CONCEPTUAL DESIGN IDEAS OF AN URBAN FARM
Merion Farm | Location: 4789 Merion Ave, Philadelphia, 19131
Area: 3.6 acre; Client: Urban Tree Connection
Design ideas generated by 20 students of Temple University’s Department of Community and Regional Planning – CRP 2114/8114: Urban Form and Design, Spring 2013
Instructor: Mahbubur R. Meenar

INTRODUCTION
The primary objective of this project was to design an urban farm for the purpose of food production and community education. The client – Urban Tree Connection (UTC) – is in the process of setting up an urban producer's cooperative in Philadelphia, and this site will be an addition to a number of existing UTC sites. Currently UTC has a few USDA grants to help develop farm sites but not much financial support to integrate other design. UTC is hoping to use the plans and accompanying visuals, as produced by the students, to raise funds for the construction of this project. The class project was done in five groups, four students in each group. Within five weeks, students visited the site, talked to the client, brainstormed design ideas in class, and then proposed some design ideas. This report is a compilation of those proposals. Each of these proposals has positive merits, as well as limitations. All of the submissions are included in this report so that UTC could see the varieties of ideas produced by these students, either feasible or not.
Site Analysis
The UTC would like to transform a 3.6-acre vacant lot into a productive and educational urban farm. The property is located in the Mill Creek neighborhood of Philadelphia, bound by the Paoli/Thorndale rail line to the north, and Merion Avenue to the south. The Global Leadership Academy Charter School property line acts as the eastern boundary, and North 49th Street is the western border. The property lies adjacent to several residential lots, some of which are occupied while others remain vacant.

There are existing design opportunities at the Merion Farm site, including:
- Plentiful on-street parking.
- Two viable points of access:
  - A main entrance along Merion Avenue.
  - A secondary access driveway in the southeastern portion of the site.
- The existing railroad and the high level of vacant lots act as buffers regarding operations and externalities such as noise.
- Opportunity for neighborhood revitalization and community engagement (including nearby schools).

However, there are several site constraints, including:
- The potential for soil contamination from previous land use demands that food production needs to take place in raised beds.
- Security concerns will require the site to be fenced off.
- Possible need for rear-yard access to the occupied housing units between the farm property and Merion Avenue.

During a site visit with the UTC on February 1, 2013 the following conditions were observed:
- The northwest portion of the lot is currently occupied by a business; we have included this area in our site design since it is assumed the UTC will obtain access to the entire property.
- The proposed main entrance, along Merion Avenue, was formerly maintained by a PSU-style farms/gardens group, approximately 15 years ago.
- Stormwater runoff currently ponds in the center of the site.

Design Concept
Our design concept divides the site into two main zones: the Production Zone and Community Zone. Furthermore, stormwater management is integrated into both zones to limit potable water consumption, demonstrate green infrastructure practices, and mitigate runoff from the site as to comply with the requirements mandated by the Philadelphia Water Department (PWD).
Production Zone
The Production Zone consists of an integrated system of high tunnels, raised beds, and capture reuse cisterns. The high tunnels are oriented North-South to maximize sun exposure and will be used to grow production-vegetable crops such as peppers and tomatoes as well as herbs and lettuces. Also located in the production zone is an additional high tunnel designed to propagate cuttings and seedlings that require different conditions than a normal greenhouse to thrive. The benefits of high tunnels are earlier start times for all crops grown, and quicker turnover rates on the fruits and vegetables going to market.

The production zone also includes a series of raised wooden beds located between the high tunnels. This design choice ensures ample space for growing profitable perennial plants such as blueberries and raspberries which are hardy to the climate of the region. Additionally, an orchard is located in the western corner of the site, which will diversify the crops that can be grown, including many varieties of apple and cherry trees. Having diverse production systems help eliminate the chances of pests or disease destroying crops.

Our design also calls for a compost area, a large storage shed, and refrigeration units to be located at the far eastern end of the zone that will be buffered from the adjacent lots with trees. A series of wooden compost bins are tucked away in the far corner, yet are easily accessible from the high tunnels. The refrigerated units are also easily accessed by delivery trucks through the driveway that extends along the perimeter of the site near its southern and eastern sides. The refrigeration units can be rented with leases ranging from two months to ten years, or purchased from Cold Storage 2 Go. The company delivers and performs maintenance as necessary which helps to reduce costs. Renting the units also allows for easy expansion, and the farm can grow at its own pace. The units are also removable, which allows for them to be rearranged as the production zone grows.

