DUSUSO and the university would supplement the initial cost of this project, and can further be mitigated by charging a small fee for the use of the garden. The information obtained from interviews and the focus group indicated there was adequate interest to fill the suggested number of plots. The results indicate a project of this type is feasible on the southwest corner of the Killam library. The collaborators of this report recommend further research into social, environmental and educational benefits of campus food gardens and highly recommend their swift implementation into the campus community.

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Introduction

Our project will address the problem of sustainable consumption on Dalhousie's campus. Sustainable consumption is gaining in currency as a new environmental policy objective (Seyfang and Paavola 2008). Our group will attempt to provide students, faculty, and the Dalhousie surrounding community with the opportunity to decrease their unsustainable food consumption. To accomplish this, we will determine the feasibility, including the cost of and interest in, implementing and operating organic community food gardens on the Southwest corner of the Killam library.

According to the College Sustainability Report, 61% of North American colleges and universities have and maintain a community garden (CSRC, 2010). Dalhousie has the opportunity to be among the leaders in sustainability, community development, and part of an avant-guard of university initiatives for changing how society views sustainable consumption. Implementing a community food garden is a major step to change how people view sustainable consumption.

The economy surrounding community food gardens on university campuses has both direct and indirect monetary benefits. The University of Victoria has 45 individual plots that are 8′x15′ and are rented to the university community members for a fee of $30 per year (University Victoria 2009). This money goes back into the maintenance, tools, and improvements of the garden each year. Trent University is a good example of producing indirect economic benefits through a student-run cafe that sells products made with ingredients from their rooftop garden (Trent 2009). Dalhousie will be able to see the direct benefits from the community garden such as University of Victoria and may be able to introduce a similar indirect benefit such as Trent.

Due to the time constraints, the scope of our physical analysis will only focus on the costs and environmental factors attributed to a food garden being placed along the southwest facing side of the Killam Library. Our group will assess the construction costs, cost of soil, sunlight exposure and what kind of yields that would be associated with this location. Thus, the projects goals are two-fold: 1) to determine if the site of interest would be a physically and economically feasible location and 2) to give the opportunity for students to voice their opinions, concerns and suggestions for the campus food garden.

By determining the physical and economic feasibility and benefits of implementing a community garden beside the Killam Library, we hope to convince university officials that such a project would greatly increase sustainable consumption and allow Dalhousie to meet its 'greening the campus' goals.

Project Overview

The Area of Interest: Next to the Killam Library

While a myriad of potential sites for an organic campus garden exist on campus, only one was chosen to conduct to determine the physical attributes of the site. If it can be proven that building such a garden will be socially, environmentally, and economically beneficial to the Dalhousie community, then productive steps can be taken to implement such gardens on all three campuses. The site is located to the west side of the Killam Library, on Studley Campus, where there is currently a large portion of unused area covered in gravel (Figure 1). The site was chosen because it is relatively

large, receives full sunlight, is currently an unproductive, useless area, and would be unobtrusive to students while still being in the middle of Dalhousie's main campus.

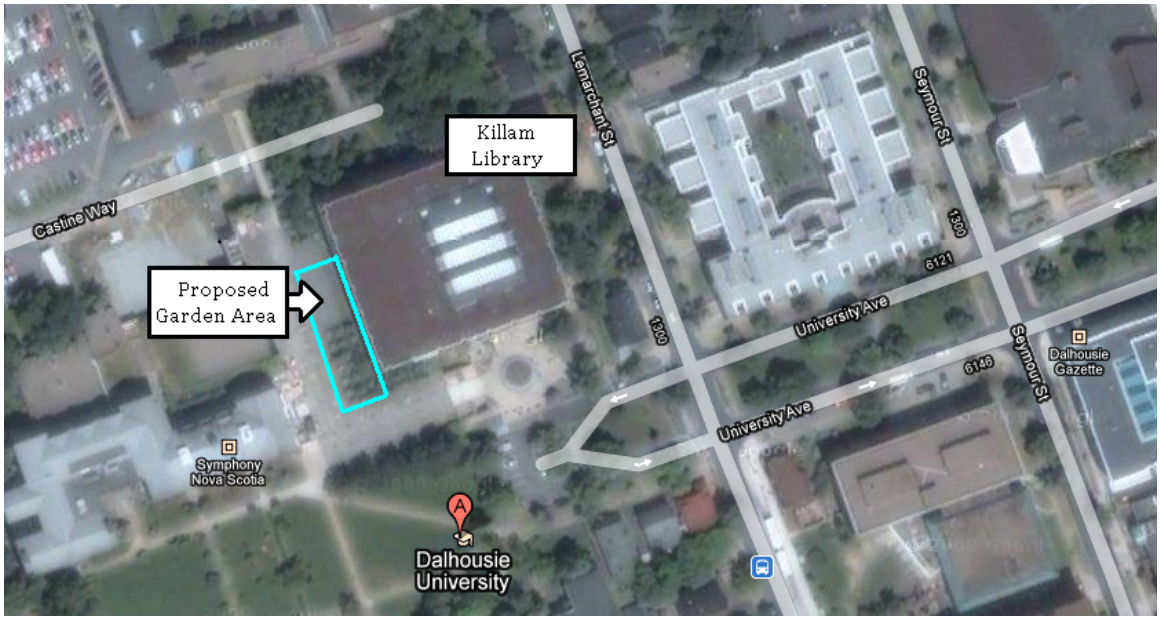


Figure 1: Map depicting proposed area for campus garden, next to the Killam Library

Historically, the west side of the Killam Library had some foliage and trees. However, recently those trees were uprooted and the area was covered in gravel. The area covered in gravel is now upwards of roughly 40m long by 12m wide. This area is seldom used, as there is a walking area to the west of the site. The proposed site for a campus garden would be built on the graveled site, which is approximately 480m^2. Further dimensions are discussed in the results section.

