Juvenile Tree Pruning & Early Maintenance

Conducted by Analisa Stewart,
Arbor Entities, Inc.
The Plan

- Urban Forest Master Planning
- Budgeting Priorities
- Talk about the components of a good pruning program and the consequences of a bad pruning program
- Look at how/where/when/why to prune juvenile trees
- Other early maintenance issues and ideas
Urban Forest Master Plan

Developing a plan – an overview

Developing an urban forest management plan is a demanding task. It requires input from many people and data sources, thoughtful analysis, vision, good organizational and writing skills, and time. Urban forest management plans are usually developed through the collaborative efforts of multiple staff members and consultants. A member of the organization developing the plan normally serves as project manager and provides overall project coordination. An important part of developing the plan is developing consensus among various stakeholders and interested parties. Plans developed by cities or other public entities require public input, which occurs at various stages of plan development.

This Toolkit steps through plan development in a linear fashion. However, plan development may actually require a more looping, iterative process. New issues may be identified as the plan is developed that may require additional analysis. Changes or compromises may be needed to obtain support. Resources may limit what can be done. You may need to revise sections of the plan multiple times to account for changes in scope or direction. You can expect that it will take an extended period, at least many months, to complete a plan. Complex plans that involve public hearings and several levels of administrative approval may require one to two years from inception to final approval and implementation.
Budgeting – some stats

- 1 certified arborist per 3,000 trees
- Average municipal tree maintenance budget ranges from $7 - $11 per tree annually
- Average municipal pruning cycle is usually around a decade in length

All data from a 2008 survey conducted by the Society of Municipal Arboriculture of their members
Budget Priorities

Ideally:
1. Hazard Tree
2. Juvenile Pruning
3. Mature Maintenance
4. Planting

Reality:
1. Planting
2. Hazard Tree
3. ?????
Foundation of a good pruning program

Trees live just fine in the forest with no pruning. Why do we prune? For people reasons . . .

- Improving structure/visibility (enhancing safety)
- Removing dead or dying limbs (enhancing health)
- Aesthetics (enhancing beauty)
Consequences of inadequate young tree pruning

Low and big cuts can be avoided with correct young tree pruning, and correct tree placement. These large cuts will result in the spread of decay throughout the tree.

Check out the girdled root! Danger! Danger!
Consequences of inadequate young tree pruning
Consequences of inadequate young tree pruning
When trees aren’t pruned for an urban environment, they respond as if in a forest environment, where it is natural & good to fall apart in pieces.
Co-dominant stems are one of two most common causes of branch failure
So, with a good pruning program, we can:

- Enhance the safety of our trees and the environment they reside in
- Improve the health of our forest
- Reduce premature tree removals
- Lower the overall costs & increase the benefits of our tree program by getting the maximum useful lifespan out of each tree
- Enjoy beautiful, healthy and safer trees
What is pruning, anyway?

Pruning: The cutting of leaves or branches within limits in order to remove dead or diseased foliage or branches. Also used to control or direct growth, increase quality or yield of flowers or fruit, and to ensure growth position of main branches to enhance structural strength.

Or – how and why we cut trees
What is more important?

Tree Health?  Tree Structure?
Now we learn the language of juvenile tree pruning!

Before we can get to the when/ where/ why/ and how of pruning, there are some terms we need to understand:

- Dominant central leader
- Co-dominant branching
- Included bark
- Lowest permanent branch
- Branch bark collar
- Branch bark ridge
Dominant Central Leader: the trunk
Co-dominant branching

A. U-shaped strong union

B. V-shaped weak union
Co-dominant branching – important enough to talk about twice.
Included Bark

What will this take out when it fails?
Included Bark – dangerous enough to talk about twice.
Lowest permanent branch
Why the lowest permanent branch is important to juvenile trees
Branch bark ridge

Top of cut is just outside wrinkled bark of BBR, bottom is where bottom of BBR and outside of limb meet

Bottom of BBR

branch-bark ridge

branch swelling

branch collar
The branch bark collar contains critical wound defense and wound response organisms. Good pruning ALWAYS leaves the branch bark collar intact to take advantage of a tree’s natural defense systems.
Ideal branch connection with clear branch bark collar
Which of these would you rather take care of?

