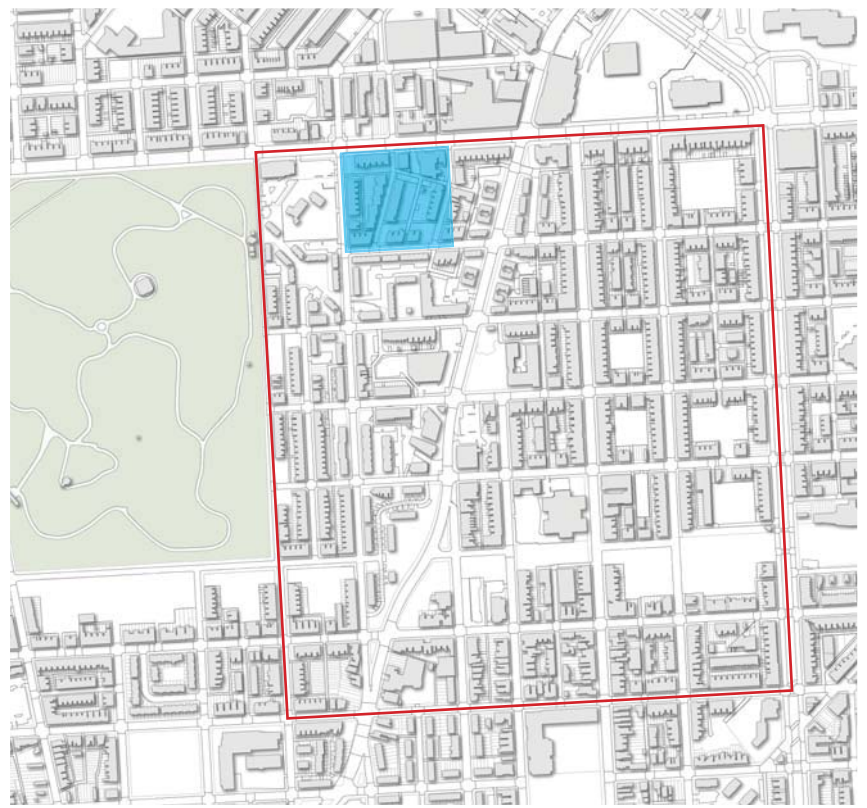


# The Intersection of Society and Biodiversity: an Adaptable System for Vacant Land

## CONTEXT



residential backyards are commonly small and sometimes with little soil, prompting the use of raised garden beds to give homeowners the opportunity to grow their own produce.

## CONCEPT

The urban environment has developed its own set of opportunities, constraints, and issues related to ideas of biodiversity and human systems. In the city of Baltimore, vacant land offers a way to capitalize on the opportunities and help solve issues affecting biodiversity and social systems across the landscape. Aiming to redefine vacant land as biologically productive and socially enhanced spaces, this design creates an adaptable and connected process that is applicable to small scale lots and incorporates residents into the system.

Since vacant land directly affects the property values and public perception of those living in close proximity, this project incorporates residents into remediation by establishing backyard garden beds that help produce plant material to be used in the vacant lot design. Residents are also included in the maintenance of the design and become ultimately responsible of upkeep, allowing them to take ownership of their vacant land and establish pride in the neighborhood.

The design of the lot is heavily influenced by site conditions and an emphasis on biodiversity, resulting in a specific matrix of plants that are attractive to pollinators and help to establish a patchwork habitat throughout scales. The culmination of design factors form a system that increases the self-efficacy of residents, enhances biodiversity, and promotes the positive perception of vacant land.

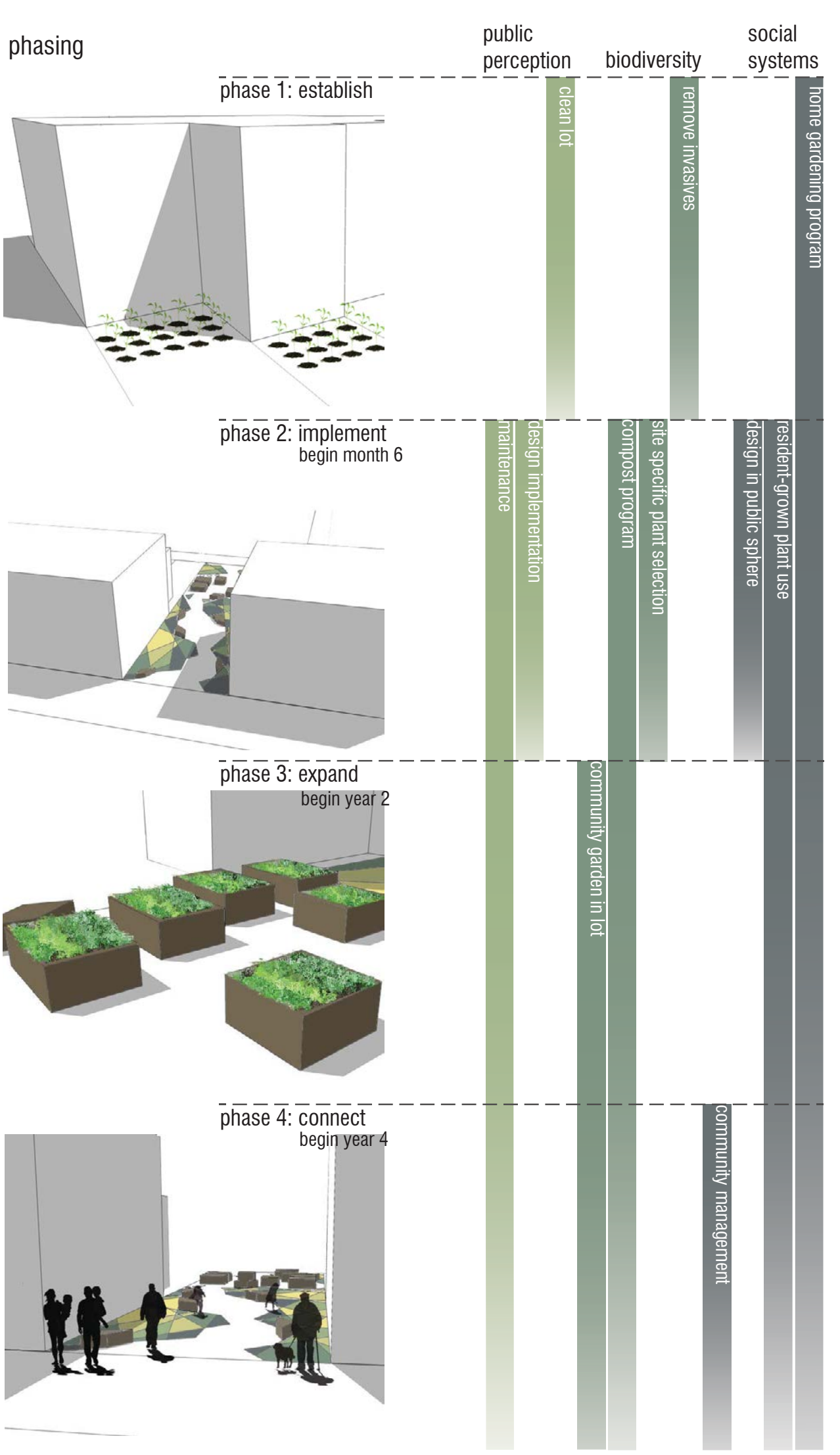


This site is representative of vacant lot conditions within this block, bounded by E. North Ave., an alley, and rowhouses. It also faces north/south making it a challenging location due to shade abundance.