This study is intended to provide a feasibility assessment of improving the graveled site with a campus garden, without actually removing the gravel itself. Raised bed gardens were deemed the most appropriate form of garden for the site. The costs of building the raised beds, filling the beds with soil and compost, surrounding them with fencing and netting, and watering and caring for the area throughout the year was contrasted with the benefits of greening Dalhousie's image, promoting campus-wide

student integration and involvement, and increasing community wide environmental awareness.

Significance for Sustainability on Campus and in the Community

The Dalhousie Campus Green Guide published by the College of Sustainability (2009) lists ten golden rules for living sustainably at Dalhousie. Among those ten rules, two of them can be properly addressed by implementing a campus garden on campus. The first is to "eat mostly plants, locally produced, and minimally processed" (Dalhousie Campus Green Guide, 2009). A campus garden would result in the production of plants on campus, by students and faculty, for students and faculty. Organic practices would not require the input of chemical fertilizers, pesticides, or herbicides, resulting in wholesome healthy food.

The next golden rule that a campus garden could address is to "get involved: take action" (Dalhousie Campus Green Guide, 2009). While there are several societies that allow students to get involved and take action towards sustainability, these societies are often tailored towards students in environmental programs. A campus garden would allow students and staff of all faculties to be involved in an intimate setting, allowing them to become involved in a project that allows them to lower their carbon footprint, and to take steps towards promoting sustainability at a grass roots level.

Methods

Measuring the proposed area

The gravel plot outside of the Killam Library was measured. In combination with sunlight schematics the best plot and design for the campus food gardens was determined and sketched.

Creating the GIS LIDAR shade images of the Killam Library

A total of 9 maps were created to display the amount of shade that the area of the proposed campus garden would be exposed to. The purpose of creating these maps was to determine if the proposed area for the campus garden received sufficient sunlight during the growing season to grow vegetables and herbs. A total of three maps were created for three periods throughout the growing seasons, May 1st, June 15th, and August 1st, for three times, morning, noon, and afternoon.

The shadows casted by the buildings surrounding the proposed site can be attributed to size of the buildings and the angle at which the sun is over the area at a given time, and the azimuth of the sun determines that angle. Azimuth changes can be inputted into a geographic information system (GIS) to depict shadows from buildings.

To begin creating maps depicting the shadows of nearby buildings by the Killam Library, several maps and projections had to be inputted into the GIS program known as Arc Map. Firstly, a large fly over map of the Halifax peninsula was inputted as a layer file. Next a LIDAR, or light detection and ranging, image was inputted as a separate layer file lined up geographically to the fly over map. LIDAR images represent a database of information, which can depict the basic topography, or physical features, of a region. Since the LIDAR image can depict topography, if azimuth data is included the LIDAR

image can be modified to depict shadows. The LIDAR image used to create the maps in this report had a resolution of 1 by 1m.

To determine the azimuth of the sun and the Killam Library at various times of the day during various seasons, a United States Navy Naval Oceanography azimuth library database was accessed (USNO, 2008). Approximate geographical co-ordinates of the Killam Library, determined using Google Earth (2010), were inputted into the database A total of nine azimuth figures were calculated, for three times of the day for three dates of the growing season. The times of the day were 9 AM, 12 PM, and 3 PM. These times of the day were deemed appropriate at encompassing an appropriate time frame, as they covered an 8 hour period, yet allowed for extrapolation before in the morning hours of sunlight, and later in the evening hours. In addition, the warmest time of the day is included in this 8 hour time period. The three dates chosen were May 1st, June 15th, and August 1st, encompassing a total of 45 days from spring until later in the summer, ultimately covering the most productive growing months.

The azimuth data was entered into the LIDAR dataset, which produced a new, modified version of the LIDAR image, depicting projected shadows cast by nearby buildings close to the Killam Library. Each azimuth was inputted individually, as each azimuth helped to produce a separate map. To produce a layer file depicting only the shadow, the data in each new, modified LIDAR image was changed so that only data representing a shadow was visible, and the remaining information was deleted, resulting in a layer file that depicted only shadows. This layer file was layered on top of the original fly-over photograph image of Halifax.

Determining costs of materials

A campus community garden in the proposed area next to the Killam Library could be implemented from a combination of several factors. Each factor is integral to the building and maintenance of the garden. Some of these factors are fixed, but others are variable and can be implemented using a variety of materials. For the purpose of this study, our group has decided that the following factors will be needed for a successful garden: materials for the raised beds, soil, mulch, fencing, equipment, a composting unit, and a tool shed. Research was conducted to determine the least expensive materials for each factor pertaining to the campus garden.

Interviews

Due to the time of year, student societies were unavailable to spend the time discussing our issue during meetings. It was suggested to us that the best means of communication would be to email the questions for circulation through the committee email lists. This was done but minimal responses were returned. Instead it was decided that speaking directly to the Dalhousie Student Union Sustainability Office (DSUSO), coupled with a focus group, would be more effective in obtaining answers to our desired questions.