Access to the production zone is limited to employees and is gained through the commercial access road from the southern portion of the site, as well as a gate at the end of the internal driveway that leads to the demonstration zone. The entire site is enclosed by a chain-link fence that, in some areas, supports crops such as pole beans, winter squash, melons, cucumbers and peas. In addition to the property reserved for growing crops, this zone includes a gravel driveway buffered by trees along the portion running behind adjacent properties.

Community Zone
The Community Zone is the farm’s ambassador to the neighborhood, and access is granted through the main entrance along Merion Avenue. The Community Zone consists of demonstration gardens, a large pavilion, an office, a small kitchen, a farm store, and an open-air farm stand in warmer
months. These extend from the main entrance through the center of the site. The demonstration gardens are the focal point of afterschool programs and community education.

In the western corner of the site an orchard buffers the area from North 49th Street and adjacent residential lots, and provides small-scale plant production. A smaller greenhouse for hydroponics and education is also located in this area, as well as demonstration chicken coops and a bee yard. This area offers flexible space for production, demonstration or education.

*Stormwater Management*

The stormwater management strategy for the farm treats rainwater as a resource. Runoff generated from the high tunnels, storage shed, and pavilion is collected into a series of low-tech cisterns used to irrigate crops. Other smaller structures, such as the office, kitchen, classroom, and farm-store feature demonstration green roofs that manage themselves.

The main entrance also presents an opportunity for a pilot rain garden to mitigate runoff from entrance paving. Additionally, in the middle of the site, where there is a significant grade change, and thus issues with ponding, infiltration berms along the contour help detain runoff allowing it to infiltrate between raised beds. An infiltration trench and vegetated swale along one side of the commercial access road allows this section of the farm to capture its own stormwater.

**Implementation Plan**

Implementation of the site plan occurs in three phases:

*Phase 1 – Begin Production*

- 3-4 high tunnels with cisterns and raised planting beds
- 1 high tunnel constructed for propagating cuttings and seedlings
- 1 refrigeration unit
- Storage shed with cisterns to catch rainwater
- Construct office, fence, initial compost bins, and gravel driveway
- Signage
- Establish orchard
- Engage the community by offering tours and volunteer opportunities
- Establish and promote farm CSA to help increase revenue to expand the production zones

*Phase 2 – Demonstration and Expansion*

- Construct demonstration gardens at main entrance, pavilion, and farm-store.
- Continue expansion of Production Zone as needed
- Initiate afterschool and community programming, as well as a pilot work-share program.
- Communicate with other local urban farms such as Greensgrow Farms, and work to establish partnerships and expand CSA customers
Phase 3 – Continued Investment and Engagement

- Installation of main entrance paving and demonstration rain garden.
- Expand afterschool programs, weekday programs for at-home parents, and weekend programs for families.
- Construct demonstration greenhouse for hydroponics, chicken coops, and bee yard.
- Continue expansion of Production Zone, as needed

Community Involvement & Outreach

Urban farms offer a multitude of opportunities for community involvement and investment, including:

- Afterschool gardening programs for children and teenagers—the farm’s location is ideal for students from the Global Leadership Academy Charter School and Blankenburg Elementary School.
- Daytime gardening classes for at-home parents and retirees
- Work-share programs for volunteers
- Neighborhood composting project
- Demonstration cooking and canning classes
- Host community events such as a speaker series on healthy eating
Production Zone with Labels
DESIGN PROPOSAL – Group 2
C. Bach, S. Boucher, J. Krouchick, and D. Saraceno

Site Analysis
To start off the site analysis, there are several access points on the property. The south entrance is appropriate for deliveries and work-truck access, as it eliminates the need for heavy vehicles to travel down the residential street. This area has already been used as a dumping ground for leaves, logs, and other debris, and is surrounded by overgrowth and trees. This would remove any potentially offensive sights from neighbors and utilize the existing organic material. Also, the site provides ample space for many greenhouses without overcrowding the crops or blocking sunlight, as well as room for raised beds around the north entrance and structures. There is also an opportunity to have espalier fruit trees along the back wall of the property, and an area for raising chickens would work well with the existing woods and compost area. This keeps the animals as far away from houses as possible and would allow the chickens to help expedite the composting process. There is also enough space for office-type structures on the property.

Design Concept
The design concept for the proposal to UTC is to create an urban farm with numerous production greenhouses, while also utilizing the land to incorporate educational areas with intentions to create a strong sense of community. There will be diverse food production facilities including twelve 30’x50’ greenhouses and raised bed planters, a small orchard, chickens, an aquaponics section, as well as an apiary. Additionally, there are proposed gateway enhancements including interpretive signage that will help define the space and create a strong sense of place. Furthermore, an open area accessible by the public, as well as a common meeting area with a pavilion is included in the proposal. There will also be a soil-remediation demonstration area and a children’s garden for educational demonstrations. For stormwater management, there will be collection systems on greenhouses, rain barrels attached to other structures (to be used for irrigation), rain gardens near a central meeting area, and green roofs on a number of the structures. In regards to an internal access road, truck access can be provided around the greenhouses and allow trucks to turn around without using Merion Avenue.

