



# KUNA URBAN FORESTRY LANDSCAPE SELECTION GUIDE



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## PREFACE

Kuna Planning Department Staff and Urban Forestry Department has worked together in creating a recommended list of plant life we feel would complement our City. Kuna wishes to promote a friendly and inviting atmosphere full of color and beautiful plant life to enjoy.

The general theme of this booklet is to specify desirable plant schedules for the landscaping within the community, to create a sustainable and pleasing environment for residents and visitors alike.

Within the booklet, through the use of pictures and text, recommended plant species are presented to give you a better idea of what decision makers are recommending for the city of Kuna. The plant species were carefully selected by what is more compatible to this area, providing you the opportunity to have a long lasting landscaped area throughout your development.

Also, within the booklet, Staff has provided the requirements of the all planting within the city of Kuna, which include; planting (within Commercial, Residential, or within a right-of-way), minimum tree sizes, distances between plants, mulch, irrigation, etc.

Anytime soil is disturbed, the health and even life of any nearby tree is threatened. Doing the job without injuring trees depends on two things; understanding how trees grow and using techniques that minimize interference with tree growth. Please reference Kuna City code 5-17: "Landscape" for additional requirements. These requirements were created by the Kuna City Staff and decision makers so as to provide responsibility for the planning, care, and development of our community.

The following recommended plant species are provided as examples of the types of plant life that are suitable for development purposes in the city of Kuna. This plant species booklet is not intended to be all inclusive, as there are many other types of plant species that are appropriate for development purposes in this community.

# PLANTING REQUIREMENTS

The importance of matching the plant species and its growth requirements to the planting site cannot be over emphasized. The best planting procedures known will not save the vegetation that is poorly suited to the planting site. All proposed vegetation must be able to tolerate factors such as unfavorable soil conditions, inadequate or excessive water levels and space or shade limitations. Selecting the plant life that best meets the site conditions *is the single most important factor in guaranteeing its success*. Begin by sketching the property showing existing vegetation, utilities, sidewalks and driveways. When planting more than just one tree, be conscious of your surroundings and proper planting space each species demands. Be sure to group plants with compatible species with similar if not the same growing conditions (i.e. water, light and soil types). **Note: In Idaho you must call Digline at 1-800-342-1585.**

To select the planting site and the tree that best fits your needs, carefully consider:

- A. **Landscaping purpose** – To provide shade, color, a screen from the wind or to enhance wildlife habitat.
- B. **Planting site** – Are overhead or underground utilities present? Make sure you give your landscape vegetation adequate room to grow. Try to envision it 10-50 years into the future. How close the different species can be to structures and other species near the planting area.
- C. **Soils** – Within urban areas soils can be highly variable. Too much to too little drainage often causes landscape vegetation to decline and die. Check with your county extension office for soil testing information.
- D. **Maintenance** – All plant life needs regular watering, routine pruning and periodic inspection for pests and disease. Planning now can save time and money later.

☀ **No trees, except trees planted in special plantings designated or approved by the Urban Forestry Committee (UFC), shall be planted together other than the following:**

- Small trees: twenty feet (20')
- Medium trees: thirty feet (30')
- Large trees: forty feet (40')

☀ **USDA Zones**

- The United States Department of Agriculture has established ten hardiness zones (temperature ranges) throughout the United States based on 10° differences in the average annual minimum temperature. Trees are propagated and grown to match these zones. Referring to these zones can help you decide which type of tree to plant for optimal growing success.

- The four hardiness zones in Idaho are listed below with the average annual minimum temperature for each:

Zone 3: -40 to -30° F

Zone 5: -20 to -10° F

Zone 4: -30 to -20° F

Zone 6: -10 to 0° F

- City of Kuna is a Zone 6.

✱ **The planting of trees located in the street right-of-way (R-O-W) area shall be accordance with resolutions established by the City Council and are as follows:**

- Residential subdivision internal street trees shall be adequately spaced apart. One-half (1/2) of the spread of one tree plus one-half (1/2) of the spread of another plus ten to fifty feet (10'-50') equals the minimum separation distance required.
- Residential subdivision internal street shall be centered in front of future lot *or*, instead, placed in line with side property lines of future lots, so as to leave adequate room for a driveway entry to be placed on one side or the other of a home site.
- Tree trunk flare shall be at ground level. Planting in recessed areas below normal ground level is prohibited. Tree planting area shall have a total square foot dimension of forty-two (42) square feet. Trees shall be planted at least seven feet (7') from the sidewalk to the street, and three feet (3') from the trunk flare on both sides or centered in space available.
  1. Dig hole at least three (3) times wider than the diameter of the basket; backfill with the original soil.
  2. Set root ball on firmly packed soil to prevent settling.
  3. Cut burlap and rope away from top third of root ball.
  4. Cut away the top of the basket.
  5. Set the base of the basket in undisturbed soil.
  6. Remove the twine from around the base of the tree.
  7. Set root ball on firmly packed soil to prevent settling.
  8. Trunk flare should be exposed and above ground.
  9. Gently pack back full, using water to settle soil around root ball.
  10. Use two opposing, flexible ties when staking, if necessary.

✱ **Specs for tree planting in landscaping strip**

- Tree planting shall have no less than thirty-six (36) square feet of soil area. There shall be three feet (3') from the center of the tree trunk to the sidewalk and three feet (3') from the center of the trunk to the street, three (3) on each side of the tree trunk for a total of six by six equals thirty-six (6 x 6 = 36) square feet.

✱ **Digging the hole**

- A good planting hole cannot be too wide, but it can be too deep. Dig the hole at least three (3) times the width of the root ball. This allows the growing roots to get a good start in establishing themselves. Dig the hole the same

depth as the root ball (same depth as the tree was planted in the nursery) and leave the bottom firm this will keep the tree from settling in too deeply after planting Break up compacted soil. Do not add amendments to the soil unless it is really poor soil. If you must add amendments, dig up a much larger area and work the amendments throughout. Be sure that the sides of the hole are not "lazed" by your shovel. If so, rough up the sides to give growing roots a "toe hold"; this helps the roots become established in the native soil. Continue with the steps below, depending on the type of stock you are planting.

☀ **Measure Twice**

- Before placing the tree in the hole, *measure again* so as to be sure that you will not be planting too deeply. The tree should be planted at the same depth as it was raised in the nursery. It is better to plant a little high to two inches (2") above grade than too deeply. If the hole is too deep, add soil and compact it to the correct depth.

☀ **Placing the tree**

Type	Planting Procedures
<b>Container Stock</b> 	Lay tree on side in the planting hole or near the planting hole. Gently wiggle off or cut off the container. Shave off the outer 1-1 ½ inches of the root ball with a pruning saw or pruners. This is to deal with circling roots. Tilt tree into place with the inside curve of any graft crook to the north. Check depth of root ball in planting hole. If needed, remove tree and correct hole depth. Align vertically. For stability, firm a shallow ring of soil around the bottom of the root ball.
<b>Balled &amp; Burlapped (B&amp;B)</b> 	Carefully set the tree into the planting hole so the top of the root ball is level with or slightly higher than the surrounding ground. If the tree is in a wire basket, completely remove it, if possible, or remove the upper 1 ½ after the tree is in its final planting position. Take care not to damage the roots or disturb the integrity of the root ball. Adjust the position using pressure on the root ball; don't move it by twisting the trunk. Straighten the tree and stabilize it by adding soil around the bottom portion of the root ball. Cut and remove all twine, and cut the burlap half way down the root. <i>Consensus from research is clear that leaving burlap, twine, and wire baskets on the sides of the root ball are not acceptable planting techniques.</i>
<b>Bare Root</b> 	Be sure to keep the roots moist at all times! Prune away any damaged or broken roots. Place the tree in the hole at the same depth that it grew in the nursery. Do not allow roots to curl up or around in the hole. Add soil until the tree can stand by itself. Hold it straight while the hole is being filled. Gently push soil under and between roots with your hands to remove large air pockets. If the tree settles in the hole, <u>gently</u> pull it back to the proper depth.

☀ **Get the roots ready**

- *Check the tree one more time to make sure that it is straight!* Stand back and inspect the tree from several sides. If it is not straight, move the tree in the hole until it stands straight.

### ☀ **Back fill**

- Begin refilling the hole with soil. Fill approximately one-half (1/2) full, gently tapping and firming the soil around the root ball as you go. Do not stomp! The objective is to eliminate large air pockets that will cause roots to dry out. However, roots do require oxygen movement through the soil around the bottom part of the roots. Once the water drains, continue to alternate adding several inches of soil and watering to settle in. Fill the basin with 2-3 inches of wood chips. Do not place chips directly against the trunk, as this may promote trunk rot. Be sure the top of the root ball is at or slightly above the level of the soil when you are done.
- Remove tree wrap, tape, string, and all tags. Tree trunks are only wrapped to protect them in transit. Also remove any branches damaged during transit and planting. Do not do any additional pruning until the tree has had a year to establish.