Interviews were used as a purposive method of data collection to draw on the knowledge of specialists. The first set of interviews was distributed via email to relevant staff from facilities management at Dalhousie University. Drawing on the broad knowledge of the staff with regards to the campus, they were able to help assess the legal and physical limitations of designing a food garden. They also provided knowledge of

staff and equipment that is available on campus for landscaping and similar types of work.

Secondly, a face-to-face interview was conducted with the Assistant Director of Dalhousie Student Union Sustainability Office, Will Horne. Using the interviews we assessed the potential for and best methods of obtaining DSUSO financial funding. The interview also allowed for concerns and input of DSUSO to be voiced.

Focus Group

Multiple means were used to engage interested students through snowball sampling by drawing on several email lists on campus a representative group of varying garden knowledge and interests was obtained. The group was provided with an overview and background of the project. The direction of the focus group was led by the ideas and suggestions made by the group but were facilitated to ensure that our main questions were answered.

Results

Table 1. Size of proposed area.

Length	Width	Area
48 meters	16 meters	768 square meters

Proposed garden dimensions

Given that the plot contains gravel it was determined that the gardens should be raised beds with at least 30cm deep soil. In order to have two plots in each garden measuring 1.2 by 1.2m each, the gardens will measure 1.2 by 2.4m (4 by 8ft). The longer side will face the direction where the sunlight shines most often to ensure that the whole

garden receives enough sunlight, preventing plants from shading the rest of the plants in the garden. Given these dimensions and light restrictions, 21 gardens can be built on the west side of the Killam Library. Each garden is 1.2m apart to give ample room to walk in between. Should there be higher demand for gardens, then seven more can be built within the space remaining until the concrete path by the Chemistry Building. The southwest corner of the gravel plot will not contain any gardens, as this was the area that receives the least amount of sunlight (becomes shaded early in the afternoon by the neighboring Chemistry building). The shed was placed here, out of the way in order to not occupy any ideal places for other gardens. It would also be possible to expand up to eight more gardens in this area if required (Figure 2).

