



Core Module #1: Urban Forestry and Street Trees





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Urban Forestry and Street Trees

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Themes

1. Identification of urban trees.
2. Benefits of trees to people and society.
3. Community engagement and employment opportunities for urban forestry and street trees.
4. Environmental justice and climate change impacts on carbon dioxide emissions, fossil fuels, and air quality.
5. Racial justice and access to the resources needed to plant and care for trees.
6. Right tree, right place.

Background

Saving Land, a publication by the Land Trust Alliance, reported on a 2021 study that examined tree canopy cover in the 100 largest urban areas in America.¹ The study demonstrated that low-income blocks had 15.2% less tree cover on average and were hotter by an average 3 degrees Fahrenheit. The Northeast data showed the greatest disparity with low-income blocks in some urban areas having 30% less tree cover while being 7 degrees Fahrenheit hotter. Blocks with the greatest proportion of people of color had less tree cover and hotter summer temperatures generally.

Trees are part of the vital and critical Green Infrastructure in every community. Tree-lined streets in our cities, small patches of forested lands, and parks add value to the aesthetic and have implications on community health and quality of life in communities of color. Unfortunately, these values are often overlooked and undervalued and do not receive the attention deserved to sustain, nurture, and grow this important infrastructure. This module will serve as a primer to demonstrate the value of trees in our community and serve as a training document on the very basics we should all know and embrace to position us to advocate and care for our local environments.

This module will engage teams of young people, who are relatable to members of their community, to educate and inform fellow residents about urban forestry and demonstrate its benefits for all.

Values

Trees offer many benefits in communities. First is the aesthetic value. Walk in any city, and if you are paying attention, you can see the glaringly obvious aesthetic difference in tree cover and the quality of trees. A recent article in The New York Times held a sub headline, "if you want to map inequality in New York, you can just count trees."² That is to say that generally, the more trees on your block, the better off your quality of life, existence, and property value.

1. Robert I. McDonald, "The Tree Cover and Temperature Disparity in US Urbanized Areas: Quantifying the Association with Income across 5,723 Communities," PLOS ONE (Public Library of Science, April 28, 2021), <https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0249715>.

2. John Leland, "Why an East Harlem Street Is 31 Degrees Hotter than Central Park West," The New York Times (The New York Times, August 20, 2021), <https://www.nytimes.com/2021/08/20/nyregion/climate-inequality-nyc.html>.

Even more impressive though is the “natural capital” value trees provide communities by:

- serving as filters and absorbing harmful pollution and particulate matter from the air we breathe;
- cooling down our streets on hot summer days by casting shade and releasing moisture in the form of fine mist onto our blocks;
- saving energy costs by blocking the heat of the sun onto homes and structures, reducing the need for excessive air conditioning and energy waste;
- capturing stormwater, mitigating flooding on streets and preventing wasteful runoff into the storm drain systems and rivers; and
- making us feel better about where we live and work, calming our nerves in these complicated times, and reducing violent crime.

Challenges

Older street trees have been known to heave sidewalks, causing liability to homeowners and costly repairs to their sidewalks. This occurrence is largely negated now by a better selection of tree species available and more thoughtful planting design and implementation.

The challenge is to make sure that we give proper attention to maintaining our existing tree canopy as we strive to plant more trees. Proper maintenance and care of our tree infrastructure will foster an appreciation of their value to our shared quality of life.