### ☀ **Stake only if necessary**

- Trees develop strong trunks and roots systems if they are not staked at the time of planting. Stake only if the tree is bare root or exposed to strong winds. Use two stakes, positioning them on opposite sides of the tree and in line with the prevailing wind. Use side belt-like strapping that is flexible. Encircle the tree trunk low enough and loosely enough to allow some trunk sway, while still holding the tree upright. Remove the ties and stakes after a year of growth!

### ☀ **Mulch**

- Mulching is a must! Apply a two to three foot (2' – 3') layer of organic mulch to the area around the base of the tree, leaving a three foot (3') bare circle around the trunk itself. Mulch helps hold moisture, insulates the soil from extreme temperatures, and reduces competition of grass and weeds.

### ☀ **Follow-up Care**

- Water regularly, but do not keep the soil soaked. Slow, deep watering once or twice a week will probably suffice unless it is extremely hot and dry;
- Keep lawn mowers and string trimmers away from the tree to avoid wounding the trunk;
- Remove the stakes and strapping after one (1) year unless the site is extremely windy. Do not stake longer than two (2) years.

### ☀ **Irrigation**

- Irrigation will be supplied to the entire landscaped area, including all trees, shrubs and turf. Watering the tree regularly during the first year is critical to its establishment. Apply about 1 ½ inches of water per week at one time, rather than watering daily. Place a shallow pie pan under the tree canopy and water the area until 1 ½ inches accumulates in the pan. Depending on your sprinkler system, it may take ½ hour to 3-4 hours. Begin watering in the Spring when soils start drying out and continue until Fall. Deduct rainfall

received during the week from the 1 ½ inch total. Water more often in periods of drought and above normal temperatures.

☀ **Recommendation**

- Lawn / Turf
  - Pressurized irrigation system using rotor or pop up.
- Planter areas / trees / shrubs:
  - Drip system and/or Netafin drip bubbler system.

☀ **Ada County Highway District (ACHD) Tree Planting Policy**

- **License Agreement: New Subdivision and Commercial Developments:**

ACHD allows landscaping within the public right-of-way through a license agreement pursuant to Section 4003.2 of the ACHD Policy Manual. An applicant desiring to place landscaping, including the planting trees, within the public right-of-way shall submit an application for a license agreement to the Right-of Way & Development Services Department for review and approval. Any variance from these policies must be requesting in writing and submitted with the license agreement application for approval. Exceptions for City adopted streetscape plans that conflict with these standards will be evaluated on a case-by-case basis.

- **Approved Tree Species:**



ACHD has adopted the [Boise Tree Selection Guide](#) for their list of approved and prohibited plant material. Those restrictions have been provided in this booklet as well and specified with the accompanying symbol (permit required).

- **Placement of Trees:**

- **Offset:**

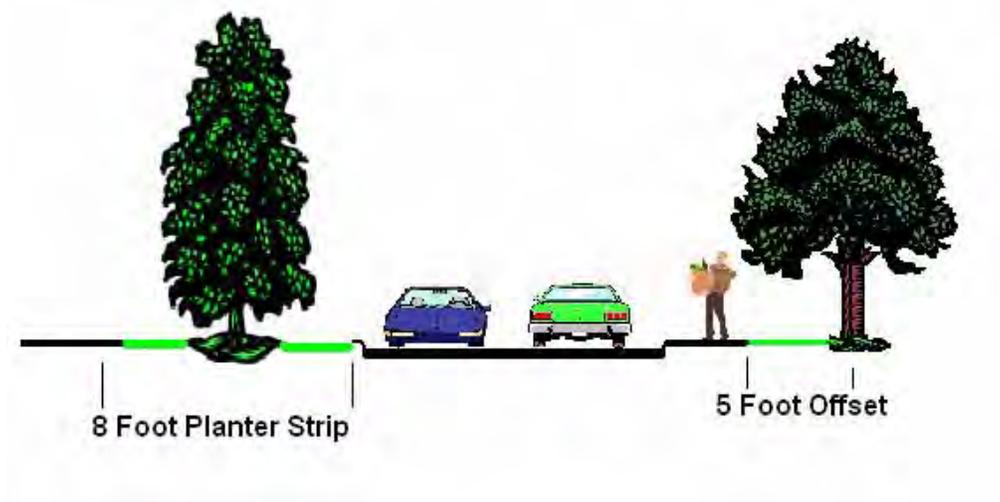
1. Class I, II, and III trees shall be placed to provide a minimum five (5) foot offset from the edge of curb (when no sidewalk exists) and /or sidewalk when the sidewalk is attached (See figures 1 & 3).
2. For detached sidewalks, center trees within planter strip.

- **Planter Widths:**

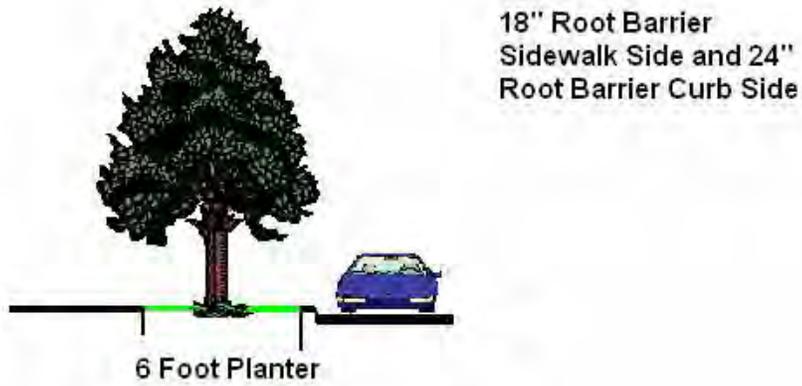
1. Tree planting shall be allowed in minimum eight (8) feet wide planters. The District will consider, on a case by case basis, six (6) foot planters with root barrier installed per the guideline described in item "b".
  - a. Class II trees shall be allowed within planters with a minimum width of eight (8) feet (See Figure 1).
  - b. Class II trees may be considered for installation in minimum planter width of six (6) feet with the installation of root barriers installed on both the curb side and the sidewalk side (See Figure 2). Root barriers are required to extend a minimum of eighteen (18) inches below the sub grade on the sidewalk side and a minimum of twenty-four (24) inches below the sub grade on the curb side. Root barriers shall extend two (2) inches above the ground and key into the road feature. Barriers shall be constructed with the street and sidewalk. When trees are planted at minimum spacing, barrier shall run continuously along both curb and sidewalk features which it is designated to protect.

- c. Class I and III trees shall be allowed in planters with a minimum width of ten (10) feet (See Figure 3).
- **Tree Spacing: (see figure 4)**
    1. Class I recommended spacing is 20-feet to 30-feet
    2. Class II recommended spacing is 30-feet to 40-feet
    3. Class III recommended spacing is 40-feet to 60-feet
    4. Longitudinal and Circular Islands shall conform to Tree Spacing Requirements
  - **Sight Distance / Sight Triangle: (see figure 4)**
    1. No trees within 40-foot sight triangle. The District may consider, on a case by case basis, written variance to this restriction with condition that the Licensee shall provide an acceptable pruning management plan.
    2. No vegetation or obstructions (i.e.: signs, berms, structures, fencing) taller than 3-feet at maturity within sight triangle.
    3. No trees within 50-feet on the approach side of any control stop intersection.
  - **Clearance Requirements:**
    1. Only Class I trees may be planted under or within 10-lateral feet of any overhead power lines.
    2. Minimum 14-foot vertical clearance from gutter pan to tree canopy.
    3. Minimum of 8-foot vertical clearance from sidewalk to tree canopy.
    4. Coniferous trees are not allowed within ACHD Right-of-Way or within Islands.
  - **Storm Drain Facility Requirements**
    1. Tree planting of any type shall be prohibited within 10-feet of any storm drain facility, structures, piping systems, fire hydrants or utility boxes.
    2. Trunk of tree must be offset a minimum of 10-feet from edge of seepage beds.