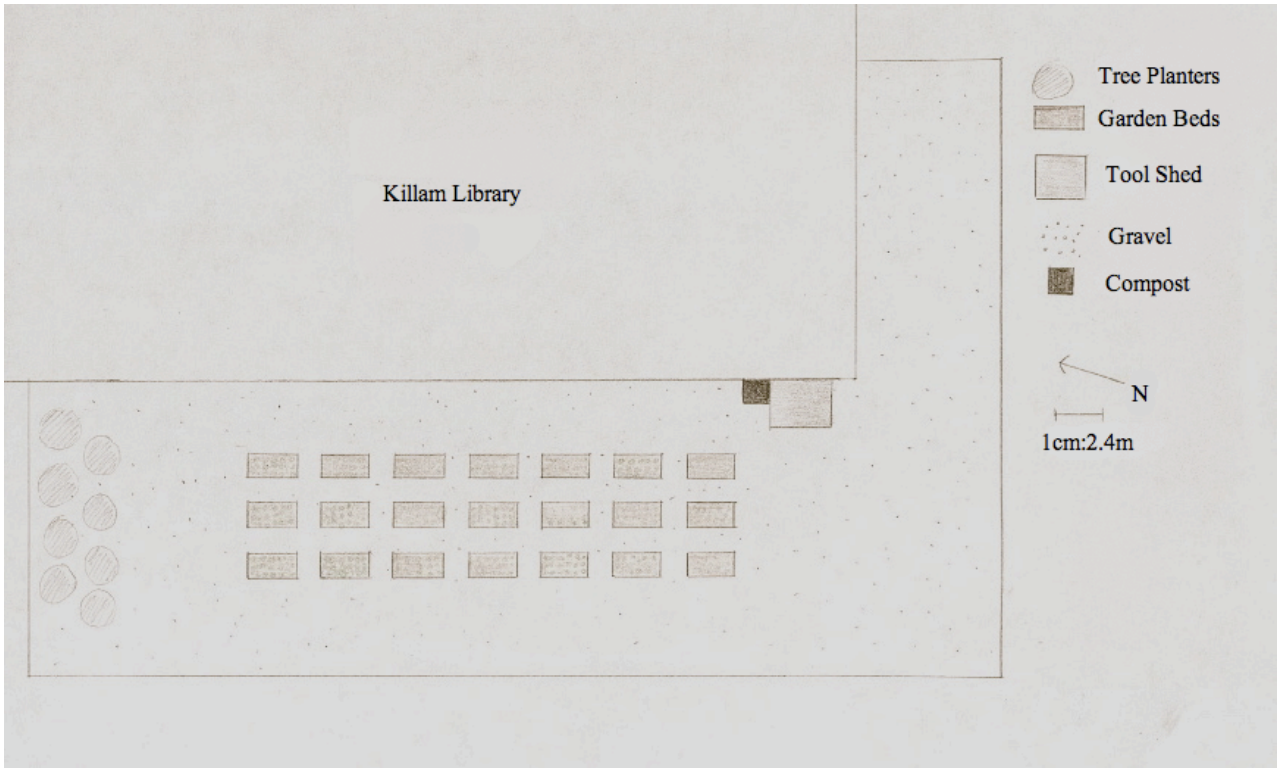
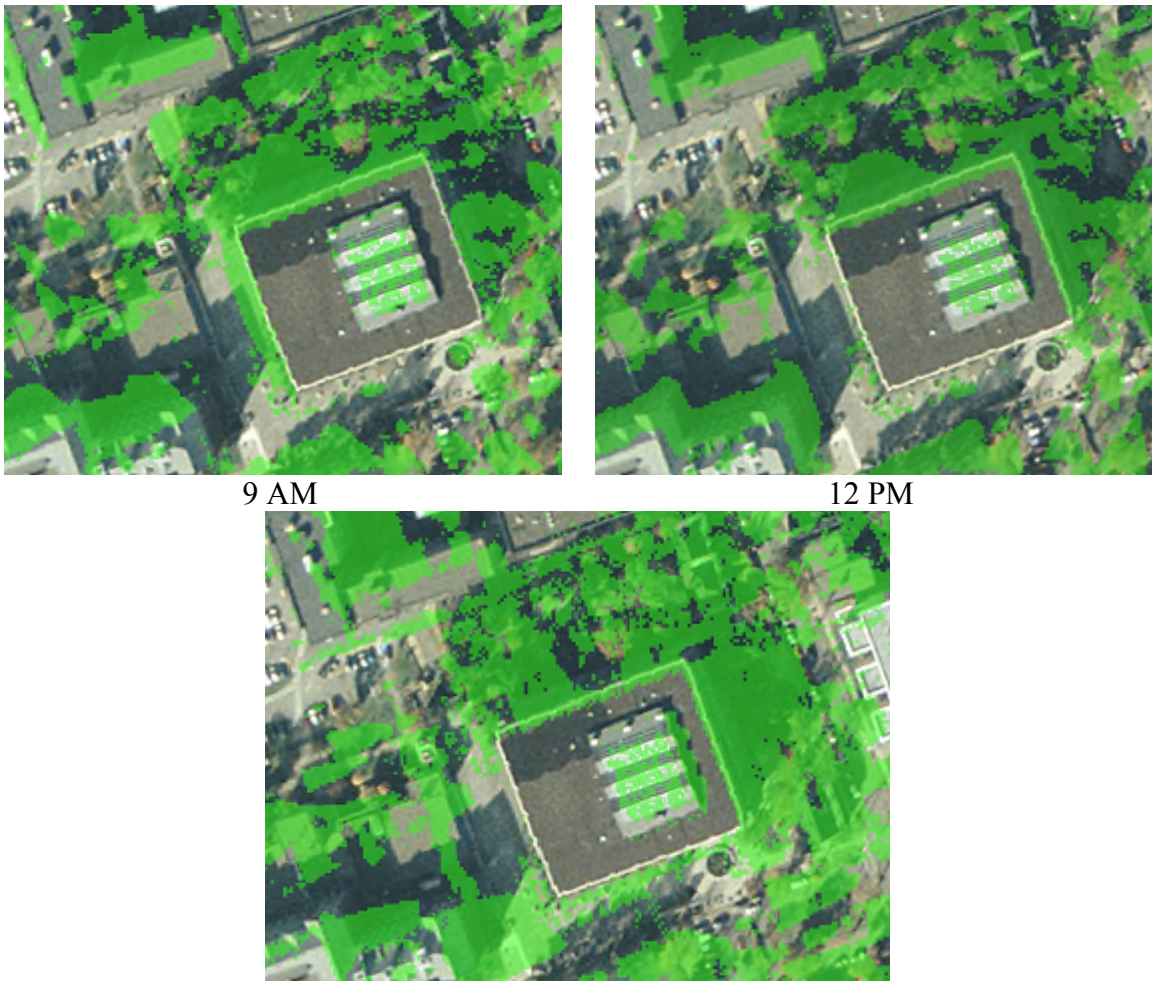


Figure 2: Sketch of proposed garden.

Given the minimum of 21 gardens that will be built, the total amount of soil and compost required will be 18.14m^3. The total number of 2 by 6's required will be 126.

Each garden will also require 2.88m^2 of landscaping fabric to prevent the soil from mixing with the gravel underneath. The gravel was measured to be approximately 15cm deep allowing ample drainage for the gardens. The tool shed will be approximately 2.4m by 3.0m to allow for enough space to store extra tools, trellises, netting, stakes, and other essentials.

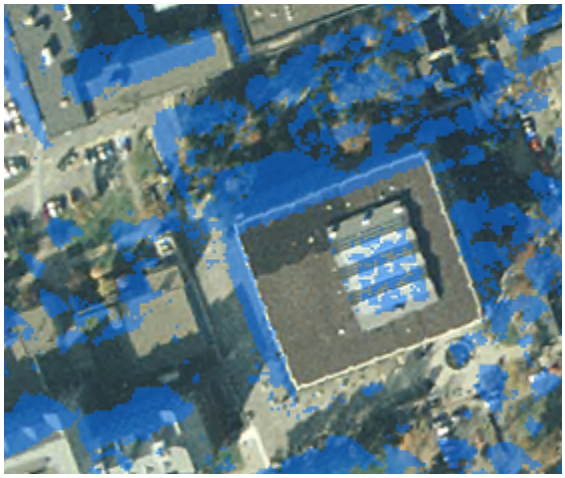
GIS LIDAR shade images



9 AM 12 PM

3 PM

Figure 3: GIS shadow map of Killam Library for May 1, 2009.