Solutions

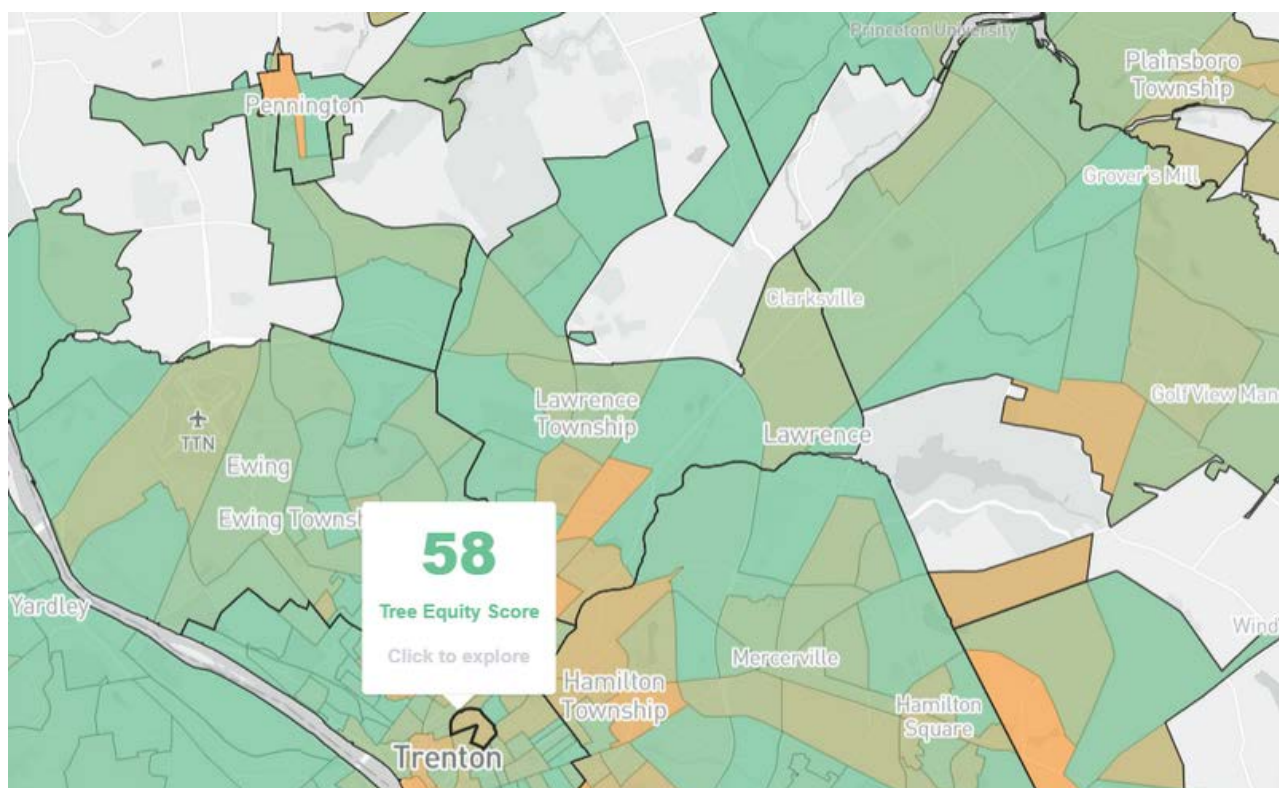
Community engagement, credible messengers, resident receptivity, proper tree selection, and very importantly, care will result in a realization of value and appreciation for this natural wonder that can make our lives more enjoyable and neighborhoods more livable. We must also recognize that many negative views of trees held by residents are directly related to lack of maintenance and care over many years. Better stewardship of our street trees can change this negative perception into an understanding of their value as a community asset.

Implementation

We will use the Tree Equity Score Maps,³ NJ Conservation Blueprint,⁴ and other tree canopy data sets to identify neighborhoods and specific streets to consider for planting projects. Teams will identify specific streets in census tracts to select those areas ripe for reforestation by assessing the “carrying capacity” of the streetscape, overhead and underground utilities, sidewalk conditions, homeowner occupied housing, and receptive residents.

Teams will be trained and deployed to contact residents to provide information on the benefits and assess receptivity, cooperation, and willingness to be good stewards of the investment. When communities are identified and “street work” has been done, a design of the planting plan will be created to select appropriate tree species based on conditions. Understanding ground preparation requirements including sidewalk cutouts and soil conditioning, as well as overhead and underground utilities constraints, will also be necessary to the plan’s design and success.

Once plans are established, a second round of community engagement will be deployed to share plans, share visuals, and confirm resident support and commitment to stewardship.



Source: treeequityscore.org

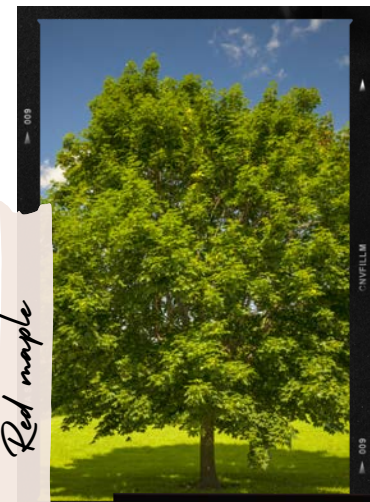
3. “Tree Equity Score Maps,” Tree Equity Score, accessed November 8, 2021, <https://treeequityscore.org/>.

