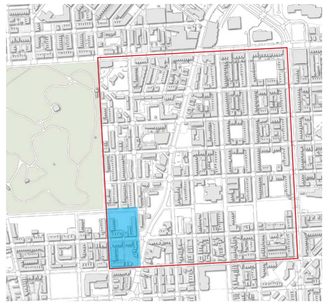
REMEDIATING SOILS TO STRENGTHEN ECOLOGIES

CONTEXT



CONCEPT

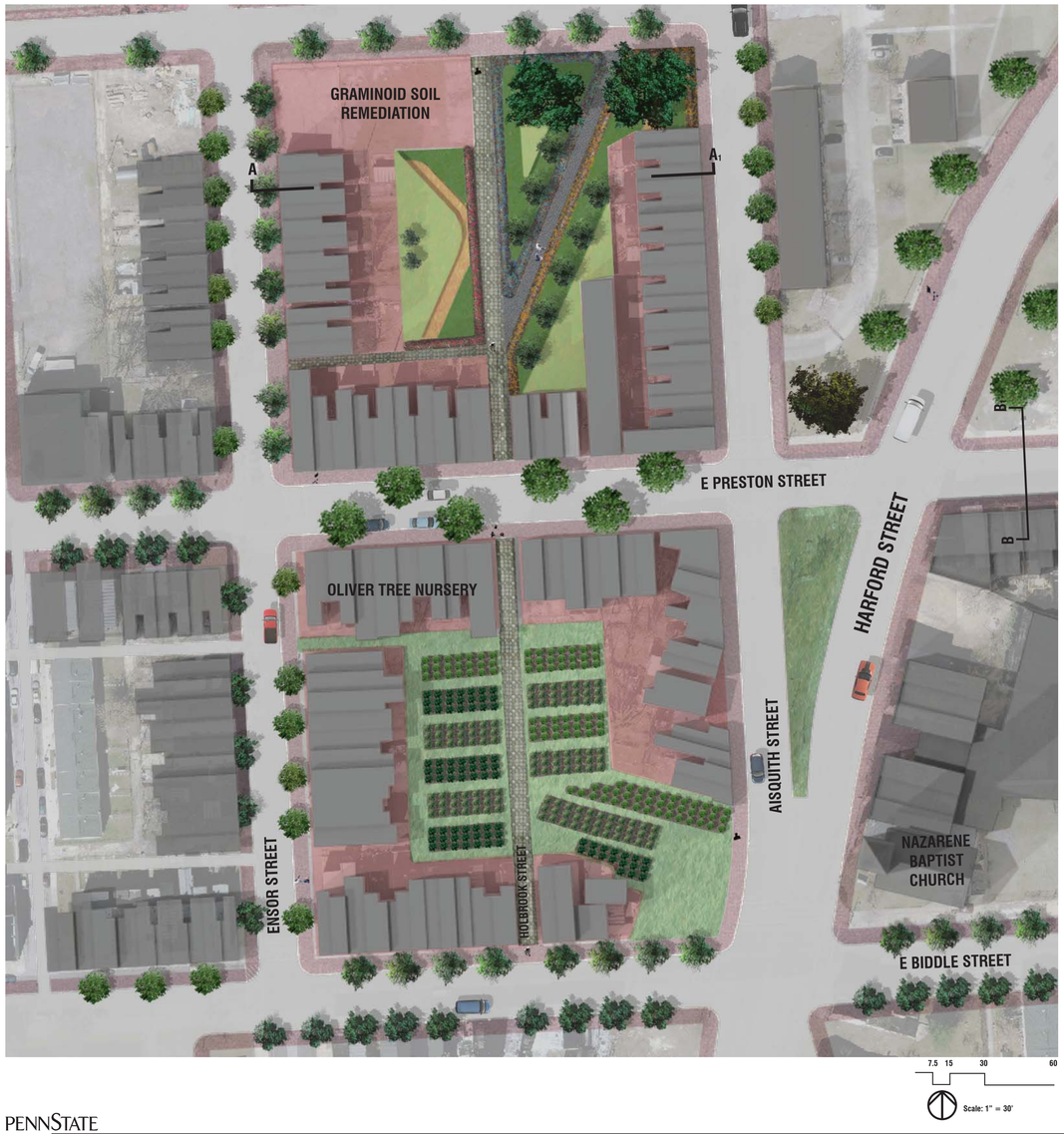
The Oliver neighborhood in Baltimore, Maryland, as many communities throughout the North Eastern United States, is challenged by degrading infrastructure, vacancy, and segregation. However, there is opportunity in vacancy and affordable housing to develop a community identity while rearticulating streets and open spaces. The social ecosystem falls into stress when the human experience is dilapidated by disregard to our spatial and experiential environments.