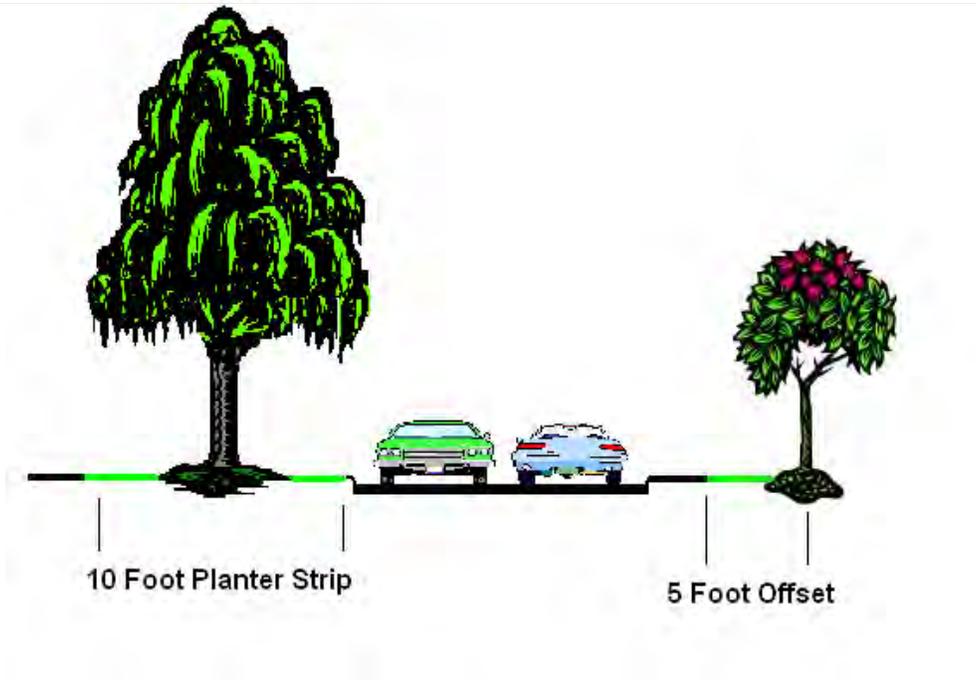
**Figure 1: Class II Tree Planting Detail**



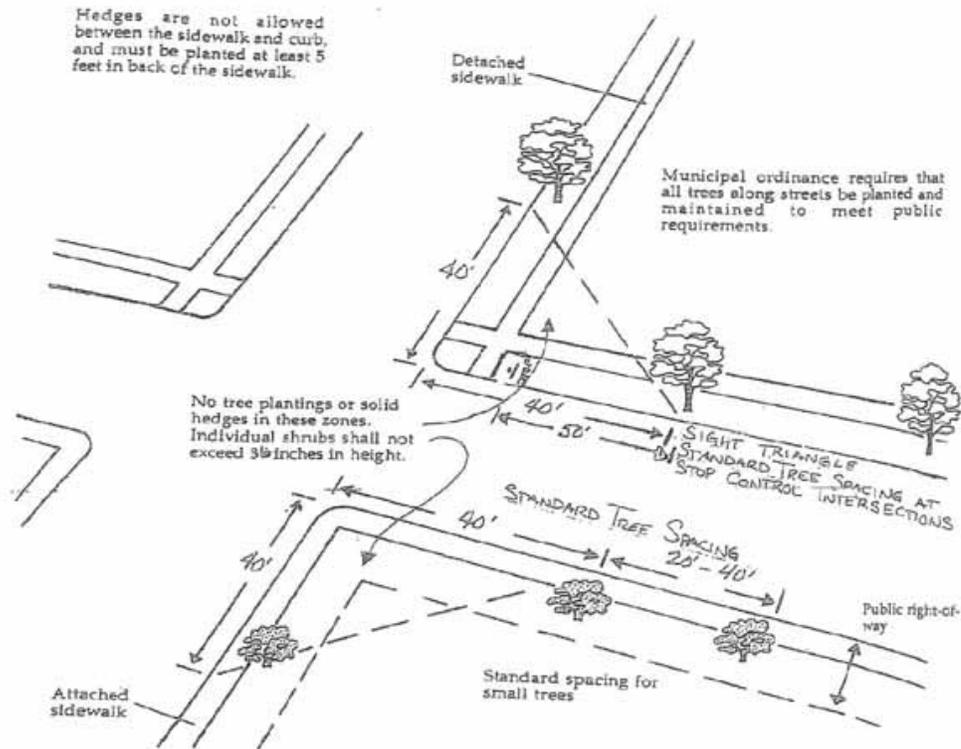
**Figure 2: class I Trees Only – 6-foot Planter Strip with Root Barrier Installation**



**Figure 3: class I and III Tree Planting Detail**



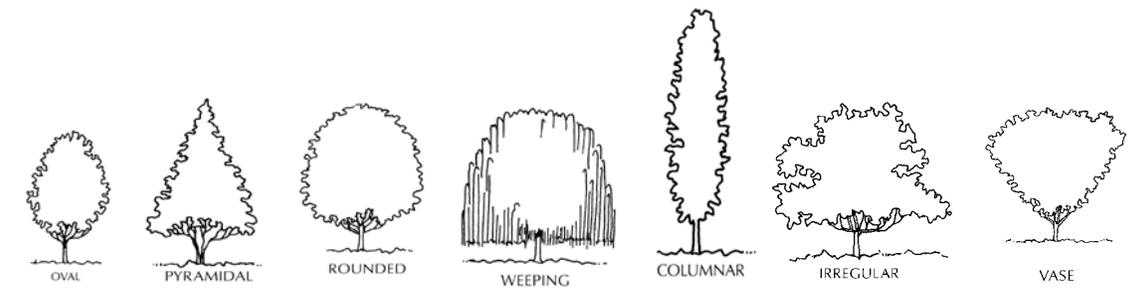
**Figure 4: Sight Triangle, Standard Tree Spacing**



Almost all streets within the city have rights-of-way that extend back of the curb line. This area is public property and is generally used for utilities, walks and landscaping. The width of this right-of-way area varies considerably in different sections of town.

## TREE FORMS

The tree forms pictured here are examples of tree shapes at maturity. It should give you a good idea of how the tree will look and help you plan its inclusion in your landscape. These forms are referred to under the tree characteristics in this guide.



# TREES IN THIS GUIDE

Each of the tree species pictured in this selection guide is listed below in alphabetical order with some outstanding features, qualities and possible landscape uses. This table is not meant to limit uses of these trees, but rather to assist you in selecting better trees for particular landscaping situations. You are encouraged to plant species where you feel they will serve your needs while maintaining healthy growth and good aesthetic qualities.

Species Common Name	Ever-green	Showy Flowers	Fall Color	Street Tree	Drought Tolerant	Wildlife/ Natural	Solar Friendly	Powerline Friendly	Wind Break	Page
Arborvitae, Brandon's	*				*	*	*		*	33
Arborvitae, Emerald	*				*	*	*		*	33
Arborvitae, Woodward	*				*		*			33
Ash, Autumn Purple			*		*		*			22
Ash, Green				*	*				*	22
Ash, Korean Mountain		*	*		*		*			28
Ash, Raywood			*				*			22
Ash, Summit			*				*			22
Catalpa, Western		*	*			*	*			20
Cedar, Golden Deodar	*	*			*	*	*		*	31
Chestnut, European			*	*	*	*	*			20
Crabapple, Red / White		*	*	*	*		*	*		15
Cypress, Hinoki	*				*	*	*		*	31
Elm, Chinese					*	*	*			29
Elm, English		*	*		*		*			29
Filbert, Turkish					*	*				21
Flowering, Almond		*	*	*	*	*	*	*		16
Flowering, Apricots		*	*	*	*	*	*	*		16
Flowering, Aristocrat Pear		*	*	*			*			17
Flowering, Bradford Pear		*	*		*	*	*			25
Flowering, Chanticleer Pear		*	*		*	*	*			25
Flowering, Cherry		*	*	*	*	*	*	*		16
Flowering, Dogwood		*		*	*		*	*		14
Flowering, Peach		*	*	*	*	*	*	*		16
Flowering, Plum		*	*	*	*	*	*	*		16
Golden Rain Tree		*	*			*				24
Hackberry			*		*	*				21
Honey Locust, Thornless				*	*	*	*			23
Hornbeam, European			*	*		*	*			20
Japanese Pagoda		*	*	*	*	*	*			27
Japanese Snowball		*			*		*			17
Japanese Zelkova			*		*		*			30
Juniper, Blue Point	*				*	*	*		*	31
Juniper, Gold Coast	*				*	*	*		*	31
Juniper, Hillspire	*				*	*	*		*	32
Juniper, Mint Julep	*				*	*	*		*	31
Juniper, Pfitzerizana Aurea	*				*	*	*		*	31

