

Filling the Void

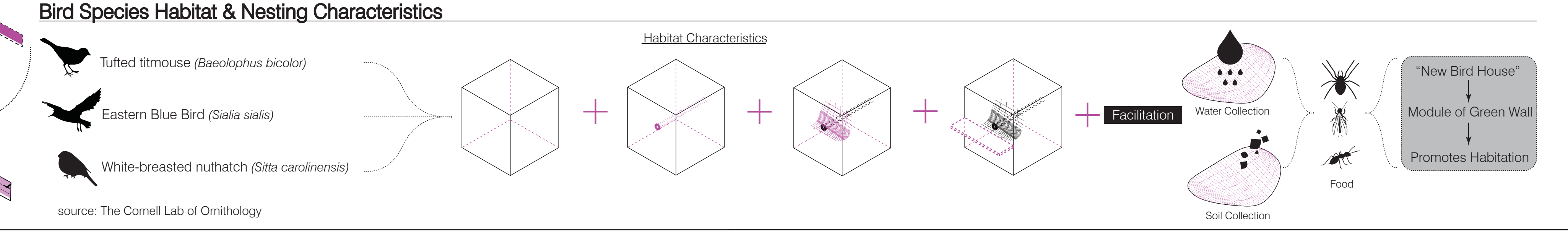
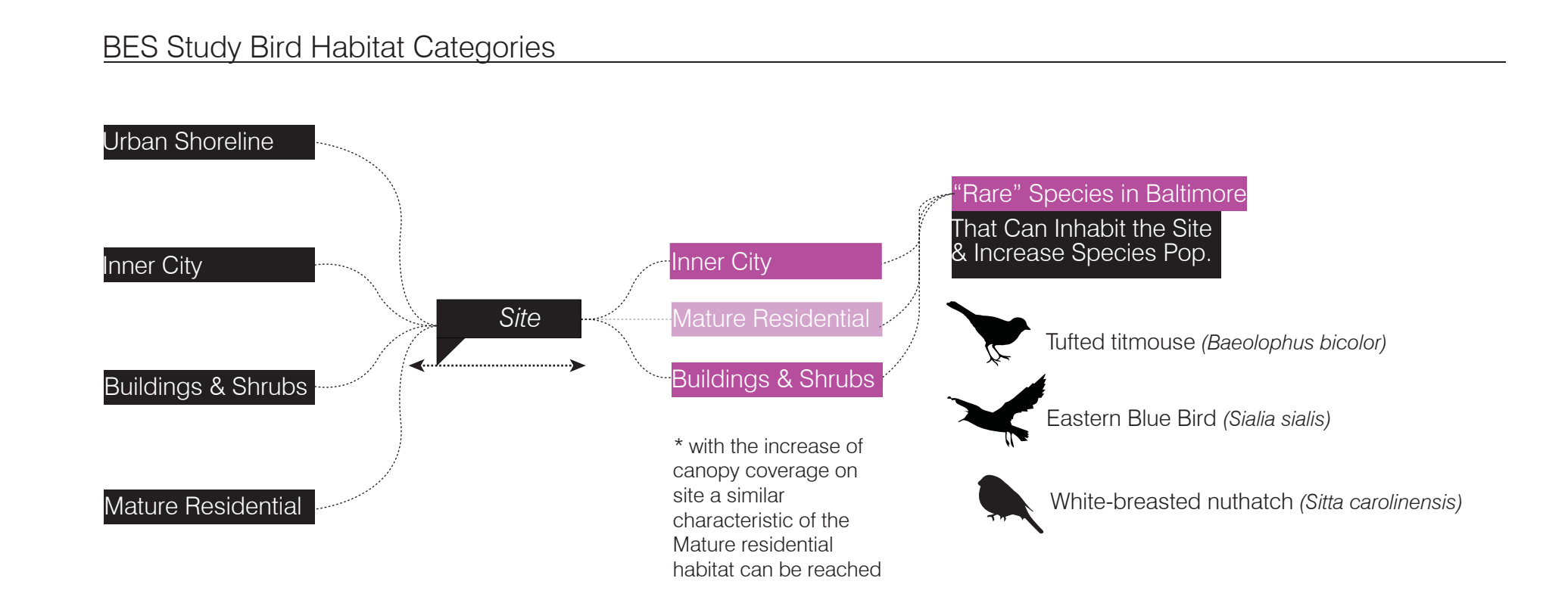