A lack or regard and pride in our communities instigates a decline in the environmental ecosystem, the quality of our human habitats, as well as the habitats of other species. By addressing the environmental ecosystem, we can create more diverse, healthy, and beautiful habitats for all life as well as economic, health, and psychological benefits to people. Producing nursery stocks in central housing blocks that gives way to pocket parks after years of maturation creates public place within spatial deserts.

These nurseries can supplement streets to create more socially and environmentally beneficial corridors to develop an identity within Oliver. From community pride blossoms identity, which then reduces disorder and curbs crime. Human, social, and environmental ecosystems are intertwined systems; each one affects the others. Starting at the broad environmental level, social and human ecologies can become more enjoyable, exciting, and experiential.

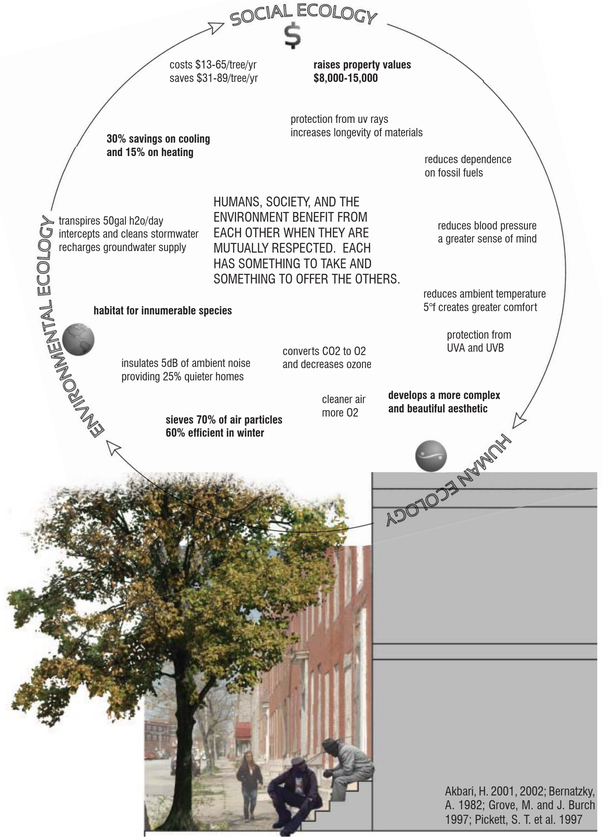
MASTER PLAN

Soil remediating meadow and street tree nursery habitats

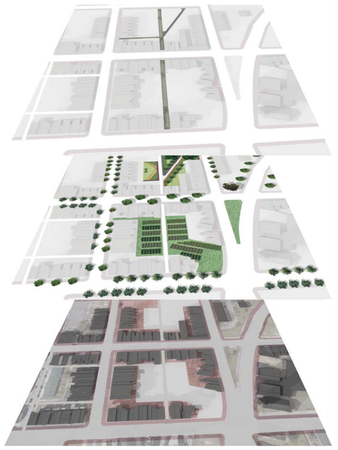


HUMAN-HABITAT CONNECTIONS

Human, social, and environmental ecosystems are all intrinsically connected, persistently affecting the others. Human ecology is nested in social ecology, which is nested in the largest, environmental ecology (Morgan, 1997).



