

Trees and Urban Development - Finding Common Ground



Common Ground?

Horticultural	Construction
Increased Pore Space	Minimal Pore Space
Low Bulk Density	High Bulk Density
Availability of Air, Water, Nutrients	Stability, Strength, and Support



Benefits of Trees

“The best friend on earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources on earth.”

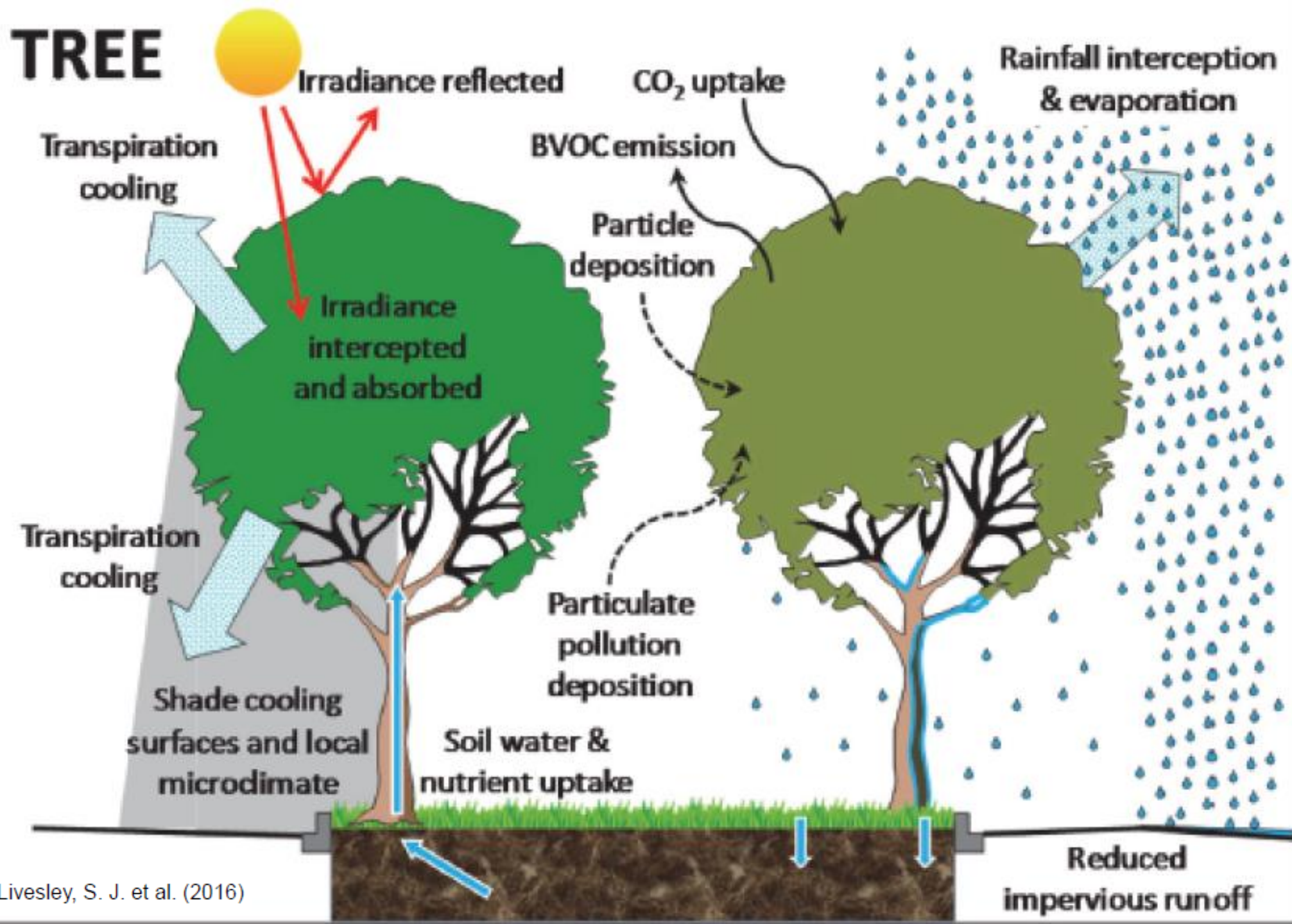
—Frank Lloyd Wright

Environmental Benefits

- Stormwater Quality and Quantity
 - Canopy intercepts rainwater reducing flooding and erosion
 - Roots draw water down into soil and hold soil in place
 - Absorbed nutrients are kept out of surface water bodies
- Air Quality
 - Deposition of particulate matter on leaves
 - Uptake of CO₂ and pollutants
- Ambient Temperature (Urban Heat Island Effect)
 - Intercept sunlight to use for photosynthesis
 - Cooling effect from release of water from leaves
- Provide wildlife habitat



