

The Ohio State University  
Campus as a Living Laboratory

# Planning for a Sustainable Riverside Café as Part of the College of Food, Agricultural, and Environmental Sciences Migration to the Ohio State University Central Campus

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## **Executive Summary**

This is a proposal for the development of a sustainable café located on the Olentangy Riverfront. The café will be one of the first developments on the new College of Food, Agricultural, and Environmental Sciences campus. The Riverside Café will embody all of the Discovery Themes that Ohio State has set as goals for the new campus: energy and the environment, food production and security, and health and wellness. The Riverside Café will address these themes through biophilic and sustainable building design, conservation and waste management, sourcing from local and responsible food suppliers, and informal environmental education. We believe the Riverside Café will be a successful and popular addition to the CFAES plan, as illustrated in our paper.

In this proposal, we outline specific building plan features for renewable energy production and environmental excellence. Possible waste mitigation practices are described, including best waste management and alternative materials for plastics. Food security is discussed, as well as buying local and the local trap. The health and wellness benefits of a sustainable café are analyzed, as well as the impact and success of various similar cafés in the Columbus area.

This proposal describes various features and practices that would maximize the sustainability and the success of a riverside café, and outlines the many benefits for the College of Food, Agricultural, and Environmental Sciences, students, the University community, and beyond.

“We are indeed much more than what we eat, but what we eat can nevertheless help us to be much more than what we are.” – Adelle Davis

## **Introduction**

Of the many things in this world capable of bringing people together, we seldom recognize the power with which food can connect us to each other. Whether it is breakfast with a loved one, a cup of coffee with a colleague, or a discussion with someone we do not know at the local supermarket, food has a way of bringing us together.

In addition to the myriad of social benefits, developing a sustainable riverside café on the new College of Food, Agricultural, and Environmental Sciences (CFAES) campus will allow the college to show off its areas of expertise, including food system research, agricultural practices, and sustainability. A café housed within the new CFAES campus has great potential to become the gem of the college: a symbol of true sustainability and innovation in our food system and beyond. With this new development, Ohio State has the potential to bring attention to the sustainability of our modern food system while providing students with both a biophilic community space and delicious, sustainable food.

The café will work closely in collaboration with students and faculty of CFAES. The presence of a sustainability-oriented café will promote activity and sense of community for the CFAES campus by drawing students, faculty, staff, and the larger Columbus community to the area. The café concept will be supportive of the University’s three Discovery Themes: energy and environment, food production and security, and health and wellness. The concept will be based on these three themes, with an overall emphasis on high quality food. Everyone likes good food but the café will seek to address what that really means to the college. Good food does not only taste good; it is food that is grown responsibly, with care for the earth and the people who work in the food system. It nourishes our bodies, supports our communities, provides us with a plethora of social benefits, contributes to a sustainable economy, and can even inspire us.

## **Section I: Discovery Themes**

### ***Energy and Environment***

#### *Renewable Energy and Efficiency*

Ohio State has pledged to develop three Discovery Themes for the University’s primary research, teaching, and outreach efforts. After numerous conversations among the OSU leadership staff, energy and environment emerged as one of these theme areas. With this

initiative, the University plans to address issues related to energy and environment with a collaboration of interdisciplinary experts from beyond the University. The goal is that Ohio State faculty will become leaders in creating policy and scientific advancements in order to control the global need for energy and its corresponding effects on the environment. A sustainable café is an excellent way to demonstrate Ohio State University's commitment to sustainability. Between the zero-waste stadium initiative, purchasing energy from wind-farms, and offering new courses and majors related to sustainability, the University has put the environment and sustainability at the forefront of its decisions. By implementing renewable energy and other efficiency strategies, our café will exemplify progress in this theme area. The internal design will further support the goals of the University through informal environmental educational methods.

The suggested location of the café is on the main floor of the new School of Environment and Natural Resources (SENR) building, with an outdoor patio along the Olentangy Riverfront. Various sustainable building design elements will be utilized to minimize the carbon footprint of the café. For this reason, the SENR building design team should work with the café owner to incorporate the desired features into the blueprints. We suggest that the windows of the café be made of semi-transparent photovoltaic (BIPV) panels on the side of the building that faces the river, where there will be minimum obstructions to the sun's rays (Figure 1). This will cover a significant amount of the electricity requirements necessary to fuel the café and will greatly reduce energy costs. The solar-fueled electricity will be paired with a dimming control system to maximize electricity efficiency and savings. A study performed in office buildings located in Hong Kong verified these savings (Li, 2009). In this analysis, four cases were analyzed and compared on their total electricity expenditures, and researchers found that the fourth case, which combined dimming controls and semi-transparent solar facades, resulted in the highest electricity savings. The buildings with integrated BIPV panels accounted for a 12% decrease in annual building electricity costs. Additionally, the annual emissions of CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> and particulates were reduced by 852, 2.62, 1.45, 0.11 tons respectively (Li, 2009). By using the BIPV panels, the café will be implementing an innovative alternative energy resource, which will reduce the greenhouse gas emissions of the café. These sustainable features will attract the interest of environmental experts from various universities, thus helping the collaboration efforts of Ohio State. The BIPV system will pay for itself in the long run because solar energy is a free input.