The plan also calls for repurposing existing items from the lot, or reusing UTC-owned items. The proposal also recommends the use of cargo containers for some structures (i.e. offices, pick-up stations, storerooms, and cold storage), incorporating some of the existing debris on the site into garden designs, as well as installing a compost area near the chickens which will perpetuate a symbiotic relationship. The design includes an office located at the front of the farm with the necessary room for files, meeting space, and an employee break area. Additionally, as a production-based farm, the project will require several structures to serve as a washing and prepping station, a storeroom for food pickups, and a general purpose meeting area. These buildings would be clustered together near the north entrance and would be basic in construction. For example, a simple pavilion with emphasis on functional space would suffice as a washing station.

This pavilion with picnic table design is also sufficient as an educational demonstration area, as a meeting place for community groups or volunteers, and as a shady resting area for workers. A storeroom and pickup area would be of minimalist design with an emphasis on flow so that customers could easily pick up shares. This structure could be fabricated from one or two shipping containers with the option to add refrigeration. The plan also meets UTC’s requirement of a restroom area that holds composting toilets.
Some other features included in this proposal are a composting area and a demonstrative soil remediation area that could be used to help educate visitors about the pollutants commonly found in urban soil and could highlight the efficiency of stinging nettles at pulling heavy metals out of soil. The farm could also highlight the proper techniques for reusing materials like old tires, logs and large branches as planters or as seats in the meeting area. A water containment, collection, and distribution area should be located at the top of the grade so that water may be fed by gravity to the greenhouse area, as well using microclimates throughout the property. Options for insulating this system in the colder months still need to be explored. A composting area would be located in the northeastern-most corner.

A small area is allotted along the northern end for various fruit trees or berry bushes, which would house a small orchard. An area for an apiary is designated next to the orchard. This would keep the bees as far away from houses as possible. A plethora of on-site materials can be used for various purposes. Old tires (probably around 100) could be used as raised planters in a children’s garden or used for other purposes. Logs and large branches can be used as planters or as seats in the meeting area. Greenhouses and any structures with flat roofs should have rain barrels and collection systems to help mitigate storm water runoff and minimize the need for imported water. Aquaponics would provide for the sale of fish (most likely tilapia) and would reduce the greenhouse water usage dramatically. Also growing the greenhouse plants in a mostly hydroponic atmosphere would reduce soil/compost usage so it could be focused on the outdoor raised beds as well as provides for healthier produce. These would add seasonal variety for vegetables that can be grown outside of a greenhouse in the warmer months.

**Implementation Plan**

In the future, implementation of a rewards program that distributes points to residents for bringing their home compost to the main pile at the farm could be used to offer discounted purchases of produce, or anything else for sale at the farm. This would benefit the residents and farm because it would give the residents a discount, and it would provide the farm with extra compost. Another suggestion is to have solar panels installed on the structures of the farm to make the site as self-sufficient as possible. The solar panels would provide the electricity directly to the buildings, so the farm could lower its electricity bill. Then, once the farm is operational, there will be a need for a farm manager to live on-site, so purchasing some of the surrounding homes and renovating them into usable farm offices and residences will address this issue. Another, less resource-intensive option is to turn the proposed office at the front of the site into apartment housing for an on-site farm manager.
DESIGN PROPOSAL – Group 3
Jacob Kratz, Linda Malinowski, Kristen McEntee, Christian Regosch, and Kevin Vannauker

Site Analysis
The address of the site is 4789 Merion Avenue and consists of approximately 3.6 acres of currently vacant land under lease from the City of Philadelphia. There is impervious concrete that covers approximately 1.5 acres of the site, and 2.1 acres are barren with a 3 foot change in elevation overall. The site is bordered on the north by railroad tracks that are utilized by SEPTA and Conrail. The west side of the site is bordered by a gated, impervious concrete access way that leads to 49th Street. The eastern edge is bordered by a manicured lot and a charter school. There is also gated access to Merion Avenue on the southeastern border of the site and a fence runs alongside the existing residences. The southern border is Merion Avenue with vacant lots, abandoned residences, and a number of older row homes that share property lines with the site; there are pedestrian access points to the site about 125’-250’ in from the North 49th Street/Merion Avenue intersection.