4. “Protecting New Jersey’s Land and Legacy,” New Jersey Conservation Blueprint, accessed November 8, 2021, <https://www.njmap2.com/blueprint/>.

The Best Selection of Tree Species for Urban Thriving

Large deciduous shade trees⁵

1. *Acer rubra* - Red maple
 - a. This tree is one of the most widely planted trees in America. Reaching 40 feet in height in cities, it is an excellent street tree and wonderful in park settings.
 - b. More salt tolerant than Sugar Maple.
2. *Acer saccharum* - Sugar maple
 - a. A beautiful maple with stunning fall colors transforming streets in autumn. Commonly referred to as the red maple, this 40 to 50-foot tree offers attractive red flowers in the spring and a bright red foliage in the fall.
 - b. Lacks salt tolerance
3. *Ginkgo biloba* - Maidenhair tree
 - a. A stately upright tree with unique leaves and interesting character. Vibrant yellow, fall color and fine for the urban streetscape. Can reach 50 to 80 feet high and tops with a pyramidal crown. Male cultivars should be selected to prevent the unpleasant smelling fruits of female trees.
4. *Gleditsia triacanthos* - Honey Locust - 'Shademaster' variety
 - a. The Honey Locust tree is another hardy and desirable selection suitable for street tree plantings, parks, and urban plazas.
 - b. Its fine-textured foliage provides wonderful, filtered shade, and the small leaves make for easy fall clean up.



Red maple



Sugar maple (fall)



Maidenhair tree



Honey locust

5. "Tree Identification," Tree Identification, accessed November 8, 2021, <https://www.arboday.org/trees/index-identification.cfm>
utm_source=Arboday.org&utm_medium=Top_Menu&utm_campaign=Dropdown_Menu&utm_term=Trees&utm_content=Tree_Identification.

London planetree



5. *Platanus acerifolia* - London planetree

- a. Vigorous growing, shade tree with mottling and peeling bark patterns for added visual interest. Very tolerant in urban conditions and forms grand allées on many urban and suburban streets. Can reach heights of 75 to 100 feet.
- b. Thrives as street tree planting but needs room to grow. Best used in situations / streets with large planting areas.

Swamp white oak



6. *Quercus bicolor* - Swamp White Oak

- a. A moderate fast-growing tree that can grow up to 24 inches in a year. The tree can reach a height of 50 to 60 feet at maturity. An excellent choice for street tree plantings and parks.
- b. Very easy to transplant

Willow oak



7. *Quercus phellos* - Willow oak

- a. Beautiful fine leafy oak that is very hardy along city streets and in parks and can adapt to various water and soil conditions.
- b. Quick growing, totaling between 40 to 75 feet in height, and easy to transplant, making this a great urban tree.

Little leaf linden

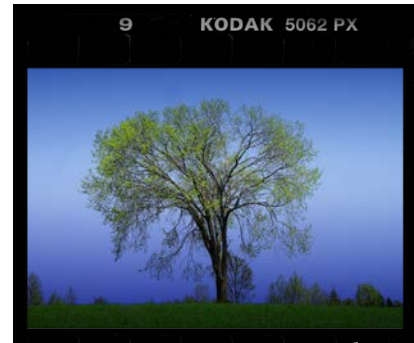


8. *Tilia cordata* - Little leaf linden

- a. A summer bloom with yellow fragrant flowers on these trees reaching 50 to 60 feet. Offers a dense canopy that is excellent for shade. The soft wood provides an optimal nesting site for some bird species.
- b. Excellent, tolerant street tree.

9. *Ulmus americana* - American elm

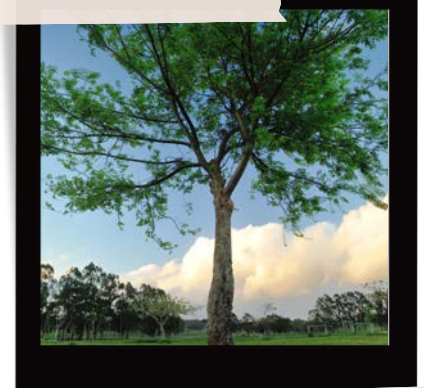
- a. Reaching heights of 80 feet, the American elm was widely planted as ornamental in urban settings because it was stress-tolerant, fast growing, and beautiful. As it grows, the trunk divides near the base into several large limbs causing a cathedral-like effect on the street below.