TREE



Economic Benefits

- Reduce energy usage
- Increase real estate value
- Extend life of roads
- Increase retail sales

Health / Community Benefits

- Safer streets
- Reduced crime
- Shorten hospital stays
- Education and recreation



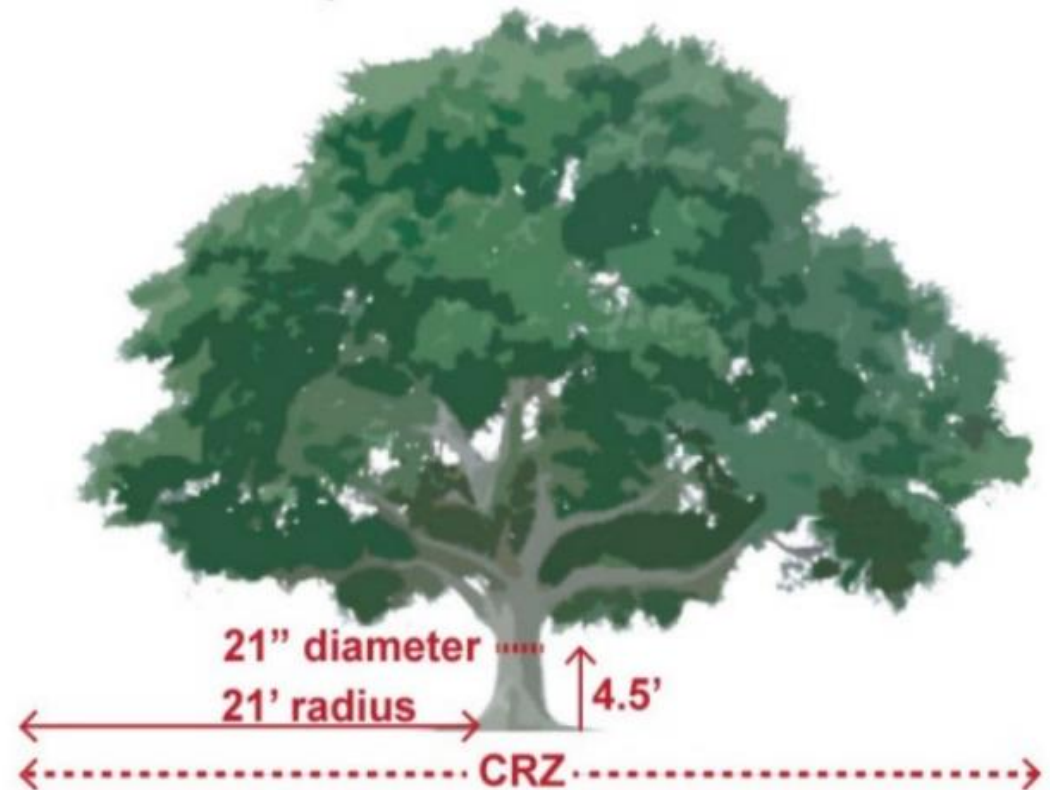
Tree Root Systems

- Extend 2.5 - 3 times the crown radius
- Majority of feeder roots are in top 12" of soil
- >95% of all roots are found in top 3 feet of soil
- >60% of roots are located outside the drip line
- Tap roots rarely present in mature trees



Tree Preservation Guidelines

- Protect critical root zone (CRZ)
(Radius of 1 foot per diameter inch from trunk)
- Adhere to “No Cut Zone” of 6’ – 10’ from trunk
- Impact less than 30% of CRZ