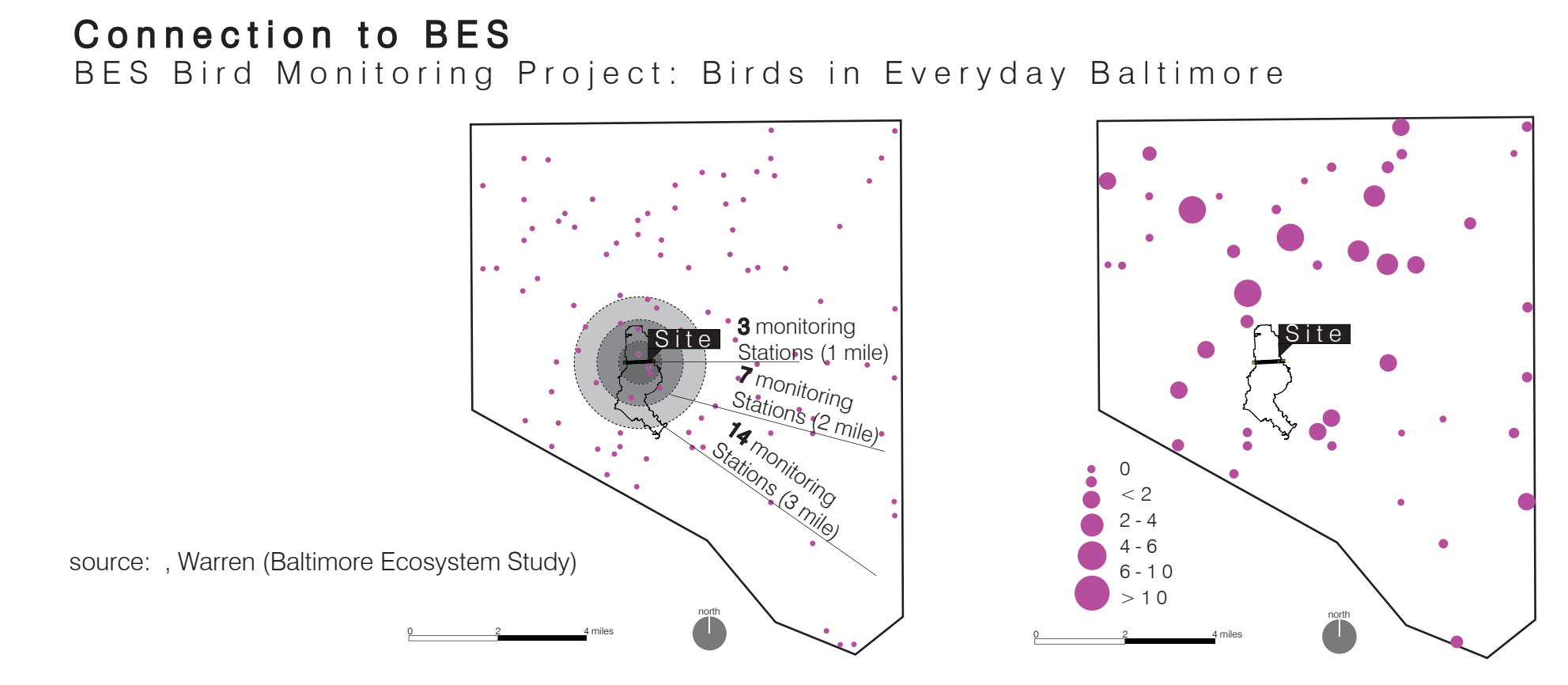
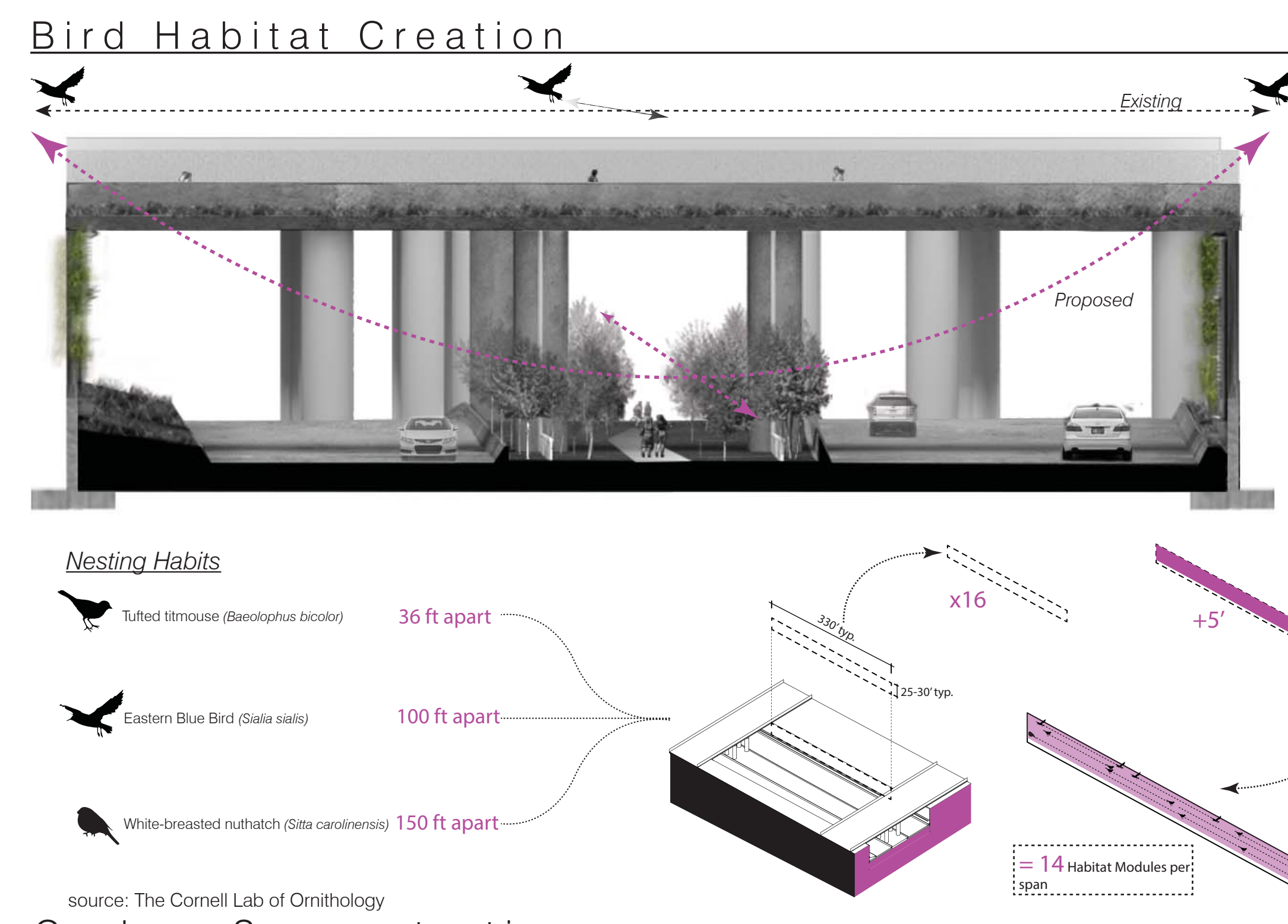
Vertical Habitation