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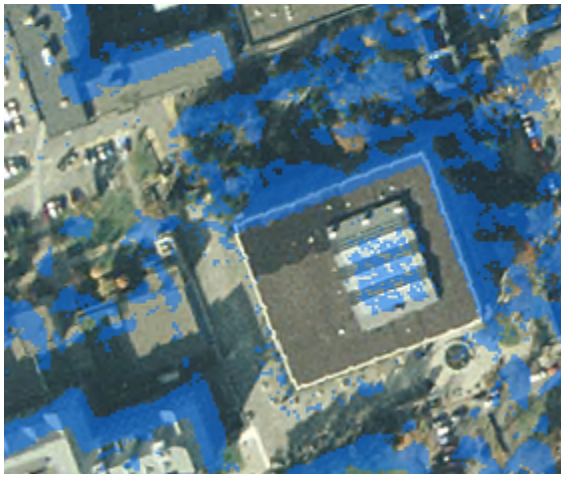

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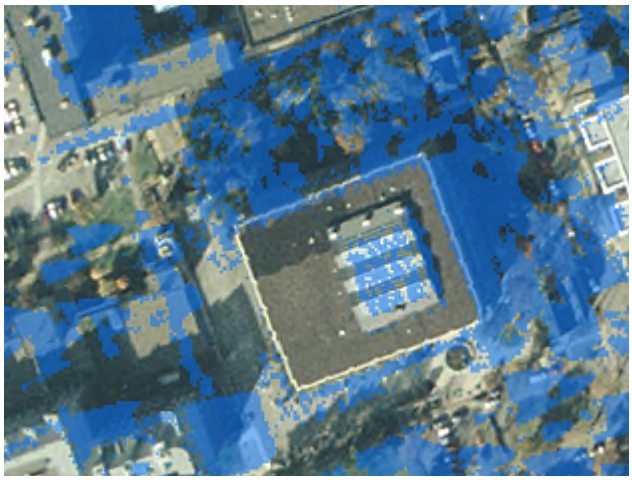

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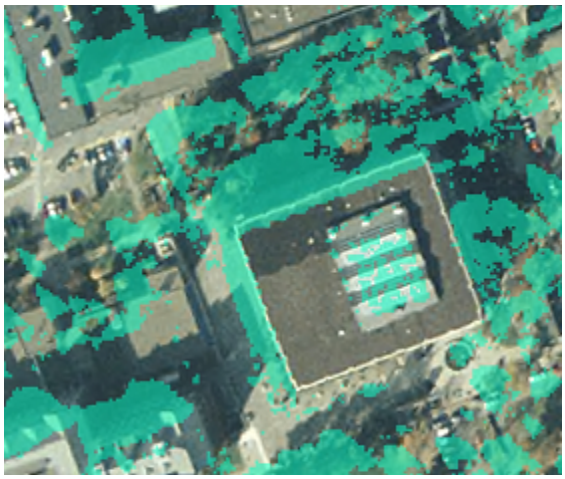
Figure 4: GIS shadow map of Killam Library for June 15, 2009.



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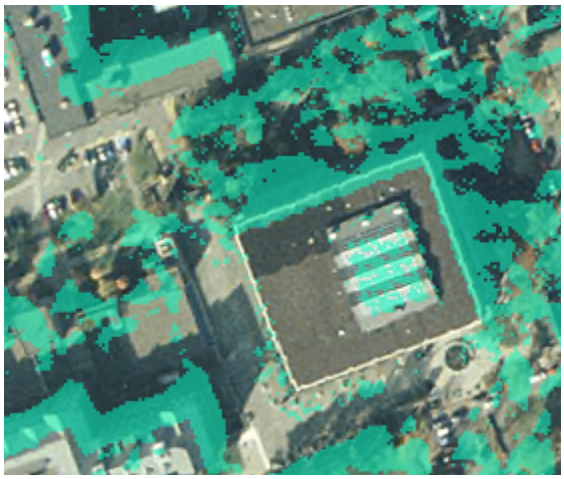

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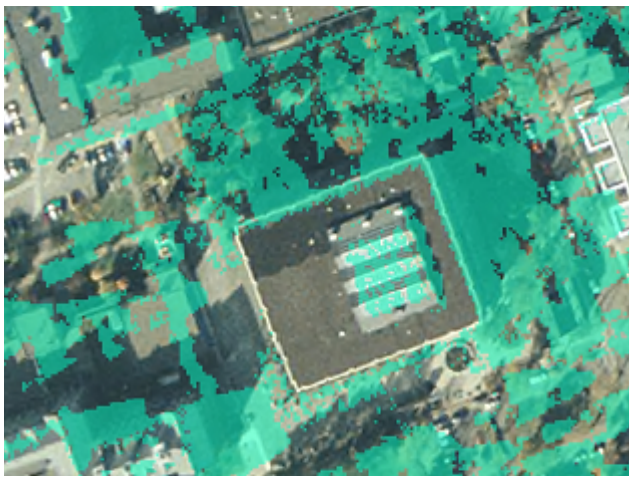

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Figure 5: GIS shadow map of Killam Library for August 1, 2009.