According to the same Hong Kong business office study, the system costs about \$1,286 per square meter of tinted glass, including an inverter and the wirings, plus the additional costs of \$110 for the dimming controls and \$117/kW for the chiller. In total, the final estimate had a total payback of 15.1 years (Li, 2009). The study illustrates that installing the window feature in our café will successfully address the energy and environment Discovery Theme area while also being economically feasible. Since the solar panels will be integrated into the windows, it will also create an aesthetically pleasing design. The entire side of the café facing the river will be made of these integrated panels that will act as huge windows overlooking the patio and riverfront area. This will be a visually appealing architectural choice, as well as an environmentally responsible one. The installment of building integrated photovoltaic panels is a great way for Ohio State to demonstrate its commitment to moving from excellence to eminence in energy efficiency.

Restaurants are increasingly looking to benefit from renewable energy systems. One example of this is a Burger King in Germany that utilizes wind and solar energy coupled with energy efficient lighting, heating and cooling systems. (Figure 2). The systems are expected to reduce energy costs by about 45% and cut CO<sub>2</sub> emissions by 120 metric tons annually. The site has more than 720 solar photovoltaic modules, which produce over 53,500 kWh of electricity per year and also has a wind turbine that produces an additional 2,500 kWh annually. The restaurant also uses wasted heat to produce hot water, which saves 50% of the energy usually needed and has solar-powered electric charging stations for hybrid cars, as well as a rainwater reclamation system for landscape irrigation (GreenBusiness, 2010). Restaurants across the globe are beginning to recognize both the economic and environmental benefits of investing in sustainable and efficient energy systems. Recently, Chipotle Mexican Grill installed solar panels at 75 different restaurants nationwide (Chipotle Mexican Grill, 2009). Both international restaurant chains and small independent cafés are implementing these systems and the Riverside Café should as well.

#### *Waste Mitigation*

Another area of the energy and environment Discovery Theme that the Riverside Café will address is the environmental impact of waste. Environmental impacts of campus facilities are extremely important to Ohio State. For example, the zero-waste stadium initiative diverts all game-day waste materials generated inside the Shoe from landfills. Instead of sending the trash

to be buried, Ohio State sends the discarded plastics to recycling facilities and the organic material to compost sites (Zero-Waste at Ohio Stadium, 2012). Our café will operate with low waste percentage in its operations; not only will this go along with the movement on campus and the Discovery Themes, but it will promote the sustainability of the café and reduce the carbon footprint.

In order to achieve a low to zero waste output, our group discussed what kind of waste materials leave the cafés and dining halls everyday on campus. Most of the cafés on campus use single-use, petroleum-based plastic silverware. These materials will end up in a landfill, where it takes decades to completely break down the plastic compounds (Gerngross, 1999). There are several ways to eliminate the use of petroleum-based plastic cutlery. The most obvious way is to substitute the disposable plasticware for metal. Metal silverware is reusable, familiar, and strong. It also saves money in the long run because it only needs to be purchased once, and then replaced every two to three years (depending on frequency of use and amount of wear). Another substitute to petroleum-based cutlery is the newer biodegradable plasticware. These biodegradable products have several benefits: they are made from starch and other natural materials rather than costly and non-renewable fossil fuels. It also has a shorter landfill life, and once it is in the ground it does not leach harmful chemicals into the soil.

There are drawbacks, however, to each option that should be evaluated. Metal silverware, though reusable, could significantly impact café water use. Depending on the popularity of the café, the cutlery would have to be washed multiple times a day, which would use high amounts of fresh water. Biodegradable plasticware is more expensive to manufacture, and would therefore raise the cost of business operations. It may not be a viable long-term option unless the prices were lowered. Another drawback to the biodegradable plastic is the way it must be disposed. The landfill life of a biodegradable plastic fork is the same as a petroleum-based plastic fork unless the biodegradable fork goes through a biodigester with other organic waste materials (Harris, 2010). With these considerations, our business model could incorporate moving some of the café waste to a biodigester such as the Quasar Energy facility in Wooster, OH. Adding the use of an anaerobic digester would be a creative way to divert organic waste materials from landfills. Anaerobic digesters trap harmful greenhouse gases, namely methane, which is produced in landfills. The digester then converts the methane into energy (Dellinger et. al, 2013). This is not only important for reducing emissions, but it is also economically beneficial to reuse organic

material that would normally have been buried. Ohio State works with Quasar on the Wooster campus, and using this technology to divert waste from our riverside café would be a smart way to integrate that technology into main campus facilities.