PROGRAMMATIC LAYERS

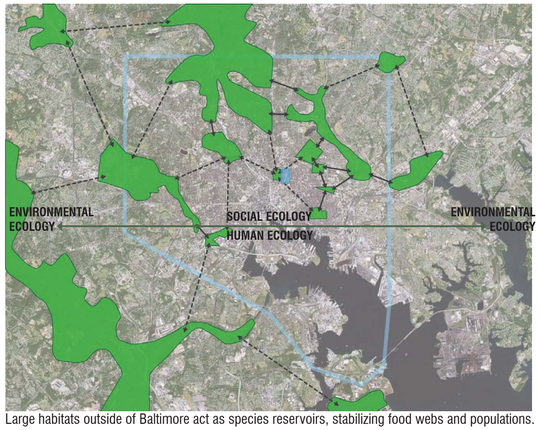


Circulation: clear, structural paths lessen soil compaction and permeable paving practices allow greater stormwater infiltration

Vegetation: productive tree nursery stock and soil remediating meadow grasses provide a program to vacant, city owned land. Diversity and successional design encourages greater biodiversity and aesthetic quality.

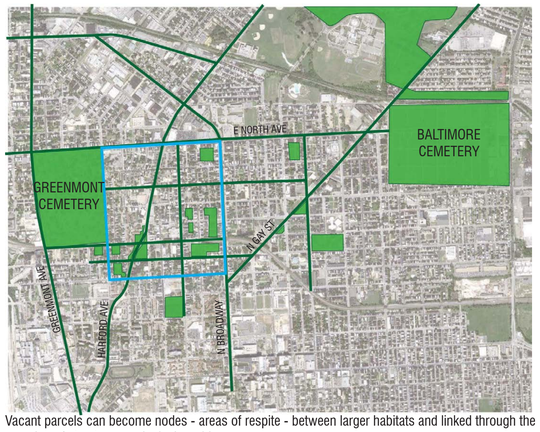
Infastructure: existing structures are built around and privately-owned parcels are built up to in a way to prevent invasion of privacy.

HABITAT CONNECTIVITY: REGIONAL



Large habitats outside of Baltimore act as species reservoirs, stabilizing food webs and populations. increased connectivity of habitat through the city would bolster environmental ecology and subsequently social and human ecologies.

HABITAT CONNECTIVITY: COMMUNITY



Vacant parcels can become nodes - areas of respite - between larger habitats and linked through the greening of streets as ecological corridors.

HABITAT CONNECTIVITY: LOCAL

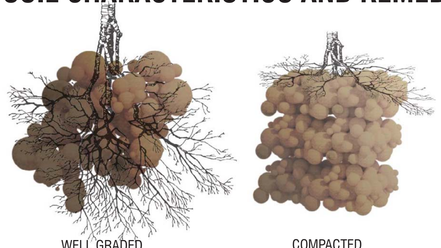
Planting ecosystems in central housing blocks can be productive, remediate soils, create social space, and provide habitat nodes linked through vegetated streetscapes.

1.5 acres

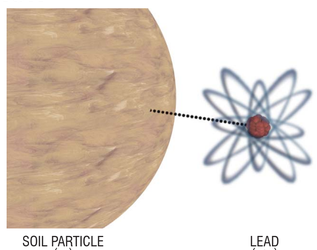
REMEDIATING SOILS TO STRENGTHEN ECOLOGIES

GRAMINOID MEADOW Grasses remediate soils, create habitat, and a place for social congregation

SOIL CHARACTERISTICS AND REMEDIATION



Soil compaction limits root growth, moisture content, and nutrient availability. Dry, bare soils are unstable and can pose a health risk if lead is in concentration.

