[ecology *within* the city]

An educational approach
to urban ecology

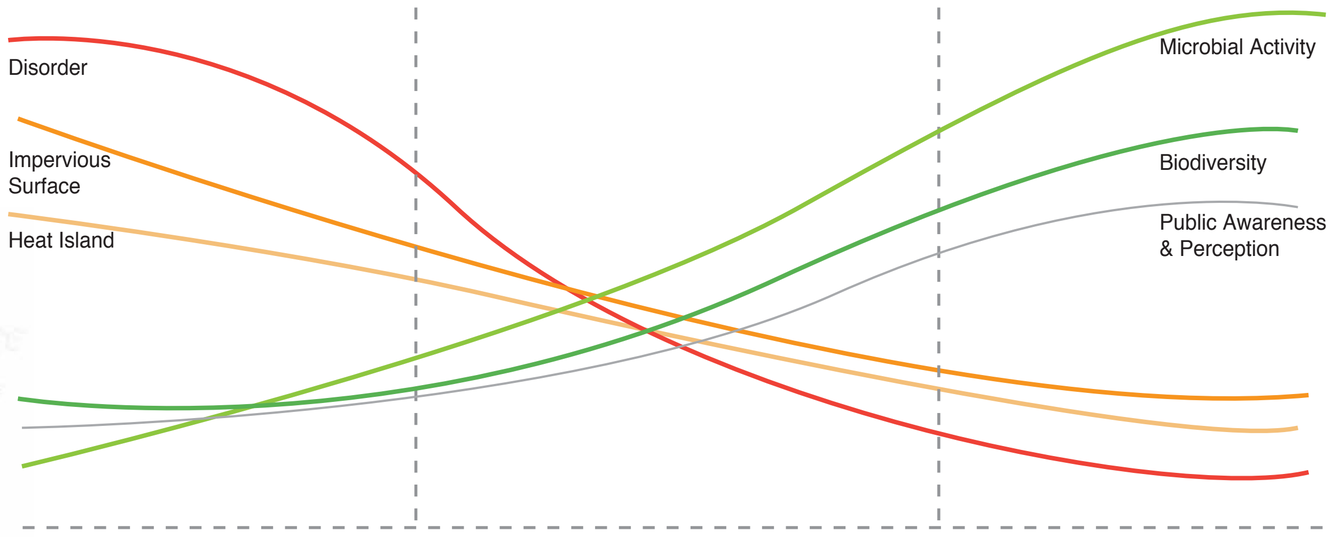
Context

Concept

My design concept is an educational approach for community members and students to increase their knowledge of ecological processes. Several ecological themes will be illustrated within the site. The proposed site will represent the contrast between the urban city with the natural environment. It will be a demonstration project that explains how ecology adapts and thrives in a city environment. This example of ecology within the city will also depicts ecological succession and its phases from primary succession through secondary succession. Environmental elements like wind, water, sun, and shade will help determine what species thrives and where is grows. In addition to an experiential space for students, this lot will provide measurable data for the BES to study heat island as well as plant life expectancy.

Goals

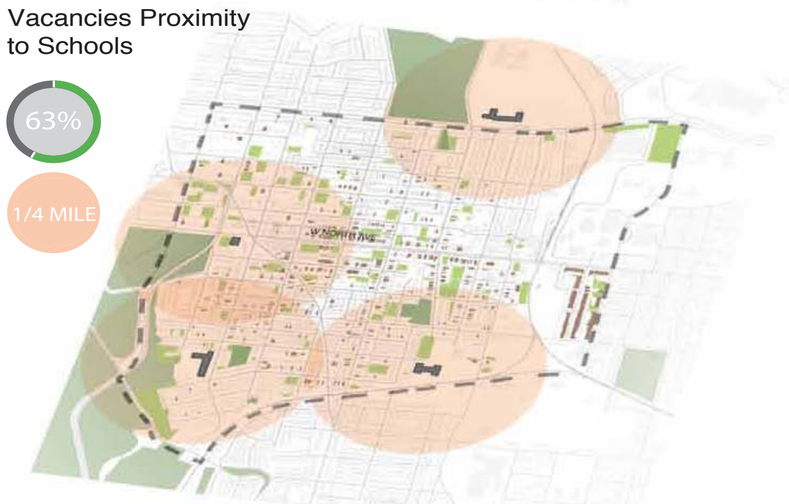
- Increase knowledge of ecological processes
- Provide measurable data for the BES: heat island, life expectancy
- Incorporate a low maintenance plan
- Create a functional and experiential space
- Interactive education and gathering spaces
- Design with Micro-Habitats for species in mind



Criteria

Focus Areas

Vacancies Proximity to Schools



Vacancies Proximity to Green Spaces

Existing Conditions

The existing lot is currently used as temporary parking and consists of uneven broken pavement. Despite, disorder and lack of program, the site has existing buffer vegetation as is located directly across Gywnns Falls Park and along North Ave. which provides easy community access.