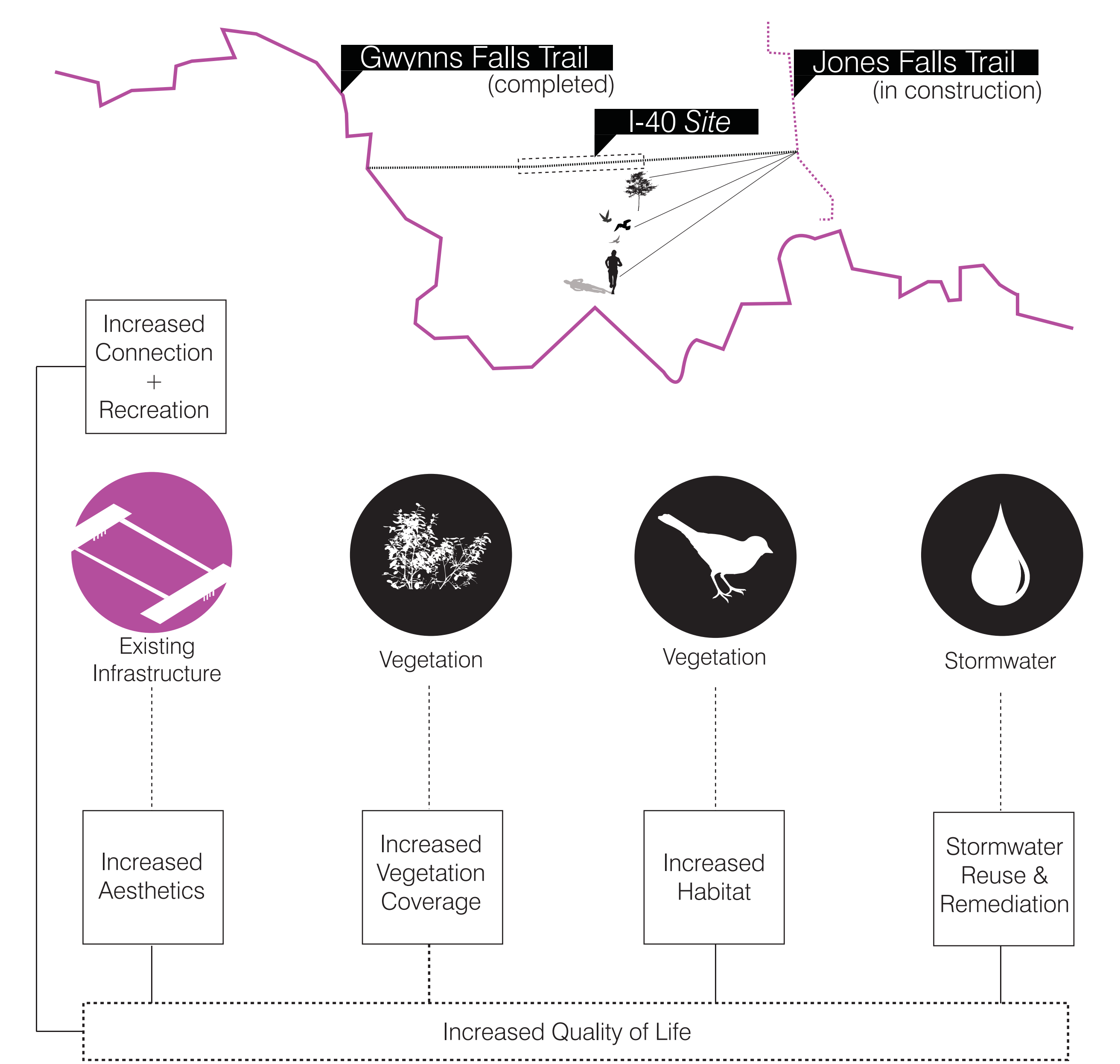
Focus Design Concept

The sub-initiative of the project "Filling the Void," **Vertical Habitation**, seeks to provide the depressed section of Route 40 with an increase in aesthetic value along with also providing various ecosystem services. At present, there are vertical retaining walls that run the length of the depressed section of the highway. The walls range between 25 to 30 feet in height. This vertical space is currently under utilized, and once activated the surface will have the capability to provide a new medium for urban ecology. The project identifies with the proposal for a green wall system that heavily relies upon vine plantings. This strategy in planting allows for fewer individual plants but provides a larger degree of vegetation coverage. The increase in vegetation coverage has the ability to provide a means for carbon sequestration, habitat connection, reduced noise pollution, reduced urban heat, and the reuse/ remediation of stormwater collected locally on site. The project expresses itself through a connection to the local community as the modules can become a program where they are removed from their place on the wall and propagated and wintered by the residents. Such a program has the capacity to provide community pride through education of urban ecology. The modules used in this green wall system will provide space for growing vines (screen) and forbs (trays), for creating bird habitats through specialized modules that promote the necessary habitats for specific bird species that can be found on site, and for aiding in the advancement of BES research. The project will become a catalyst for an increased quality of life through ecosystem services that promote knowledge and a sense of place.

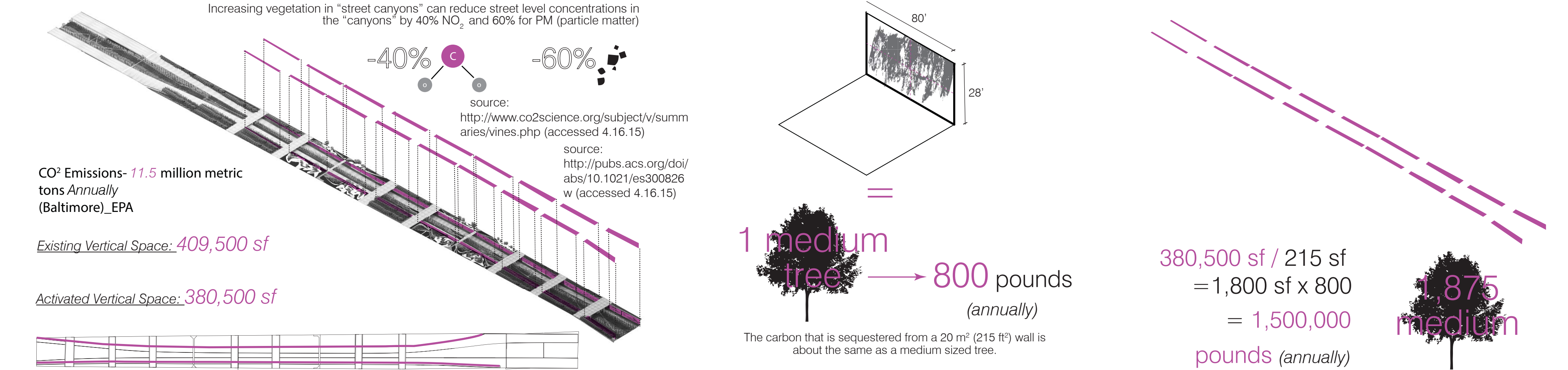
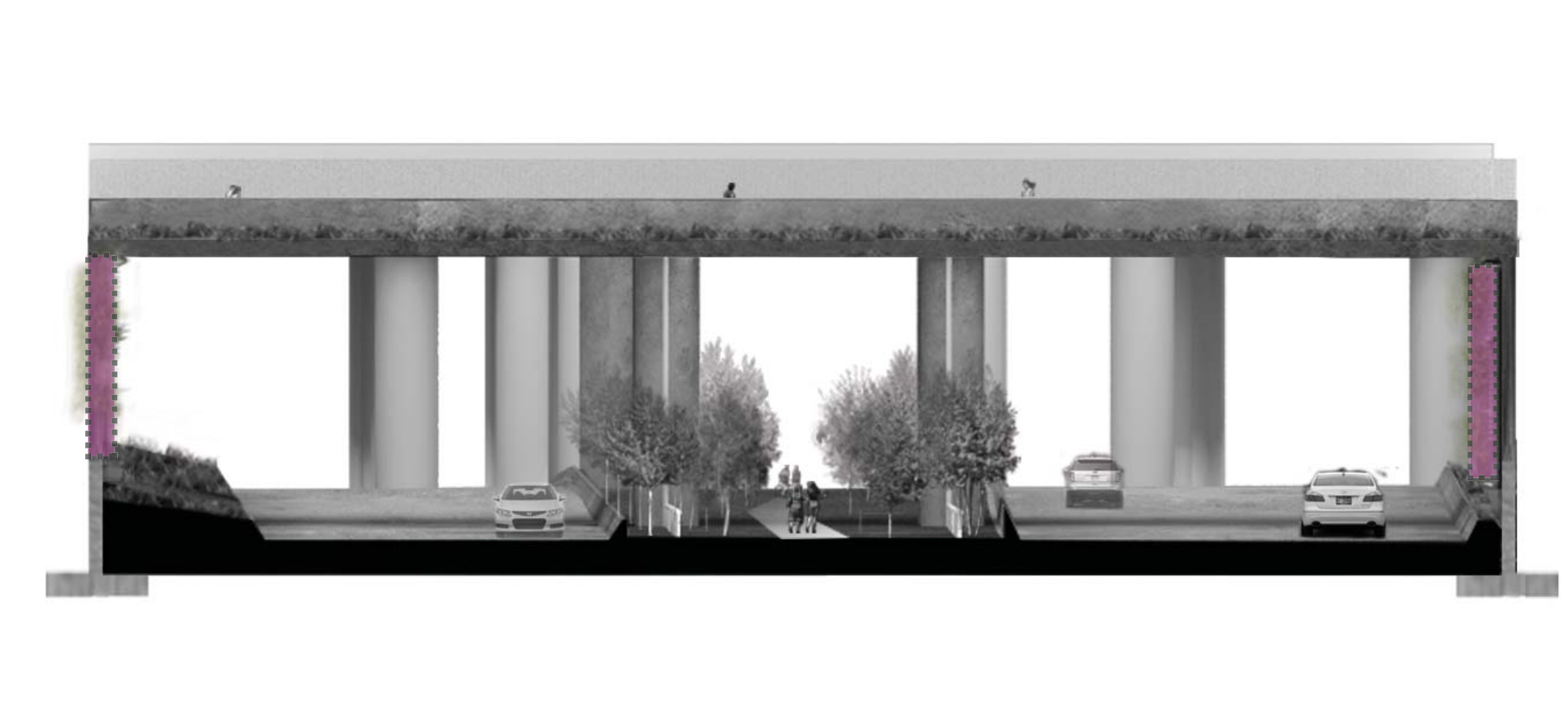
Ecosystem Services