## Masterplan



## Phasing and Maintenance



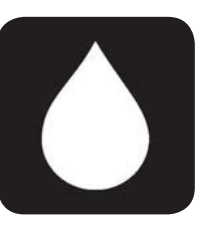
### maintenance tasks

- preparation for design : city
- clean lot
  - deep rip 18" of soil
  - incorporate organic matter into tilled soil
  - outline planting bed in brick

- implementation of design : city + residents
- plant city and resident grown plants
  - use reclaimed wood for benches

- yearly maintenance
- beginning of growing season : residents
- till under cover crop in raised planters
  - plant resident grown annuals
  - weed

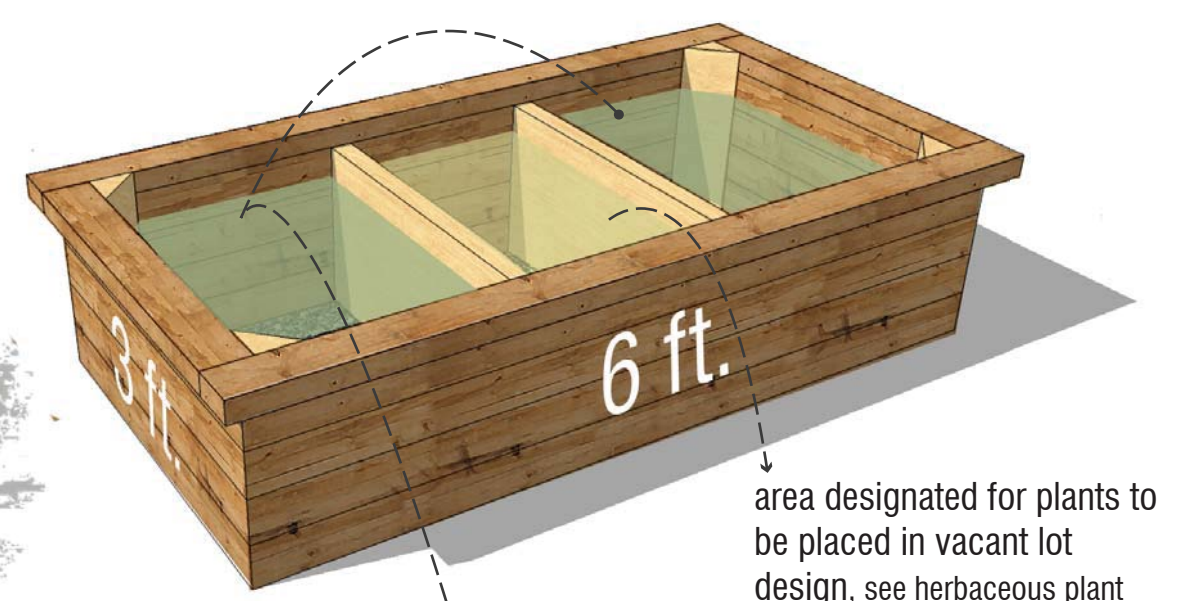
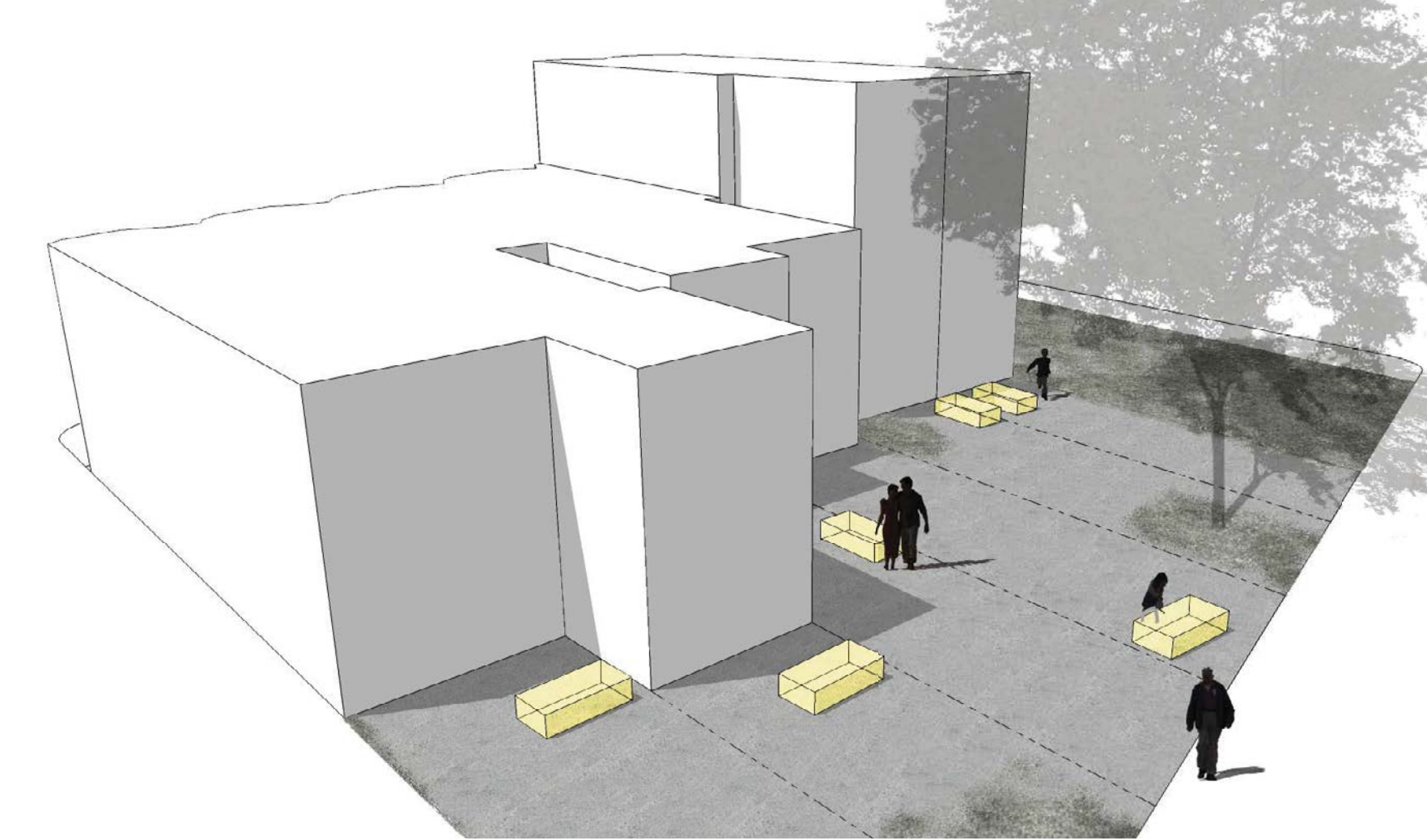
- end of growing season : residents
- deadhead perennials
  - remove annuals
  - plant cover crop in raised planters