Phasing and Maintenance

Maintenance is broken down into four main phases determined by growing season and community involvement. First, the existing lot must be cleared and prepared for implementation. The city can be involved with construction aspects of the design like laying concrete, but the rest of the tasks can performed through community participation, especially the local elementary schools. Students can learn basic gardening methods and the responsibility of maintaining the vegetation. They also can incorporate ecology lesson to introduce students to the concept of biodiversity, plant life cycle, and heat island.

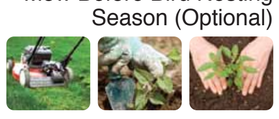
Prepare For Design
Clean Lot
Weed
Outline Planting Beds
Lay Concrete

→ Elementary Students, Community Members, City

Implement Design
Plant Spring Blooms
Construct Wall

→ Elementary Students, Community Members, Library

Beginning of Growing Season
Plant Summer Blooms
Weed / Pesticide
Mow Before Bird Nesting Season (Optional)

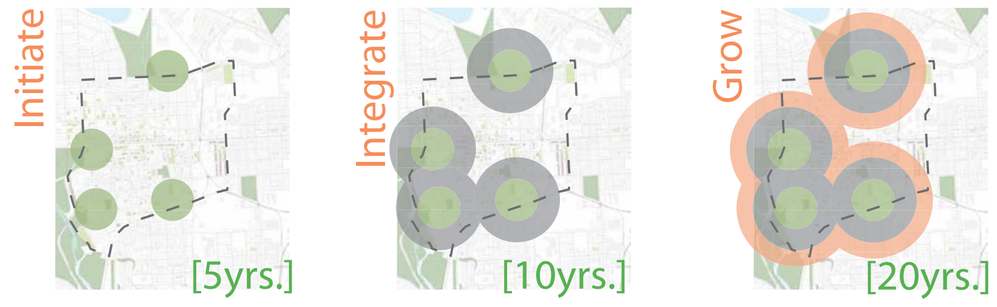


→ Elementary Students, Community Members, Library

End of Growing Season
Mulch
Weed / Pesticide
Mow After Bird Nesting Season

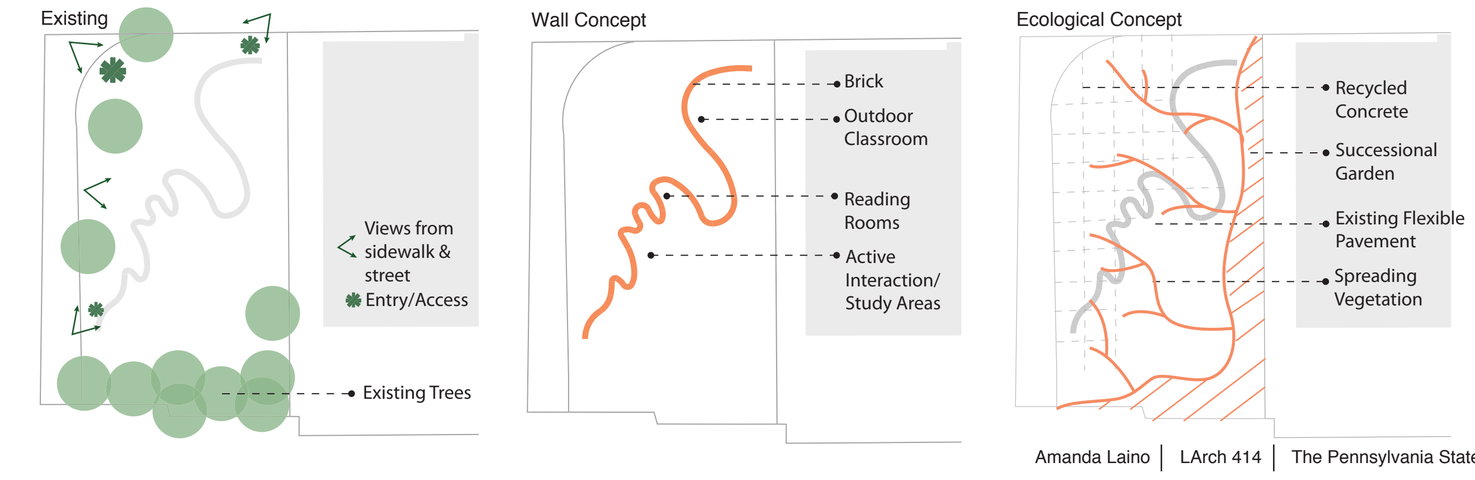
→ Elementary Students, Community Members, Library

Master Plan Phasing



The master plan phasing of this project is to implement this design to increase biodiversity and provide the BES with a study site and the community with a gathering space. In following years, similar vacant lots located near learning facilities, like schools, can implement similar projects resulting in an increased patchwork dynamic.