Design Concept
Our inspiration came from the Pennypack CSA because it is an economically viable farm, as well as a community resource. The major difference between our site and Pennypack is that ours relies on hoop house, raised-bed, and wall and rooftop farming while Pennypack uses in-earth farming. It was clear to us from the outset of this endeavor that for the farm to be economically viable it must utilize the majority of its land area for agricultural purposes. Other activities should support the intended agriculture and attract clients for the proposed farm market which will provide revenue for the enterprise. It is with this reasoning that our plan will incorporate a large amount of hoop houses and even small-scale livestock activity. Furthermore, community-oriented activities will be tailored to provide income for the farm while providing educational opportunities for the local populations, and after school activities for the local youth. The client has requested certain features for the site plan and we have made every effort to include those features.

Our proposed site plan includes 12 hoop houses that measure approximately 30 feet wide by 90 feet long oriented on a North-South axis, allowing for optimal sun exposure. Vertical farm trellises will be placed up the side of the walls and fences of the site acting as security, as well as producing marketable crops, and providing a buffer between the farm and its neighboring properties. After the hoop houses and wall and rooftop farming are established, we propose to expand the farming to other areas of the site. In addition to the hoop houses, we propose to have a series of composting bins wide enough to accommodate farm machinery and teams of laborers for turning over the compost piles. The bins are will be located in the lower corner of the site towards the train tracks, eastern side, so as to not disturb the residential neighbors along Merion Avenue. We further propose to provide shade to our compost bins.

To increase the site’s self-sustainability, investments in energy efficiency and independence should be made. To accomplish this, we recommend that solar panels be placed on the rooftops. Electricity generated from these panels can power the lights in the greenhouses and farm buildings, as well as run the water pumps and additional systems throughout the site. Any excess energy can be provided to the neighbors on Merion Avenue, or sold to PECO which would generate additional revenue for the farm. We further propose to install one or more wind turbines which will allow the farm to generate more of its own power. The turbines will be placed at the highest points of elevation on the site to provide optimal wind exposure. Again, any excess power could either be provided to the neighbors or sold to PECO. We propose providing power to our neighbors to ease any opposition to the turbine proposal.
Additional energy independence measures include collecting stormwater runoff by installing a catch basin at the lowest point of our site and pumping the water to a water tower. The water tower will be located farthest away from the residential units due to its size. Its pipes would be located underground to prevent freezing and feed into each of the hoop houses. We propose this tower in an attempt to reduce our reliance on water consumption from the public system. We had investigated an on-site sewage system, but city ordinances prevent that at this time. Our energy independence proposal is important not just for efficiency and cost, but is also a backup plan should the city electrical grid and water systems suffer interruptions in service.

The consumer entrance to the site will be through the main retail building situated on Merion Avenue. This building will also function as a multi-purpose studio that will house the proposed farm-store, office space for the nonprofit organization, public restrooms, a private employee bathroom and rest area, and second floor efficiency apartment for the farm manager, as well as a second floor sunroom reserved for precious, exotic or flowering plants, which can be viewed from Merion Avenue. In addition to these design features, solar panels are proposed for this structure as well as rain barrels to collect runoff from the rooftops.

An emergency exit is proposed for the western side of this building leading from the second floor to the first floor along a newly created pedestrian alleyway between the proposed building and the neighboring row home, as well as a set of fire-rated metal doors with panic hardware for the front left corner of the building along Merion Avenue. The main entrance to the building is proposed for the right hand side of the building with glass doors and glass wall so as to provide maximum sunlight exposure. An overhead glass roof canopy is proposed for above the main entrance. A large roofed canopy with no glass is proposed over the front store windows so as to provide cover for the fruit and vegetable bins that we anticipate seeing along the sidewalk of Merion Avenue in front of the building, much the same way the fruit and vegetable stands are placed in the Italian Market in South Philadelphia.

The efficiency apartment on the second floor could be offered to the farm manager or employee for a reduced rent, and, in exchange, the farm would have someone on-site almost continuously which is an added security measure and possible income source. Or, the efficiency apartment could be used as classroom space if the city forbids anyone from living on the site, as we have not seen the lease agreement between the city and the nonprofit. LED lighting would be used through the building to provide optimal, energy efficient lighting. The building would be constructed of locally-sourced materials, preferably natural woods, old-style brick and corrugated metals or standing-seam roofs to blend in with the neighborhood, but still provide the sense of being a working farm within the city.

Lowes Home Improvement, which has a store on the other side of the railroad tracks, could be approached to donate building materials.