By analyzing Figures 3 through 5, it is evident that the region of the proposed campus garden receives upwards of 8 hours of sunlight per day. The majority of the plants proposed to be grown in this garden require 6 to 8 hours of sunlight per day.

Costs

Table 2: Costs of necessary inputs.

Soil			
Brand	Price	Amount Needed	Total Cost
Davis Specialty Soil and Compost (70% compost and 30% topsoil)	\$414.71 (7.65 m^3)	18.4 m^3	\$997.47
Kynock Resources (40% organic garden soil)	\$20.30 (per m^3) \$102.00 delivery	18.4 m^3	\$373.52 + \$102.00 = \$475.52
Kel-Ann Organics (40% organic gardening soil; peat moss, compost and manure)	\$18.73 (per m^3) \$82.00 delivery	18.4 m^3	\$344.66 + \$82.00 = \$426.66
Lumber			
Brand	Price	Amount Needed	Total Cost
Kent (Spruce)	2 x 6 = \$0.49 per foot \$55.00 delivery	126-8 foot- 2 x 6	\$493.92 + 55.00 = \$548.92
Home Depot (Spruce)	2 x 6 = \$0.27 per foot \$50.00 delivery	126-8 foot- 2 x 6	\$272.16 + \$50.00 = \$322.16
Lumber Mart Ltd. (Hemlock)	2 x 6 = \$0.58 per foot \$56.35	126-8 foot- 2 x 6	\$584.67 + \$56.35 = \$641.02
Equipment Shed			

Brand	Size	Description	Cost
Home Depot (Handy Home Products)	6 feet by 6 feet	Ready to assemble/ pre-cut Cedar doors	\$1010.25

Of the five local gardening soil-vendors, it was decided that purchasing soil from Kel-Ann Organics would be the most economically feasible purchase. According to Chrissy Moore, their 40% Organic Gardening Soil is comprised of 40% organic matter, including peat moss, manure, and compost. This mixture is precisely what a raised container vegetable and herb garden would require in its initial years of establishment to yield maximum produce, without the addition of mulch or organic fertilizer. As it was previously discussed, the garden would require a total of 24 m^3 of soil – which is equal to 26.24671916 $yards^3$. For the sake of this project, we will round this value up to 27.00 $yards^3$ so that the loss of some soil (i.e. through transportation) is accounted for without leaving the garden project with too little soil. At $26.55 of soil per cubic yard, and a flat rate delivery charge of $82.00, the total cost of organic gardening soil from Kel-Ann Organics would be $798.85.

For the lumber needed to border individual plots within the garden's boundaries, companies firstly recommended pressure and chemically treated wood for this outdoor project; however, the members of this group decided that such timber products were not in the spirit of sustainability. As a result, the second choice of those whom were interviewed recommended purchasing Spruce, and then staining it with an all-season protector. Though concrete cinder blocks were also considered for this project, the cost far exceeded that for lumber was therefore not pursued. Of the three independent companies contacted, Home Depot offered the best prices per piece, as well as having a low flat rate delivery charge of $50.00. Having spoken to Nancy Fitzpatrick, she quoted their lumber to be approximately $0.27 per foot for two-by six's, and approximately $0.87 per foot for two-by-ten's. Furthermore, they sell their lumber in lengths of 8, 10,

12, 14 or 16 feet long per piece. For the proposed gardens will require a total of 126 two-by-six's at a length of 8 feet each, resulting in a total cost of $322.16.

Interviews

Through Dalhousie's Environmental Services Manager, Mike Murphy, the first set of interviews were directed to Grounds and Horticulture Service Supervisor, Mike Wilkinson, and the Director of Planning, Mary Jane Adams, their expertise gave the following responses. Facilities management would need to be an integral part of the construction and maintenance of the food garden as they are with the current food gardens on campus. Facilities would be able to aid once the university approved the project. Their input would be required for the proper planning of the site such that all required permits and safety concerns are addressed. This would Insuring that load requirements are not exceeding for the underlying structure (the Killam library's learning commons), maintaining the integrity of the underlying structure by allowing for proper drainage, and implementing methods of pest control, and retaining proper soil quality. Both contacts expressed concerns of vandalism occurring in this location and believe that proper planning of infrastructure would need to be applied to mitigate the problem.

Tools would need to be obtained by the society or community involved in the garden. However grounds and maintenance would be willing to loan some tools to the project until such a time that they could be sourced. A lockable box or shed is strongly recommended for there safe storage. A water source is available for use in the proposed food garden location. The water source is located in the main quad between the Chemistry building and University Club.

The interview conducted with Will Horne, Assistant Director of DSUSO had positive results. DSUSO is not directly involved with either current campus food garden but believes that campus gardens are very valuable. He stated that DSUSO would be interested in partaking in this project given soil quality testing and university approval. Will felt that the DSUSO would be interested in helping to finance and take an active role in implementing the project as well as ensuring its sustainability in the long term.

Focus Group

Ten individuals attended the project's focus group from varying years and areas of study. When asked if any had knowledge of the current community gardens on campus only one was aware of the Seemore Greens location and none knew of the Women's Center garden. Due to the lack of general knowledge of current gardens as well as how to become involved within available gardens, the participants were prompted to suggest better advertisement strategies for these amenities. The advertising methods that suggested by the focus group were the abundant usage of posters, an inclusion within DSU updates, classroom announcements, dedicating a society to run the gardens and having the gardens incorporated into campus tours. Informative emails were also suggested though with a mixed consensus on their effectiveness.