Another organic material produced from café operations is food waste itself. The United States wastes 20% of all food produced due to: unused perishable items, carelessly thrown away useable products, and supermarket failure in properly storing food. Food is lost at every stage of the market process, including harvest, processing, transportation, and storage (Kantor et al, 1997). When our group interviewed Heirloom Café owner and head chef John Skaggs, he told us one of his biggest challenges is reducing food waste. Using what he has learned in his experience as a sustainable restaurateur, he was able to give us suggestions on how to improve the Riverside Café's waste output. Skaggs suggested creative recipe options as one way of preventing needless food scrap waste. Options such as soups and stir-fry dishes make use of the extras that would normally be tossed in the trash. Smoothies could use up extra berries and other perishable fruits and vegetables. Though it will ultimately be up to the private owner of the café to decide what dishes will be prepared, devising creative ways to use food scraps and produce is a great way to reduce kitchen waste. Cutting down on food waste and making the most of input purchases will be crucial to business success because sourcing responsibly and locally is often more expensive than sourcing via traditional global methods.

Another possible waste output option is to work closely with another riverside development project: the Community Garden. All organic waste from the café, such as vegetable peels, rotten produce, and teabags can be composted along with landscape clippings to make old-fashioned, back-yard compost to use in the proposed community garden. This would be a mutually beneficial collaboration for several reasons. One reason is that it would be truly keeping it local: local food-waste, going to a local compost site, and then reused in a local, Ohio State community garden. This would be a great example of the cradle-to-cradle cycle that is the idyllic sustainability model. Also, with a compost source available in close proximity, the community garden will not have to account for costs of transporting outside sources of fertilizers. Using compost produced from café food waste for the community garden will reduce the need for chemical fertilizers.

Waste management is a large part of owning and operating a sustainable café. By reducing landfill waste, introducing new biotechnology, and promoting a cradle-to-cradle life



cycle of food-waste products, our waste management system paired with our energy efficiency choices will successfully incorporate the energy and environment Discovery Theme.

Although the café will lead by example with these initiatives, we believe that it is just as important to educate our customers on their responsibilities to the energy and environment goal.

#### *Sustainability Education*

The café will be a non-classroom setting, but it will include sustainability education and outreach as part of its mission. With posters, displays, interactive presentations and events, we plan to indirectly educate students on ways that they can lower their environmental impact. Topics will include a wide range of environmental issues such as biodiversity conservation, wildlife protection, energy efficiency, water conservation, and waste management.

In order to be as effective as possible in our educating, we plan on using the strategies that Dr. Mark Orams, PhD and published researcher, found in his 1997 study. His experiment tested the effectiveness of educational programs on Holiday Inn Resort tourists, who were able to touch and feed a group of wild dolphins that visited the resort in Tangalooma, Australia (Orams, 1997). The educational program used techniques derived from cognitive psychology and learning theory in an attempt to improve enjoyment, knowledge, environmental attitudes, and behavior in participants. The journal found five main techniques that promote behavioral change: curiosity, affective domain, creating motivation to act, giving opportunities to act, and evaluation and feedback. Curiosity was defined as creating questions in the participant's head (e.g. how do dolphins sleep?), while affective domain means to increase emotional involvement in the subject. The study found that in order to create motivation to act, it is crucial to outline specific programs with simple solutions, and then give opportunities to act (such as providing environmental organizations to join or environmentally friendly products to buy). The study also stressed the importance of evaluation and feedback because it provides information that will improve and adapt current techniques in order to suit what is preferable for participants. Orams (1997) found that the combination of an educational program and the experience of interacting with the dolphins produced the most effective change in tourist's behavior to become more environmentally responsible.

The Riverside Café will utilize these five main techniques in the visual demonstrations and decorations all throughout the café and will have comment jars on the tables to give staff feedback (Figures 3 and 4). By making education a background focus, our café will build

connections with other environmental groups and researchers looking to advertise their research or club. The café will be capable of hosting interactive events, lecture series, student discussions, exhibits, and various other presentations related to the environment, the food system, and sustainability. This interaction paired with the educational elements of the café will support the energy and environment Discovery Theme.

### ***Food Production and Security***

#### *Ohio Food Security*

As a land grant university, Ohio State has a responsibility and commitment to supporting the state of Ohio, be that through research, community service, or strengthening the state food system. Dr. Ron Hendrick, Senior Associate Dean of SENR, advised that the Riverside Café source its food and products from Ohio businesses and farms to support food security in Ohio (R. Hendrick, personal communication, 2014). The Riverside Café could source from Ohio Proud producers and processors to support our local food system.

In a study done on the benefits of food localization for northeast Ohio (Figure 5), researchers surveyed an affinity group and found that the two most important outcomes of local food activity were believed to be strengthening communities and retaining local dollars (Masi et al., 2010). An assessment of Northeast Ohio (NEO) food system found that “Ohio has fertile soils and ranks in the top ten states in terms of agricultural production, and yet only an estimated 1% of the food consumed in NEO was produced in the region” (NEO, 2010). State programs such as Ohio Proud, seek to capitalize on Ohio’s largest industry: agriculture. The program helps buyers to identify local producers and processors, and works with Ohio companies to market their products to those buyers (Ohio Department of Agriculture, 2008). The café will try to collaborate with the Ohio Proud program to maximize local sourcing.