## Phase 1 : home garden establishment

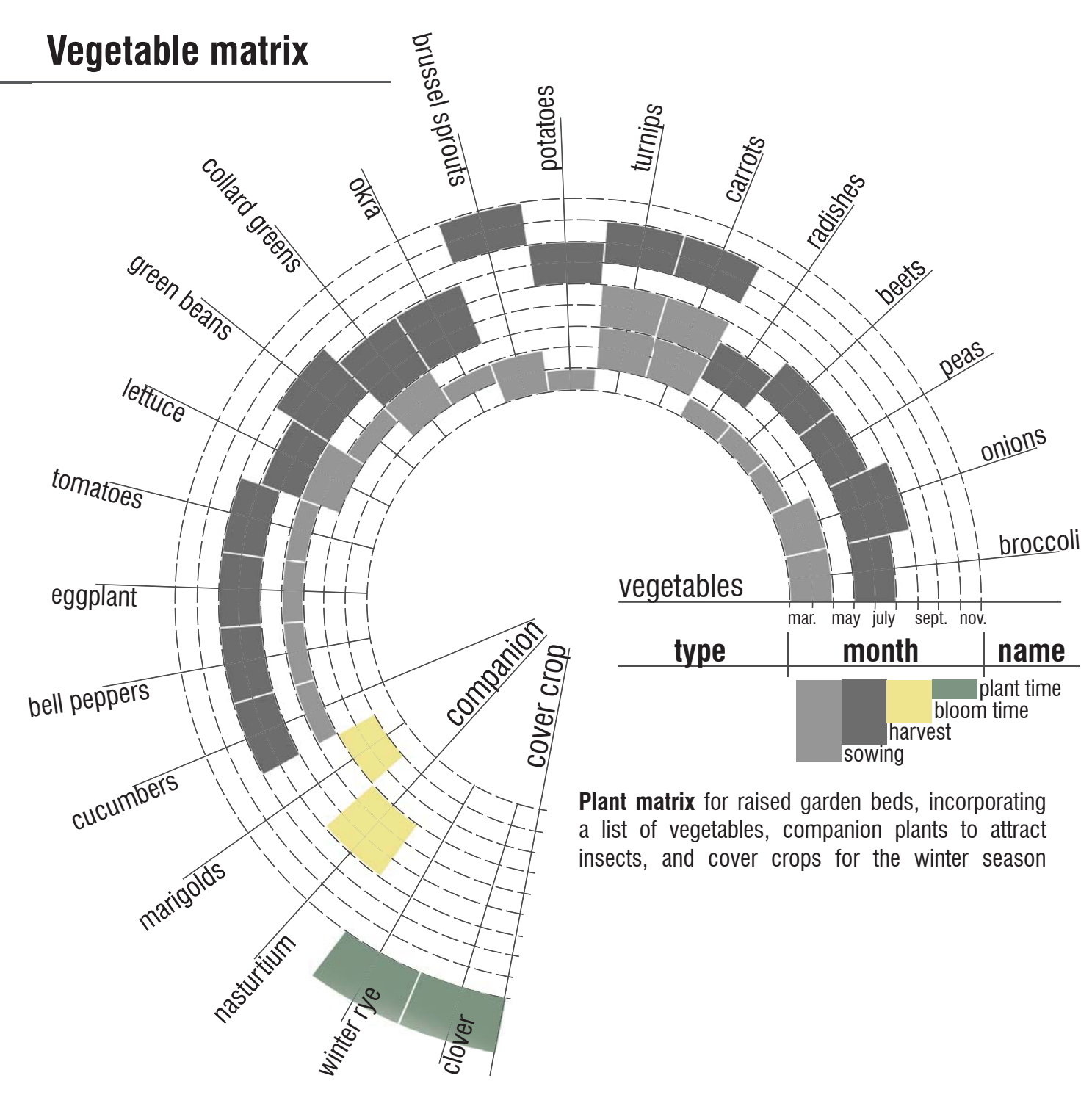
Residents will be provided with raised container gardens built by volunteers, with all the necessary supplies to make the garden successful including dirt, seeds, tools, and care guides. Residents will grow both their own food and plants for the future vacant lot design.

- Key Elements :
- division of planter box compartments for personal use and future vacant lot use
  - use of recycled materials for planter construction
  - residents choose where garden is placed in backyard
  - residents choose which vegetable seeds they want



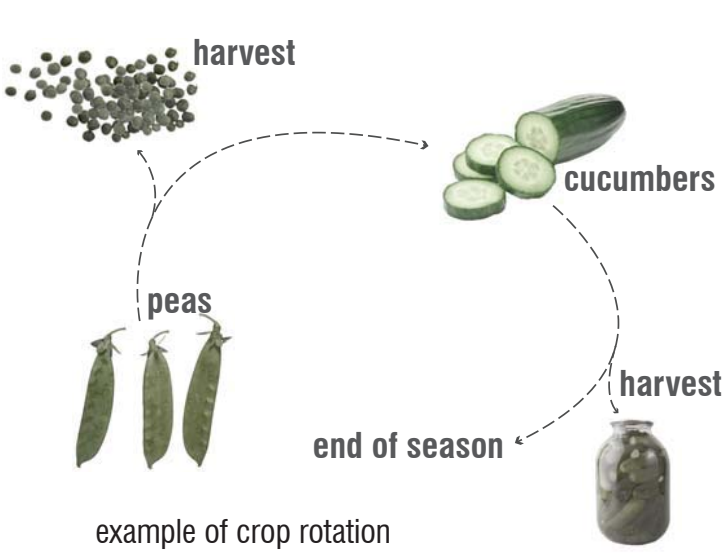
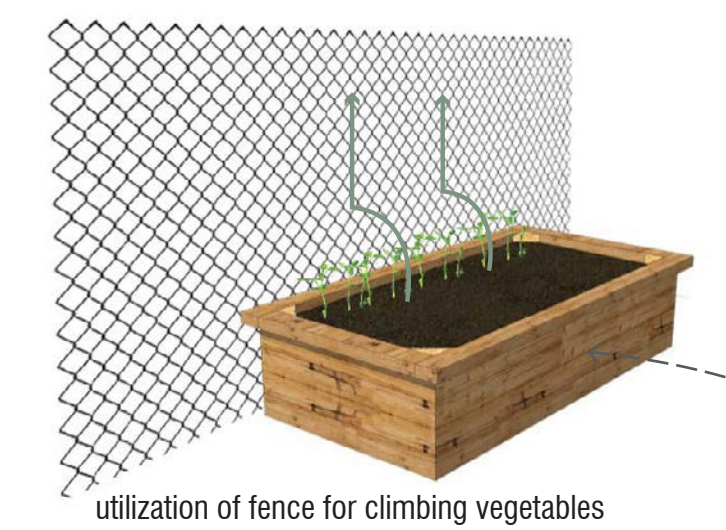
area designated for plants to be placed in vacant lot design, see herbaceous plant matrix for plant selection

area designated for personal vegetable growing, plants selected in reference to adjacent plant matrix