When informed of the project's proposed location of a new community garden, there was a consensus that the central location of the garden would increase awareness throughout the Dalhousie population. The additional suggestion of a permanent sign or plaque along side the garden was made to further advocate to students and faculty of how to get involved. The focus group felt that substantial interest would exist across campus; under the assumption adequate information was provided. However they believed

greatest interest would come from faculties associated with the natural sciences, such as the environmental science and biology programs.

The participants were given an explanation between the two types of community gardens available, and were then asked to choose which one they preferred. The first choice being a community garden in its most natural sense, where work and effort within the garden was rewarded with a take as you need approach concerning the produce grown. Of the 10 participants only one preferred this method of running the garden. Quoting that this method would provide a greater sense of community and interaction between those involved. The main concern expressed for this method was the regulation of produce, to insure fair portions were provided to individuals based on their involvement. The other nine participants preferred the method of renting a given area within the garden, having the freedom to grow what they wished and keeping all the produce themselves. The main concerns with this method were firstly the security needed to protect their investment, and secondly they were concerned that this method would deter individuals that didn't have prior gardening experience. An overall concern was expressed given that the main growing season was not inclusive of the school year.

The remedies proposed by the focus group for the previously stated concerns are as follows. Concerning the security issue, having gated access to the garden is the minimum requirement to insure adequate protection from theft and vandalism. Also suggested was having cameras and motion activated lights installed. Concerning produce regulation, proper instruction and money handling issues it was agreed that an overseeing leadership role needed to be filled to provide these services. SustainDal, EPSS or a new society were all suggested as possible figure heads capable of filling this role. Concerning

the growing season not falling within the regular academic year, the suggestion of focusing on students in summer programs, co-op terms, or residing in Halifax throughout the summer months would be required. The other solution would be to construct greenhouses to extend the growing season through the academic year.

Discussion

Bed Construction Costs

Framing can be constructed from either wood or concrete blocks. Since the framing holds the soil in place, the depth of soil is a pertinent factor which will influence the height of the framing material. The minimum soil depth for moderate yields is 6 inches (Vanderlinden, 2010). However, is has also been found that the vast majority of garden vegetables grow optimally at 10 or more inches of soil depth to ensure that there is optimal root growth for a variety of plant species (Parsons, 2003). Therefore, a soil depth of 10 inches would have to be contained by framing at least 10 inches in height.

For wooden framing, it would be possible to use a variety of types of lumber. It is possible to make framing by stacking two layers of wood of 2 by 5 or 2 by 6 inches, or by using lumber that is 2 by 10 inches. The lumber can be connected at each corner using butt joints (Vanderlinden, 2010). If the wood were layered, a form of sealant would have to be applied at the crack between the two pieces of wood to inhibit plant rhizomes from

Soil selection is very important. Raised gardens must be treated as large containers (Parsons, 2003). Soil in a container must drain extremely well, and most heavy soils, such as potting soils, do not drain properly (Parsons, 2003). If soil does not drain properly, plant growth can be stunted and plants may be subjected to fungal infection.

Parsons (2003) recommends a light, well draining soil that is organically rich. More specifically, the particular soil mix suitable for raised bed gardening consists of one part washed sand, one part pure organic soil, and one part organic material, such as compost, manure, or peat moss (Parsons, 2003). Organic soil can be produced in on-site composting units.

Fencing is not a mandatory option but will help deter possible vandalism. Simple fencing can be constructed from chicken wire and wood. These materials can be purchased relatively inexpensively from local hardware stores.

Given these consideration the total cost of building the gardens is expected to be $2132.26. With appropriate funding from DSUSO and Dalhousie University it would be possible to build the proposed campus community food gardens.

Projected Yields of Vegetables

It has been found that plants that grow well in Nova Scotia include, but are not limited to green beans, soybeans, beets and beet greens, broccoli, carrots, cucumber, kale, leeks, lettuce, radish, snow peas, spinach, squash, Swiss chard, tomatoes, and zucchini (Brandt, 2010).

Alex Brandt (2010), an honours student at Dalhousie University, constructed a raised garden bed with a total area of 16.65 square metres. He grew the vegetables mentioned above in similar lighting conditions. His total harvest yielded him 45.499 Kg of raw product over the course of the growing season, which equates to 2.73 Kg/m^2 (Brandt, 2010). Furthermore, these 45.499 Kg of fresh produce were estimated to have a market value of $301.58. Brandt's results show that it would be possible for students to

gain significant yields from their plots making it an economically feasible endeavor for the student.

Interviews

The interviews with facilities management gave recognition to issues concerning pest management, maintaining soil quality, vandalism and maintaining the current levels of drainage. It was stated that given university approval facilities management would be intricately involved with the planning of viable solutions.

Will Horne stated that his main concerns were of soil quality and vandalism. Soil quality testing would be performed in compliance with health regulations to ensure suitable levels of toxins and heavy metals. He suggested the implementation of motion sensored lights as a means to deter theft. Will was particularly interested in working with the College of Sustainability to determine the potential for experiential learning. He proposed the use of this type of project to spur efforts into a sustainable corporate model is in progress though collaboration with Sodexo and Aramark and proposed a collaborative model that would include all stakeholders to be involved in the project. These stakeholders include Sodexo, Aramark, student groups, in particular the SustanDal edible campuses initiative and the College of Sustainability.