Proposed Concept



Amanda Laino | LArch 414 | The Pennsylvania State University

[ecology *within* the city]

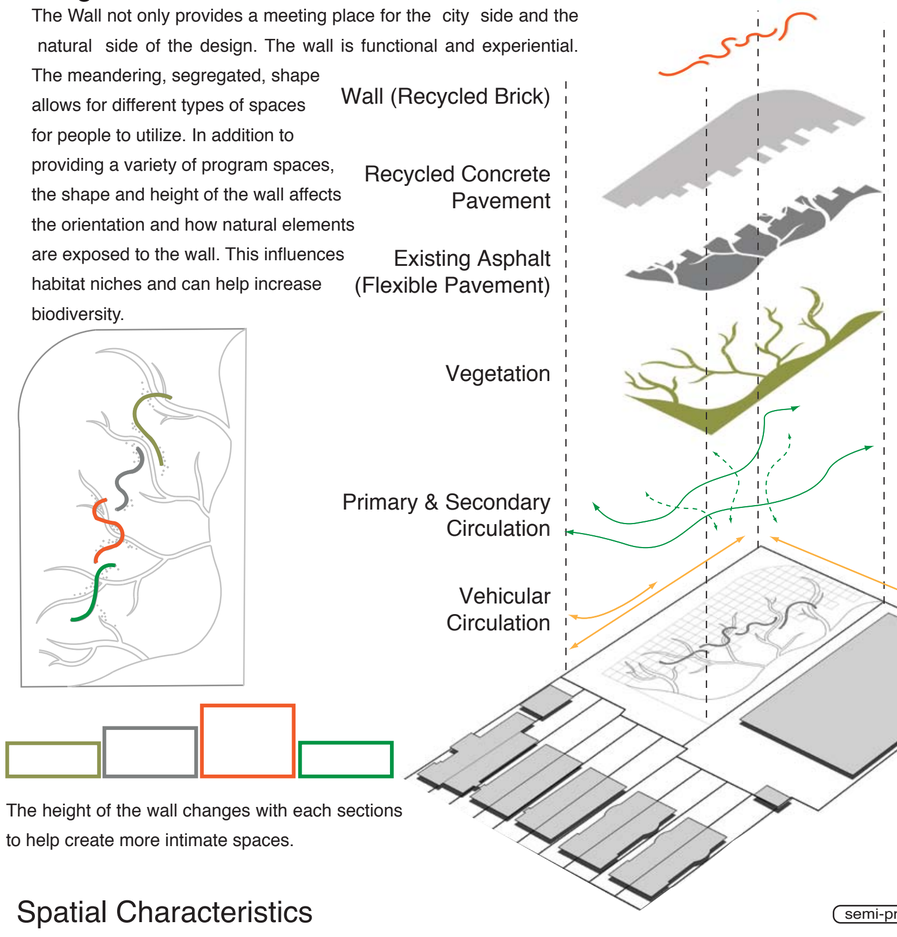
An educational approach
to urban ecology