**Runoff & Irrigation System**

In order to conserve water and practice sustainability principles, we have included a plan for a runoff and irrigation system. At the lowest point of the property we propose a storm water retention pond that will capture the majority of the runoff water for the site. It is anticipated that there will be a fairly large volume of runoff due to the extensive coverage of greenhouses on the property, all of which contribute to impervious surfaces. The water will be pumped from the pond to the water tower at the opposite end of the greenhouse area. Here the water will undergo basic filtration. More complex water treatment processes were considered, but because the system is capturing on-site water the process needs only remove the largest particles since it would be used solely in the greenhouses.
After the water is pumped to the tower it then flows to the hoop houses. Because the water tower is situated at a higher elevation, gravity provides the movement of the water. The only pumps needed are at the water tower site and the pond. Each greenhouse has its own connection to the clean water pipe. Lastly the clean water pipe is extended to allow for a possible hook-up into the city water system as a backup. For the store buildings on Merion Avenue, we propose public water connection unless we can filter our on-site water to such an extent that is safe for human consumption.

Refrigeration/Freezer
The refrigeration units will be located near the northeastern corner of the site towards the railroad tracks. We propose units that consist of approximately 500 square feet, and the number of units depends on the quantity of fruit and vegetables the non-profit anticipates on producing in a given growing season. Additionally, we propose a minimum of two units, but more would be preferable, especially in the event of a unit break-down. Furthermore, the rooftops of the units should be painted white to reflect sunlight and keep them cool. Or, solar panels could be installed on top of them to collect energy to power the refrigeration units themselves and provide a battery backup system in case the electric power is disrupted. A freezer unit could be added to store items such as bread and other crops to be sold at a later date.

Pavilion
The pavilion will be used as a teaching area and meeting space with benches and tables placed throughout. It will have solar panels on the roof to provide power to the building as well as having rain barrels or a rooftop garden installed to collect any runoff.

Signage
For signage, we recommend creating a living green wall. It would reinforce the vision of the project and require minimal labor and also be sustainable. Also, along the railroad tracks we propose installing a billboard that will advertise to commuter trains. On top of the store building we propose a large, internally illuminated sign that could be seen from Lancaster Avenue and will aid customers in finding our site. Near the corner of 49th Street and Merion Avenue should be a sign that advertises what activities are scheduled in the community engagement and education areas. Additionally, on the store building we propose a chalkboard and wall-mounted signs illuminated by overhead LED lights that would advertise the produce that is available or upcoming classes and events. Finally, a flag pole should be erected to help draw attention to the site.

Implementation Plan
Vital Infrastructure - Phase 1
- Hire required personnel to establish site improvements.
- Initially secure the area with fencing and clear the trash and debris from the site.
- Install the storm water pond/basin, underground water lines and water tower.
- Lay one- or two-inch gravel for the road network. Two-inch gravel should be used in areas designated for future paving.

Necessary Amenities - Phase 2
- Erect hoop houses and greenhouses so that production can begin as soon as possible and use a temporary structure for office, store, and market space until the office and store areas are constructed.
- Install solar panels and wind turbines as soon as possible to provide power and a revenue source.
- Hire permanent part-time personnel and a site manager, and utilize a pool of local volunteers.
• Finalize storage areas, buy refrigeration storage units, and purchase necessary machinery and tools, or have all of those items donated.
• Begin construction of the permanent, multipurpose building that will consist of the site office, farm/produce stand, classroom space, meeting space and public bathrooms.
• Install secondary food production devices, including raised beds, vertical gardens, rooftop gardens, orchard area, beehives, bake oven, and chicken coops.

*Production Establishment - Phase 3*
• Plant seeds and saplings by March or after last frost.
• Construct restrooms, outdoor kitchen, and install refrigeration and freezer units.
• Complete construction of main office building and produce stand.
• Allow 3 months for employees to develop farm maintenance routines and programs.
• Complete office, kitchen, restrooms, refrigeration units, and storage sites
• Have the bake oven, beehives, and all other assets in rudimentary but usable condition.

*Establishing Community Engagement - Phase 4*
• Implementation of community programs, workshops and classes as well as the installation of the pavilions, butterfly garden, playground, rain garden, and hands-on learning areas. Begin with volunteer-oriented programs and then incorporate teaching and child-based services. Institute summer camp programs free-of-charge for needs based children and fee-based for children that do not require financial assistance. Soliciting local schools to visit the farm. For example, they could have a harvest festival event in the fall where the children can learn how to make honey, apple butter, dip candles and participate in other activities that would be found on a traditional farm. Other activities could be geared towards senior citizens and those with disabilities to maintain their interest. Other annual events such as an ice cream social in the summer, or a chicken barbeque in the spring could be established.