Species Common Name	Ever-green	Showy Flowers	Fall Color	Street Tree	Drought Tolerant	Wildlife/ Natural	Solar Friendly	Powerline Friendly	Wind Break	Page
Juniper, Skyrocket	*				*	*	*		*	32
Juniper, Virginiana	*				*	*	*		*	32
Linden, Basswood			*		*		*			28
Linden, Silver Leaf		*	*	*	*		*		*	28
Locust, Black		*			*		*			26
Magnolia		*		*	*	*	*	*		17
Maidenhair			*		*		*			23
Maple, Apollo			*		*		*			19
Maple, Easy Street					*		*			19
Maple, Emerald Queen			*				*			18
Maple, Hedge					*		*	*		13
Maple, Norway				*	*					18
Maple, October Glory			*		*		*			18
Maple, Scarlet Sentinel			*		*		*			19
Maple, Schwedler			*		*		*			18
Mulberry		*	*	*	*	*	*			24
Oak, Bur					*	*	*			26
Oak, Crimson			*		*	*	*			26
Oak, Red			*		*		*			26
Olive, Russian		*	*		*	*	*			21
Pine, Arnold's Sentinel	*				*	*	*		*	33
Pine, Mugo	*				*	*	*		*	33
Pine, Vanderwolf	*				*	*	*		*	33
Planetree, London		*	*	*	*	*	*			25
Popular, Aspen		*	*		*		*			25
Redbud, Eastern		*	*	*	*		*	*		13
Smoke Tree 'Royal Purple'		*	*		*		*	*		15
Spruce, Bachori	*				*	*	*		*	32
Spruce, Black Hills	*				*	*	*		*	32
Spruce, Norway	*				*	*	*		*	32
Tulip, Columnar		*		*						24
Walnut, Black			*		*	*	*			23
Willow, Corkscrew					*		*			27
Willow, Globe					*		*			27
Yellowwood, American		*					*	*		14



# PLANT SPECIES RECOMMENDED

## ✿ Class One

- The following are Class One tree categories; they generally grow to a maximum height of twenty-five feet (25') and have a fifteen foot (15') to thirty foot (30') canopy spread.
- The underlined list of trees has been approved by the Idaho Power Company. The following are subject to the City's Forester's approval.
- **ONLY** Class One is to be planted under power lines

## ✿ Acer campestre – Hedge Maple

A Hedge Maple can grow up to as high as 35 feet, but since it has a rather slow growth rate it is easily maintainable so as to not disturb any power lines that may be around. It has a round somewhat symmetrical dense crown, with a fine texture. Zone 5, possibly 4.



## ✿ Cercis – Eastern Redbud



The Eastern Redbud can reach up to 30 feet with a spread of up to 25 feet. The crown can be rather irregular in regards to the uniformity with a shape of either vase or round. Density is moderate but has a growth rate that is somewhat fast with a very coarse texture. Zone 4 to 9.



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Image Erv Evans  
NC State University

✿ ***Celtis canadensis – Redbud (another family)***



This particular plant provides many different colors through out the seasons. Flowers bloom during the spring with colors of pink, lavender and purple that will last for many months. Fruit is also an attribute to this species, though there is not attraction from wildlife; it is very “showy” and it not a litter problem. Zone 4 to 9.



Note: Redbud trees are known for the heart shaped leaves, yellow fall color, and beautiful spring color.

✿ ***Cladrastis kentukea – Yellowwood***

A small to medium-sized, attractive white flowers; sometimes used as an ornamental. Leaves are deciduous, alternate, and innately compound, with alternate leaflets. Leaflets are obviate, entire, and yellow-green. Twigs are stout with naked buds that are completely enclosed within the petal. Fruit is a 3-4 inches legume, often constricted in the middle. Bark is smooth, thin, and gray. Zone 4 to 8.



gray. Zone 4 to 8.

✿ ***Cornus florida – Flowering Dogwood***



- Many species of the Flowering Dogwood are found growing along waterways. Several are used in naturalizing landscape plantings, especially the species with bright red or bright yellow stems. Most of the species are small trees used as ornamental plants. As flowering trees, they are of rare elegance and beauty, comparable to the Eastern Redbud for their ornamental qualities. Zone 5 to 9A.



- The fruit of several species in the Flowering Dogwood is edible, though without much flavor. The berries are mildly toxic to people, though readily eaten by birds.

Note: These trees can be very PH adaptable for the Kuna area. There are too many to list, but be careful not to over water.

☀ Cotinus coggygria – Smoke Tree - "Royal Purple"

It is a multiple-branching shrub growing to 15-21 feet tall with an open, spreading, irregular habit, only rarely forming a small tree. The leaves are 3-8 cm long, rounded oval, green with a waxy glucose sheen. The autumn color can be strikingly varied, from peach and yellow to scarlet. The flowers are numerous, produced in large inflorescences 15-30 cm long; each flower 5-10 mm diameter, with 5 pale yellow petals. Most of the flowers in each inflorescence abort, elongating into yellowish-pink to pinkish-purple feathery plumes, which surround the small (2-3 mm) drupaceous fruit that do develop. Zone 5 to 9.



Note: Be careful no to over water.

☀ Malus – Crabapple



Crabapples are deciduous, small trees or shrubs with imbricate (scaly) buds. Leaves are toothed or lobed. Flowers are perfect and showy. Many species and cultivars are planted as small, ornamental trees with attractive flowers and fruits. Zone 4 to 8A.





## Prunus – *Flowering Cherry, Apricots, Peach, Almond and Plum*

Prunus is the botanical name for a large group of deciduous and evergreen trees and shrubs. These popular plants are greatly valued for their delicious, edible fruits, gorgeous spring blossoms and some, for their colorful foliage; some varieties are grown for decoration alone. Zone 6.



- Almond – There are bitter and sweet varieties of almonds. The edible kinds come in hard- and soft- shelled varieties. The most common is a small tree having lance-shaped, finely serrated leaves and from early to mid-spring, a profusion of single, pink flowers.
- Apricots – These trees are grown for their beautiful, fragrant blossoms and their delicious, velvety soft fruits, which resemble small Peaches. The fruit of the Asian Apricots grow 1 or 2 inches and the taste varies from sweet to sour. Apricots are very early bloomers, which makes them susceptible to injury from late spring frosts.
- Cherry - The Cherry is a very beautiful tree that provides excellent fruit. There are two kinds of Cherry trees - Sweet Cherries, which are cultivars of *P. avium*, and Tart or Sour Cherries, which are cultivars of *P. cerasus*. Sweet Cherries is a medium to large sized tree with oblong or oval, pointy-tipped leaves that grow 2 to 4 inches long. They are dark green above and lighter and somewhat fuzzy beneath. The leaves turn crimson in the autumn. From mid- to late spring, clusters of pure white, cup-shaped flowers are produced. Small, reddish-purple fruits follow the blossoms and ripen in June or July. Sour Cherry that forms a small, bushy tree. It has clusters of double, white flowers, 1 to 1 1/2 inches across, from mid- to late spring. Another Flowering Cherry is *P. cistena* (Purple-leaf Sand Cherry). This Cherry forms deciduous shrub up to 6 feet high with red foliage and single white blossoms, which are followed by black-purple fruits.
- Plum - Trees may have erect or spreading growth, depending on the variety. The leaves vary in shape, also, but are usually egg-shaped with finely serrated edges. The fruits are oval or round having smooth, thin skin. The flesh may be purple, blue, red, green or yellow, also depending on the variety. There are more than 2,000 varieties of Plums available. Many Plums bear fruit as soon as three years after planting.



❁ ***Pyrus calleryana – Aristocrat Flowering Pear***

Aristocrats are deciduous, rapid growing trees, drought tolerant and disease resistant with white flowering bloom in the Spring. Foliage is green and red during the Fall; reaching a height of 20-40 feet and spread of up to 30-feet. Zone 5 to 9A.



❁ ***Saucer – Magnolia***

The Saucer Magnolia is smaller than our native Cucumber tree, also a magnolia. The bark is smooth and light gray. This tree grows well in humid temperate regions. It likes rich, moist, but not wet soil. These magnolia trees reach a height of 20-25 feet, with a similar breadth. The fragrant, pinkish-white blooms, which arrive in spring and precede foliage, are large (up to 10 inches). The size and shape of the blooms are what suggested the common name for these magnolia trees. Zone 5 to 9A.



❁ ***Stryax japonica – Japanese Snowbell***

Japanese Snowbell is a small deciduous tree that slowly grows from 20-30 feet in height and has rounded canopy with a horizontal branching pattern. With lower branches removed, it forms a more vase-shaped patio-sized shade tree. The smooth, attractive bark has orange-brown interlacing fissures adding winter interest to any landscape. The white, bell-shaped, drooping flower clusters of Japanese Snowbell are quite showy in May to June. Zone 6 to 8A.