Site Justification

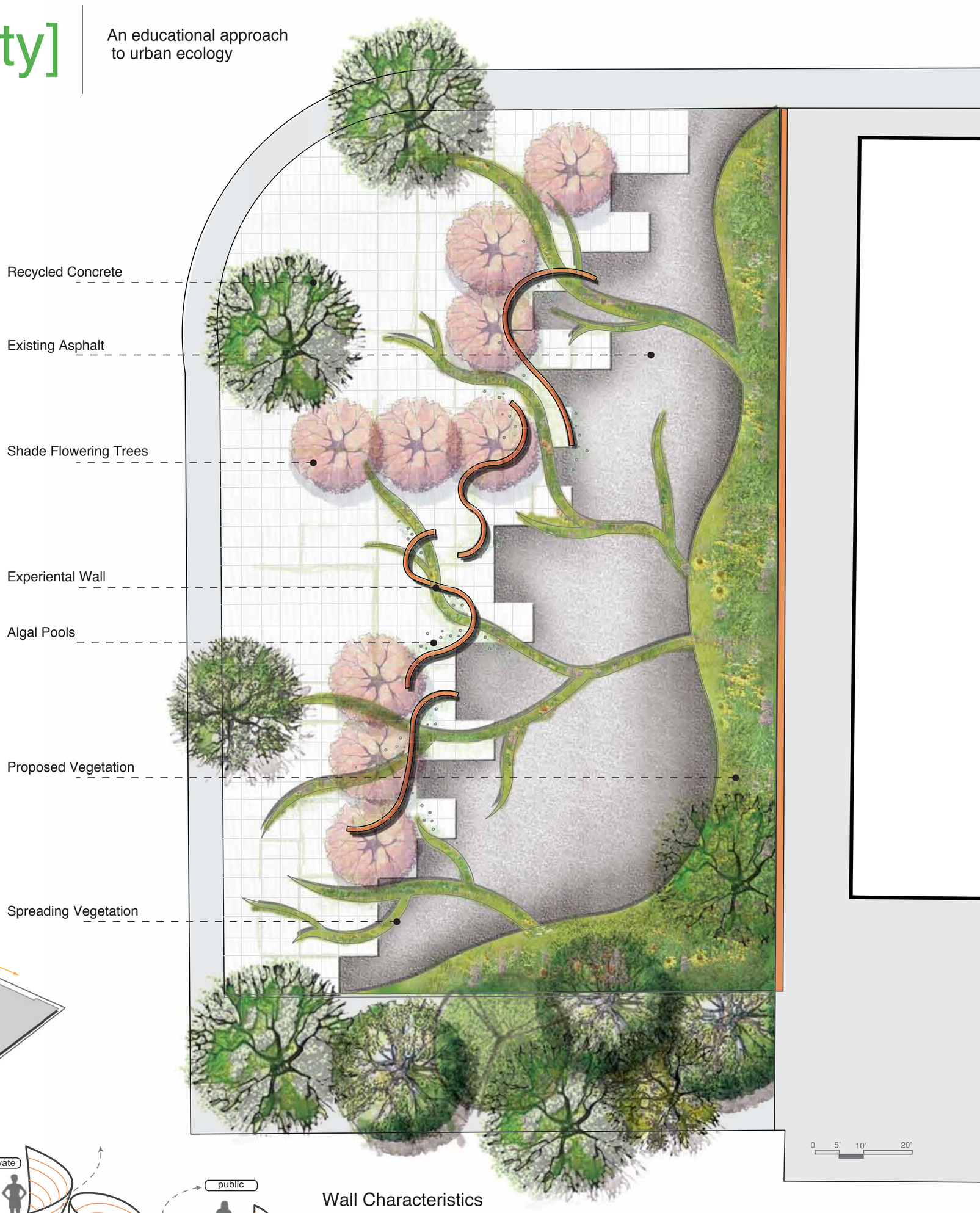
This vacant lot located adjacent to Walbrook Library was chosen due to its proximity to Gwynns Falls Park, North Ave., and United Methodist Church. North Ave. is the main street that many community members travel along, and the proposed site can provide a gathering space for users at Walbrook Library.

Program

The Wall not only provides a meeting place for the city side and the natural side of the design. The wall is functional and experiential. The meandering, segregated, shape allows for different types of spaces for people to utilize. In addition to providing a variety of program spaces, the shape and height of the wall affects the orientation and how natural elements are exposed to the wall. This influences habitat niches and can help increase biodiversity.

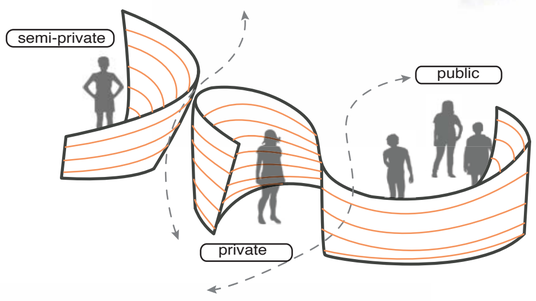


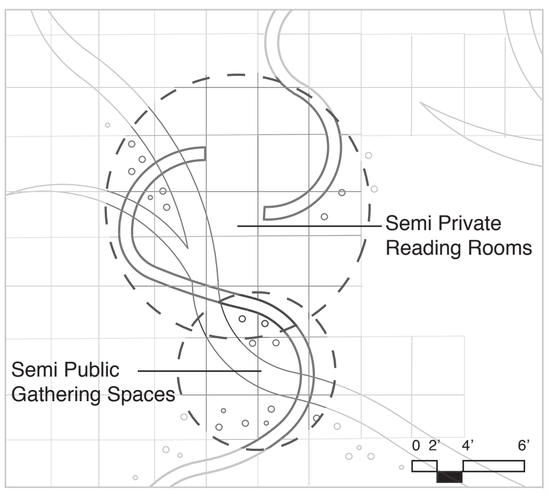
The height of the wall changes with each sections to help create more intimate spaces.



Spatial Characteristics

The shape of the wall makes for private, semi-private, and public spaces. Smaller nooks are great for outdoor reading places, and larger areas are perfect spots for educational opportunities and outdoor classrooms. The change in height of the wall and the over head plane from the trees give different senses of enclosure, making for more intimate spaces along the wall.