*Community Involvement & Outreach*
Community involvement and support is vital to any project, but especially one of this scope. If the bond between community and business is strengthened, and residents feel a sense of pride in the project, the farm will be less likely to be vandalized. And, since many of the people in this area have been surrounded by an urban environment, the main goal of the community area is to provide education through workshops and classes that will create a horticultural experience in a naturalized area. Another goal of the community area is to interest people and encourage them to eat healthily and take a more active role in their community by growing their own food. Another goal is to provide a safe haven for the local children and allow them play in the dirt and watch things grow, and provide stimulation other than video games and Internet. Also, a good way to get members of the neighborhood involved would be to provide monthly shares for contributing labor to the farm. The principle idea of the outreach program is to give community members the skills to revitalize their neighborhood and allow them to grow their own produce and negate the effects of food deserts and hunger issues, while developing a network to help residents obtain the necessary resources to fight hunger indefinitely.

The Children’s Area is particularly vital because in disadvantaged areas like Mill Creek a farm of this nature will offer a fun and safe environment to learn about and develop important life skills like healthy eating and nutritional education. Additionally, the farm could employ the volunteer spirit of the local children and provide them with job experience and positive life experiences, and either pay them a small cash stipend or with a share of the produce. Employment on the farm will also help reinforce the “Eat a Rainbow” campaign, a popular resource that aims to get children to eat a wide
variety of healthy foods. This curriculum could be incorporated into the urban farming process and help the children develop the skills to grow the foods involved in this “rainbow”.

Learning through play is an important step in a child's development, therefore the area will include a hands-on learning area that will mimic the workings of a farm. This area will include activities like planting, tending, weeding, watering, and, eventually, the harvesting and packaging of produce. There will also be fake foods, plants, and tools where the children can imitate the workings of the farm as well as play with imitation fruit and produce stands meant to teach them about day-to-day interactions. The area will also contain chicken coops and rabbit pens as an attraction for the children; however, they will not be used to produce a viable product. Finally, a playground will be on the site to highlight the importance of an active lifestyle, and one of the vacant lots could be converted into a landscaped pocket park. These areas would be unique because they would be landscaped and the items within the playground would resemble food. For example, the slide could be colored and shaped like an ear of corn.

**Funding and Donations**

Funding could be secured from a variety of sources, but the primary proposal is to emphasize independence and self-sustainability. With this in mind, we recommend that excess electricity be sold back to the PECO which, in turn, will generate profit. Revenue would also be obtained via sales from the farm market with items that would include produce grown on location, bread made and sold on-site, honey from an apiary, as well as canned vegetables, jams, jellies, pies, sweets and other products. An additional form of income may come from the efficiency apartment envisioned on the second floor of the multi-purpose building on Merion Avenue. If this funding is insufficient, there are many corporate employers within a 20 mile radius of the site that can be solicited for monetary donations and in-kind contributions of products and materials. In addition to donations, grants could be applied for as well.
DESIGN PROPOSAL – Group 4
Jordan Fleisher, Korene Smith, Jill Tiernan, and Natalie Vu

Site Analysis
Upon driving to the site, observations of the Parkside neighborhood and its traffic flow were made. Abandoned buildings and littered sidewalks were apparent. However, access to public transportation, bus and trolley was adequate. Additionally, ample street parking was available although the amount of safety and security in the site’s immediate area was questionable. When walking to the site, through the main entrance, chain-link fencing and vacant residences became even more noticeable. With a slight incline from the sidewalk onto the site, the ground was a mix of gravel, dirt, and concrete fragments. To the immediate left, a landscaper was illegally using part of the site for their business. That portion of the site was also at the highest in elevation, though the incline is slight. Straight ahead, grass was more prevalent where a community garden was once located. Railroad tracks ran adjacent to the far side of the lot, with an approximately 10 foot stone wall separating the two properties. Directly to the right, an empty home at the end of a row has piqued the client’s interest in regards to a potential office and business use. Navigating to the right down the length of the site, larger concrete slabs began to appear as the site’s elevation gradually declined. Trees flanked the north (along the train wall) and south (behind the row homes) sides of the site. The site terminated at the far-east end where a secondary entrance could be installed for operational and personnel use. Across the street from this end of the site is a secondary education school that the client hopes to work in conjunction with by providing field trips to the finished site for instructional seminars.