**Note:** This tree resembles a Flowering Dogwood. The flowers are grown in the underside of the branch, and have the same width and height.



☀ **Class Two & Three Tree Categories**

- The trees in Class Two grow to heights varying from thirty feet (30') to sixty feet (60') and have a canopy spread extending thirty feet (30') to sixty feet (60').
- The trees in Class Three grow to heights varying from sixty feet (60') to one hundred feet (100') and process a canopy spread extending thirty-five feet (35') to eighty feet (80').
- These long living trees attain large heights and trunk diameter which may be utilized for street and general landscape uses, provided the area is large enough to accommodate them.

☀ ***Acer platatoides – Maple***

- Emerald Queen Maple - A rapid growing hardwood Maple with dark glossy green foliage, yellow in the fall. Straight trunk with good branch habit. The shallow roots can heave sidewalks so be certain to locate the tree at least four to six feet away. The tree is easily transplanted, grows quickly, and is adapted to a wide variety of soils. Grows to a height of 60-70 feet with a slightly smaller spread. Zone 4 to 7A.



- Norway Maple – The Norway Maple (or 'columnarbrood') is a slow growing, narrow medium to large tree, reaching heights of 15-20 feet. The Norway Maple is tolerant to chalk or clay soil; drought and pollution resistant. The leaf on this maple is a broad leaf producing little maintenance. Zone 4.



- October Glory Maple – The superior red color of the October Glory Maple is intense. Commonly used to line drives or boulevards. October Glory Maple Trees quickly mature into a pleasing oval season than other trees, so you have more time to enjoy their show. You'll enjoy the proud display of red foliage while other trees are bare. Zone 5 to 8.



- Schwedler Maple - The Schwedler Maple is a medium-sized tree (50 feet) with a bole diameter up to two feet. It is a variety of Norway maple. The trunk is gray and the old bark is furrowed and dark. Leaves are 2-6 inches long and 3-lobed. They range from crimson to purple in color and are toothed and may be hairy. The twigs are reddish. The seed pods have red-brown wings and are about one inch long. Flowers are hanged in clusters along twigs. Zone 4.



- Apollo Maple – (or 'saccharin') This large, slow growing Maple can reach heights of 80-100 feet tall, with a tendency to color unevenly; however, in the Fall, change to a bright yellow, orange or florescent red-orange color. Zone 4.



- Easy Street Maple – (or 'ezestre') This medium sized, pyramidal or oval (narrow) Maple can reach the height of 40-feet with a 20-foot wide spread; foliage dark green and yellow in the Fall. Zone 4.



- Scarlet Sentinel Maple – (or 'rubum scarsen') This narrow, dark green Maple can reach heights of 40-feet with a 20-foot spread; with yellow Fall foliage. They enjoy part to full sun exposure. Produce smooth light gray bark that becomes deeply ridged with age. Red showy flowers precede foliage on intriguing red branches. Zone 4.



**Note: These trees are very solar friendly and hardy.**

☀ **Carpinus betulus**

- Western Catalpa - A large tree, the Western Catalpa grows 40-60 feet or more in height. Blossoms in spring are tropical in appearance, resembling orchids. Leaves are dark green, large and heart-shaped. Fall color is briefly yellow, then dull brown. Seed pods resemble beans and last until winter. Bark is ridge and furrowed. Zone 4 to 8.



- European Hornbeam – A large tree, the European Hornbeam grows 30-40 feet in height with a spread of 15-20 feet. No significant litter problem, attractive to birds by their fruit. The Hornbeam is slow in growth, producing a dense crown. Zone 4 to 7.



☀ **Castanea sativa – European Chestnut**



The European Chestnut has a moderate growth rate reaching up to 100 feet high with broad spread; rounded dense crowns at maturity. Provides striking autumn foliage of yellow and orange. Zone 4.



☀ **Celtis accidentalis – Hackberry**



The Common Hackberry is a medium-sized tree that is well adaptive. It grows to 50 feet with a rounded crown just as wide. Leaves are bright green, oval finely toothed and 2-5 inches in length. The berries attract birds as a source of food in the winter. Fall foliage is an attractive yellow. The bark is grayish with distinct narrow, corky ridges that appear as eroded stucco-like projections when mature. Zone 4.



☀ **Corylus columa – Turkish Filbert**



Turkish Hazel is a 40-50 foot tall, occasionally 80 foot tall (in its native habitat), deciduous tree with a beautiful pyramidal shape, the thick, tan to grey, short trunk supporting the dense horizontal branches. Growth rate is usually slow. This should make the tree quite durable in urban areas and helps maintain a symmetrical crown so prized by landscape architects. The lush, dark green leaves are 5 inches long and stay on the tree long into the fall, finally turning a pale yellow/green before dropping, but fall color is far from striking. Inconspicuous female flowers and 2-3 inches long, attractive male catkins are produced in early spring and are followed by the production of clustered fruits which are quite irresistible to squirrels. Zone 5 to 7.



Note: Drought tolerant, PH adaptable.

☀ **Elaeagnus angustifolia – Russian Olive**



Image Erv Evans  
NC State University

Gray foliage creates a dense screen 10-20 feet tall. Fragrant yellow springtime flowers attract beneficial insects. The Russian Olive Tree is extremely hardy-resists pests and disease. Drought-tolerant. Windbreakers protect farm buildings, feed lots and orchards from heavy snows and icy winds. They prevent erosions of valuable topsoil, reduce heating costs, cut down on snow removal, shelter livestock and provide a winter wildlife refuge. Zone 2.



Image Erv Evans  
NC State University



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*\*NOTE: All trees shall be at least three inches (3") in caliper when planted.  
Issued April 20, 2010*

Note: European Ash trees are not permitted within ACHD Right-of-Way or Islands.

## Fraxinus

- pennsylvanica – *Green Ash* - The Green Ash withstands drought, excessive moisture, and wind. Because it is so adaptable, it is widely used in windbreaks and shelterbelts. The crown is densely rounded or irregular. The leaf stems are velvety. The lance shaped leaflets are a lustrous medium to dark green. Zone 2.



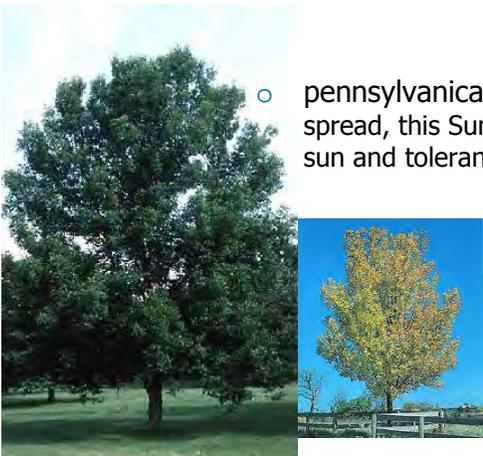
- americana – *Autumn Purple Ash* – The Autumn Purple Ash reaches heights of 60-70 feet with an oval shape youth and more round with age. Foliage is green with Fall colors of yellow, burgundy and purple. Zone 3B to 9A



- oxycarpa – *Raywood Ash* – The Raywood reaches heights of 50-60 feet tall, with green foliage and a yellow/gold in the fall. Zone 5 to 8.



- pennsylvanica – *Summit Ash* – Reaching a height of 55-feet and a 30-foot spread, this Summit Ash is a fast growing. During the fall a yellow foliage; full sun and tolerant to wet soil and cold seasons. Zone 3B to 8.



☀ **Ginkgo bilboa - *Maidenhair Tree***

It makes a durable street tree where there is enough overhead space to accommodate the large size. The shape is often irregular with a large branch or two seemingly forming its own tree on the trunk. But this does not detract from its usefulness as a city tree unless the tree will be growing in a restricted overhead space. Ginkgo tolerates most soil, including compacted, and alkaline, and grows slowly to 75 feet or more tall. The tree is easily transplanted and has a vivid yellow fall color which is second to none in brilliance, even in the south. However, leaves fall quickly and the fall color show is short. Zone 3 to 8A.



Note: Honey Locust (thorned) is not permitted in ACHD Right-of-Way or Islands.

☀ **Gleditsia – *Honey Locust***



The Honey Locust Tree is medium sized, with a short, thornless, trunk and dark brown bark that breaks into long, flat ridges. Its oval seeds are contained in twelve inch, twisted, strap like pods. The alternate leaves are singly or doubly compound, with elliptical leaflets. Their delicacy creates a uniquely irregular, open, and lacy crown. Zone 4.