Filling the Void Holistic Concept



Carbon Sequestration



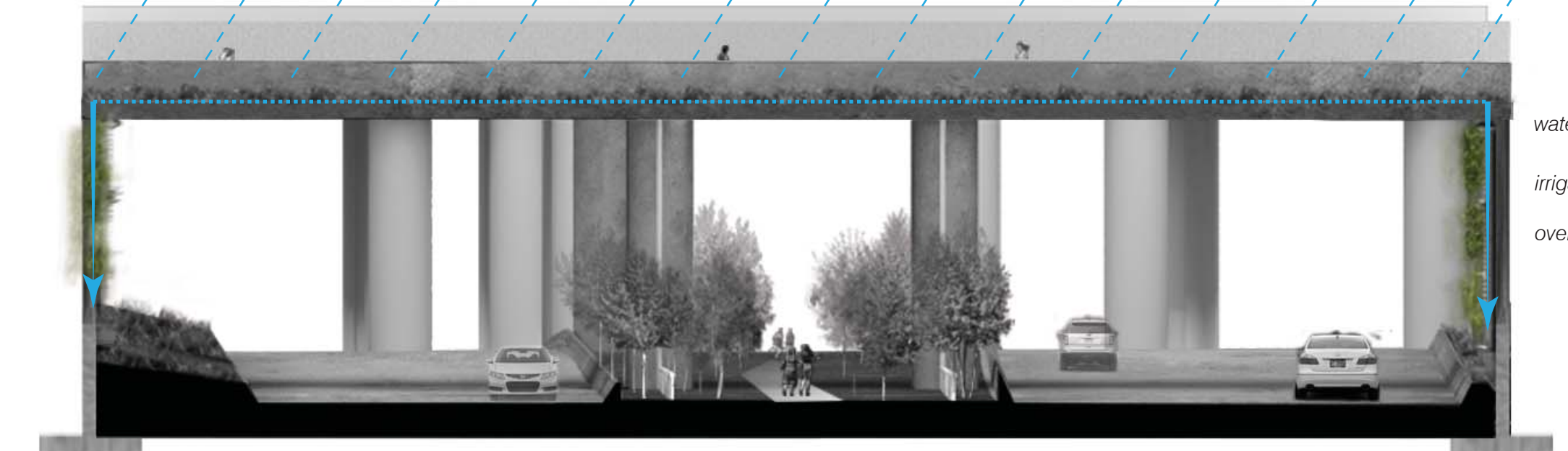
Noise Pollution/Acoustics



Urban Heat Reduction



Stormwater Collection + Remediation + Reuse



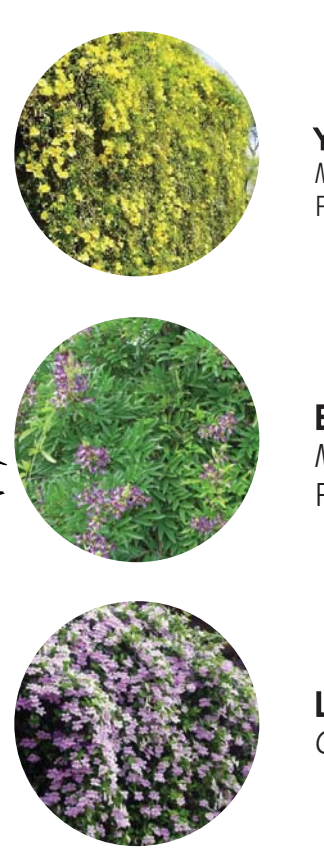
Vertical Habitation

The proposed green wall system largely bases the planting scheme on Vine vegetation with a subtle mixture of forbs. Vines, because they grow quickly and are largely composed of leaves uptake more carbon than trees. This allows for the intervention of the green wall to make a tremendous impact on carbon sequestration while increasing the aesthetic value of the space. There are 3 module typologies incorporated into the modular grid system, the first module, Module 1, provides a unique 3 dimensional growing apparatus for vines to creep and grow upon. The screen fixture of the module can be composed of unused recycled iron found throughout Baltimore. Module 2, seeks to be a more typical module that promotes the grow of forb plantings in rows of trays where linear patterns can be created. The final module presents a new way of thinking about the construction of man made bird habitats. The module provides such features as perching opportunities, water collection, cavity nesting, soil collection for insect habit, and entry holes that fit the identified bird species to study along with the BES research.

Planting Strategy + Palette

Choice of Vines Vines

- grow *fast*
 - climb = more coverage with *less plantings*
 - hardy, more *drought-resistant*
 - use most of energy to grow leaves not trunks
- 60-100x **Vines** > **Trees**
- source: <http://www.worldwatch-europe.org/node/227> (accessed 4.16.15)