Design Concept
In designing the farm, our group had three goals:
1. To utilize all available space for production
2. Create a place specifically to encourage community involvement
3. To make the site sustainable

The major features of our site include the following:
- Reused steel cargo containers which have been repurposed to create all on-site buildings (other than greenhouses)
- Composting toilets
- White or green roofs on all buildings
- Large, salvaged wood gate separating the community section from the production portion of the site (it is important to have a distinct separation between the two)
- Solar panel field which will help generate on-site energy and educate the community
- Salvaged brick walkway used to create a place for the community to learn about raised bed gardening
- Community garden composed of garden plots, composting bins and tool renting services
- Chicken coops
- Aquaponics station
- Restaurant, farm stand and picnic area
- Demonstration kitchen and community gathering area for events
- Children’s garden equipped with a learning gazebo, play-scape and seating
- Nine 30 ft. by 96 ft. greenhouses
- Cold storage area and washing station
- Offices for both community engagement activities and production/shipping purposes
- Composting bins
- Herb garden
● Bee-keeping and butterfly garden
● Mini orchard
● Rainwater catchment systems

While this site will mainly be used for industrial farming, we wanted it to also be a place where the neighborhood residents can come to learn, establish relationships with one another, and purchase fresh produce, making the community area a place where people can spend an hour or a day doing so. When a visitor walks into the site, not only will they find a farm stand and restaurant, but also a large demonstration area, community garden and a beautifully landscaped children’s garden. Additionally, our strategic design and implementation of a dividing fence allows for intense production to take place without alienating the community.

Implementation Plan

The major implementation phases will depend on available sources to fund the project in addition to lease restrictions and current land control. Possible funding sources could include grants through the United States Department of Agriculture’s (USDA) National Institute of Food and Agriculture sector, as well as the Farm to School Grant Program, Northeast Sustainable Agriculture Research & Education, and Local Initiatives Support Corporation (LISC). If the lease for this site continues to be managed by the city, than there will be strict limits on the type of infrastructure that can be erected on the property. However, if UTC is able to take control of the site there will be more flexibility in establishing the urban farm and its related structures.

There will be five major phases of the project implementation process: 1) food production, 2) education, 3) healthy eating activities, 4) community events, and 5) aesthetics and comfort. Since the priority of the urban farm is food production it will be important to establish the greenhouses in the first phase of implementation. Nine greenhouses or tunnels will need to be acquired or built in order to maximize production and effectively utilize available space. These will be located along the north end of the site. The filtration system will be located in between the greenhouses and the train tracks and will include 6,000 to 8,000 gallons of water reserves per structure for irrigation purposes. This first stage of implementation should also include additional infrastructure needed to successfully run the food production aspect of the farm. The wash station, refrigerator, storage, production office and bathroom, compost areas, and service road will need to be operational at the opening of the project.

The second phase of implementation is to introduce educational activities on the elevated portion of the site. A gate will need to be erected to separate the community and production aspects of the site. UTC will need to obtain the supplies and materials needed to create a number of gardens, pavilions and demonstration areas which will be used to educate students and other community members. This will include the butterfly garden, children's garden, aquaponics, outdoor classroom, orchard, solar field, community garden plots, and chicken coops. The third phase will target the healthy eating aspect of the project. The main focus of these activities will be the farm stand and demonstration kitchen. At this point, more cargo containers will need to be purchased or salvaged since these structures will house operations related to the healthy food and cooking programs. Once these major features of the site are established, the urban farm can host various community events. The goal of this phase is to generate interest and awareness of the farm within the Parkside community. The last stage will consist of finishing the details of the site by making it more aesthetically pleasing and comfortable for patrons. It will become a focal point of the community and a well-known place where residents can get together and meet with one another. These activities will encourage people to interact, in addition to building trust and fostering relationships throughout the neighborhood.
Community Involvement

The UTC depends on involvement from the community to maintain operations and continue to have a positive presence in the community. Currently, at other UTC locations, they have various programs for children ages 4 and up. These programs, aimed to keep children away from risk-taking behavior, teach them valuable job-related responsibilities, behaviors, and employable skills. The UTC’s children’s programs will provide a safe place for young children ages 4-10 to learn growing skills. The Veggie Kids program, for children ages 10-14, teaches them about the entire farming cycle, from growing to economics. They also have an apprenticeship program for teens ages 14 and up called Teen Go Green, which maintains the UTC’s garden locations, residential, and commercial locations. Recently, the UTC has launched a pilot program for senior delivery service, delivering vegetables to those who are unable to ambulate and purchase produce from the farm stands. The Philadelphia neighborhood for the new location, Parkside, is similar to the Haddington neighborhood where most of the UTC’s farms are located. Parkside is a low-income neighborhood with a high population of children and seniors.

