

CUMBERLAND ELM STREET

UNIVERSITY OF RHODE ISLAND REGENERATIVE COMMUNITY DESIGN LAB

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Enhanced Green Infrastructure

Elm Street is subject to elevated summer temperatures as a result of the urban heat island effect. To help mitigate these conditions, we recommend a combination of strategic street tree planting and the integration of green infrastructure elements to provide shade, reduce surface temperatures, and improve overall thermal comfort.

Stormwater Management

Elm Street currently faces significant challenges related to stormwater runoff due to the abundance of impermeable surfaces.

SOLUTION:
Install tree pits on both sides of the street.

RESULT:
These strategically placed tree pits will intercept and retain runoff, alleviating pressure on the main drainage.



The Problems

- Overabundance of pavement and asphalt, significant stormwater management issues
- Urban heat island effect caused by a lack of street trees and vegetation

The Benefits

- Expanded urban tree canopy contributing to visual appeal, shade, and environmental health
- Reduced surface temperatures and improved pedestrian comfort through increased vegetation

The Solutions

- Install medium sized street trees along north-side
- Install small street trees under the power lines on south-side
- Add hearty perennials to each tree pit

Tree Species Recommendations - North Side of Elm Street



Gleditsia triacanthos - Honey locust is a rapidly growing, large deciduous tree in the Fabaceae (bean) family. It is native to central and eastern North America. Honey locust is an excellent choice to plant in a native garden or as a street or security tree.

Height: 60 ft. 0 in. - 80 ft. 0 in.
Width: 60 ft. 0 in. - 80 ft. 0 in.



Zelkova serrata - Japanese zelkova a tough and durable large deciduous tree in the Ulmaceae (elm) family. It is noted for its graceful vase shape when young, green textured foliage, and attractive honeycomb bark. It is tolerant of drought once established and wind.

Height: 50 ft. 0 in. - 80 ft. 0 in.
Width: 50 ft. 0 in. - 80 ft. 0 in.



Nyssa sylvatica - Black gum or black tupelo is a medium-sized, native deciduous tree in the Nyssaceae family. This tree is an excellent choice to support wildlife in the landscape. Black gum is a good street tree, specimen, and shade tree. The spectacular fall foliage color will add interest to your landscape.

Height: 40 ft. 0 in. - 70 ft. 0 in.
Width: 20 ft. 8 in. - 35 ft. 6 in.

Tree Species Recommendations - South Side of Elm Street



Syringa reticulata - Japanese tree lilac is a small deciduous tree or large shrub in the olive family (Oleaceae). The tree also provides shelter and habitat for wildlife. It may also be considered as a street tree, large hedge, or an accent or specimen for a shrub border.

Height: 25 ft. 0 in. - 30 ft. 0 in.
Width: 15 ft. 0 in. - 20 ft. 0 in.



Acer ginnala - Amur maple is a deciduous small tree or large shrub in the maple family (Sapindaceae). The shape is variable from multi-stemmed to single trunked and rounded to open crown and can be successfully tailored to specific landscape requirements by pruning. Tolerant of wind, dry soil, and drought.

Height: 15 ft. 0 in. - 20 ft. 0 in.
Width: 15 ft. 0 in. - 20 ft. 0 in.



Cornus kousa - The Kousa dogwood is a handsome, small- to medium-sized tree reaching a mature height of 30 feet. A tree for all seasons, the Kousa dogwood has berries that resemble raspberry fruit in autumn, and the peeling bark on the mature tree trunks has an attractive mottled appearance.

Height: 20 ft. 0 in. - 30 ft. 0 in.
Width: 15 ft. 0 in. - 30 ft. 0 in.

Tree Pit Companion Plant Recommendations



Schizachyrium scoparium Little bluestem is a perennial, ornamental, warm season grass. Once established, it has excellent drought resistance.



Panicum virgatum Switchgrass is a perennial, warm-season ornamental grass. It is effective as an accent plant in a native or water garden.



Salvia yangii Russian sage is an erect, perennial shrub that has a woody base. Use it in perennial beds, drought tolerant gardens, and as a filler plant.



Achillea Yarrow is a genus of flowering plants in the aster family and are native to North America. They are generally drought tolerant and also tolerate poor soil.



Echinacea purpurea Purple coneflower This is a popular and long-blooming plant for use as a border or in groupings in a native or pollinator garden, meadow, and naturalized areas.



Asclepias tuberosa Butterfly weed is a tuberous-rooted, native, herbaceous perennial. It is drought tolerant, moderately salt tolerant, and does well in poor, dry soils.