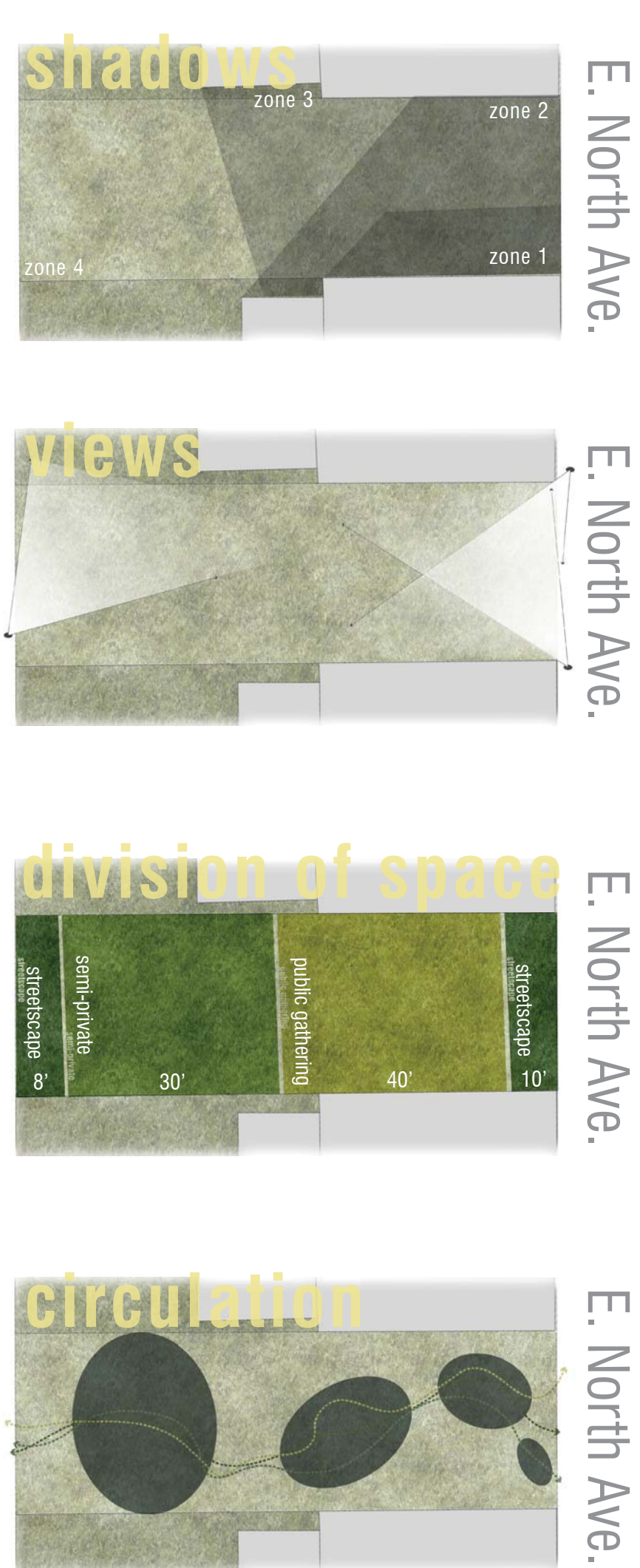
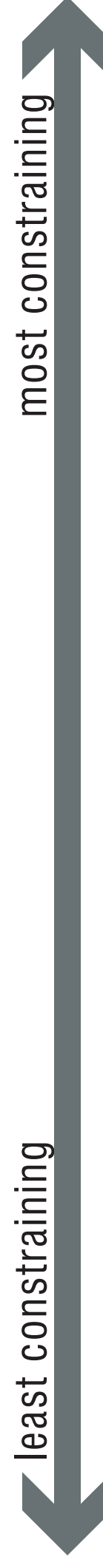
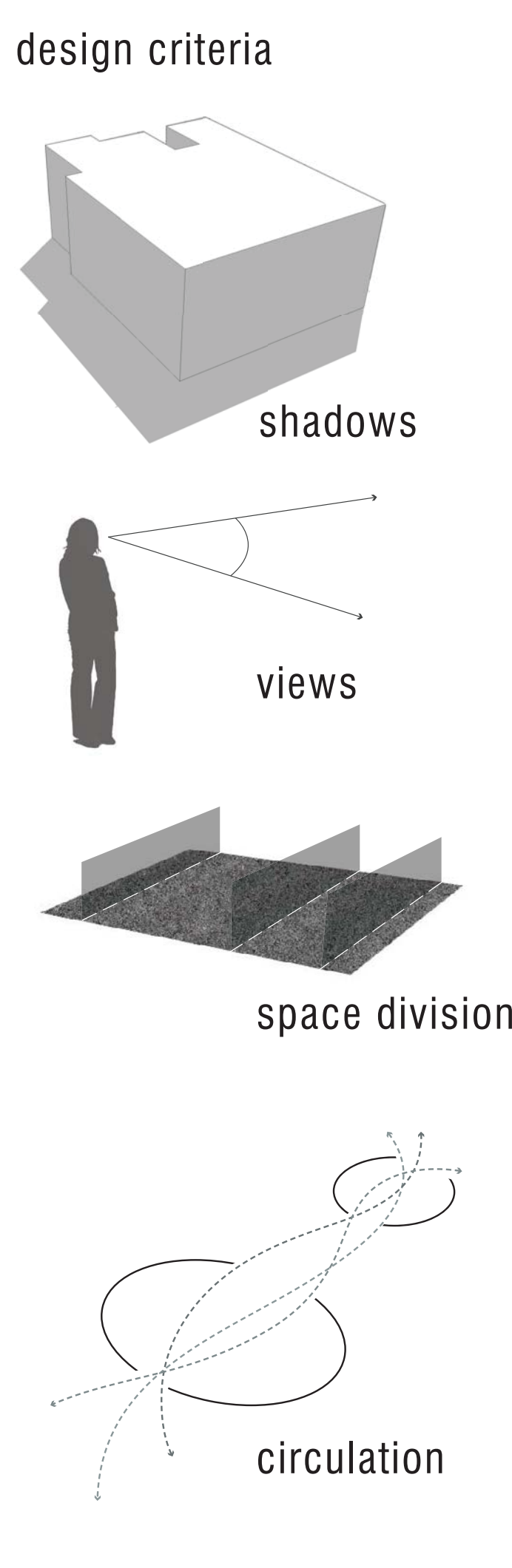
## Backyard planter

Planters are placed based on the needs of the resident and shade constraints. Planters can be placed adjacent to the existing fence to create a trellis for climbing vegetables.





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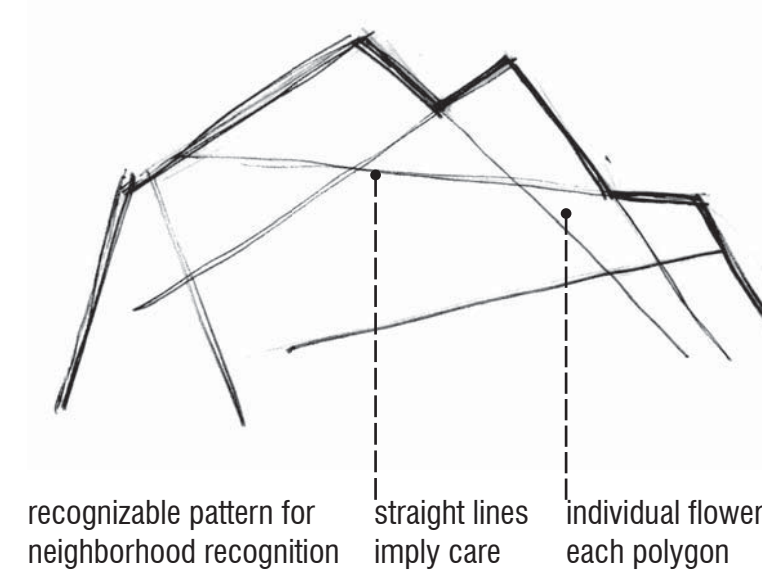


## Phase 2 : vacant lot design implementation

Vacant lot conditions are analyzed through four factors: shade, views, division of space, and circulation to organize design elements in each unique lot. These conditions are taken into account during design formation which is modeled using a modular pattern that can be stretched and altered to fit each context.