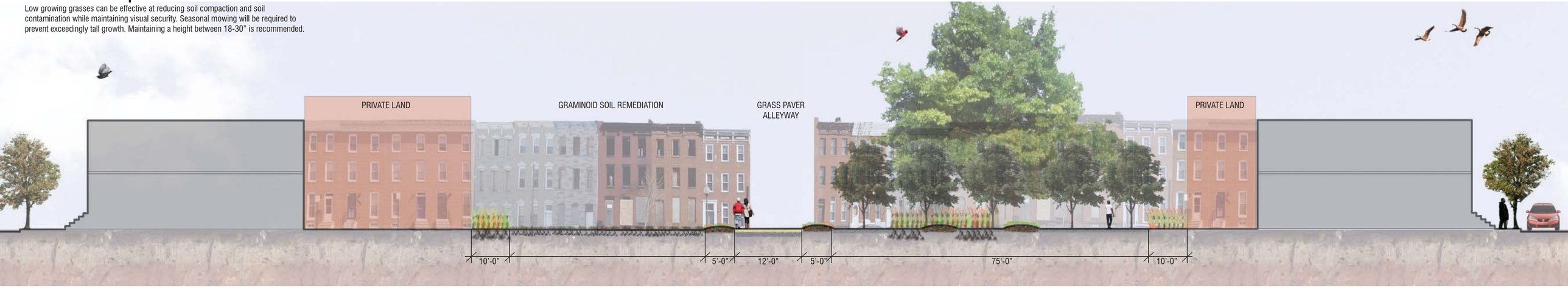


Soil organic matter provides a more complex molecular chemistry. This colloidal surface, in tandem with roots, help to stabilize soils and potential contaminants.

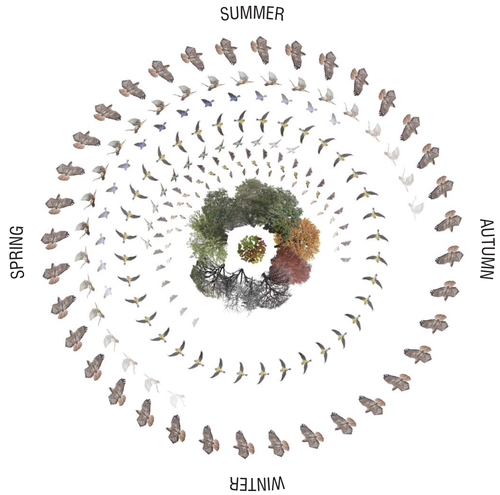
Annual rye grass roots grow 3-5' deep, incorporating organic matter and breaking up compaction. Red clover helps to stabilize soil and fixes nitrogen back into the complex. Healthy soils make healthy environments , which are biodiverse. This system can be planted in existing, treeless-tree planters when the soil condition is poor to stabilize soil and condition is for future tree planting.

SECTION A-A$_1$ | SCALE: 1”=10’-0”

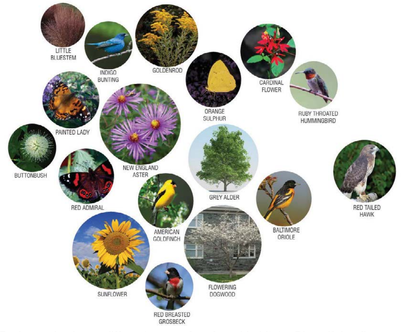
Low growing grasses can be effective at reducing soil compaction and soil contamination while maintaining visual security. Seasonal mowing will be required to prevent exceedingly tall growth. Maintaining a height between 18-30” is recommended.



SPECIES SEASONALITY

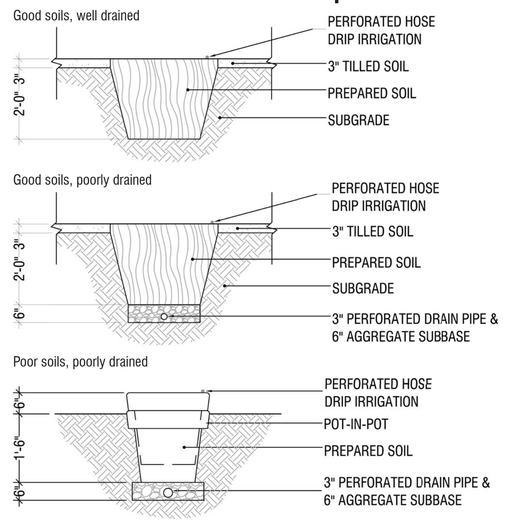


FLORA-FAUNA ATTRACTIONS



Each species has a different array of preferred habitats. Diversifying flora (plants) a diversity of fauna will be attracted. Biodiversity and ecological redundancy makes for a healthier and more stable ecosystem.