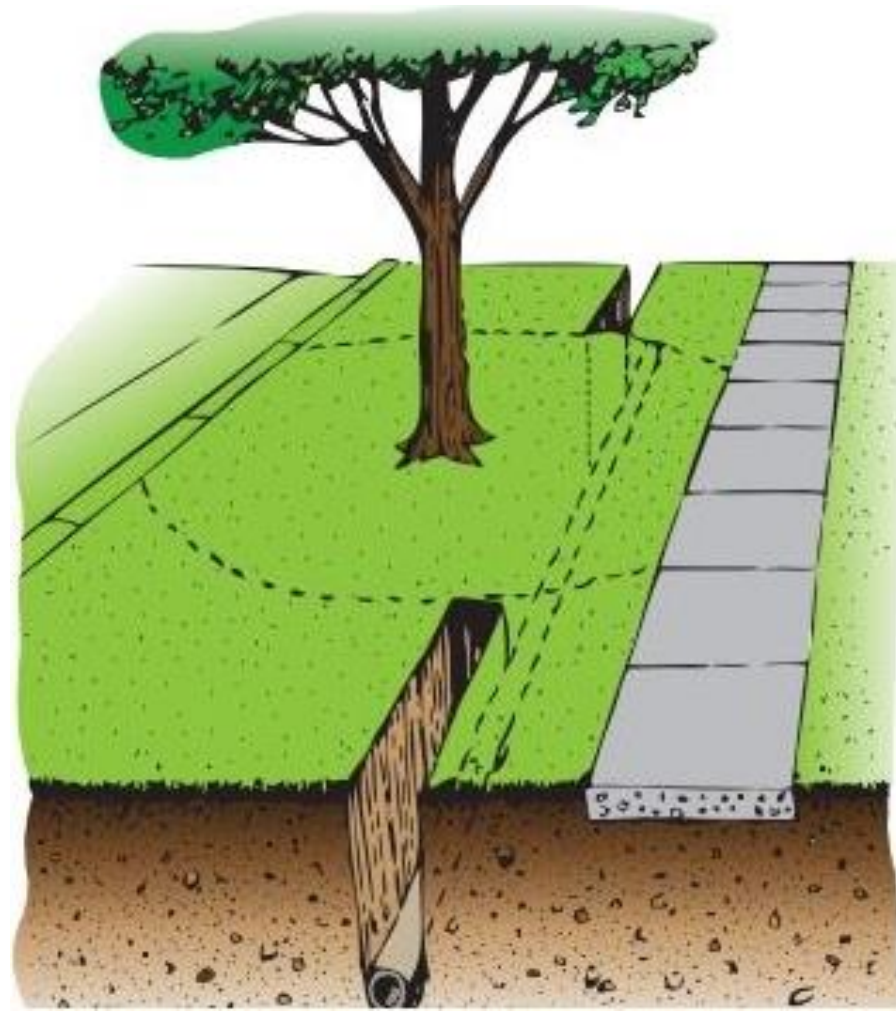
Protective Fencing



Prevent Compaction



Boring Instead of Trenching









Planted and Preserved Trees – Provide Adequate Soil Volume



Soil Volume

Recommended

- 1.5 – 2 cf soil per sf crown area (3 foot rooting depth)
- Tree with 700 sf canopy (15' radius) needs 350 – 467 sf soil

Required

- 16 sf of permeable surface (Fort Worth ordinance)