- Key Elements :
- series of gathering spaces
  - delineated polygons for specific plants
  - 100% visibility across entirety of site
  - captures rainfall in tilled planting beds

### Design Concept



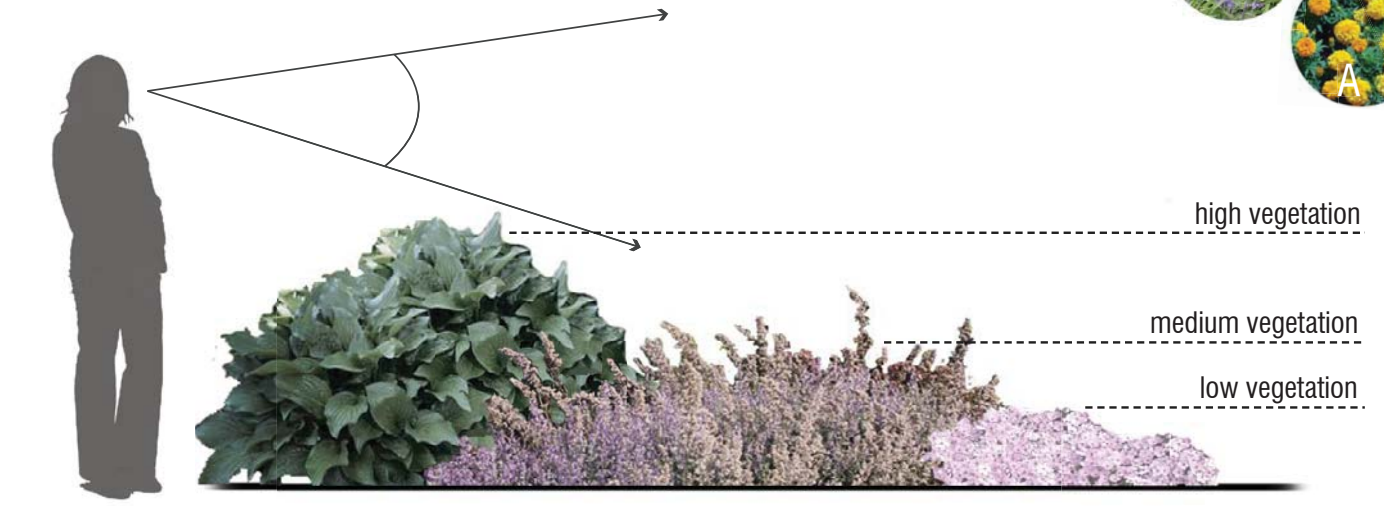
### Adaptable Planting Bed

The planting bed is arranged in reference to a flexible mesh that can accommodate the needs detailed in the design criteria. Easily adjusting to spatial requirements, this pattern provides delineated planting beds for each flower.

This pattern can be loosely seen during the growing season and becomes recognizable during the winter when the edging of the pattern is exposed.

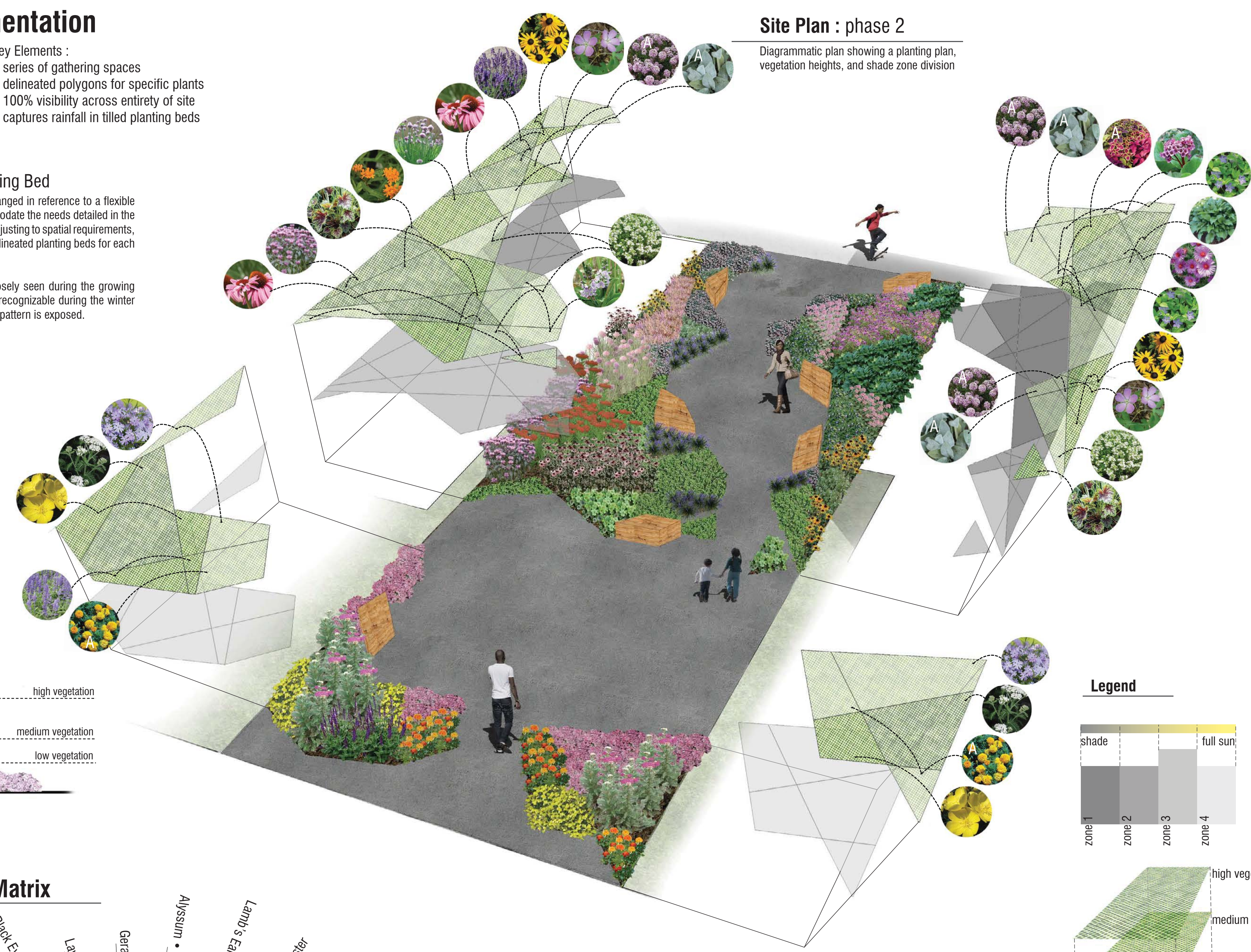
### Vegetation Heights

Vegetation is arranged according to height, with no plant exceeding 4 feet. Allowing for 100% visibility across the site, these low growing plants can increase the safety of the lot since people will be able to see who is in the lot as they pass by or enter it.