The café will seek to integrate itself in the local food system of Ohio and strengthen relationships between local suppliers and the University. The Mid-Ohio Regional Planning Commission’s Agriculture and Food Systems Working Group focuses on four key tenets of the local food system: strengthening the local economy, providing healthy and affordable food to all Ohioans, reducing food miles, and making agriculture more feasible by protecting Ohio farmland (MORPC, 2010). The report analyzed the current number of farms in Central Ohio’s twelve counties, and found that there are over eighty produce farms, twenty-one orchards/berry patches, and over thirty-five farms that produce meat, poultry or eggs (MORPC, 2010). In 2007, Central

Ohio agricultural products amounted to \$1.1 billion, with only \$336 million of that accounting for food products (MORPC, 2010). Local food supports strong local economies by providing thousands of jobs to farmers and food processors within the community. By sourcing from the local food system, the café will be able to bring attention to local suppliers and promote food production in Ohio to strengthen the state economy. Sourcing locally means keeping food dollars within our community and bolstering the security of our economy.

Columbus cafés such as Northstar Café and Heirloom Café strive to source from local producers whenever possible and are both owned by independent, local owners. In a study done by Civic Economics (2004), researchers found that locally owned businesses have multiplier effects in their local economies. They found that in a Chicago neighborhood, spending 100 dollars at a chain store produced an additional 43 dollars of local economic activity, whereas spending 100 dollars at locally owned stores (of the same retail categories as the chain stores) produces an additional 68 dollars in local economic activity (Civic Economics, 2004).

According to the USDA Economic Research Service, for every dollar we spend on food, just less than 16 cents goes to the farmer (USDA, 2011). Short food supply chains support Ohio farmers by reducing the amount of hands that food passes through from producer to consumer. Without advertisers, global distributors, wholesalers, and purely financial actors, more money goes back to the farmer, which enhances the viability of Ohio specialty crop agriculture (McMillan, 2012).

The benefits of a café, that embraces local food and local ownership, go far beyond just the economic. Local food systems support food supply security because they reduce risks associated with reliance on distant producers and long supply chains. Climate change, natural disasters, energy price fluctuations, international trade restrictions, and politics associated with food and agriculture all pose great risks to our food supply. Local food is produced and distributed via supply chains that are much shorter than long-distant food. These short food supply chains provide consumers with increased food safety, as the food travels a more direct path from producer to consumer (Masi, et al., 2010). Local food systems increase the amount of fresh and nutritious food available to communities, and restrict middle actors in the food chain, thereby reducing risks associated with processing, shipping, and distribution that occurs far beyond Ohio's borders (Klavinski, 2013).

In 2012, the USDA allocated \$643,000 to Ohio specialty crop farmers. Ohio State

University food system researchers have done extensive work on food supply chains of Ohio. Clark et al. (2011) surveyed Ohio fruit and vegetable distributors and found that “distributors agreed Ohio produce is priced comparably to fruits and vegetables grown in other states, and their transportation costs are lower because they are purchased locally. Distributors also indicated they can sell Ohio-grown foods at a premium” (Clark, et. al., 2011). Though this study focused on the distributors of local specialty crops, it can be applied to many different actors within the food system, such as restaurant owners. The café could benefit financially from sourcing locally, due to competitive Ohio specialty crop prices and reduced distribution costs.

In promoting food security and production through local sourcing, it is critical that the café and its patrons do not fall into the “local trap.” Food system researchers, Branden Born and Mark Purcell (2006), warn consumers of this phenomenon, which occurs when we ascribe enormous unwarranted qualities to the term ‘local.’ The term is not regulated by any institution, though, the U.S. government has defined locally sold products as “the total distance that the product is transported is less than 400 miles from the origin of the product” (110<sup>th</sup> Congress, 2008). Local, by definition, strictly has to do with distance traveled. Born and Purcell (2006) found that local food is assumed to be inherently socially just, ecologically responsible, and economically sustainable. However, they argue that scale and proximity are not most important in determining these factors. Agenda, rather than scale, is what creates specific results, such as sustainability and justice. To avoid the local trap, the café will work to research the agendas of potential suppliers and not ascribe particular values or ideals to the term local. It is critical that the Riverside Café owner does not assume that local is synonymous with sustainable or just, and that sourcing and operations are transparent.

### *Global Food Security*

Though the café will primarily focus on promoting a secure food system for Ohio, it will certainly not ignore global food and agriculture issues. CFAES envisions the University as a “land-grant to the world” and recognizes its role in supporting food security and production on a global scale (CFAES, 2009).

The café will promote global food security by sourcing foods that come from genetically diverse crops. In 1992, the United Nations Environment Program recognized the dangers of biodiversity loss, particularly in agriculture with the adoption of the international agreement known as the Convention on Biological Diversity (Esquinas-Alcazar, 2005). Crop genetic

erosion results primarily from the increase in crop varieties that are either improved via technology or introduced to new areas. By 1970, maize in the Southern US was grown from an extremely small genetic base and a fungus destroyed 50% of these crops (Esquinas-Alcazar, 2005). Increasing crop diversification in Ohio and beyond is necessary in protecting the food system from enormous supply shocks.

