

# Pruning Trees- Cabling & Bracing Arboriculture 101

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## Commercial Tree Care

- Satisfy the customer
- More attention to details
- More ornamental care
- Increased amount of crown cleaning requests
- More requests for “shaping”
- Requests for “view” pruning
- Increase in IPM and PHC
- Safety pruning: play areas, roofs and other structures
- Insurance company requests

## Public Tree Care

- Safety & public health
- Lots of interface with the public (more criticism and push back)
- Work with utility contractors (Eversource & United Illuminating)
- Right of way maintenance
- Park and Cemetery tree maintenance
- Basic pruning
- Very little IPM or PHC: EAB & DED
- Limited funds and budgets
- Limited resources
- Use of contractors

# Municipal Pruning Punch List

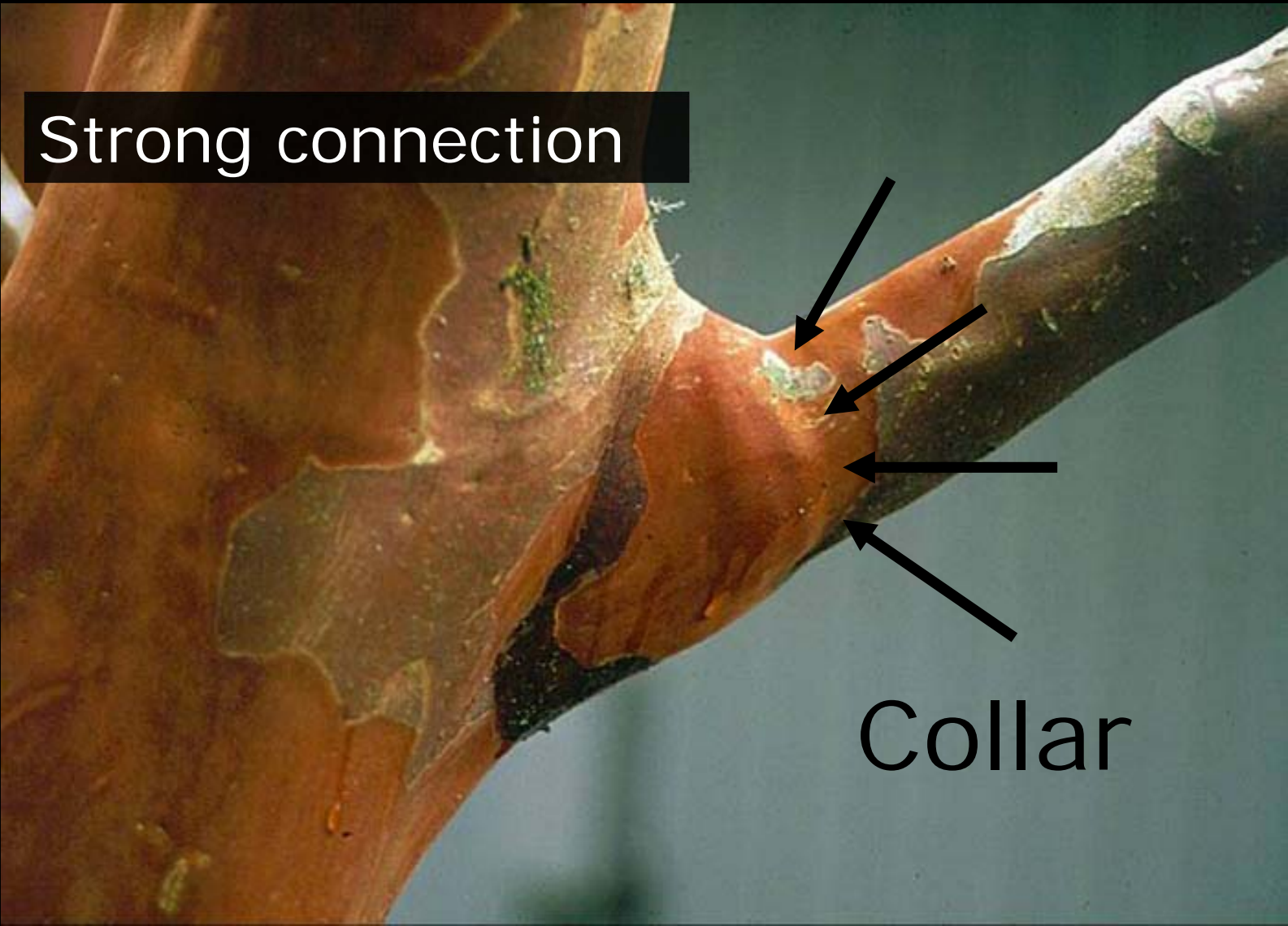
- **Hangers- Broken, hanging branches typically found in the crown of the tree**
- **Deadwood- dead limbs and branches still attached to the tree**
- **Sight/signal clearance- clearance of traffic signals**
- **Sign clearance- clearance of stop signs and other street signage**
- **Elevation: sidewalks- 12 feet, roadway- 15 feet- safety precaution so pedestrians and vehicles have a clear lane of travel**
- **Stubs- partially remaining branches that the tree expends energy to remove**
- **Sucker growth- growth typically found at the base of the tree that could interfere with sight lines and passage**
- **House/roof clearance- tree branches are hitting the structures and could cause damage**
- **Reduction (specified by City Forester)- reducing length of branches or limbs to reduce breakage in storm events**
- **Thinning (specified by City Forester)- reducing foliar and branch weight on limbs to reduce breakage in storm events**