TREE NURSERY SYSTEMS | SCALE: 1/2”=1’-0”



PLANTS LIST

TREES
Speckled alder
Eastern redbud
Flowering dogwood
Kousa dogwood
Ginkgo
Kentucky coffee tree
American sycamore
Scarlet oak
Black locust
Serviceberry
Redosier dogwood
Honey locust

HERBACEOUS
Buttonbush
Maryland golden-aster
Whorled coreopsis
Purple coneflower
Sunflower
Turk's cap lily
Cardinal flower
Bird's foot trefoil
Allegheny monkey-flower
Variegates figwort
Himalayan cowslip
Siberian iris
Candelabra primrose
Pink bog primrose

GRAMMANOID
Blue wood sedge
Virginia switchgrass
Little bluestem
Wild oats
Eastern gamma grass

GROUNDCOVER
Striped wintergreen
Green-and-gold
Round-lobed hepatica
Partridgeberry
Mountain stonecrop

Plants must be selected per sit to meet species’ requirements. Urban environments have many microclimates allowing adjacent areas to vary wildly in conditions. Roadways have a higher possibility of lead concentrations than central housing blocks due to leaded gasoline. Streets also can have elevated levels of salts from deicing and poorer air quality. Sun requirements must also be addressed

1.5 acres

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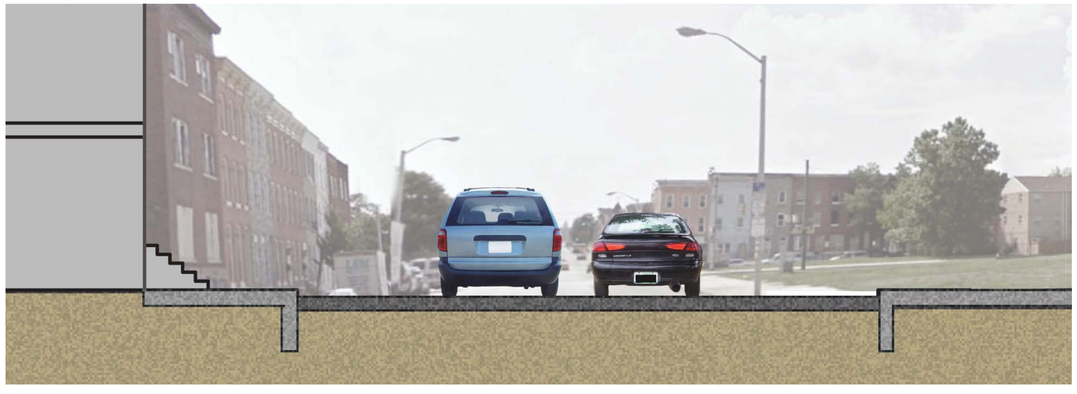
STREET CORRIDOR Street trees develop a high quality of place and can act as ecological corridors

SECTION B-B$_1$ | SCALE: 1”=5’-0”

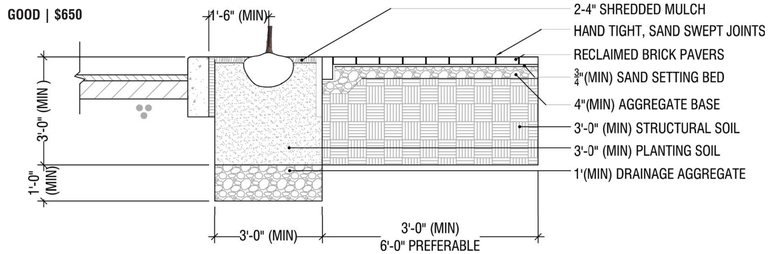
Preston Street before and after vegetation. Trees and groundcover stabilize soils, create a high quality sense of place and help to calm traffic