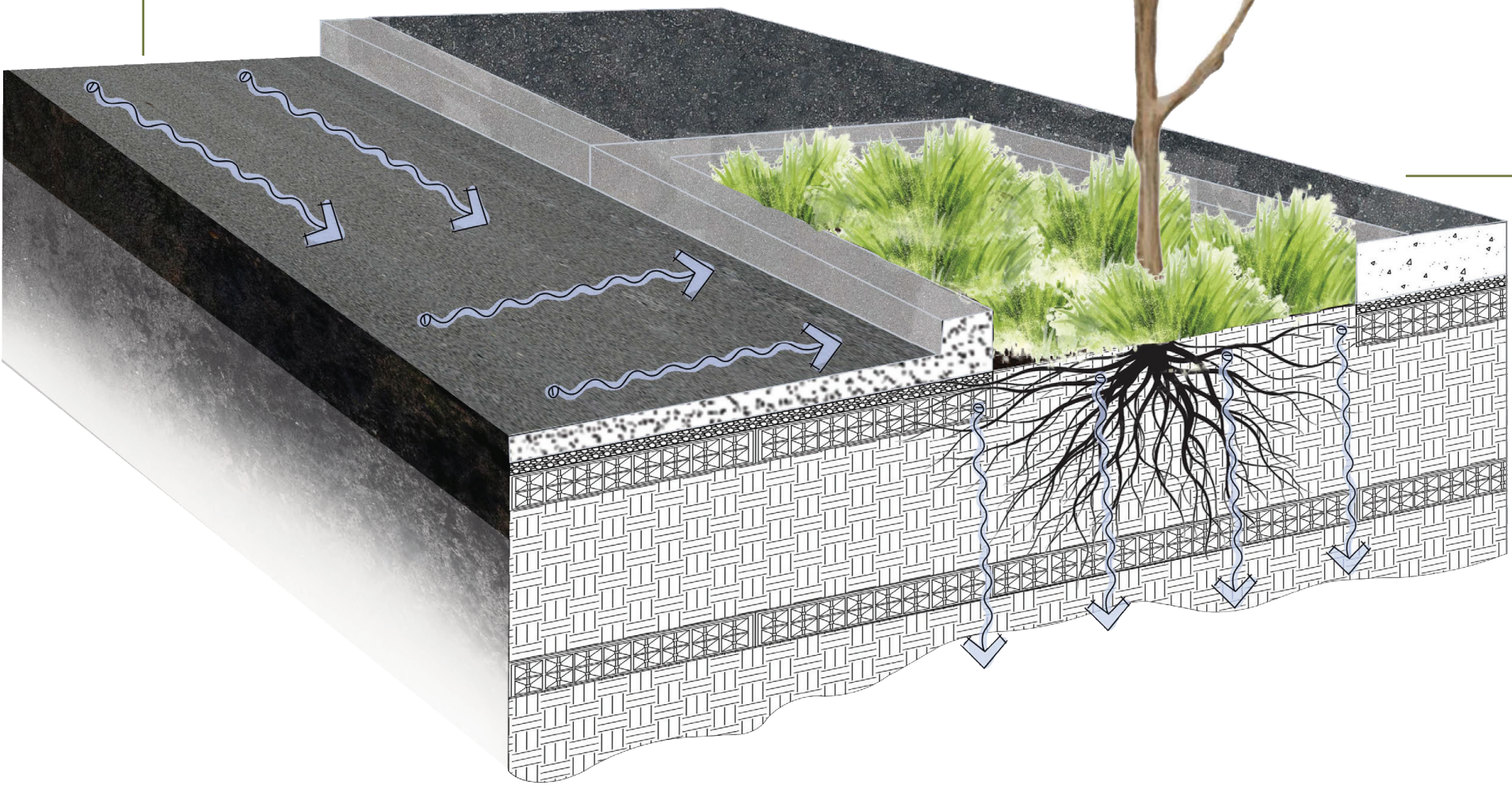
Permavoid Urban Tree Pit Detail

Urban street trees often struggle to thrive due to limited soil volume, compaction, air pollution, and heat stress from surrounding pavement and infrastructure.

SOLUTION:
Plant the trees using the Permavoid system, a modular, low-bearing subsurface solution.

RESULT:
Healthy tree growth and root development in the built environment as well as stormwater management.

Elm Street



- Sidewalk
- 4" Concrete
- 2" Permavoid Material
- 2' Subgrade
- 2" Permavoid Material