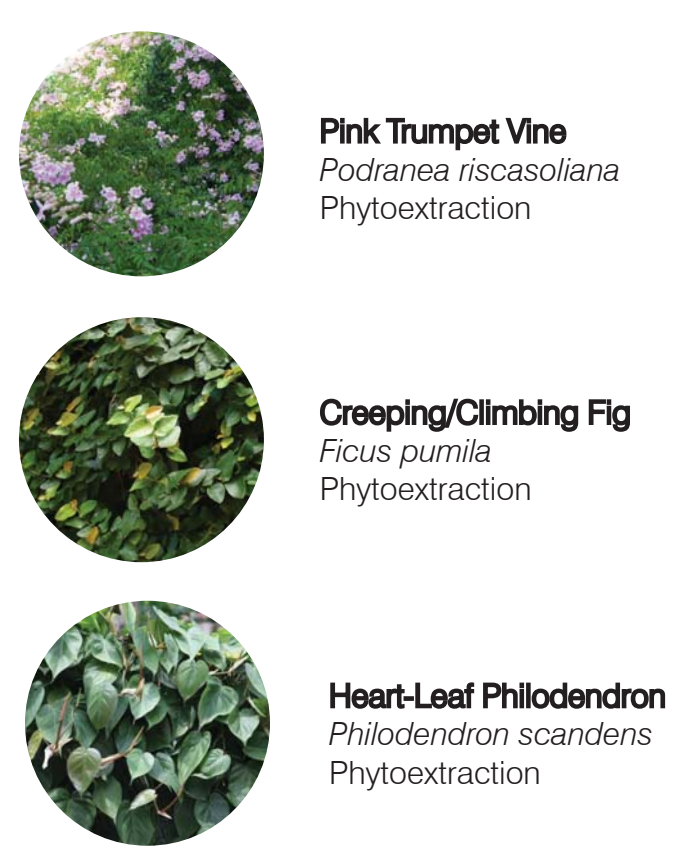


Yellow Trumpet Vine
Mecostema argus-cali
Phytodegradation

Evergreen Wisteria
Millettia reticulata
Phytodegradation

Lavender Trumpet Vine
Cytostoma callistegioides

Forbs



Pink Trumpet Vine
Podaires ruscacoluma
Phytoextraction

Creeping/Climbing Fig
Ficus pumila
Phytoextraction

Heart-Leaf Philodendron
Philodendron scandens
Phytoextraction



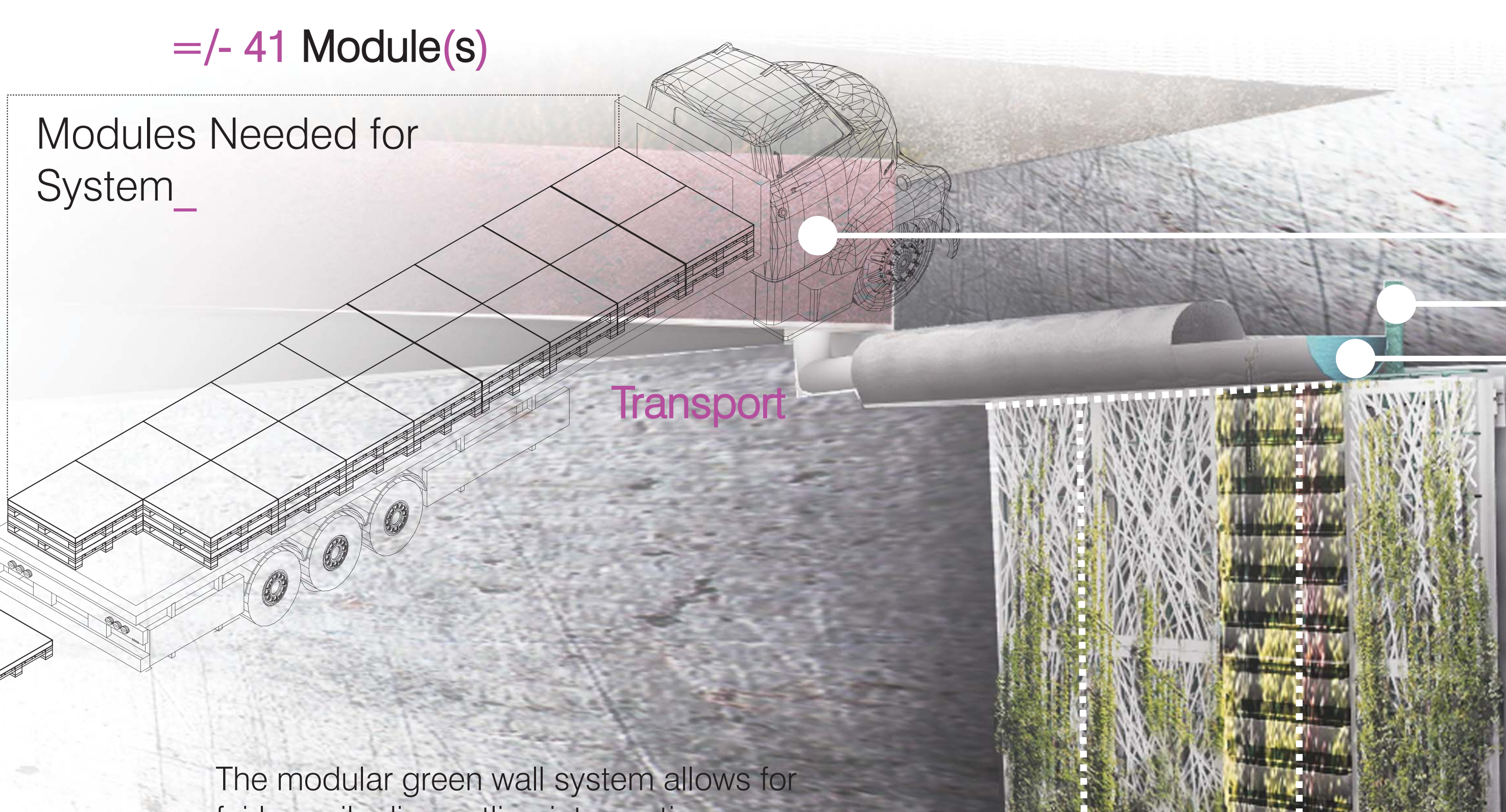
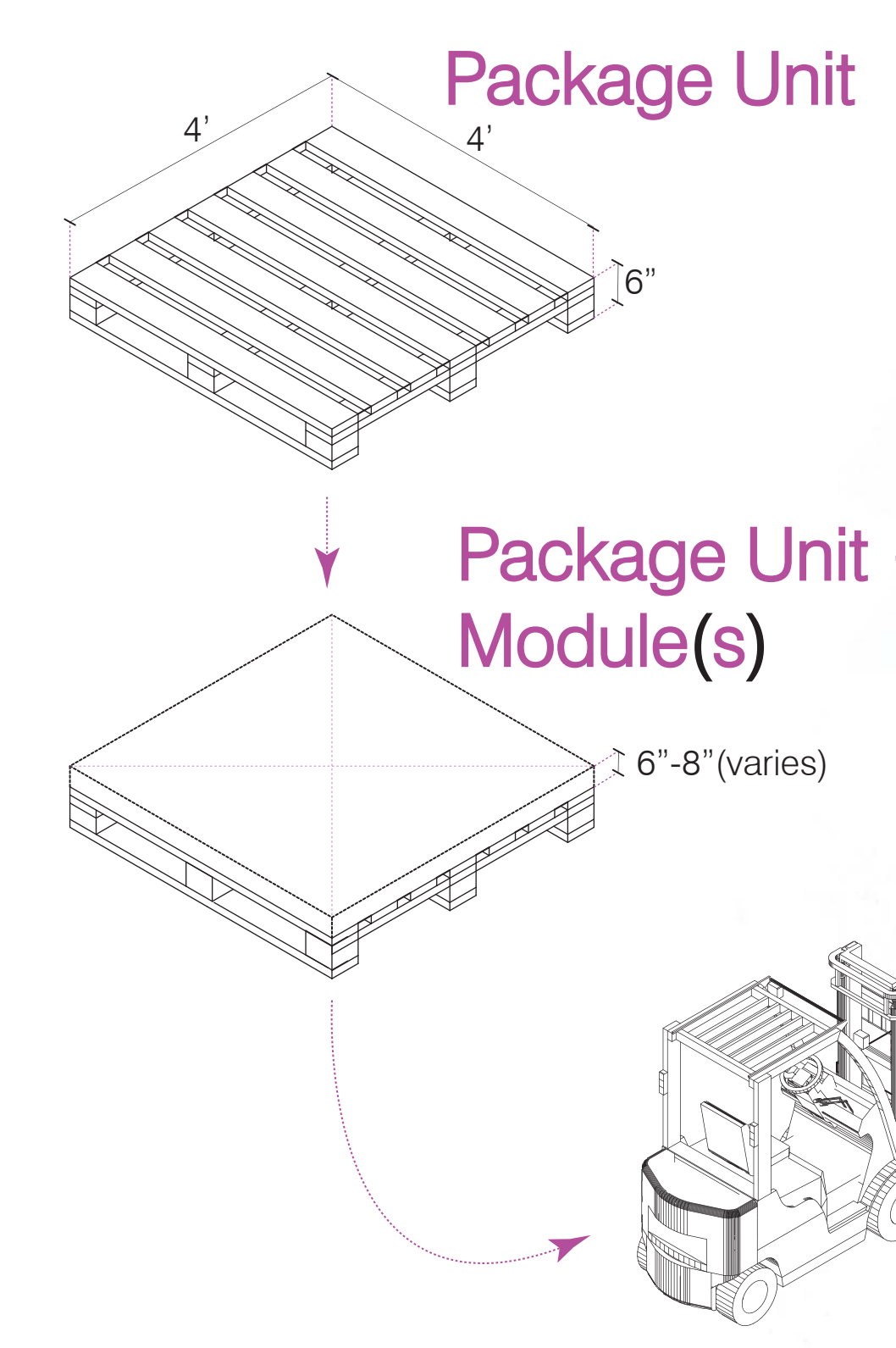
American Vetch
Vicia americana
Phytodegradation