American elm

10. *Ulmus Parvifolia* - Lacebark elm

- a. Another hardy, beautiful elm tree. While not native to the U.S., it is a very desirable and tolerant tree for the urban setting.
- b. May be preferred over the American Elm for its tighter growth characteristics.



Lacebark elm

Smaller Street Trees for Underneath Overhead Utility Lines

1. *Acer griseum* - Paperbark maple

- a. Slow growing tree to 30 feet tall. Is excellent along streets and parks where space is limited.
- b. Exceptional ornamental peeling bark and comes in many cultivars with stunning fall colors. At maturity, it will not exceed 20 feet. Often called the “flame” tree, it offers a greenish-yellow flower in the spring that is followed by red-winged samaras. The leaves turn red in autumn for a distinct visual in the landscape.



Paperbark maple

2. *Amelanchier Canadensis* - Shadblow serviceberry

- a. Typically grows between 15 to 30 feet tall and offers an early bloom. White flower clusters emerge before the leaves each spring. Provides an edible berry that begins as a greenish color that turns red and later, a dark purplish black by late summer when they are ripe.



Shadblow serviceberry

3. *Cercis canadensis* - Eastern Redbud

- A beautiful spring flowering tree with dark bark.
- Grows to 30 feet in height and is generally wide, so should be left to parks and larger spaces.

4. *Crataegus viridis* - "Winter king" green hawthorn

- A late spring bloom with white flower clusters that offer a sweet fragrance that is perfect for attracting birds and butterflies. Can also have small thorns no longer than 1.5 inches. Averages a height of 30 feet.
- Beautiful red berries add to the winter interest of this species.
- This species tends to be wide spreading, so it is best used in parks and wider streetscapes.

5. *Koelreuteria paniculata* - Golden Rain Tree

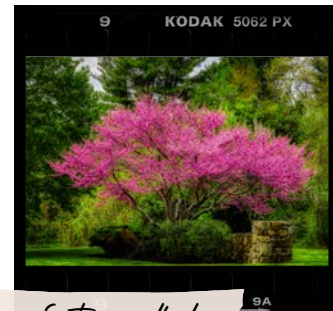
- A beautiful summer flowering tree that grows to 30 feet.
- Yellow flowers are very dramatic in summer and have ornamental seed pods going into fall.
- Use 'fastigiata' cultivar for street trees as this cultivar is more upright than spreading.

6. *Nyssa sylvatica* - Black gum

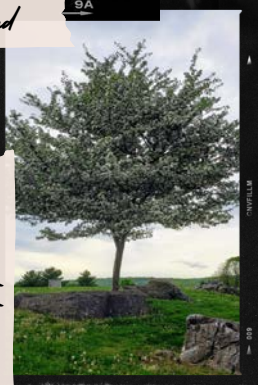
- A beautiful native tree growing to 45 feet.
- Sensitive to transplant but once established, is very tough and tolerant.
- Exceptional fall color
- Cultivar "Gum drop" is an excellent upright form

7. *Syringa reticulata* - Japanese tree lilac

- Can reach heights of 30 feet tall, and at times can appear as a shrub rather than a tree due to its dense leaf structure that can hide the trunk. Blooming between late spring and early summer, it offers a creamy white flower that attracts hummingbirds and butterflies.