To maximize community involvement, we recommend that the UTC:

● Develop and maintain a relationship with the neighborhood community development corporation, Parkside Association of Philadelphia
● Develop and maintain relationships with the community religious institutions
● Develop and maintain relationships with the neighborhood schools
● Establish the children’s, preteen, and teen programs used at the UTC’s other locations at the new site
● Expand the senior delivery service to also include younger disabled individuals
● Host community events throughout the year
● Host farmers markets and invite local vendors
● Offer summer, winter, and spring break camps for community children
● Offer tutoring services for neighborhood children, staffed with neighborhood or college volunteers
DESIGN PROPOSAL – Group 5
Shane Dougherty, Jonathan Tehrani, and Nathaniel Wicke

Site Analysis
The focus for this design project is a 3.6 acre parcel of land located on Merion Avenue between North 48th and North 49th streets. The parcel boundaries are surrounded on the north by commercial railroad tracks, on the south by a series of row homes, on the west by North 49th Street, and on the east by an elementary school. Topographic maps reveal approximately a gradual 20 foot decline when traveling from west to east, with a more noticeable 8 foot drop right in the center of the parcel. From an infrastructure perspective, a chain-link fence runs along the boundaries of the parcel. Otherwise, the lot is empty with the exception of trees, debris (tires, etc.) and piles of mulch. Additionally, the parcel has an approximate 50/50 split of concrete hardscape and natural land. Pictures of the site show several separate hydrological “hot spots” where the runoff and excess water form shallow pools.

Design Concept
Our original designs for the site focused on achieving a balance between the functions of a food-producing commercial farm and community engagement and education facility. After initial feedback from the client, we reevaluated the design and shifted the balance in favor of food-producing commercial farm. To accomplish this, our design team designated the space for the greenhouses, raised beds, and other growing surfaces first then utilized the remaining space to meet the other requested functions of the program. Greenhouses were oriented north to south, and most of the beds are the economical and preferred size of 30 feet by 90 feet. We placed a number of large raised beds throughout the commercial zone for UTC use that can supplement the production of the greenhouses, with space for expansion. To maximize the utility of the fence as a growing area, a 300’ raised bed runs along the northern boundary of the commercial zone and will be ideal for cash-crops such as hops or grapes. We also incorporated green roofs on all of the built structures, greenhouses included, to maximize growing space.

After these core pieces were in place it was important to create transportation paths that would facilitate accessibility to tools and supplies. A designated truck path runs throughout the length of the site for access to raised beds and greenhouses on one side, and refrigeration and food processing stations on the other. There are also spaces for loading, unloading, and parking included in the site design. Our design team grouped the office, classroom, and food-processing kitchen into one structure at a central location in the site. Ideally, this will keep the employees close to the farm activities, which will be helpful when additional assistance is needed quickly in one of these areas. The rest of the site features are focused toward community use as well as general beautification, and will be discussed later in this report.

Implementation Plan
• Vegetable Production
  o 11 Greenhouses, 11 Stormwater Collection Barrels (5000 Gallon Capacity)
  o 50+ Raised Beds
  o 300 foot raised bed for growing along fence
  o Kitchen/Food Processing Area
  o 1000 square foot refrigeration unit
  o Truck Parking, Truck Path, Designated Loading/Unloading Zone
• Community Interaction and Education Facilities
  o Farm Stand
  o Shared Community Demonstration Gardens
Project Implementation Recommendations

Phase 1
The pieces that should be developed first fall into one of two categories: food production and core site utilities. This includes the 7 greenhouses that are 30’ x 90’, all of the raised beds, the fence, planter, compost corner, tool library and beehive. This also includes bathroom, refrigeration unit, and the office and food processing station.

Phase 2
After determining the success of the site, it will be time to build the remaining greenhouses and farm-stand, open a more robust tool-library to the public, and determine the feasibility of a multi-purpose pavilion and walking orchard.

Community Engagement Recommendations
This design for the farm provides options to engage the surrounding community in many ways. One method would be the creation of a Community Supported Agriculture (CSA) program. This can engage the community through the sale of locally-grown produce and even through a work-share model where community members contribute labor around the farm in exchange for a share of the harvest. As an initial stage of our design, the CSA is a nice way to introduce the farm to the community and start building relationships without the need for many built structures or a fully developed site. Including a tool library was a decision made with community engagement in mind. The function of the tool library is to rent tools to community members on a per-project basis. The inherent relationship involved in sharing property builds trust and goodwill while increasing the utility of the farm’s presence in the mind of the neighbors.

Finally, the multi-purpose pavilion, walking orchard, and shared raised beds are three key pieces in the community engagement strategy. The pavilion can be used for classes, food demonstrations, and even as a dining area. The shared beds provide a sense of community ownership in the success and well-being of the farm as well as an opportunity to learn more about agriculture via hands on means. The walking orchard provides a beautiful scene for a nighttime stroll, and even tours. Depending on the types of trees planted, this can become an edible orchard with harvest festivals celebrating the community.
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