Lemon Ball Stonecrop
Sedum rupestre
Aesthetics

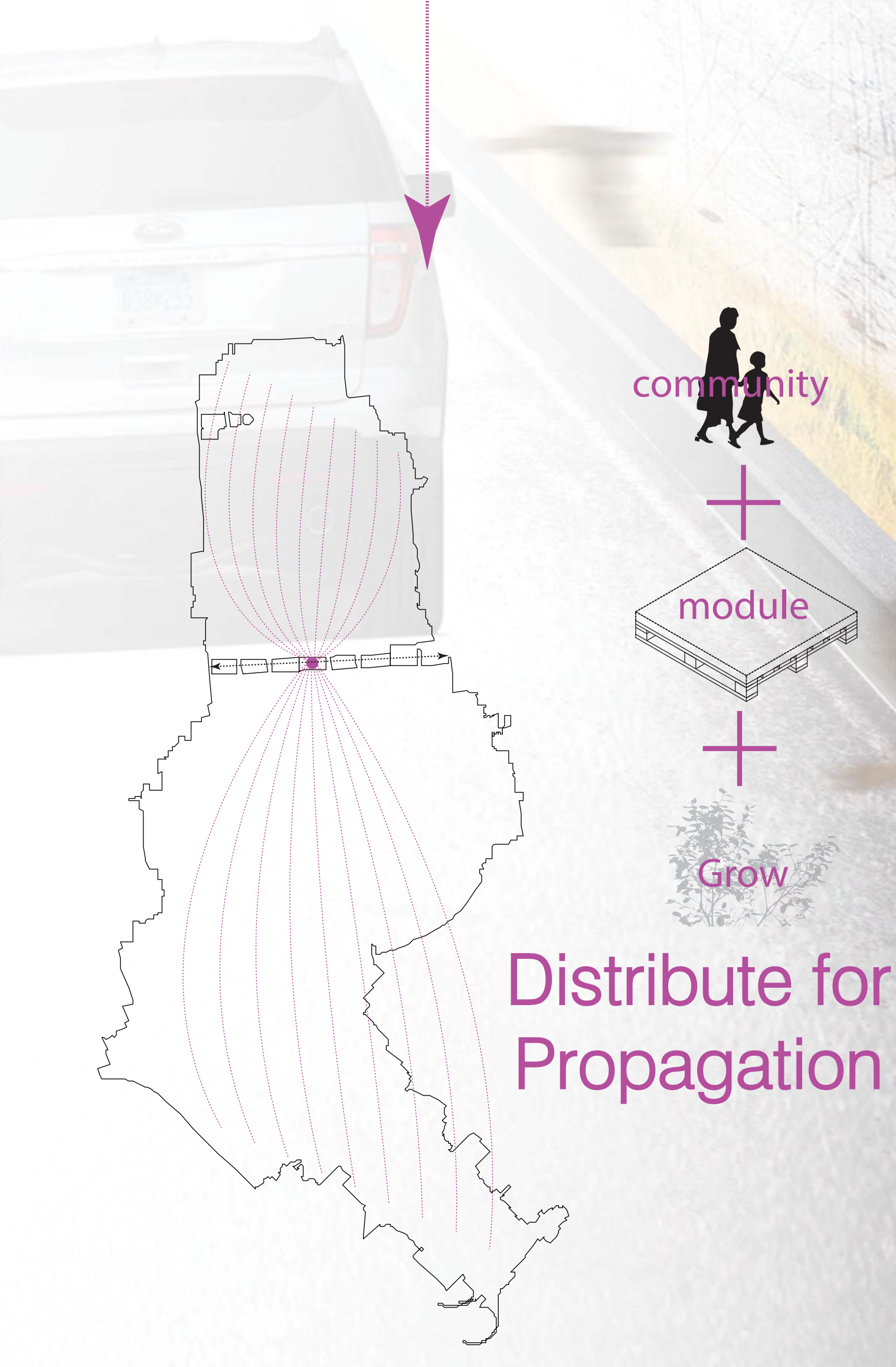
Copperstone Stonecrop
Sedum nussbaumerianum
"Copperstone"
Aesthetics

Quantities	
Vines	Area Coverage
4' x 4' x 2'	+ 132,000 sf
	= 9,527 plants
Forbs	Area Coverage
4' x 4' x 2'	x 245,000 sf
	= 960,000 plants

Green Wall Construction

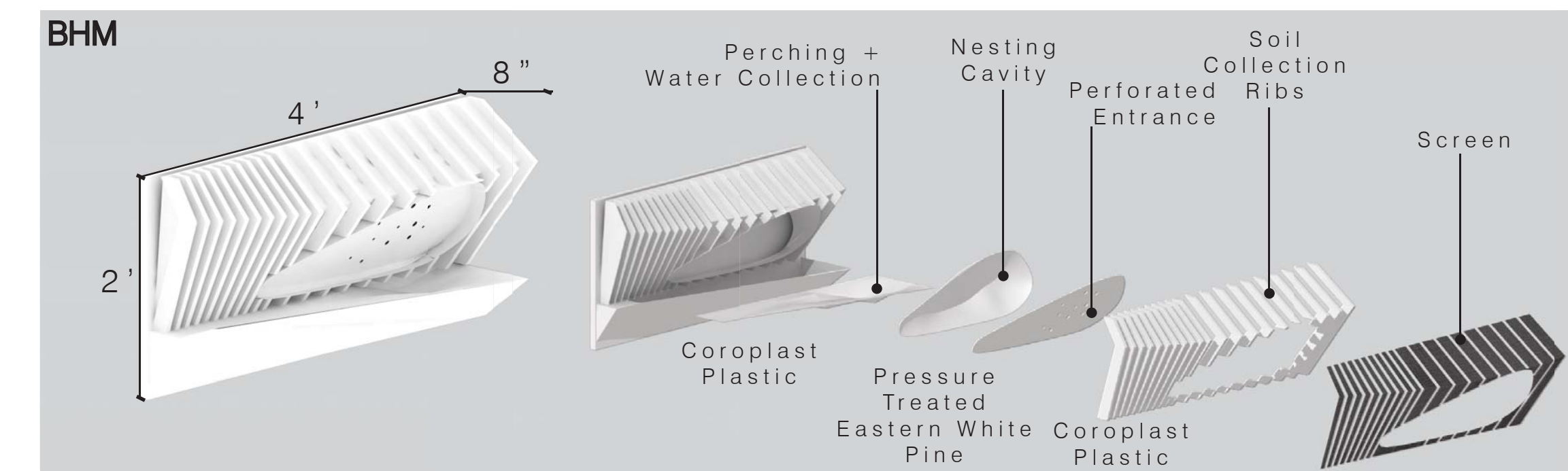


The modular green wall system allows for fairly easily dismantling into sections upon need for maintenance and rotations in plantings. Upon dismantling, and during re-planting of the modules, the community can become involved through a participation method. Resident community members can be given a module to plant and propagate as the system is in a state of transformation. This process provides a means to involve the community and create acceptance and ownership of the design.