The Heirloom Café views crop species diversification as a critical action in protecting food supply and security. The name of the café comes from the owners' emphasis on heirloom crops, such as diverse vegetable species. Genetic diversity in agriculture and livestock is critical for global food security. According to GRACE Communications Foundation, "this [agrobio]diversity is important for food security—in the event that a particular crop variety fails due to drought, flooding or a disease, another variety might survive to avoid food shortages" (GRACE Communications Foundation, 2014). Essentially, crop diversity protects the world from food supply shocks. The increasing homogenization of crop varieties puts both farmers and consumers at risk. Developing nations that rely on crops from foreign nations are dependent upon those countries or corporations that control genetic resources or agricultural inputs such as fertilizers or pesticides. This interdependence in the food system increases food insecurity for developing nations, as they are unable to form independent, robust food systems of their own.

In a study done by the Food and Agriculture Organization (1999), researchers found that agrobiodiversity has been disappearing at alarming rates within the past century. The study noted that "75 percent of the world's food is generated from only 12 plants and five animal species", and that "rice, maize and wheat - contribute nearly 60 percent of calories and proteins obtained by humans from plants" (FAO, 1999). Humans are becoming increasingly dependent on a smaller group of crops, which increases food security issues. Pests, diseases, natural disasters, and concentrated market control all pose great threats to global food supply. In order to support agrobiodiversity as a way of supporting secure food systems, the café will strive to promote specialty crops (specifically heirloom varieties) such as fruits, vegetables, nuts, and other agricultural products that have considerably low market share.

The solutions for domestic and global food insecurity and safety are widely contested. Supporting food security is not as black and white as supporting healthy food, or energy efficiency. The debate on whether or not genetic modification has increased global agricultural yields or not continues in classrooms and research centers throughout the world. While the café

will not take a stance on the debate between genetic modification and organic/alternative agriculture, it will source ingredients from farmers who demonstrate a commitment to increasing food security for both Ohio and the world, through sustainable use of natural resources. The café will encourage discussion on issues related to food production and security and will invite food system, biotechnology, and agriculture researchers to engage café customers in understanding and developing our modern food system.

It is important that the café does not ignore the root causes of food insecurity. There is ongoing University research on both increasing global agriculture production capacity as well as alternative ways of increasing access to healthy and affordable foods for the global population. The World Hunger Education Service maintains that the lack of access to healthy food is rooted in issues of inequality and poverty, specifically resulting from insufficient land for farmers in developing nations and political-economic systems that are harmful to promoting global food security (2013).

In supporting food security, the café will encourage discussions on how the University defines that term. According to the Food and Agriculture Organization, the world currently produces enough calories to eliminate hunger as a chronic problem (FAO, 2002). Food distribution problems are deeply entrenched in the politics of economics, such as domestic government policies and world trade agreements. Many argue food security has more to do with economics than it has to do with science or technology, but maintain that it is easier to increase food supply than attempt to reshape the global industrial food system (The Economist, 2011). The café will not be specifically involved in promoting policy changes or addressing issues with food distribution, but it is important that it promotes discussions on the underlying causes of hunger, and does not perpetuate the myth that food insecurity stops and starts with our world not having enough food (Holt-Gimenez, 2012).

### ***Health and Wellness***

The Riverside Café will also address the third and final Discovery Theme area: health and wellness. Human health is influenced by nutrition, connectivity to nature, and socialization. The café will serve all of these functions by providing fresh foods and ingredients that have optimal nutritional benefits. Outdoor patio seating will promote relaxation and connection to nature through the new Olentangy riverfront. The café will also be a place of social interaction: meeting up with friends, studying, or connecting with faculty members over coffee.

The Riverside Café menu will feature a wide range of options including various products from local organic suppliers. Organic food has been found to have higher amounts of vitamins and minerals than conventional food and also uses fewer pesticides, nitrates, and other heavy metals. Additionally, research shows organic food contains proteins that are of “better quality and higher content” than conventional food (Shukul, 2012, p. 224). While the café will not source strictly from organic producers, these items will be featured throughout the menu.

By providing healthy food choices, the Riverside Café will fulfill the physical aspect of this Discovery Theme; however, we believe total wellness includes mental health and the café will also exemplify this facet. The cafe’s design, including the outdoor patio and large windows, will incorporate the river restoration’s new natural scenery and sunlight, which will create a connectedness between people and the river and allow them to enjoy it’s natural beauty while eating nutritious food.

Humans are creatures who rely on sight more than any other sense and spending time in nature promotes “adaptive thoughts and behaviors” in students and faculty (Kellert, 2012, p. 25). This in turn can be used to improve human intelligence as a whole. People are inspired to investigate what is happening around them, and the knowledge that they uncover is used to further other research and knowledge of the natural world. The natural world inspires people to think of life as more than just survival, which ties into the spiritual aspect of nature.