Share Soil Volume



Cedar Elms Sundance Square



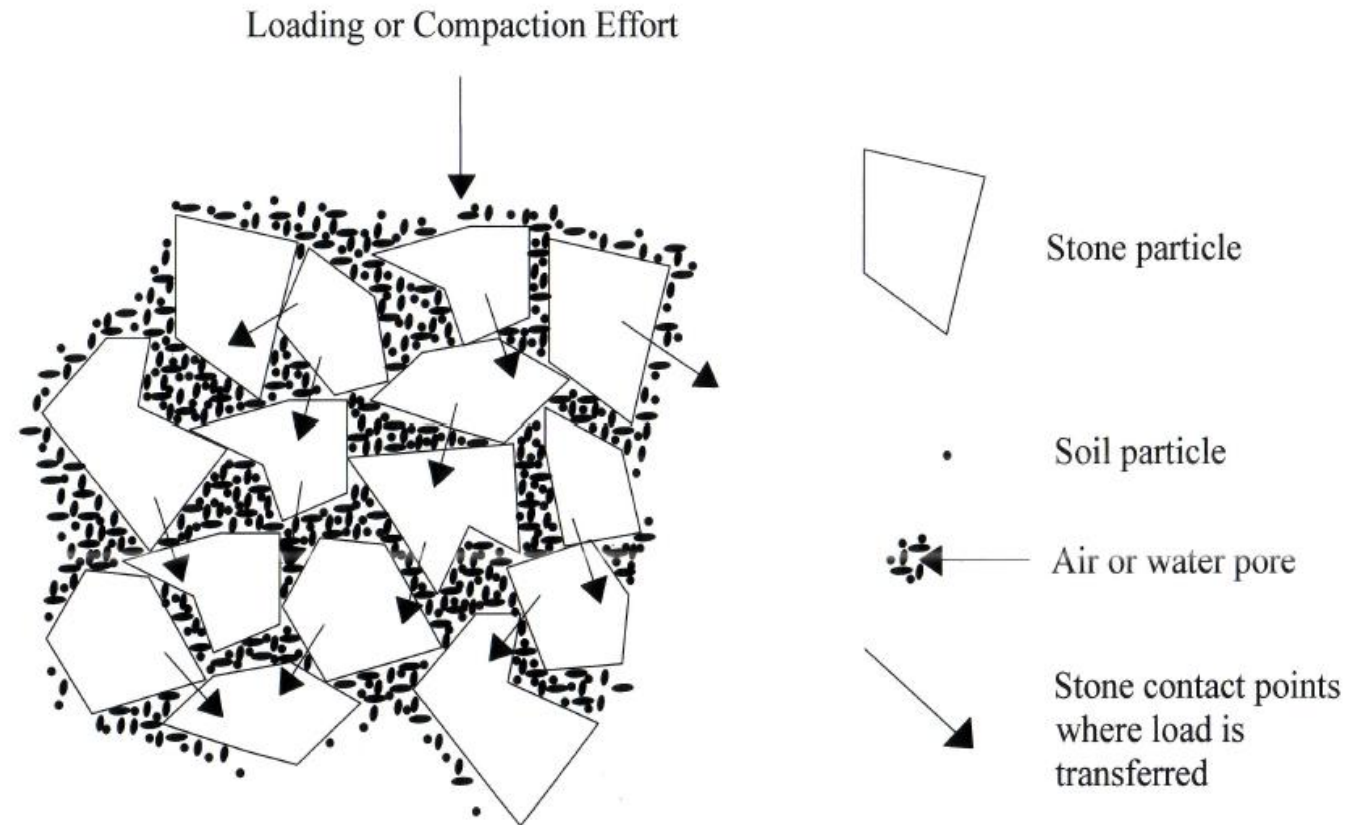
– SILVA CELL –

 deeproot

Porous or Permeable Pavement



Structural Soil



Tree Ordinances in Texas

- 1983 – Austin passed first municipal tree protection ordinance
- 2007 – Fort Worth ordinance passed
- Currently over 100 Texas Cities have tree protection ordinances.



Fort Worth Ordinance Basics

- Goal of 30% canopy coverage citywide
- Applies to trees 6" in diameter and larger
- Preserve at least 25% of existing tree canopy
- Mitigation for removal of Significant trees
 - Any species 27" or larger
 - Post oak or blackjack oak 18" or larger
- Developed canopy of 20% to 40% depending on use
- New trees credited at mature size



City of Fort Worth Tree Permits Public vs Private Property

- Private Property – Urban Forestry, Planning and Development
- Public Property – Park and Rec Dept. (Parks, ROW, and other City-owned property)
- Building or parking lot construction on City property must meet both sets of requirements



85th Texas Legislature - 2017

- Sharp rise in # of “anti-tree” bills filed
 - To **preempt** or **restrict city authority**
 - One of governor’s 20 **special session agenda items**
 - Several **local representatives** among those filing or signing as author
- CSHB 7 Adopted in Special Session
 - **Restricts authority of cities** to impose **mitigation fees**
 - Can expect to see more restrictive bills in future sessions



86th Texas Legislature - 2019

- HB 969 – water conservation
 - Preempts ability to regulate removal of “noxious or invasive plant species or brush”
 - WSEP – recommends brush management in rangelands
 - Brush removal has not been effective for increasing water supplies
 - Effect - increased erosion and flooding; decreased groundwater recharge





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