## Site Plan : phase 2

Diagrammatic plan showing a planting plan, vegetation heights, and shade zone division



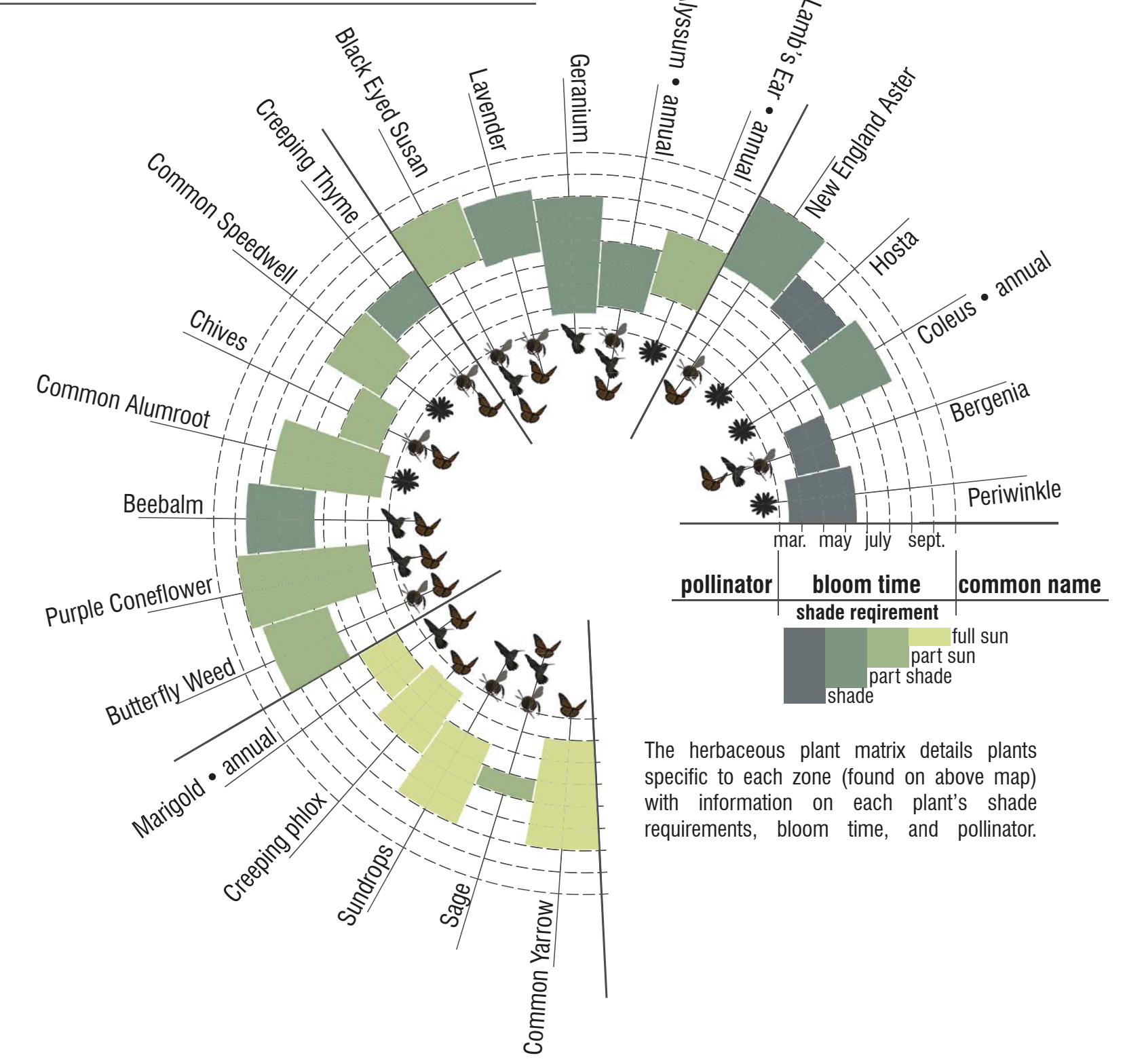
### Winter Brick Edging Detail

Brick detail in winter, providing color and a pattern for visual interest while herbaceous plants are dormant

### Spring Brick Edging Detail

Brick detail in spring is hidden by herbaceous plants growing over the boundary

## Herbaceous Plant Matrix



The herbaceous plant matrix details plants specific to each zone (found on above map) with information on each plant's shade requirements, bloom time, and pollinator.

## Perspective 1

View from center of site looking towards E. North Ave. showing the main gathering area and streetscape space. Pollinators frequent the new design, bringing in biodiversity to the area.





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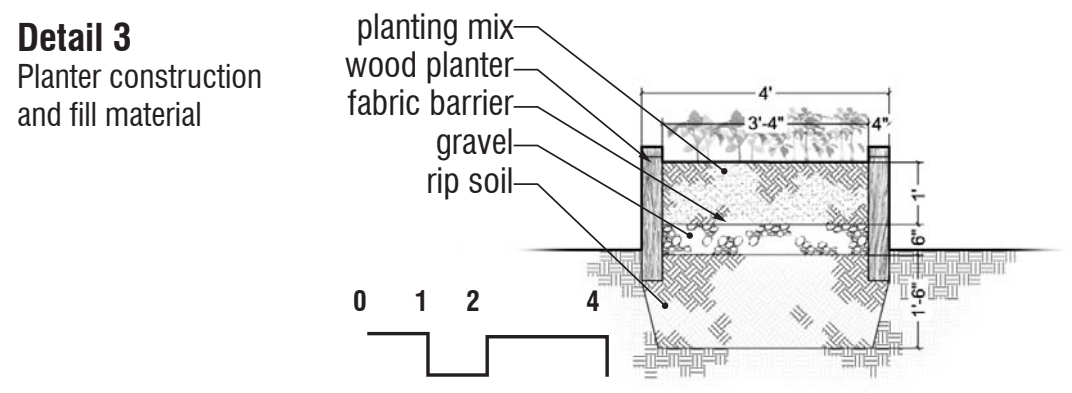
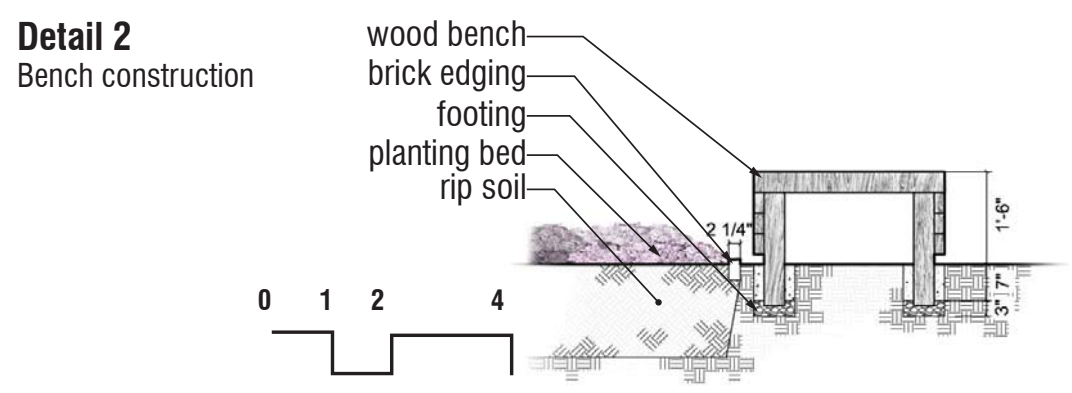
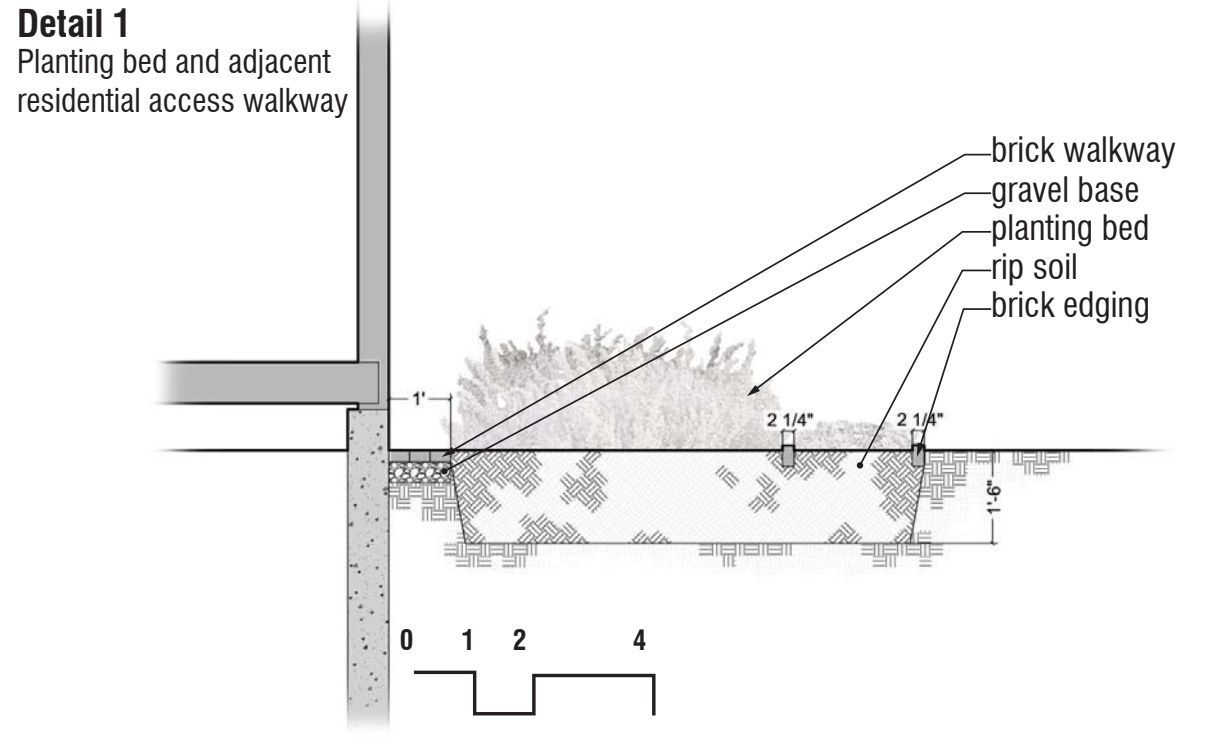