# Objective: Reduce structural issues that cause tree failure

- **Codominant stems:**  
stems of equal size originating from the same point on the tree
- **Included bark:**  
bark pinched between two stems, indicating a weak union
- **Unbalanced canopy:**  
one side much heavier, or most weight at the tips of branches
- **Large low branches**



Strong connection



Collar

Weak Structure:

Codominant  
stems &  
bark inclusions



# Codominant stems often cause branch failure in storms







## Unbalanced Canopy

**Lions-tailing: trees with foliage concentrated at the tips of branches because inner branches were removed. The trees are more susceptible to hurricane damage and difficult to restore**

Big cuts can result in decay and cracks.





Low and large cuts  
can be avoided  
with early pruning.



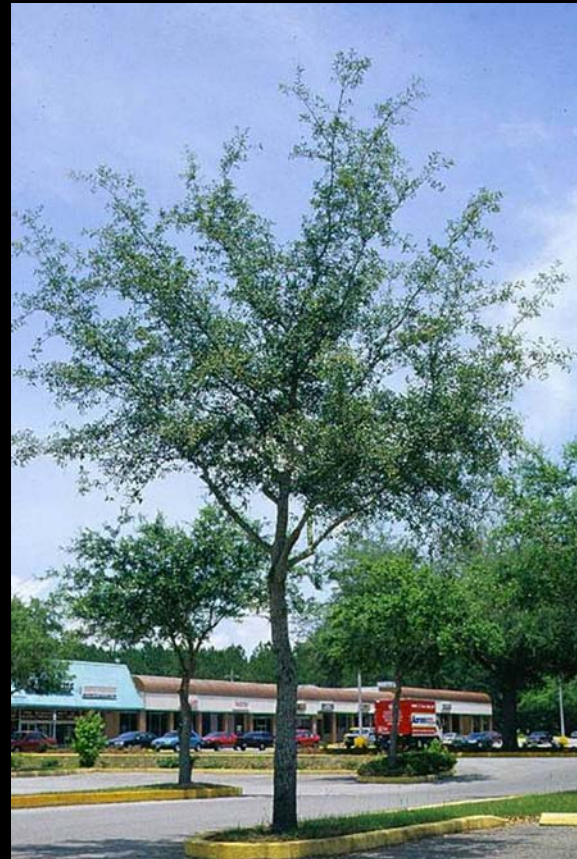
## Structural Pruning Strategies:

1. Develop or maintain a dominant leader
2. Identify lowest branch in the permanent canopy
3. Prevent branches below the permanent canopy from growing too large
4. Space main branches along dominant trunk
5. Keep all branches less than  $\frac{1}{2}$  the trunk diameter
6. Suppress growth on branches with included bark

*Trees require about 25 years of training to develop strong structure.*

# Preventive Pruning: **young trees**

- Determine pruning cycle and dose
- Execute pruning plan
  - make good cuts
  - prioritize trees with structural issues
  - temporary vs. permanent branch management



## Codominant Leader



## Steps for removing a codominant leader:

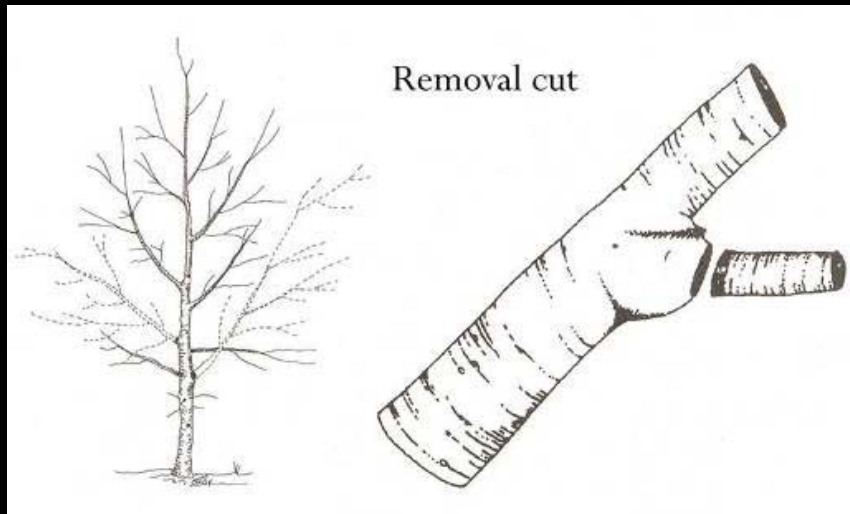
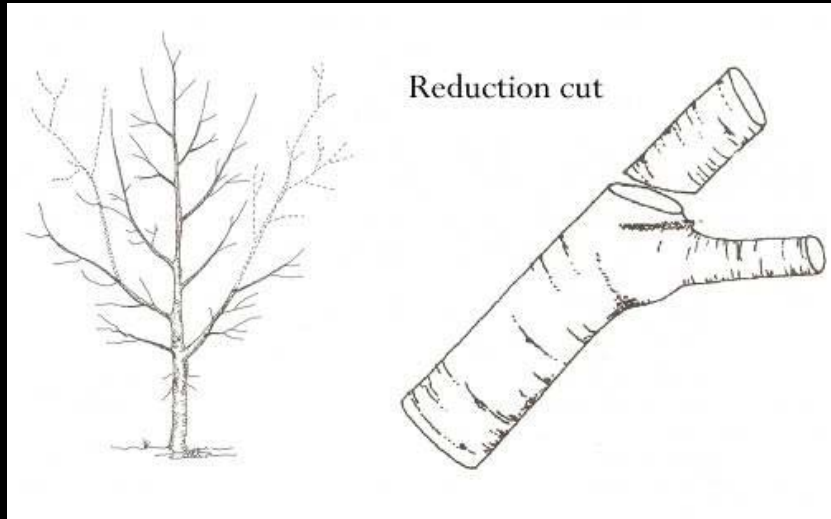
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- 1. Stand back and evaluate the structure of the tree**
- 2. Once you've identified the co-dominant leader, carefully remove it using the 3-step cut method**
- 3. Make the best cut possible to ensure proper compartmentalization**
- 4. Stand back again, and admire your good work. Your proactive pruning approach will likely allow the tree to live many years longer than if the Co-Dominant stem was left in place**