Contact with nature has also been found to increase people’s happiness. The Nature Relatedness Scale (NRS) is a questionnaire-based scale that measures how connected a person feels when they are relating to nature at the moment. Researchers John M. Zelenski and Elizabeth K. Nisbet (2014) found that people’s happiness rose by 0.13 to 0.46 points on the NRS as a result of exposure to sunlight. Sunlight also increases levels of vitamin D and serotonin, a hormone that reduces stress and increases happiness (Zelenski and Nisbet, 2014; Harvard, 2010). Serotonin increases happiness and lowers stress levels, and vitamin D decreases a person’s chance of developing osteoporosis, cancer, depression, heart attacks and stroke (Harvard, 2010). Our cafe’s outdoor seating options will utilize these health benefits from the natural sunlight, which will promote the health and wellness of the Riverside Café customers and staff.

## **Section II: Logistics**

### ***Ownership***

The official business plan for the Riverside Café should be discussed and analyzed by

decision-makers of CFAES. Through extensive research and various personal interviews with private café owners and Dining Services executives, some important points regarding ownership have emerged. First, the Riverside Café mission involves accessibility; the Riverside Café should be economically accessible as well as socially and culturally relevant. The mission of the café is to provide customers (i.e. students, faculty, staff, and the larger Columbus community) with delicious food that is sourced sustainably and prepared with minimal environmental impacts. As undergraduate students, we understand that many students choose to eat primarily at locations that accept student meal plans (blocks). There are currently no privately owned cafés or restaurants that accept Ohio State University meal plans. However, this does not mean that a partnership could not be worked out between Dining Services and a private owner regarding meal plans.

Acceptance of student meal plans will not dictate the success of the Riverside Café. As seen in the case of the Heirloom Café, sustainable and local food is in high demand on this campus, and a privately owned café providing that could be extremely successful on the new CFAES campus. A private owner would have to commit to supporting the University Discovery Themes, whereas University Dining Services already has a responsibility to do so. It is important to note that scale plays a large factor in this decision. University Dining Services could utilize its power of scale to require local and sustainable sourcing in all of its operations, but a small, private owner could have personal and economically beneficial ties to sustainable, local suppliers.

An independent owner would have almost complete freedom in menu development and sourcing, whereas if the café were operated by Dining Services, it would have to draw ingredients and menu plans from a centralized (but not necessarily uniform) University-wide service. Additionally, Ohio State University Dining Services require that all beverages and foods offered for sale through the University are assessed for nutritional value and content, and that this information is available to the public. This requirement may restrict the use of readily available seasonal products at the café, and would reduce the variability of the menu. While the café should seek to publish nutritional data of items offered, strict requirements could potentially stifle creativity and seasonality of ingredients, and some management flexibility will be necessary.

Dining Services could certainly exercise more economic power in promoting the mission



of the Riverside Café than an independent owner, but Heirloom Café has proven that independently owned sustainable and local cafés on campus are not only economically feasible, but also wildly popular with the University community.

### ***Location, Structure, and Design***

It is also important to acknowledge logistical information about the location, size, and design of the Riverside Café. Our plan is to have the café located within the new SENR building, which will be constructed on the east side of the Olentangy River in place of St. John's Arena. This building will be in close proximity to the river and will likely be a hub for students and faculty to gather like Kottman Hall is today. The café will be large enough to accommodate many students and have adequate space for them to study, as well as providing an atmosphere conducive to studying. There will also be space for guest speakers to give educational seminars or lectures to student and faculty audiences. Our research supports these logistical goals and the feasibility of a café within the College of Food, Agricultural, and Environmental Sciences (College of Food, n.d.).

The University of Illinois at Urbana-Champaign conducted studies on the correlation between the sounds of a coffee shop and a person's level of creativity. People participating in the study sat in a coffee shop and were asked to brainstorm ideas. The results showed that the decibel level of the machines and chatting customers (approximately 70 decibels) was ideal for the stimulation of creative thinking. When decibel levels were lower than that, it was more difficult to be creative. A silent setting is best for focusing rather than thinking abstractly: "Large, open rooms with high ceilings may also promote creative thinking, they found" (O'Connor, 2013).

Libraries are well-known study spaces, but their features have changed over time to meet the needs of students. They are becoming more social areas that are opened up and include comfortable seating and places to eat. Employees at Teachers College expected students to want secluded study areas in the remodeled Milbank Memorial Library, but students asked for more open areas that encouraged socialization (Cohen, 2004).