## Phase 3 : system expansion

As time progresses, the home gardening program expands into the semi-private area of the vacant lot adjacent with existing backyards. This expansion will be fenced off for security and retain the existing planting beds and benches to allow for continued gathering.

- Key Elements :
- fenced area for secure vegetable garden expansion
  - establishes semi-private land adjacent to existing backyards
  - retains benches and flower beds from phase 2

### Site Details



## Perspective 2

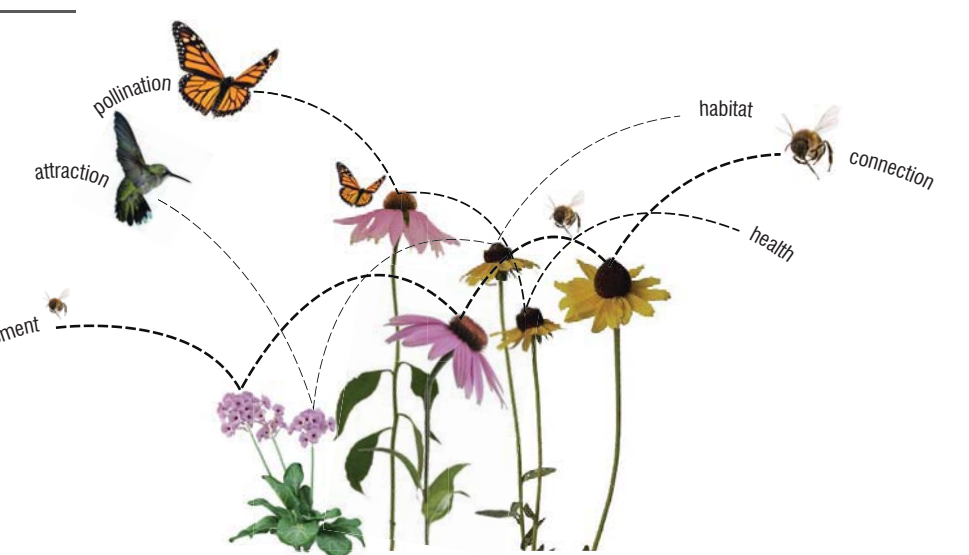
View of the community garden implemented in phase 3, with compost bins and a chain link fence for security. The benches and planting beds from phase 2 remain in this area for use by residents.



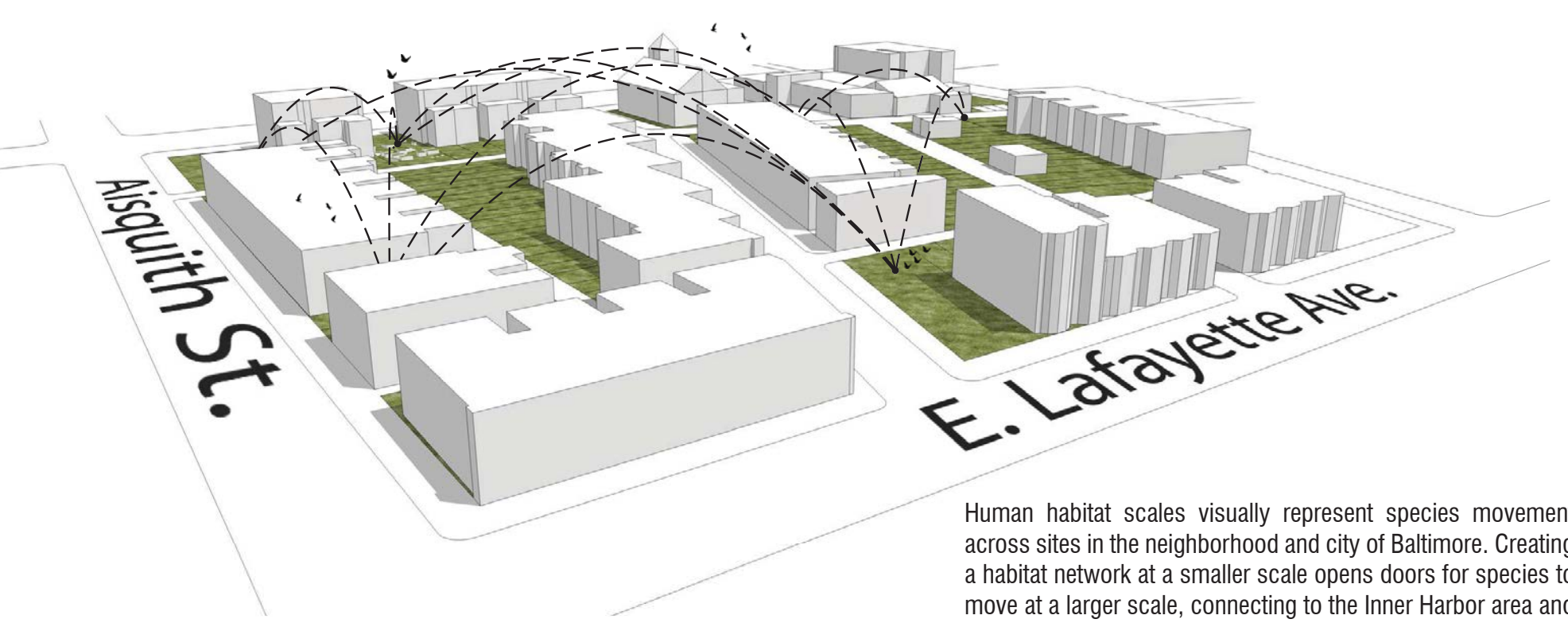
## Human Habitat Connection

The herbaceous plants in the vacant lot design were chosen with specific regard to pollinators: mainly hummingbirds, butterflies, and bees. BES research on urban pollinators emphasizes the potential for urban gardens to contribute to pollinator and ecosystem service conservation.