Note: These are the most widely used in Kuna area because they withstand the high PH soil; many cultivators that include Shade Master, Sun Burst, and Imperial.



☀ **Juglans nigra – *Black Walnut***

A large deciduous tree that can reach from 50-75 feet tall with an oval, open crown. The Black Walnut has a coarse texture and a medium growth rate. During summer season, leaves have a dark green with autumn foliage of yellow color. Zone 5 to 9A.

Note: Black Walnut trees are not permitted in ACHD Right-of-Way or Islands.



☀ **Koelreuteria paniculata – Golden Rain Tree**



The Golden Rain Tree is an excellent tree and unrivaled for late yellow flowers. It is one of the very few yellow flowering trees. This deciduous tree is excellent as a small lawn tree, or for shading a patio. They display a beautiful show of fall color with 2 inch golden seed pods against a dark green-leafed background. The seed pods look like tiny Chinese lanterns. It has rounded outline, spreading and ascending branches, open, reddish copper-colored foliage in the spring. It is a tough and an adaptable tree used for many landscaping applications. Zone 5.



**Note: Not to be confused with the Golden Chain Tree. Chain tree is a smaller tree, usually 12-15 feet high, the Rain tree is a larger tree.**



☀ **Liriodendrom tulipifera 'fastigiata' – Columnar Tulip Tree**



The Columnar Tulip Tree reaches heights of 50-feet with a spread of 15-feet wide; blooms with an orange centered flowers. During the Fall, this slender, fast growing tree is bright yellow in color. Zone 5 to 9A.



☀ **Morus alba – Mulberry**

Mulberries are fast-growing when young, but soon become slow-growing and rarely exceed 35 feet tall. The leaves are alternately arranged, simple, often lobed, more often lobed on juvenile shoots than on mature trees, and serrated on the margin. The fruit is a multiple fruit, 2-3 cm long. Mulberries begin as white to pale yellow with pink edges. They are red when ripening. A fully ripened mulberry is dark purple to black, edible, and sweet with a good flavor in several species. Zone 3B to 9.



☀ **Platanus acerifolia – London Planetree**



London Planetree is a very large and attractive tree; reaching heights of 70-80 feet tall with matching spread. The London Planetree has a pyramid shape with youth which expands out with maturity. Foliage is a rich dark green with yellow/brown in the fall; blooming in April. Bark is very attractive. Zone 5 to 9A.



☀ **Populus – Quaking Aspen – "Popular Aspen"**



The golden shimmer of aspen leaves against a deep green background of conifer is brilliant. Aspens stand 40-70 feet in height, with a smooth white trunk 1-2 feet in diameter. The tree is deciduous, with leaves that are rounded and shine bright green until they turn yellow in the fall. Two-inch (2") catkins flower in very early spring, producing small narrow cones that split to release copious amounts of tiny, cottony seeds that are dispersed by the wind. Zone 2 to 8.



**Note:** These are very fast growers and caution should be taken where you plant them. They are very good "screen", windbreak and shade trees. The Quaking Aspen is one that quivers in the wind, giving it a rustling sound.

**Note:** Aspen trees are not permitted within ACHD Rights-of-Way or Islands.

☀ **Pyrus – Flowering Pear**



- Bradford - An extremely popular, vigorous growing, medium size, shade tree with outstanding clusters of white blooms in spring and very attractive terrific yellow to red to purple foliage color in fall.

The Bradford Flowering Pear is a beautiful garden addition that produces no edible fruit. This flowering tree grows best in full sun. Zone 5 to 9.



- Chanticleer – The Chanticleer Pear is very similar to the Bradford; height of 30-40 feet with a spread of 1/3 the height. Rapid growth with glossy green leaves; fall foliage consists of reds, purples and orange. Blooms white flowers with brown/tan fruit color. Zone 5 to 8.



☀ **Quercus – Oak**

- Bur Oak - Also known as blue oak, mossy-overcup oak, mossy-overcup oak, and scrub oak, has the largest acorns of all native oaks and is very drought resistant. It grows slowly on dry uplands and sandy plains but is also found on fertile limestone soils and moist bottomlands in mixture with other hardwoods. In the west, it is a pioneer tree invading prairie grasslands, and it is planted frequently in shelterbelts. The acorns become an important source of food to wildlife. The wood is commercially valuable and marketed as white oak. The comparative ease with which bur oak can be grown makes it a fine tree for streets or lawns. Zone 2.



**Note: This tree will grow almost anywhere. A very good shade tree but loses its leaves early. Acorns are identifiable.**

- Red Oak – Bristle-tipped leaves turn red in the fall. The leaves have 7 -11 waxy lobes. Good street tree, tolerates pollution and compacted soil. Grow as much as 2 feet a year for 10 years. Grow to 60–70 feet with a 45 foot spread.



- Crimson Spire Oak – Reaching heights of 45-feet and a spread of 15-feet; sun tolerant with medium growth. Zone 5.



**Note: The Red Oak tree is very scant on branches, thus you can see through the branches and leaves. Grass can be planted under this great oak.**

☀ **Robina – Black Locust**

This 40 foot high tree is fast growing and will produce fragrant flowers in May thru June. It will also tolerate dry, saline conditions. Upright mid sized tree with blue-green fernlike foliage and black deeply ridged bark. Spring blooms are white, hang in long clusters. The tree needs full sunlight, as it is very intolerant of shade and poorly drained heavy clay soil. Zone 4 to 8.



**Note: Black Locust trees are not permitted within ACHD Rights-of-Way**



Note: Willow trees are not permitted within ACHD Rights-of-Way or Islands.

☀ **Salix – Willow**

- Corkscrew Willow – A small to medium-sized, upright spreading tree of about 30 feet in height with a 15 foot spread. The main ornamental feature of this plant is the contorted and twisted branches and twigs. Zone 4B to 8A.

Note: These branches are often used for indoor deco. Their irregular twisting branches are very unique.



- Globe Willow – This round-headed willow is commonly known for its characteristic shape, a fast growing tree that may reach 50 feet or more in height. It has slender leaves and is said to be very tough and hardy, and long-lived tree adaptable to a wide range of soil conditions, including deserts. Zone 5 to 9.



Note: These trees are often used because of its perfect round head. This tree can be used as a screen or wind block.

☀ **Sophora japonica – Japanese Pagoda Tree**



A native of China, this medium sized tree grows to 65 feet in height, usually with a broad round crown. It has a rapid growth rate and tolerates city conditions, heat, and drought. When grown in a yard, it can reach a height ranging from 50-75 feet; however, when grown along the road in compact soil, it only grows to 30-40 feet. Sophora has a height and spread of from 40-60 feet. Zone 4B to 7.



☀ **Sorbus alnifolia – Korean Mountain Ash**

This medium tree grows 10-60 feet high, a good drought tolerant tree. It is also more resistant to colder temperature and diseases. The tree has bright green, simple leaves that change to an attractive hue of yellow. In late spring the trees are decorated with clusters of tiny white blossoms. Zone 4 to 7A.



☀ **Tilia americana – Basswood Linden**



The Basswood tree can grow 80-100 feet tall and has a trunk diameter of 2-4 feet. Its leaves are heart shaped, simple, alternate and finely toothed. It has reddish or green twigs that are slender and hairless, and its bark is vertically striated, grooved and dark. The Basswood tree is a hardwood and produces bright yellow, fragrant flowers that are very attractive to bees and other insects. Zone 2.

Note: This is a big leaf Linden, whittling wood, makes very good honey. Redmon is very good cultivator. Little leaf Linden is also a good shade tree with little and shiny leaves that become matte.



☀ **Tilia tomentosa – Silver Leaf Linden**



Rapidly growing 50-70 feet in height with a spread of 40-60 feet, Silver Linden could be quite popular for use as a shade, specimen, or street tree. A deciduous tree, Silver Linden has a pyramidal form when young but develops into an upright silhouette with an oval canopy and often has multiple trunks. Casting dense shade below the tree, the 4-5 inch long dark green leaves are bright silver and fuzzy below, causing the trees to almost appear as if they are shimmering with each little breeze. The leaves turn yellow before dropping in autumn. In early summer, the trees are perfumed with extremely fragrant clusters of small, yellow/white blossoms but these are difficult to see due to the dense cover of the large leaves. The flowers attract large numbers of bees and a small, egg-shaped fruit follows the blooms. Zone 4B to 8A.

Note: One of the prettiest of the Lindens. The branches are pale silver on one side and glossy green on the other giving the effect of flowers as the wind blows them. Plus, one of the hardiest and most tolerant of Kuna soil.