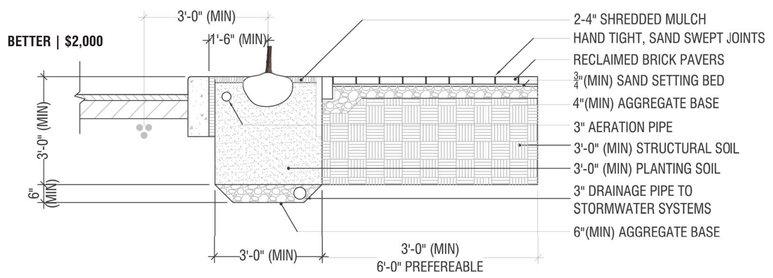


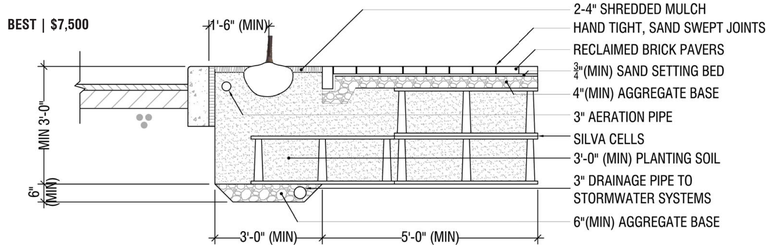
MODULAR TREE PLANTER

Adequate rooting volume is essential to the livelihood of street trees. These modular tree planters can fit into existing maintenance schedules, providing a more suitable habitat for trees.

USES:
Affordability
Narrow streets
Scheduled maintenance
Encroaching utilities
Understory trees



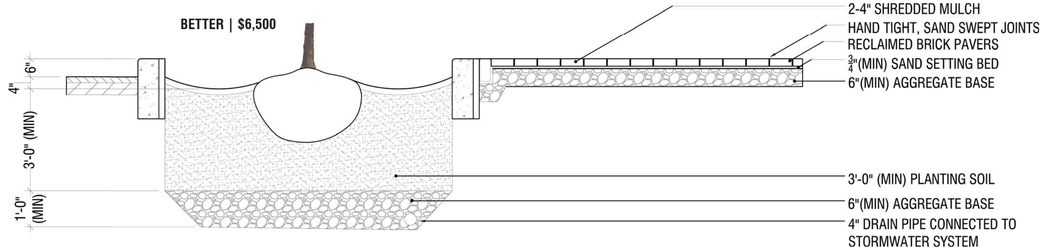


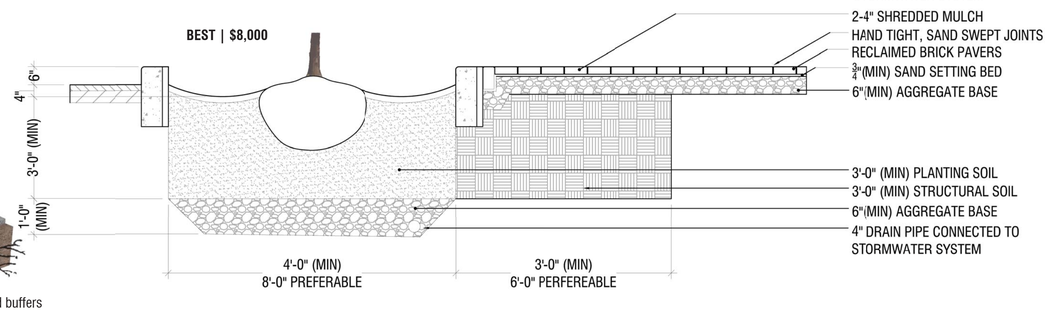


INFILTRATION PLANTER

Large tree planters can be installed with adequate street widths and buffers between utility lines. These planters can support much larger trees and provide enough surface area to collect and infiltrate stormwater. These protrusions into the street may take up a parking spot, but they also help to calm vehicular traffic.

USES:
Wide streets (>2 lanes)
Stormwater interception
Canopy trees





1.5 acres