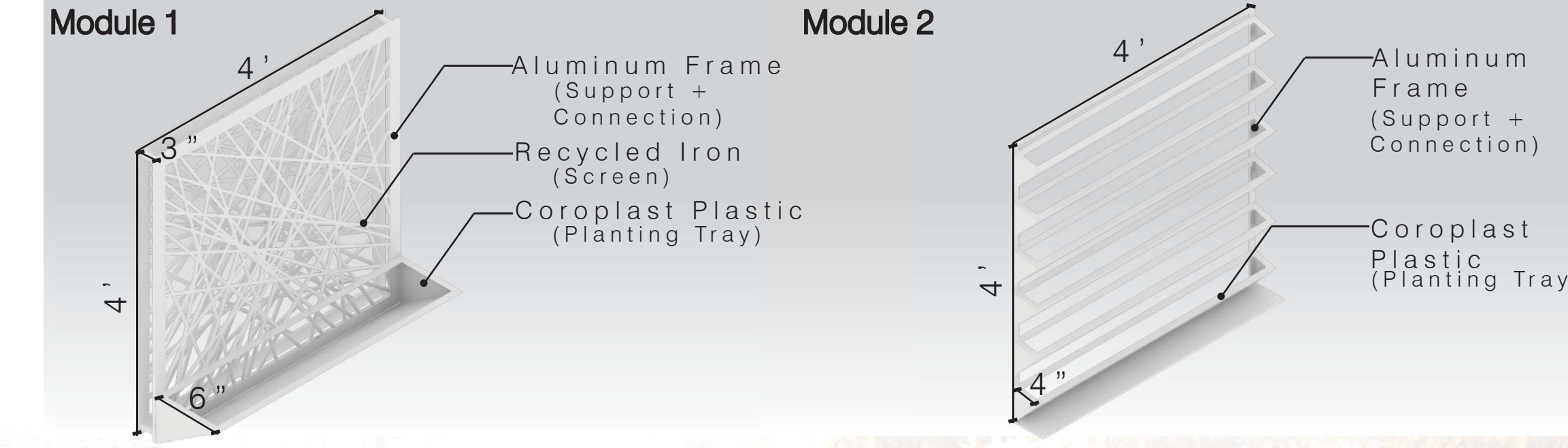


Module Definition

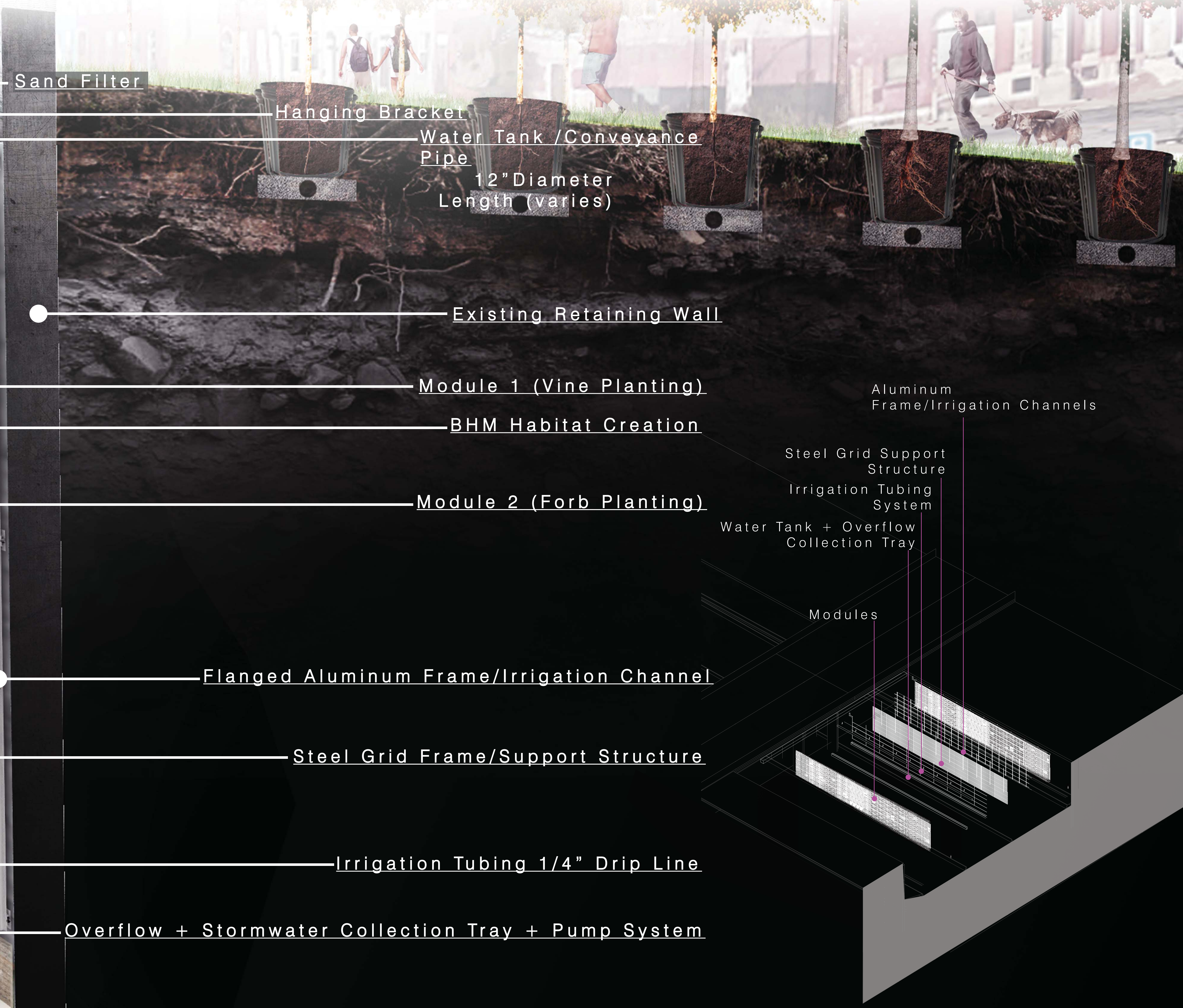
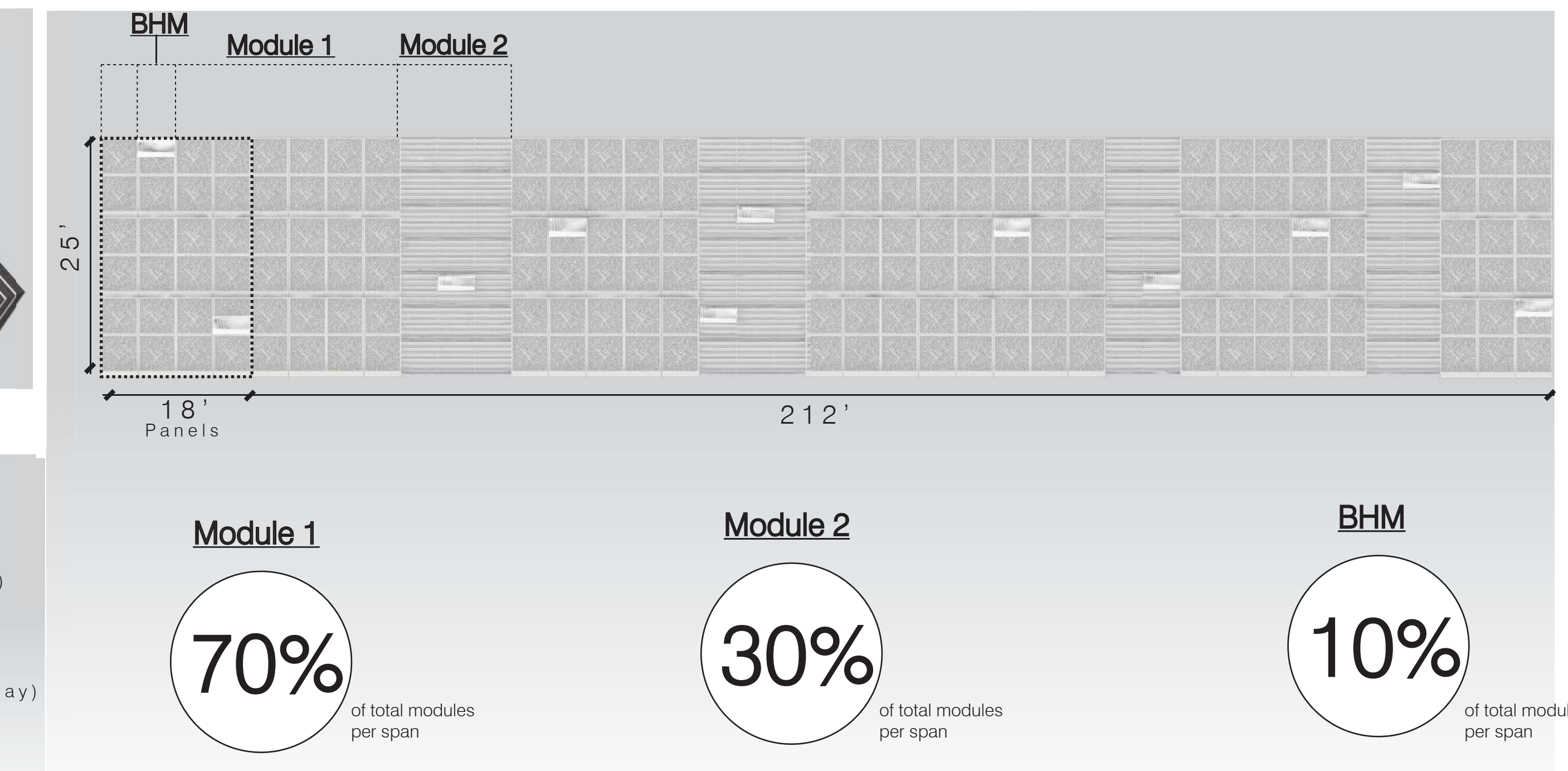
Bird Habitat Module