✿ **Ulmus parvifolia – Chinese Elm**

Chinese Elm is excellent tree for your home landscape. Chinese Elm also known as Lacebark Elm is a good street tree. The Chinese Elm has exfoliating bark which can have orange, brown and cinnamon on the inner-trunk. The Chinese Elm will do well even in poor soils. Zone 5B to 10A.

**Note:** Seems to be more disease resistant of all Elms; grows 40-50 feet high, drought tolerant and good shade tree.



✿ **Ulmus procera – English Elm**

**Note:** Elm trees are not permitted within ACHD Rights-of-Way or Islands.

One of the largest and fastest-growing deciduous trees in Europe; the leaves are dark green, reddish-purple flowers are without petals, and appear in early spring before the leaves. Very disease resistant and drought tolerant; known to be replacing the standard variety of Elms. Zone 5 to 8.



☀ **Zelkova serrata – Japanese Zelkova**

Easily grown in average, medium, well-drained soils in full sun. Established trees tolerate some drought. Prefers rich, moist loams. Generally tolerant of urban conditions. Typically growing to 50-80 feet tall with a spreading, generally upward-branching, vase-shaped crown.

Flowers give way to small, non-showy, ovate, wingless drupes that ripen in autumn. Fall color is variable, ranging from undistinguished yellow to attractive shades of yellow-orange to red brown. Zone 5 to 8.



Note: Conifers are not permitted within ACHD Rights-of-Way or Islands.

## ☀ Conifers

### ☀ *Cedrus seodara 'aurea'* – *Golden Deodar Cedar*

- This irregular, 15-20 foot conifer is slow growing with open horizontal and irregular branches, is a favorite in Kuna. With its golden highlights at top and ends, it is prominent throughout the seasons. Zone 7 to 9.



### ☀ *Chamaecyparis obtusa* – *Hinoki Cypress*

- A moderate growth rate reaching heights of 65-feet (if desired) with a 15-foot spread; prefers moist cool soil and tolerates partial shade, however, a sunny location is recommended. Zone 4 to 8.



### ☀ *Juniperus chinensis columnar*

- Blue Point – A very hardy, fast growing upright juniper with a very pyramidal, columnar growth habit. Withstands drought & windy conditions better than most upright junipers. Good choice for privacy borders, wind screens, as well as accent & group plantings. Retains excellent color through the winter – very minimal bronzing. Prefers slightly acidic, well drained soil. Full sun to part shade. Height to about 10-14 feet and spread of 4-5 feet. Zone 4 to 9.
- Gold Coast – Graceful, compact spreading form. New growth is a golden color, deepening in cold weather. Height to about 4 feet and spread to about 6 feet. Zone 3-9.
- Mint Julep – Compact grower with an arching branch habit similar to Compact Pfitzer. Indistinguishable from 'Sea Green'. Height to about 4-6 feet and spread of 6-8 feet. Zone 3-9.
- Pfitzeriana Aurea – Foliage is mint green with bright gold tips. Height of about 4 feet with a spread of about 6 feet. Zone



☀ **Juniper scopularum columnar**



- Hillspire Juniper – Brilliant, dark green color which is held year round. Pyramidal in growth, somewhat resembling 'Spartan', but just a bit wider in spread than 'Spartan'. Very hardy – can easily handle cold, harsh conditions as well as heat and drought tolerant. Excellent for use as a border, screen, or windbreak – or equally as nice as a specimen or group planting. Very hard juniper to find. Height ranging from 9-12 feet with a spread ranging from 3-4 feet. Zone 4 to 9.
- Skyrocket Juniper – A tall and extremely narrow, columnar growth habit with striking silvery blue foliage. Fast growing with lots of practical uses in landscaping today. Zone 4 to 9.



☀ **Juniperus virginiana**

Upright; densely pyramidal, becomes irregular and slightly pendulous with age. Requires sun; prefers well drained soil but tolerates a wide range of soil types. Zone 2 to 9.



☀ **Picea**

- Bacheri Spruce (or 'pungens') – Upright form; 4-6 feet tall; blue green foliage; moderate growth; full sun exposure; drought tolerant, prefers average water; and attractive to bees, butterflies and/or birds. Zone 2 to 8.
- Norway Spruce (or 'abies') – Upright pyramid form; 40-60-feet tall; medium to fast growth; full sun exposure and survives in various soils. Zone 2 to 8.
- Black Hills Spruce (or 'glauca') – Bright green to bluish needles; dense and conical in scape; ideal in windbreaks or screens; however, are slow growing and reach a mature height of 30-60 feet with a 15-25 foot spread. Zone 2 to 8.



## ☀ Pinus

- flexilis – *Vanderwolf Pine* - The Vanderwolf Pines are drought tolerant and prefer full sun; reaching heights of 20-30 feet tall and 10-15 foot spread, with blue green foliage. Zone 2 to 7



- mugo plumilio – *Dwarf Mugo Pine* – The Dwarf Mugo Pine, also known as Swiss Mountain Pine, is slow growing with dark green stiff needles that are 2-3 inches long. They are very tolerant to full / partial sun; reaching 3-feet tall and 5-feet wide. Zone 2 to 7.

- nigra – *Arnold's Sentinel Austrian Black Pine* – This slow growing conifer reaches a height of 25 feet at maturity with a 7 foot spread; very attractive birds due to their fruit. Their narrow columnar form is colored green with foliage. Zone 4 to 8.



## ☀ Thuja occidentalis

- Brandon's Arborvitae – Upright form; 12-15 feet tall with a spread of 6-8 feet wide; green foliage; narrow upright with finely textured foliage; resistant to winter burn. Zone 3 to 8.



- Emerald Arborvitae – Bright evergreen foliage; can reach the height of 30 feet with a spread of about 8-10 feet. They make excellent screening and can grow at a rate of about 4 feet per year. Zone 4 to 8.

- Woodward Arborvitae – A compact round plant that never needs trimming to maintain its shape. Excellent foundation plant and it is well suited for a short border or lining a sidewalk. Fast growing and displays bright green foliage. Place them in moist, acidic, and well drained soils. Zone 2 to 5.



## ☀ **Shrubs**

- A shrub is a multiple stemmed, woody plant whose height at maturity is between three feet (3') and fifteen feet (15').
- Most shrubs available from landscape nurseries will be acceptable for most planting purpose.

### ☀ **Amelanchier laevis Allegheny – Serviceberry**

It is in flower in May, and the seeds ripen from June to July. The flowers are hermaphrodite (have both male and female organs) and are pollinated by bees. The plant prefers light, medium and heavy soils and can grow in heavy clay soil. It can grow in semi-shade or no shade; just provide moist soil. Zone 5 to 8



### ☀ **Berberis thunbergii – Crimson Pygmy Barberry**

Maturing at 5 feet by 5 feet; Crimson Pygmy is round in growth; slow growing and enjoys full to partial sun. Their foliage is red, yellow and green; flowering yellow in April to May with little red fruits. Zone 4 to 8.



### ☀ **Buxus microphylla – Winter Gem Boxwood**

This shrub is unique in the fact it remains green foliage throughout winter; enjoys partial to full sun exposure; requires medium water and reaches height of 4-6 feet if so desired. The Boxwood also blooms during the mid spring; flowers can be fragrant. Zone 5 to 9.



☀ **Buddleja davidii – *Black Knight Butterfly Bush***

A woody shrub that gets a bit rangy unless pruned back occasionally. It comes in several flower colors - - including white, pink, and purple - - and is a staple in both hummingbird and butterfly gardens. It is fairly drought tolerant and often retains some foliage in winter. Zone 5 to 9.



☀ **Corylus americana – *American Hazelnut***

Simple, alternate, toothed leaves and a very bushy form. The male flowers are arranged in elongate aments and the female flowers are in small groups within buds that are similar to the leaf-bearing buds. The fruit is a nut that develops between a pair of tough and bristly bracts.

Found throughout the state on sunny and often dry sites. It is well-adapted to fire and quickly re-sprouts following a fire. Zone 5 to 9.



☀ **Cotoneaster acutifolius – *Peking Cotoneaster***

Appreciated for their dark foliage than its blossoms. Leaves are located on alternate sides of the stem. They are 1-2 inches long and have smooth edges. The small flowers are white to pinkish. Three eighths inch black berries ripen in September and persist through mid-winter. Zone 4 to 7.



☀ **Cornus sericea – Dogwood**

Shrub spreads by branch tip rooting and underground stems, height to 15 feet, branches reddish to purple, deciduous with bright red autumn color. A good identifying characteristic to look for is thin latex threads when leaf is pulled apart. Seeds ripen in summer and persist into winter, making excellent wildlife foliage. Zone 3 to 4.