There are some cafés in the Columbus area that have experienced notable success that would be great role models for our riverside cafe. An example of one such café is the Heirloom Café, located within the Wexner Center for the Arts on Ohio State University's main campus. Heirloom is, as aforementioned, privately owned and has been serving students and visitors at

this location since September 2011. Owner John Skaggs stated that the café sometimes brings more people into the Wexner Center than the art exhibits (J. Skaggs, personal communication, 2014). The café has an open seating area with many tables and 110 seats, which is adequate for their customer volume. Locally grown and seasonal produce is used in the menu items. Many of the other food products like the sandwich buns, milk, and eggs, come from bakeries and farms within Ohio. For example, Auddino's Italian Bakery is a short distance from Heirloom and supplies the rolls while Merry Milk Maid, of Urbancrest, OH, supplies the milk. The café also offers coffee drinks made from Columbus-based Crimson Cup beans. A small garden in front of the Wexner Center was once used for growing Heirloom's fresh herbs and vegetables, but now they are working on a larger garden off campus for those purposes (J. Skaggs, personal communication, 2014). The Heirloom Café is a great model for how a café using locally grown food on Ohio State's campus can be successful. Pair this healthy food with the location on the riverfront and the success of our café is sure to flourish.

Northstar Café is another popular café in Columbus, Ohio that supports goals that are similar to those of the proposed sustainable Riverside Café. Northstar opened in 2004 and currently has a total of three locations in the Columbus area. The menu items are made on-site in view of customers and the ingredients are locally sourced. The unique design of their cafés is appealing to customers. According to John Skaggs, formerly employed by Northstar, the business considered opening a location on the Ohio State campus several years ago, but decided it was not the right time (J. Skaggs, personal communication, 2014). With new developments in Sasaki's plan to move the SENR building across the river, the timing is now crucial to create a Northstar-type of café on campus. It is time for the College of Food, Agricultural and Environmental Sciences to have a place to eat. Providing healthy, locally grown food choices, as well as exemplifying environmentally friendly behaviors are crucial elements to our café, since it will be located in a college that focuses on food and the environment.

Overall, having a café with an open design and a riverside view will be an ideal setting for studying. If we aim for a space that has the capacity for about 100 people, it would be large enough to house many students, but not so large that space would go unused. Locally grown and sourced foods will entice people to visit the new SENR building and even explore other areas of the college. Food is one word in the title of the college, yet there is not an eatery in which to display that aspect. With the success of the Heirloom café on campus, Skaggs believes that

Northstar Café would be interested in developing a sustainable café on campus. Putting the café in a building that we know will be constructed, such as the new SENR main building, is more feasible than constructing our own building and taking up more space along the newly restored river. In conclusion, all of these things will lead to a successful café in the College of Food, Agricultural, and Environmental Sciences. (Cohen, 2004; College of Food, n.d.; O'Connor, 2013; Skaggs, 2014; Trowbridge, 2010)

## **Conclusion**

Building a café in the new SENR building will create a unique connectedness amongst the Olentangy River and the University as a whole. It will additionally benefit the University financially and enhance awareness and support for the three Discovery Themes. By creating an education-driven café that is powered with renewable energy, maximizes energy efficiency, and incorporates waste reduction strategies, the Riverside Café will successfully fulfill the University's energy and environment goal. The second theme of food production and security will be supported through the café sourcing strategies. The Riverside Café will source from local producers and processors that are committed to sustainable agricultural practices. It will promote long-term change towards increasing the security of our food system at both local and global levels through responsible sourcing. The café's design will incorporate biophilic elements, support human-nature interactions, and emphasize healthy diets to promote the final Discovery Theme area of health and wellness.

A sustainable café located on the Olentangy River-side, as part of the new CFAES, will draw people to the newly restored river and will allow the College to show off its commitment to excellence in food, agriculture, and sustainability. A café founded on the University Discovery Themes will provide students with an ideal community space to study, socialize, and enjoy local, sustainable, and deliciously fresh food.

## **Looking Forward**

The preliminary plans for the Riverside Café presented in this document lay the groundwork for a successful café. There are a number of actions that must follow this proposal. First, it is essential that the College decides whether the café will be a privately owned business working in collaboration with the University, or if the café will be a part of Ohio State University Dining Services. It is critical that the college acknowledge the core goals of this café, which are presented throughout this paper. Whether the café is owned by Dining Services or a private

owner, the college should push for an evaluation of the sustainability and responsibility of food sourcing, as this is a major focus of the café. Public reports on items such as energy use, water use, emissions from transportation, farm sourcing, and operation impacts on social justice are important to a sustainable café because transparency is key to avoiding greenwashing. Students studying food systems, data analytics, sustainability, and other related majors could potentially be responsible for reporting on the environmental and social impacts of the café.

If the café is to be owned by a private owner, the college should consider advertising a lease for the café space to restaurateurs that have proven themselves successful in serving locally sourced and excellently prepared food. The college could decide on a lessee through a bidding process similar to the process for which the lease in the space for the Heirloom Café was decided upon.

Once the ownership decision has been made, it is critical that planners work with a chef that has proven his or her excellence in fresh, local, and sustainable cuisine to develop a menu for the café. Both John Skaggs of Heirloom Café and Tim Keegstra of University Dining Services mentioned in personal interviews that the most important document in planning for a restaurant or a café is a sample menu. Mr. Skaggs mentioned that a sample menu provides the entire project with both inspiration and direction. Mr. Keegstra described how sample menus are necessary to have prior to building facilities because drink and food options dictate what kitchen appliances and large structural elements are necessary. For example, if the café offers hot items made on site, the architects and planners will need to plan for commercial oven space. Or if the café features a fresh fruit or salad bar, the architects and planners will have to provide additional space for this structural element. In developing a successful menu, the chef must consider the various eating areas around the new CFAES, as well as the interests of students and faculty, which could be gauged through surveys.