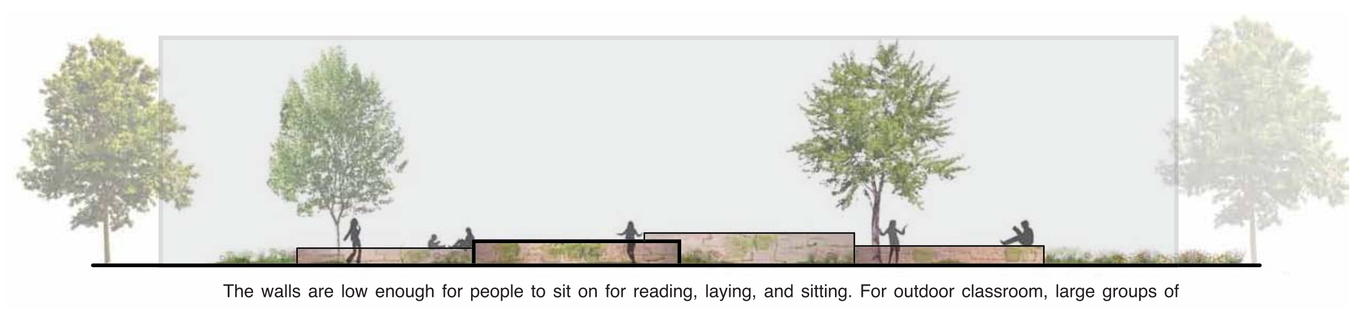


Enclosure from adjacent wall and overhead trees.

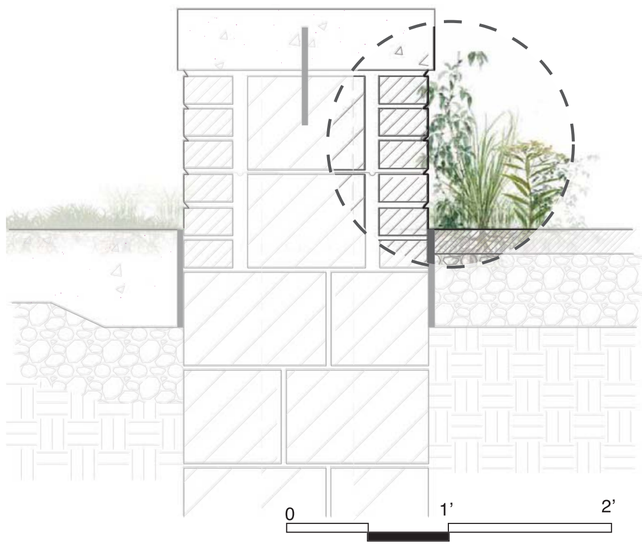
Wall Characteristics

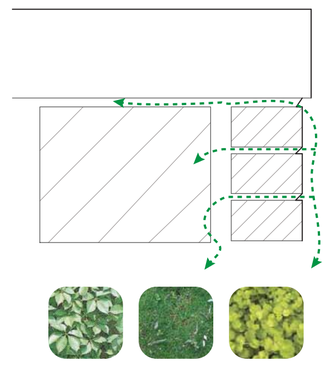
The proposed brick wall will be assembled of recycled brick from demolished vacant homes. The wall will carefully be constructed too allow for wind and other natural elements to weather the mortar. This will eventually create cracks and fractures in the foundation, making room for roots to grow through and cling to the wall.

The mortar joint is called struck . This method is a poor way to construct a brick wall, since water collects in the joint. However, this will help weather the wall and break apart the mortar, allowing plants to take over the wall over time

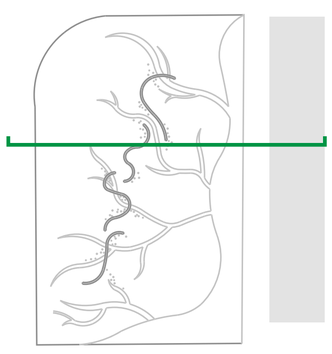


The walls are low enough for people to sit on for reading, laying, and sitting. For outdoor classroom, large groups of students can fit along one wall.





Vegetation that would tend to grow in these areas include moss, and aggressive vines like Virginia Creeper, and Creeping Jenny.



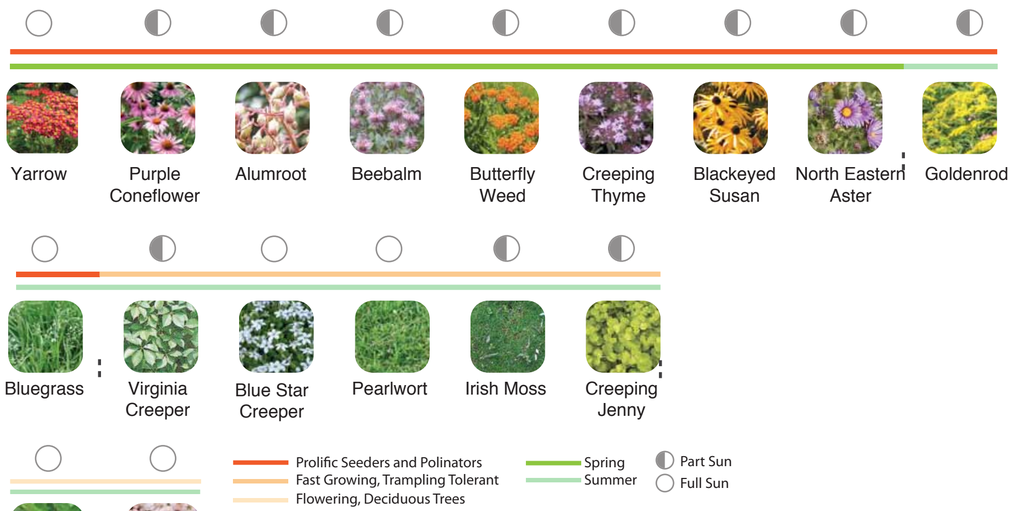
3/32"=1'