## Remove the 'codom'







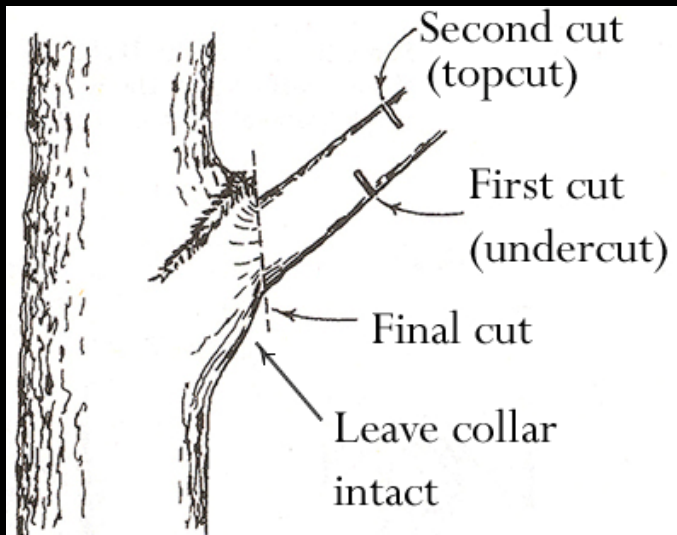
## Types of pruning cuts:

### Reduction cut

Reduce the length of a stem by pruning back to a smaller limb.

### Removal cut

Remove the branch back to the trunk or parent branch



### Step 1

Make an undercut about 12 inches from the trunk.

### Step 2

Make a topcut farther out on the limb.

### Step 3

Remove the stub with final cut, being careful not to cut flush against the trunk. Leave the collar intact.