With that in mind, careful plant selection in vacant lot designs can help create a patchwork habitat across the neighborhood of Oliver and allow connections to the larger context of the city.

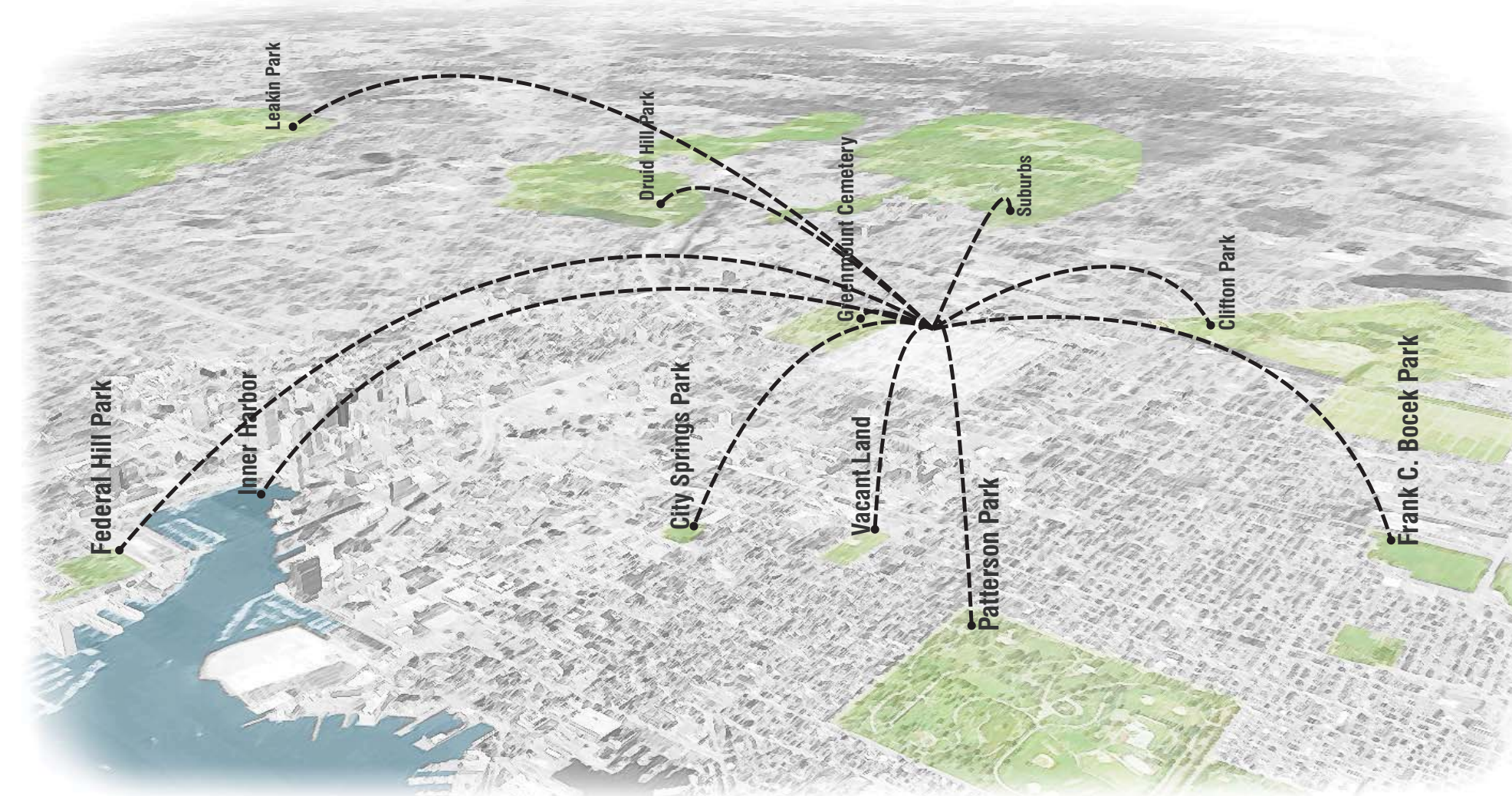


## Block Scale Habitat Connection



Human habitat scales visually represent species movement across sites in the neighborhood and city of Baltimore. Creating a habitat network at a smaller scale opens doors for species to move at a larger scale, connecting to the Inner Harbor area and exterior suburbs.

## City Scale Habitat Connection



## Plant List

	Common Name	Scientific Name	Type	Producer
zone 1	Periwinkle	Vinca minor	perennial	resident
	Bergenia	Bergenia cordifolia	perennial	resident
	Coleus	Solenostemon scutellarioides	annual	resident
	Hosta	Hosta 'Royal Standard'	perennial	city
zone 2	New England Aster	Symphotrichum novae-angliae	perennial	resident
	Lamb's Ear	Stachys byzantina	annual	resident
	Alyssum	Lobularia maritima	annual	resident
	Geranium	Geranium maculatum	perennial	resident
zone 3	Lavender	Lavandula angustifolia	perennial	city
	Black Eyed Susan	Rudbeckia fulgida	perennial	resident
	Creeping Thyme	Thymus serpyllum	perennial	resident
	Common Speedwell	Veronica officinalis	perennial	resident
	Chives	Allium schoenoprasum	perennial	resident
	Common Alumroot	Heuchera americana	perennial	city
	Beebalm	Monarda didyma	perennial	city
	Purple Coneflower	Echinacea purpurea	perennial	resident
zone 4	Butterfly Weed	Asclepias tuberosa	perennial	resident
	Marigold	Tagetes erecta	annual	resident
	Creeping Phlox	Phlox subulata	perennial	resident
	Sundrops	Oenothera perennis	perennial	resident
vegetables	Sage	Salvia officinalis	perennial	city
	Common Yarrow	Achillea millefolium	perennial	resident
	Broccoli	Brassica oleracea	vegetable	city
	Onions	Allium cepa	vegetable	city
	Peas	Pisum sativum	vegetable	city
	Beets	Beta vulgaris	vegetable	city
	Radishes	Raphanus sativus	vegetable	city
	Carrots	Daucus carota	vegetable	city
	Tumips	Brassica rapa	vegetable	city
	Potatoes	Solanum tuberosum	vegetable	city
	Brussel Sprouts	Brassica oleracea	vegetable	city
	Okra	Abmoschus esculentus	vegetable	city
	Collard Greens	Brassica oleracea	vegetable	city
	Green Beans	Phaseolus vulgaris	vegetable	city
	Lettuce	Lactuca sativa	vegetable	city
Tomatoes	Solanum lycopersicum	vegetable	city	
Eggplant	Solanum melongena	vegetable	city	
Green Peppers	Capsicum annuum	vegetable	city	
Cucumbers	Cucumis sativus	vegetable	city	
companion cover crop	Marigold	Tagetes erecta	companion plant	city
	Nasturtium	Tropaeolum majus	companion plant	city
	Winter Rye	Secale cereale	cover crop	city
	Clover	Trifolium repens	cover crop	city

## Section A-A'

Section of circulation space looking toward alleyway, with division of space and soil profile layers



## Section B-B'

Section of gathering area looking toward E. North Ave. with area for along the building for adjacent residents to access their exterior wall