Planting Module(s)



Elevation Spans

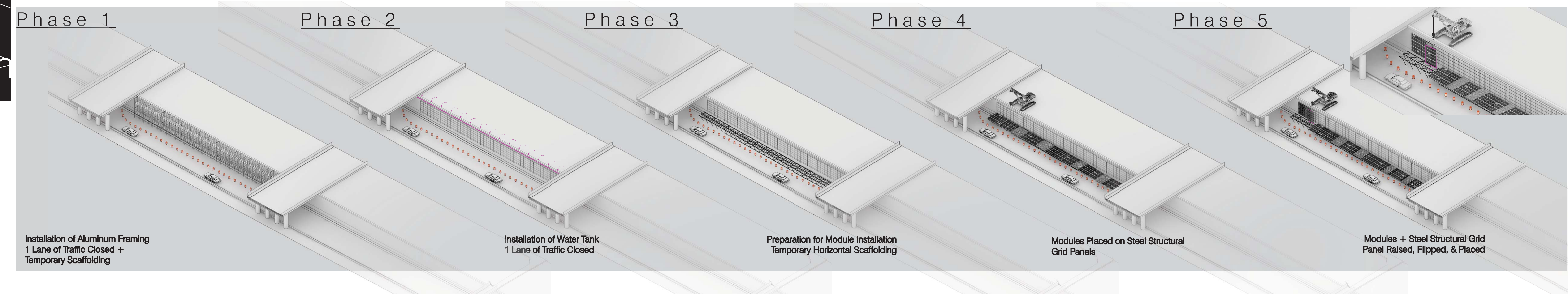


Section Perspective of Green Wall Construction

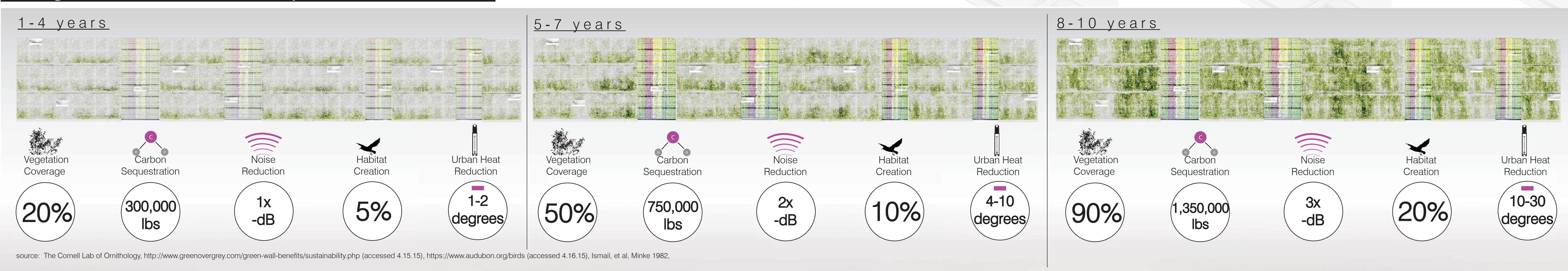
Vertical Habitation

The construction process that can be utilized to install the green wall system looks to use both the sub-grade road plane as well as the at-grade lawn panels above the highway. A lane of traffic will be closed during installation that will allow for introduction of temporary scaffolding equipment, both horizontal and vertical. This scaffolding equipment will be used to install both temporary and permanent aspects of the wall. A smaller crane operation will also be used to elevate, flip, and place the modules onto a grid panel as part of the permanent infrastructure of the green wall system.

Construction Implementation Strategy



Change Over Time + Landscape Measure



Turn-Over Period-(Winter)After 10 year Interval

Community Participation

The proposed interval and rotation of the planting on the green wall provide a need for a seasonal value of the infrastructure of the wall system. The remaining grid and supports of the structure can provide a basis for sculpture quality through the path of freezing ice.

Image Credit: Michael Van Valkenburg Associates

10 year Intervals before Turnover of Plant Re-establishment



Perspective Rendering While Under Construction