Amanda Laino | LArch 414 | The Pennsylvania State University

[ecology *within* the city]

An educational approach
to urban ecology

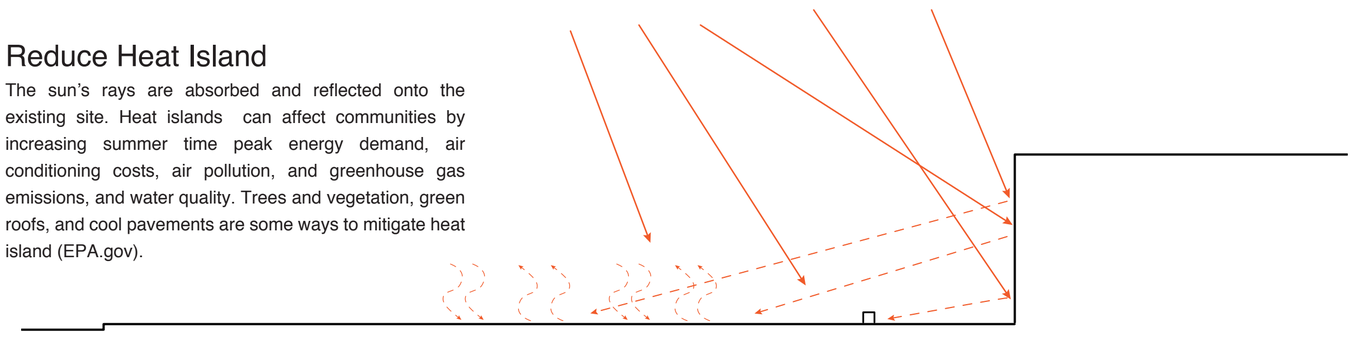
Perennial Planting Mix



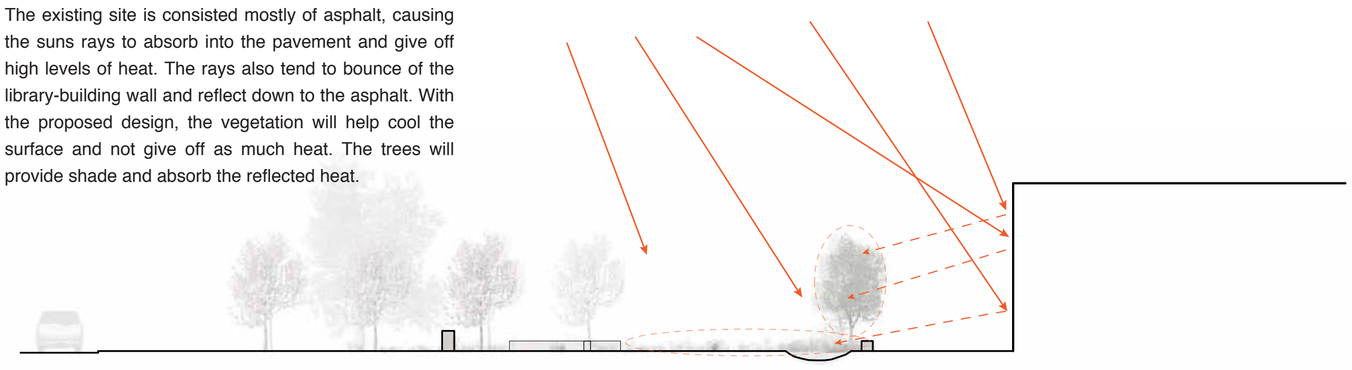
Estimated Cost: Blue Water Baltimore, Herring Run Nursery
Perrenials : 100 Quarts @ $6 = $600
Vines : 20 Vines @ $20 = $600
Trees : 1 Tulip Poplar @ $25 = $25 + 9 Cherry Trees @ $15 = $135
Seeds* additional cost
Total = $1,360