There are a variety of ways in which the café planners could work with students. With an ownership and menu plan in place, planners will need to develop blueprints for the biophilic design of the café. This design could be created through a partnership with both the Knowlton School of Architecture and the Department of Design. Classes in both of these schools could work on projects focused on developing biophilic and sustainable designs (both aesthetic and functional) for the café.

As the café business and design plans come together through the collaboration of the

owner, the college, and students, we suggest that the planners continue to discuss the plans with Mr. Skaggs, who has been instrumental in the development of this proposal.

## Figures

Figure 1: Example of semi transparent BIPV solar cells as windows.



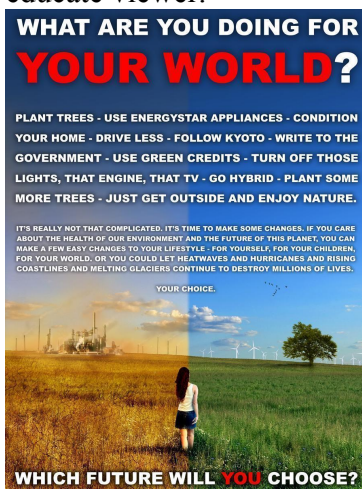
From: *Onyx Solar*. Photovoltaic transparent glass. Retrieved from: <http://www.onyx-solar.com/photovoltaic-transparent-glass.html>

Figure 2: Burger King in Waghausel, Germany that uses wind, solar, lighting, heating and cooling systems to cut energy costs.



From: Staff, GreenerBusiness (June 2010). New burger king restaurant powered by wind and solar energy. *GreenBiz*. Retrieved from <http://www.greenbiz.com/news/2010/06/16/new-burger-king-restaurant-powered-by-wind-solar-energy>

Figure 3: Poster example using curiosity, motivation to act, and opportunity to act techniques to educate viewer.



From: Zebravissimo (2007). *Deviantart*. Retrieved from: <http://zebravissimo.deviantart.com/art/Environmental-Awareness-Poster-51980788>

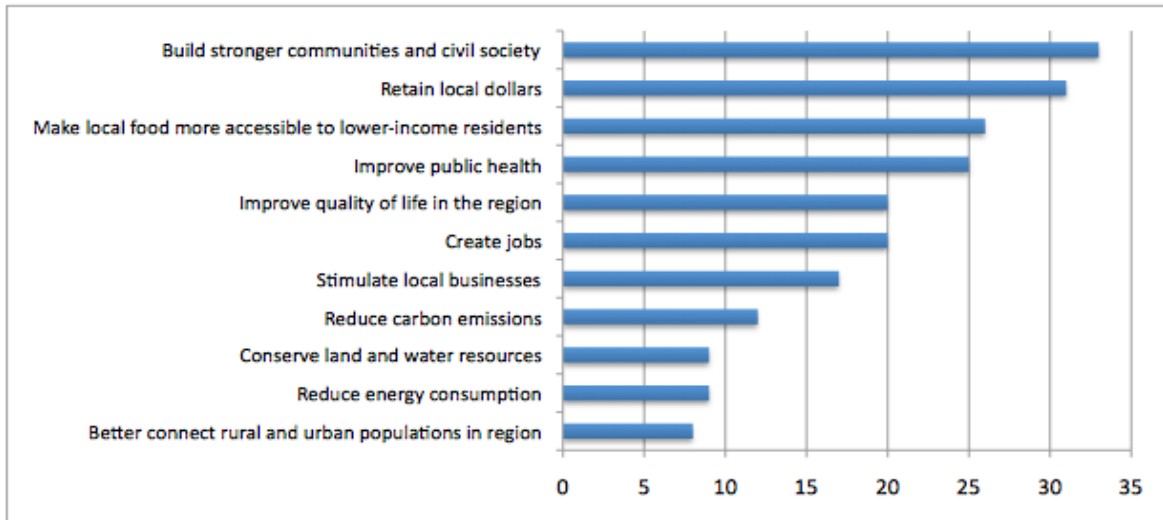
Figure 4: Poster example that utilizes affective domain technique.



From: World Wildlife Fund. (2014). Homeless Penguin: You can help stop global warming. Retrieved from: [http://adsoftheworld.com/media/print/wwf\\_homeless\\_penguin](http://adsoftheworld.com/media/print/wwf_homeless_penguin)

Figure 5: Benefits of Local Food Systems

**Affinity Group Preferences for Most Important Outcomes of Local Food Activity**



From: Schaller, Masi B., Shuman M. (2010). *NEO Food Web*. The 25% shift: The benefits of food localization for Northeast Ohio & how to realize them. Retrieved from: <http://www.neofoodweb.org/sites/default/files/resources/the25shift-foodlocalizationintheNEOregion.pdf>

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