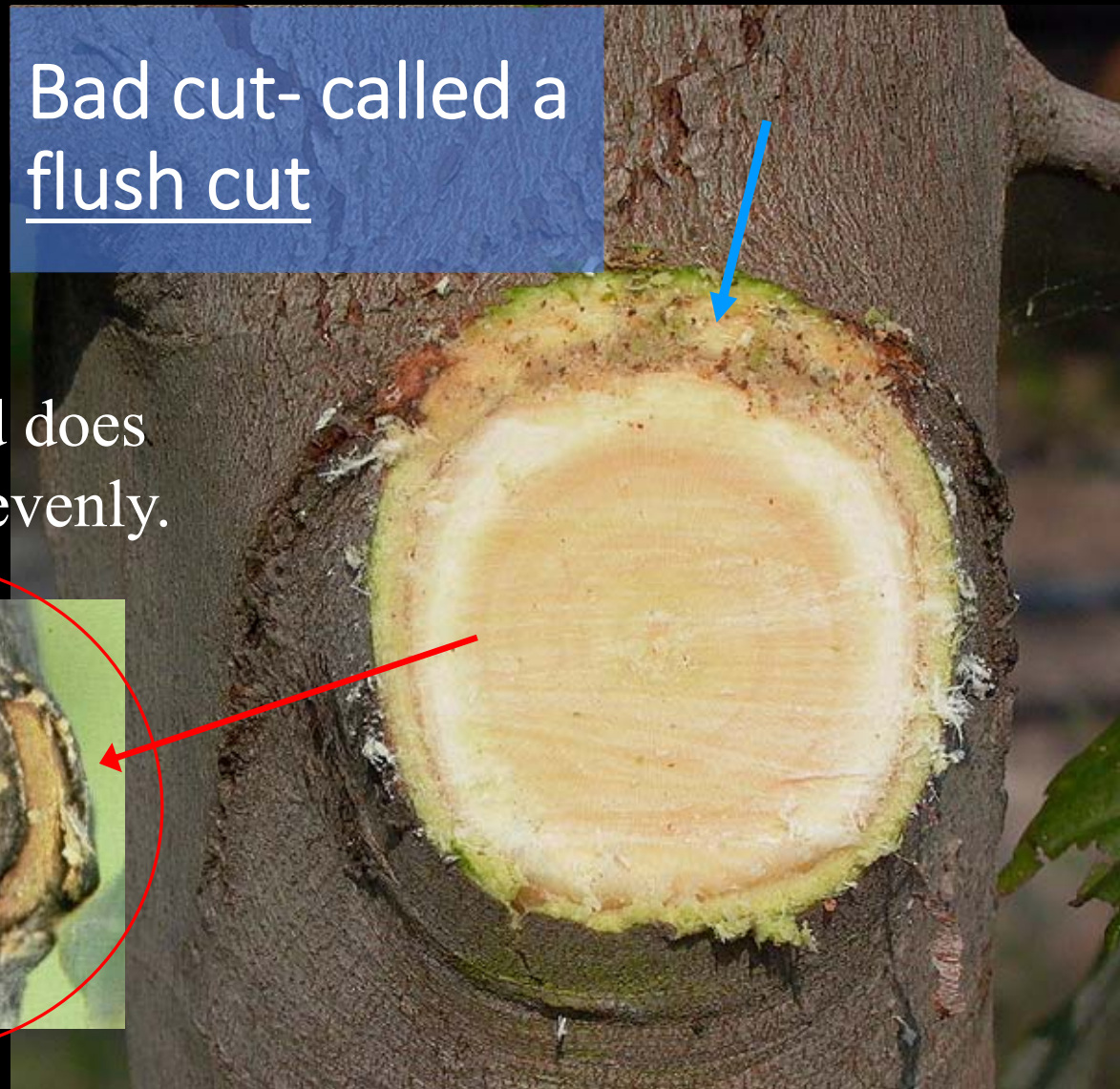
**Branch bark ridge**

**Collar**

**Collar:** swollen area at the base of the branch where it joins the trunk. The tissue is rich in energy reserves and chemicals that hinder the spread of decay. Good pruning cuts avoid cutting into the collar.

Bad cut- called a  
flush cut

Wound wood does  
not develop evenly.



# Pruning strategies

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- Execution
  - Prioritize which trees to prune
  - Decide location of lowest permanent limb
    - temporary branch management*
    - vs. permanent branch management*

# Pruning Plan: **First 5 years**

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Do not remove more than 35% of live foliage at a pruning visit.

***Reduce*** all branches greater than  $\frac{1}{2}$  trunk diameter.

***Reduce and/or remove*** all branches or stems competing with the one selected to be the leader.

***Reduce and/or remove*** large, low vigorous branches.

***Remove*** broken, cracked or severely damaged branches

## Pruning Plan: 5 – 20 years

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***Reduce*** all branches greater than  $\frac{1}{2}$  trunk diameter.

Identify lowest scaffold limbs of the permanent canopy and ***reduce*** all aggressive lower branches.

***Reduce*** branches with included bark.

***Reduce or remove*** competing leaders (if there are more than 3 competing leaders, this can be done in stages).

***Reduce*** branches within 18'' of largest limbs.



## Pruning Plan: 20 – 30 years

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branches within 18-36'' to avoid clustered branches.