Eastern redbud



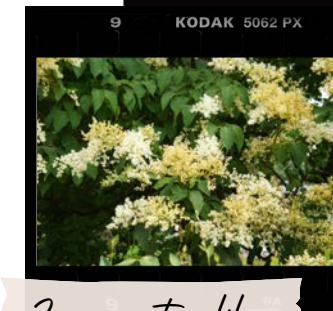
"Winter king" green hawthorn



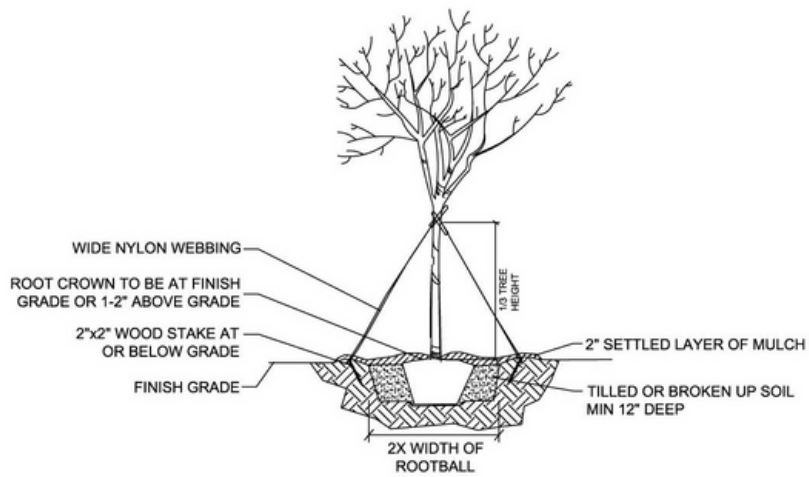
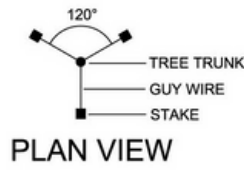
Golden rain tree



Black gum (fall)



Japanese tree lilac



○ TREE PLANTING (>2" CAL.)
NOT TO SCALE



These are some seasonal ornamental characteristics for selections to consider:

London plane tree bark



Maple samaras



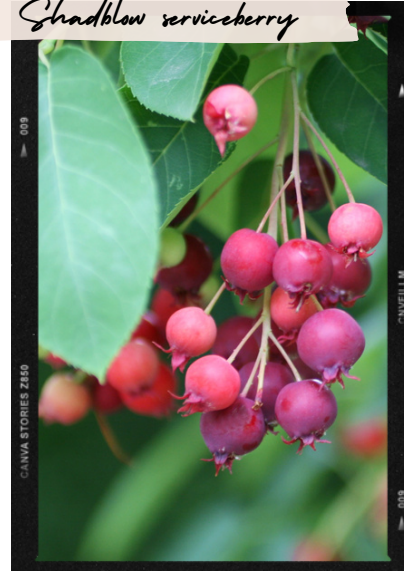
Golden rain tree fruit



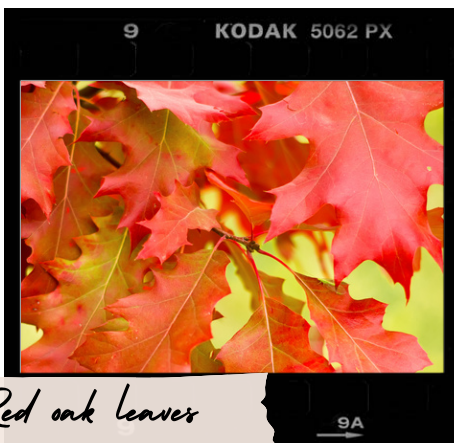
Elm tree leaves



Shadblow serviceberry



Red oak leaves



Willow oak leaves



Care In — and With — Community

Plan design, tree selection, and planting trees mark the beginning of the path to greener streets. The community engagement will not only share the inherent values of urban tree cover but will firmly establish and acclimate the new trees to ensure survival for many years through routine community visits and proper training on care. Trees will require water while establishing a strong root system and foundation, as well as proper pruning throughout their lives. Proper care and stewardship will protect this green infrastructure investment, which in turn will provide care for community health, both physical and mental.

Job Creation

This is a real “green job” opportunity that will result in an enhanced cleaner, greener community. We must find ways to fund:

- tree advocates/ambassadors
- arborists
- foresters
- tree maintenance
- tree planting
- concrete saw cutters for tree pits

Facilitation Questions:

1. What is your general feeling for the trees in your neighborhood?
2. Do you see them as a burden or asset to your neighborhood and quality of life?
3. How do you think that a well-maintained, tree-lined street could make people feel?
4. What do you think or hear are "negative perceptions" of urban street trees?
5. What do you think could be done to mitigate any negative perceptions about urban street trees?

Additional Resources:

- Book: The Tree Book – Michael A. Dirr & Keith S. Warren
- Documentary: City of Trees
- Documentary: Trees in Trouble
- Calculator: National Tree Benefit Calculator
- Access: Tree Equity Score
- Short Video: How Systemic Racism Linked to Fewer Trees in Your City | One Small Step