Reduce Heat Island

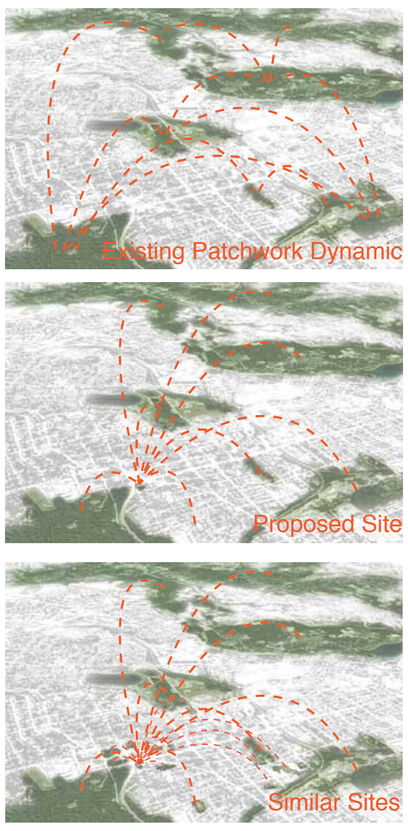
The sun's rays are absorbed and reflected onto the existing site. Heat islands can affect communities by increasing summer time peak energy demand, air conditioning costs, air pollution, and greenhouse gas emissions, and water quality. Trees and vegetation, green roofs, and cool pavements are some ways to mitigate heat island (EPA.gov).



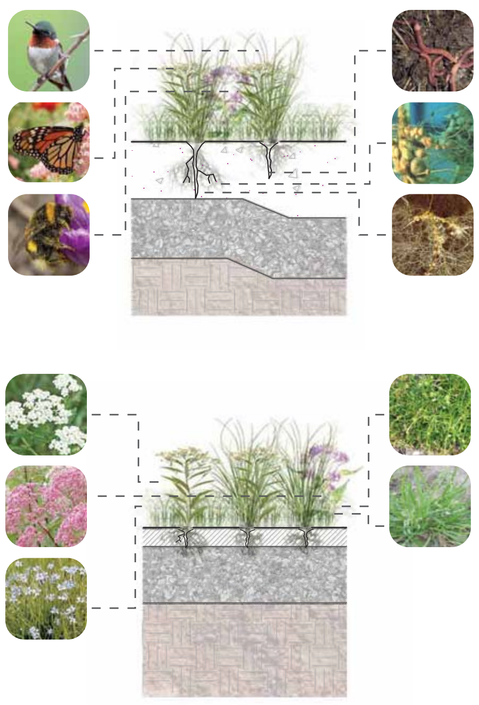
The existing site is consisted mostly of asphalt, causing the suns rays to absorb into the pavement and give off high levels of heat. The rays also tend to bounce of the library-building wall and reflect down to the asphalt. With the proposed design, the vegetation will help cool the surface and not give off as much heat. The trees will provide shade and absorb the reflected heat.



Increased Biodiversity and Habitat



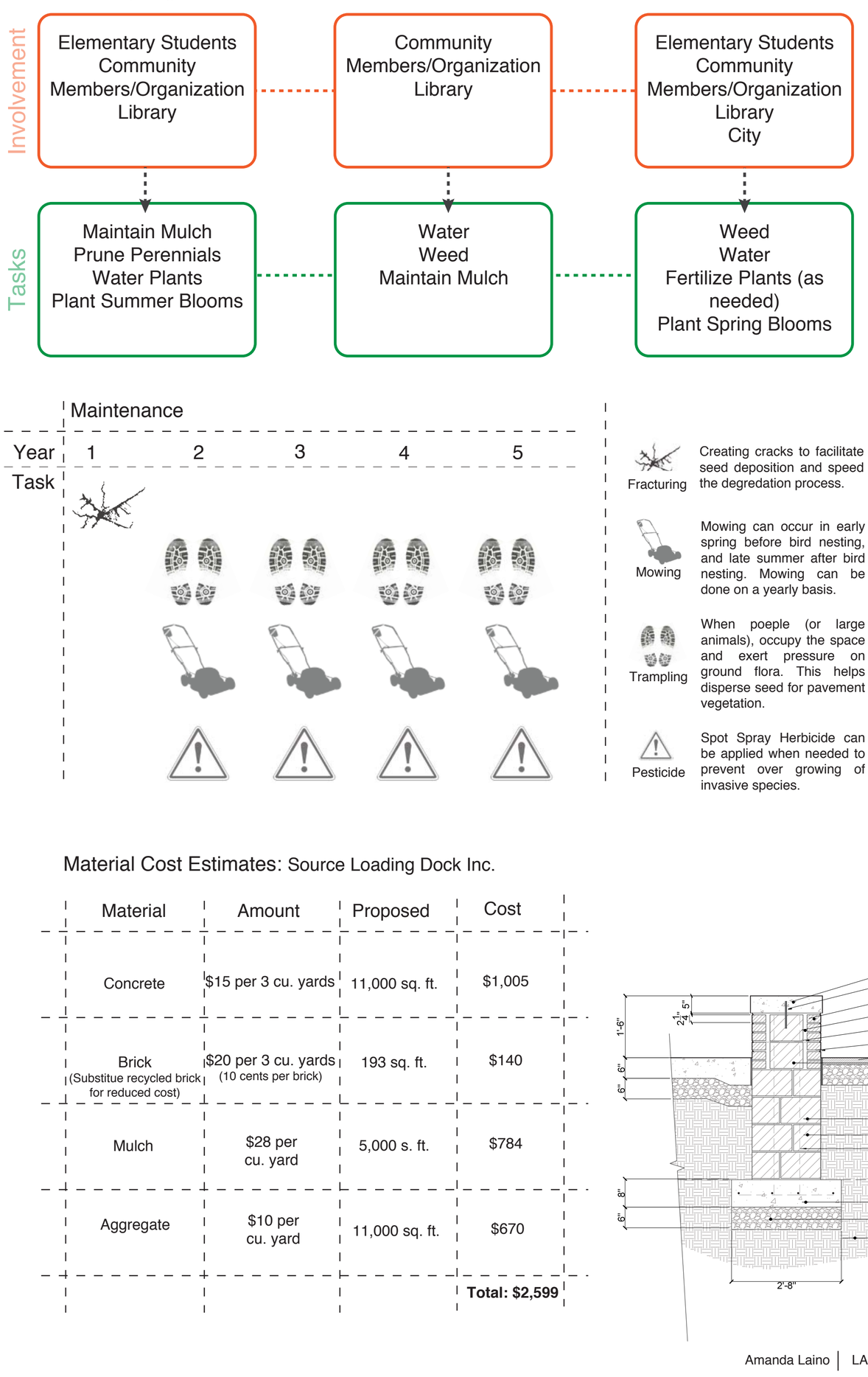
Planted vegetation will encourage wildlife like bees, butterflies, and birds to pollinate on site. Roots and soil structure produces habitats for microorganisms under the surface like fungi and bacteria.