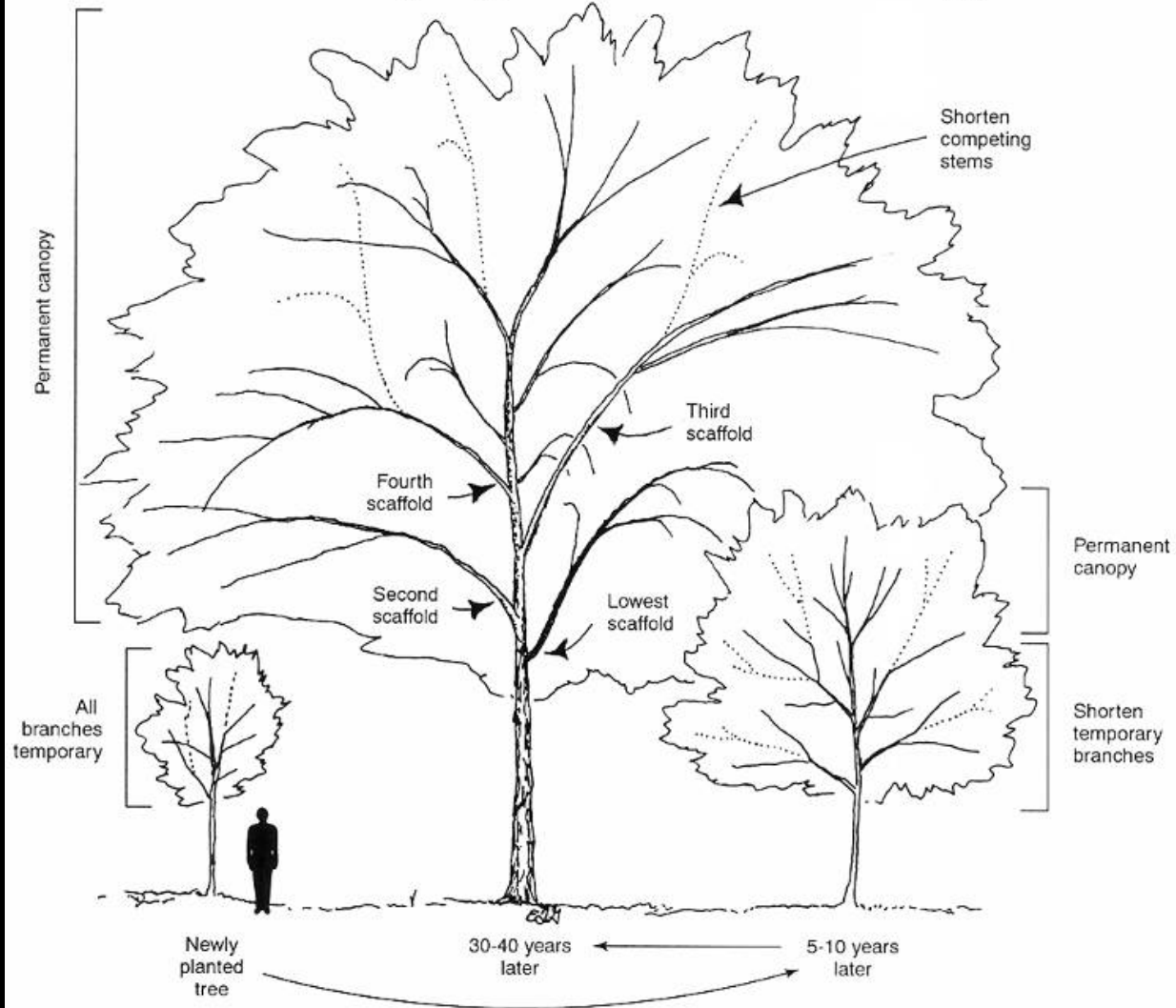
Space permanent scaffold limbs to reduce wind resistance.

***Remove*** many or all of the branches below the first permanent limb.

***Reduce*** branches with included bark.

***Reduce and/or remove*** competing leaders.

# Developing the permanent canopy



## **Recommended Pruning Tools:**

- Hand saw
- Pruners
- Loppers
- Pole saw
- Pole snips
- Small chainsaw
- Orchard ladder

## **Other Equipment:**

- An Aerial Lift
- Climbing Saddle & Climbing Line

## **Personal Protective Equipment:**

- Helmet
- Gloves
- Eye Protection
- Ear Protection
- Chaps
- Work boots
- Long sleeves
- Pants



## Charter Oak Scion, located in Bushnell Park