Focus Group

Based on the input provided in the focus group, it has been recognized that further investigation will be needed concerning issues brought to our attention by participants. The use of greenhouses to extend the growing season and provide more options for experiential learning would be beneficial to students. Participants also suggested the creation of rooftop gardens as a means to make use of currently unused space on campus.

Furthermore, there was much interest in the potential for living walls on campus to increase campus sustainability.

There are many benefits that could arise from having a food garden in such a centralized location. Benefits such as, heightening the awareness of participants and spectators in the methods and practices involved in maintaining a food garden, increasing the visibility of the project and provoking the comments from interested groups regarding how the campus grounds are utilized.

Limitations and Delimitations

Time was the major limitation in this project. The amount of time our group had to complete this project limited the survey size, focus group repeatability and required our group to make quick decisions on the information gained from the focus group. Another limitation to this project was the time of year our group sent out invitations to the focus group, interviews, and student group questions. March is typically very busy for students and staff, which made scheduling an issue. The final limitation our group encountered was the soil quality in Halifax. The soil in the city is of poor quality and in some cases toxic. We therefore, were limited to the use of raised beds and imported soil to ensure the health and safety of those growing food in the garden.

A major delimitation our group subjected our project to was the proposed location. The proposed location was selected to narrow the scope of the project in lieu of the time limitation. Given more time, our project could have assessed different locations using the sun data obtained from GIS, suggestions on location from the focus group and

facilities management interviews. Economically we limited our project to local suppliers for the materials required for construction and operation.

Recommendations

This project provoked critical questions concerning the 'social norm' of food production and consumption. Through this project we recommend further research into how the perceptions of this social norm change in the individuals using this garden. Further, we recommend research be done into the benefits of gardening regarding stress reduction, nutrient availability, and well being of participating individuals.

Recommendations regarding the physical and environmental aspects of this garden could include research into edible campus feasibility, garden expansion across campus, greenhouses for extended growing seasons, and the possibilities of experiential learning.

Conclusion

In this report we have assessed the feasibility of implementing food gardens on campus. This report assessed the economic, social, and environmental/physical aspects of this question. Economically, this project is of minimal cost and is feasible. Support from DUSUSO and the university would supplement the initial cost of this project, and can further be mitigated by charging a small fee for the use of the garden FACT. Given the information obtained from interviews and the focus group there is adequate interest to fill the suggested number of plots. In the event that more students and faculty become interested in this project, the area adjacent to the Killam has the capacity to accommodate

further expansion. Our report has shown, the use of raised beds and the location suggested account for concerns of toxicity, load capacity, sun and drainage of the proposed location; this project is physically and environmentally feasible. As a university in the pursuit of sustainability, we suggest that Dalhousie incorporate such a project into its campus community.

Acknowledgements

This project could not have been completed without the participants of the student focus group, Will Horne, Alex Brandt, EPSS, SustainDal, Mike Murphy, Mike Wilkinson. Mary Jane Adams, Tarah Wright and John Choptiany.

Appendix 1: Consent to Audio form used for focus group participants

I, _____, hereby give my consent to be recorded by an audio device throughout the duration of this group study. I understand that my participation is entirely voluntary and that I may decline or discontinue at any time before or during the group study. I understand that all information I disclose will remain confidential, that it will be used solely as a reference for this ENVS 3502 group project, and that the audio recording will be deleted after its intended use.

Signature of group study member

_____

Date

_____

Appendix 2: Focus Group Questions

1) Are you aware of any current campus garden initiatives?

2) Would you be interested in participating in a campus garden? Do you feel other students would be interested?

3) What do you think would be the issues (pros and cons) associated with running the garden?

4) What do you think would be the most efficient method(s) of advertizing/recruiting?

5) Would you prefer a traditional campus garden or would you like to pay for a plot?

6) What do you think would be the benefits of an additional campus food garden at Dalhousie?

Appendix 3: Facilities Management Interview Questions

As part of the our Environmental Problem Solving Class (ENVS 3202) we are studying the potential to create a new campus community garden in the area next to the Killam Library that is currently filled with gravel.

1) Are you aware of the current food garden initiatives on campus?

2) Was facilities management consulted prior to or during the planning and implementation of these projects?

3) Are there any issues you are aware of that we should consider when approaching this project?

- What is currently in the proposed area (what is the reason for the grave)?
- What is below the area of interest (part of the library)?
- Will the building be ale to support the weight of the added materials necessary to create the garden?

4) What tools are currently used for landscaping on campus and would these be available for use if the garden is created? Would there be potential for the construction of a building to house the tools necessary for the maintenance of the garden?

5) Is there a water output near the proposed site?

- If not could one be installed?
- Where would water be available for use for the garden?

6) What do you think would be the benefits of an additional campus food garden at Dalhousie?

Appendix 4: DSUSO Interview Questions

1) Is DSUSO currently helping to find either of the food garden initiatives on campus?

2) Are food gardens a campus sustainability initiative that DSUSO would consider funding?

3) If so, which would be the most appropriate route to obtain funding?
   Through a current student society (SustainDal or EPSS)?
   Through the creation of a new society?
   As an individual?
   Through an academic office (Environmental Programs or the Office of Sustainability)?

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