Principles of strong structure:
• One dominant trunk
• Strong branch unions
How to cut and what to use
Tools should always be clean, and sharp. To prevent the possible spread of disease and decay from tree to tree, or from limb to limb on an infected tree, clean your tools with 1 part bleach to 9 parts water. Bleach is corrosive to metal over time, so make sure to wash your tools with soap & water at the end of the day.
The 1 2 3 cut (how to cut limbs with a saw)

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.
Quality of pruning cuts as the tree ages

Flush cut, removing BBC

Good cut

Old flush cut removed BBC, resulting in incomplete callous development
And now, we learn to prune!

1 minute mini-break
How to prune a tree

- Address the tree (walk all the way around the tree noting any unusual growth or damage).
- Identify the dominant central leader
- Identify any instances of co-dominance
- Locate what will become the lowest permanent branch
- DECIDE IF THE TREE NEEDS PRUNING
Once you’ve decided to prune –
don’t take more than 25%

- Remove or suppress co-dominant branches
- Remove branches below the lowest permanent branch that are > 1/3 the size of the dominant central leader
- Remove any downward or inward facing limbs
- Remove any crossing branches
- Remove or suppress limbs that are in conflict with structures (Building, streets, sidewalks)
- Remove branches contributing to crowding
- Remove dead & broken branches (does not count toward your 25% allowance)
- Remove any suckers at the base (does not count toward your 25% allowance)
A: remove co-dominant branches

Ignore the arrows, they won’t help you.

How many instances of co-dominance can you find in this example?

Where would you cut?
B: Remove branches below the lowest permanent branch that are > 1/3 the size of the dominant leader

This is such a new topic there aren’t really any good slides available . . .

The idea here: the threshold for co-dominance is reduced below your intended lowest permanent branch which should lead to smaller cuts and less decay overall.
C, D: Remove any inward, downward or crossing branches

The tree on the left has MUCH better form than the tree on the right, which could still be corrected.

Where would you cut?
E: remove branches contributing to crowding

Select strong, permanent scaffold branches that are spaced 12 to 18 inches apart.
F: Remove broken limbs
G: remove sucker growth from base
H: Remove limbs that conflict with structures

Before

After
The rules are roughly the same for all sizes and ages of trees . . .
Here’s what they decided
Poor pruning practices

When bad things happen to otherwise good trees
Incorrect Pruning – lion’s tail

Lion’s-tailing: trees with foliage concentrated at the tips of branches because inner branches were removed.

• More susceptible to damage
• Difficult to restore
More lion’s tailing

What are these branches going to fall on when they fail? How certain can we be that this will fail, and in what time frame?
Lion’s tailed trees fail.
Incorrect clearance pruning
Topping

8 Reasons Not To Top:

1. Starvation
2. Shock/Sun Scald
3. Pest/Disease
4. Weak limbs
5. Rapid new growth
6. Tree death
7. Ugliness
8. Cost
Some other young tree maintenance issues
Professional vandalism
Stem girdling roots
Failure to remove stakes/guys
The big wrap up

If you take nothing else away from today:

- Large, mature trees provide the most benefits.
- Establish a dominant central leader and prune as if the arborist who comes after you has homicidal tendencies and your home address.
- Urban Forest Master Plans – they work!
The requisite last slide

The virtual online pruning clinic:  
http://www.arborday.org/trees/pruning/

Your local non-profit dedicated to growing healthy, livable communities by building the best regional urban forest is the Sacramento Tree Foundation. www.sactree.com

To reach me: Analisa Stewart  
www.arborentities.com, 916.718.1395, analisa.stewart@comcast.net