Ecological Succession

Succession is the change of species structure of an ecological community over time. When left alone, a vegetative habitat will continue to grow. Mosses, lichens, and sparse ground cover begin to colonize, followed by flowers and grasses, and then finally shrubs, and trees. This site design will encourage the process of natural succession allowing little maintenance. The early stages of this process support a rich collection of flower and insect wildlife (British Geology Survey).

Community and Student Involvement



Fracturing — Creating cracks to facilitate seed deposition and speed the degredation process.

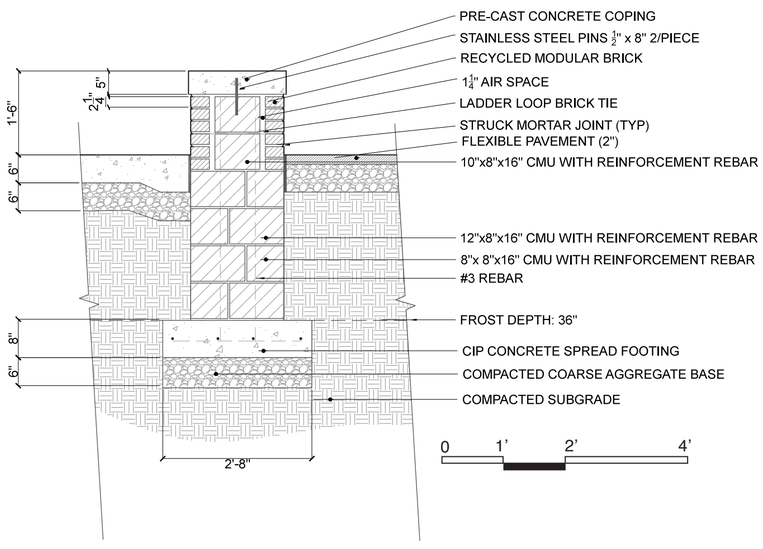
Mowing — Mowing can occur in early spring before bird nesting, and late summer after bird nesting. Mowing can be done on a yearly basis.

Trampling — When poeple (or large animals), occupy the space and exert pressure on ground flora. This helps disperse seed for pavement vegetation.

Pesticide — Spot Spray Herbicide can be applied when needed to prevent over growing of invasive species.

Material Cost Estimates: Source Loading Dock Inc.

Material	Amount	Proposed	Cost
Concrete	$15 per 3 cu. yards	11,000 sq. ft.	$1,005
Brick (Substitue recycled brick for reduced cost)	$20 per 3 cu. yards (10 cents per brick)	193 sq. ft.	$140
Mulch	$28 per cu. yard	5,000 s. ft.	$784
Aggregate	$10 per cu. yard	11,000 sq. ft.	$670
			Total: $2,599



Amanda Laino | LArch 414 | The Pennsylvania State University