The Cherry Tomatoes would like to transform the Countway Community Garden from a hidden gem tucked away in the Longwood Medical Area to a space where a close-knit community is fostered and awareness about the environment, sustainable living and healthy eating is cultivated. Our garden is designed to promote health, sustainability and learning through the materials we propose to use, the events we want to organize and the technology we plan to use to support our various initiatives.

The key features of our garden design include:

**Wooden beams with plants to offer protection**

Plants grown in the Countway Community Garden are constantly exposed to varying weather phenomena including strong solar radiation in the summer and to rainfall during warm winters. This affects their health and growth negatively, but can be avoided with a simple, sustainable solution. We propose the construction of a structure of timber beams over the beds that can be used as a frame to grow plants (refer to Image 3), which protect the beds from harsh solar radiation (refer to Image 2), excess water as well as the cold. These could also include drainage and irrigation systems to water the plants.

The wooden beam structure would also support the use of protective cases (Image 4) for individual beds that can be lowered or raised by users for the purposes of protecting their plants from pests.
Green roofing to connect parts of the garden

We propose the use of green roofs (Refer to Image 5) to cover the space that connects the two parts of the garden that are at right angles to each other. Green roofs are more sustainable than tiles because they can withstand heavy rainfall, thereby protecting the part of the library that lies below the Countway Community Garden. Extensive green roofs, which are about 2 cm deep are easy to maintain and are visually pleasing. They can be purchased for $10 a square foot and have an annual maintenance cost of $0.75 a square foot, which is very affordable. Finally, the green roof would provide for an aesthetically attractive path from the main entrance to the bigger part of the garden where the beds are (Refer to Image 6).

The use of reclaimed wood, burlap and cork for sound absorption

The generator and ventilator at the Countway Community Garden are currently a source of noise, as well as anomalous structures in the otherwise beautiful garden. Reclaimed wood, burlap and cork are natural sound absorption materials that could be used to cover up these devices in a way that still makes them accessible for maintenance, but that looks like a part of the garden, so that members of the community can enjoy some quiet in this space (Refer to Image 7). The structure of these barriers could adopt a curved shape towards the top that would not only reduce sound even further as they do on highways and at airports sometimes (Refer to Image 8), but could also add to the overall aesthetics of this structure.

Rainwater harvesting and watering of plants

We calculated the area of rooftops surrounding the Countway Community Garden that can be used together with rain pipes that already exist in the garden to collect rainwater. Given the average annual rainfall in the city, with 3600 square feet of rooftops the garden can collect about 13,000 cubic feet annually and this could be used water the plants. For the storage of this harvested rainfall, we propose using rain barrels which can be purchased for under $100 (Image 10) . The higher the elevation, the greater the water pressure will be at its lowest point. Each foot in elevation change is equal to 0.433 PSI (pounds per square inch) of water pressure. The rain barrels would have to be placed at an elevation on stands placed in the corners that are about three feet off the ground to water the beds in the Countway Community Garden. The hose used to water plants can be stored using recycled metal wheels or railway tires (Image 11).

Storage of gardening tools

Gardening tools that members require can be stored in recycled mailboxes (Image 9) that can be secured and locked easily with a passcode or lock so as to protect against theft and poor weather and allow easy access when members are in the garden.
Using technology to ensure safety and facilitate social interaction, monitoring and learning

Technology in gardening is becoming increasingly popular to get more people interested in taking up gardening as a hobby and to make it convenient and easy to maintain plants. New start-ups that utilize sensors, aeroponics and hydroponics in gardening technology are establishing themselves in many places, making this something the Countway Community Garden could also consider.

We propose creating a simple smart phone application and a website (check it out by clicking on this link: http://1178667312.wixsite.com/mysite) to facilitate the use of technology in accessing the garden, fostering social interaction, sustainable gardening and the growth of healthy plants.

Safety
The phone application incorporates several features, including individual profile pages and unique identifiable barcodes for members to scan when they want to enter the garden. While Harvard University students and faculty may be allowed to enter the space on Monday to Friday from 9 am to 6 pm using their HUID to enjoy their breaks, members could be allowed access after official hours and on weekends through the smart phone app barcodes that identify them.

Social Interaction
The app also fosters social interaction by matching new and existing members who might want to share the workload of tending to their plants and making friends at the same time. In addition, a monthly calendar of events at the garden, available both on the app and on the website can facilitate participation in the activities of the garden. These could include the celebration of festivals or holidays like Halloween or the promotion of healthy eating through farmers’ markets. A booking feature is also available for members who would like to book the space to run their own events on certain days of the month.

Finally, to involve other members of the local community that do not belong to Harvard, our monthly calendar of events will incorporate visits from local partners such as students from the Roxbury Tutoring Center where Harvard students often volunteer to tutor middle and high school students from Roxbury.

Monitoring
By incorporating updates about the level of sunshine, water and fertilizer into the app, we propose to make tending to plants easier and more interactive and fun for members of the garden. Smart gardening technologies are relatively new to the market, but there are several such as the Wise Garden Advisor, the Nimble Plant Protector and the Eccentric Garden Doctor that can be adapted for this purpose and cost under $100 for the devices that monitor the plants’ vitals. Through these devices, members can receive notifications on their phone when their plants require attention. By piloting the use of technology in gardening, the Countway Community Garden could serve as a concept center for other community gardens in the Boston area to begin utilizing technology to improve the maintenance of their gardens and to foster social interaction amongst members.

Learning
Fostering knowledge is one of the key goals of the Countway Community Garden and we hope to do this through the use of QR codes on each plant bed (Image 12), that individuals can scan using their apps, which directs them to the website where further information about the relevant plant can be found. In addition, with special home page features on the app and website such as the tip of the day and recipe of the day, members can create their own library on the app with interesting tips, recipes and plant information that they save.

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