☀ **Euonymus**

- *alatus* – *Burning Bush* - Outstanding red fall color! The deep dark red leaves almost glow with color in the fall. The plant is shade tolerant but has inferior fall color and reduced density in shade. Transplants easily and may be sheared. The corky wings on the twigs hold winter snow, outlining the branch structure. Zone 4.



- *fortunei* – *Emerald Gaiety* – Blooming in June, this shrub can be a climbing vine with its greenish white leaves that can acquire pink as winter approaches; if made mounted as a shrub, they can reach 3-5 feet tall with 3-6 feet wide spread. Zone 5 to 9.

Note: May suffer winter burn in cold

☀ **Forsythia meadowlark – Meadowlark Forsythia**

Noted for the cold-hardiness of its buds and its blooming ability in exposure to temperatures that are below-zero. Heavier flowering is encouraged if planted in full sun. This fast growing shrub produces bright yellow flowers. A true harbinger of spring! Zone 3.



☀ **Forsythia spring – *Glory Forsythia***

Large pale-yellow flowers that heavily cover the branches in early spring before the foliage appears. The showy rounded shrub explodes in brilliant masses of flowers, so use as a background shrub or as a feature in the perennial garden. The dark green summer foliage develops a yellow fall color. Spring Glory is upright in form with arching branches. It prefers full sun with some partial shade with moist, well-drained soils, but is very adaptable to poor or rocky soils and pollution. Zone 4 to 8.



☀ **Herbaceous perennials – *Hosta***

These small shrubs are a sure way to complete your landscaped area with colors from blue, green, gold (yellow). They prefer a lot of shade and can reach up to 1-1 ½ feet tall. Zone 3 to 9.



☀ **Ligustrum vulgare – *Cheyenne Privet***

This is a bushy deciduous, sometimes semi-evergreen shrub most often used for shrub borders and hedging. Leaves are dark green, lance shaped, to 2 1/2 inches long. White flowers are held in panicles to 2 inches long, followed by round blue-black fruit. Clip hedges twice in summer. There are actually many better types of privet on the market today due to twig blight. The leaves will hold late into the season, sometimes into December. Zone 5 to 8.



☀ **Lonicera tatarica – *Arnold Red Honeysuckle***

Upright, bushy deciduous shrub. Leaves are opposite, lance-shaped and dark green. Flowers are tubular, deep red, borne in leaf axils in spring and early summer. Orange or scarlet berries follow in late summer. May become invasive. Zone 4 to 10.



☀ **Mahonia aquafolium – Compact Oregon Grape Holly**



This shrub prefers full sun during its moderate, compact growth, attracts birds and is disease resistant. Produces ornamental berries and flowers yellow in the Spring. Zone 5 to 9.

☀ **Philadelphus lewisii – Lewis Mock Orange**

Clusters of arching stems develop on older specimens. Bark on young branches is red to chestnut brown, turning gray and exfoliating with age. Leaves are 2- 8 cm long and 1- 4 cm wide, opposite, and ovate to oblong with acute to acuminate tips. Terminal cymes of showy, perfect, fragrant white flowers develop on lateral branches.



☀ **Philadelphus virginialis – Minnesota Snowflake Mock Orange**

Upright, deciduous shrub with fragrant, white, late spring or early summer flowers. An old fashioned favorite, at home in the shrub border. Allow ample room for arching branches. Remove oldest branches (back to ground) right after plant has finished flowering. 'Minnesota Snowflake' has racemes of 5-7 double, fragrant white flowers, 2 inches wide, borne in midsummer. Very cold tolerant. Can reach as high as 8 feet tall, 8-10 feet wide. Zone 3 to 7.



☀ **Prunus Besseyi – *Western Sandcherry***

A hardy, deciduous, shrub from 3-8 feet, with shiny leaves and pink-white blossoms followed by sweet, dark fruits that attract birds and make tasty jelly. Crimson fall color. Plant in fall or cold stratifies 3 months. Zone 3.



☀ **Prunus cistena – *Purple-leaf Sandcherry***

The Purple Leaf Sand Cherry, Prunus Cistena, is a thick-growing, long-lived shrub. It produces bright red, 3 inch leaves in spring and blushing, white flowers in May. In autumn, it produces purple-black cherries and the foliage turns a magnificent reddish purple. Grow 7-8 feet tall, depending on pruning. Plant 2-3 feet apart for a hedge and best planted in full sun. Zone 4 to 8.



☀ **Prunus triloba – *Rose Tree of China***

One of the first shrubs to blossom in spring. In April and May its stems are covered with double, delicate pink flowers that resemble small roses. Prune the lower branches to use as a small tree or leave un-pruned to form a bushy 6-10 foot shrub. Two years, 18-24 inch bare root plants. Zone 3 to 4.



☀ **Rhamnus virginiana – *Canada Red Chokeberry***

Grows to 6-8 feet tall, rarely up to 12 feet. Leaves are 5-8 cm long and densely pubescent on the underside. The flowers are white or pale pink, 1 cm diameter, with glandular sepals. The fruit is red; persisting into winter.



☀ **Rhamnus frangula asplenifolia – Fernleaf Buckthorn**

Slow-growing deciduous shrub with spreading, bushy growth 10-12 feet tall and 6-10 feet wide. Leaves are dark green, linear, fern-like, and oddly scalloped. Green, unisexual flowers are born in auxiliary clusters. In the fall, bears round, red fruit to 1/2 inch across which turn black with age. Foliage becomes red. Best adapted to cold, dry areas with poor soil. Zone 4.



☀ **Rhamnus frangula columnaris – Columnar Buckthorn**

Easily grown in average, medium moisture, well-drained soils in full sun to part shade. Typically grows in a narrow fastigiated shape to 12-15 feet tall but to only 4 feet wide. Insignificant whitish-green flowers appear in auxiliary clusters in May-June. Zone 3.



☀ **Rhododendron – P J M Rhododendron**

Small-leaved, compact evergreen shrub known for its beautiful and profuse spring flowers and neat appearance. It is probably the most adaptable and easiest rhododendron to grow. It is often used for group or mass plantings, shrub borders, or in a woodland setting beneath a high tree canopy. This rhododendron is exceptionally winter/cold hardy. Zone 4.



☀ **Rhus aromaticus - Fragrant Sumac**

An irregular spreading deciduous shrub 6-12 feet tall with velvety twigs and lower branches turned up at the tips. Glossy somewhat blue-green coarsely toothed trifoliate leaves turn orange red purple and yellow in the fall. Yellowish catkin-like flowers precede dark-red berries which persist into March. A sprawling small to medium-size shrub with aromatic foliage. Zone 4 to 8.



☀ **Rosa**

- woodsii – *Wood's Rose* - A dense, much branched shrub reaching up to 5-feet tall. Stems are red and pricked on their lower portions; pink, 5 petal flowers, followed by many orange-red hips. Soil conditions can vary from moist and dry; prefer full to partial shade. Zone 4 to 9.



- champlain – *Champlain Rose* – A dense, dark red shrub reaching a minimal height of 2.5-4 feet tall with matching spread. The Champlain blooms around May until the season frost; enjoying full to partial sun. Zone 3 to 8.

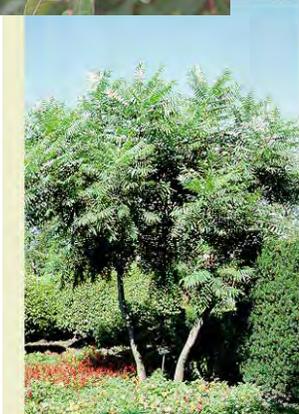
- flower carpet – *Merlot Flower Carpet Rose* – Preferring full sun, this shrub reaches 3 feet in height and up to a 5 foot spread; drought tolerant and seeds red to orange hips within the bronze-green fall foliage. Zone 5 to 9.



☀ **Thus glabra – Smooth Sumac**

Shade-intolerant pioneer on heavily disturbed sites, and particularly common along road and railroad right-of-ways. Usually in clumps of several too many individuals in a clone, rarely more than 25 stems in one clone. A short-lived pioneer, which reproduces clonally via root suckers. Seed production is moderately abundant, and seeds are dispersed by birds. Growth is rapid. Life span is about 20-30 years, through clones can persist for centuries. Fruit is important as winter bird food. This is an important deer browse species. It is suited to group plantings in small to large yards. It is especially useful in attracting birds to naturalized yards.

Related Families: **Rhus glara laciniata, Cutleaf smooth sumac; Rhus triobata, Skunkbrush sumac; Rhus typhina lacinata, Lance leaf sumac; and Rhus tyhhina, staghorn sumac.**



☀ **Sambucus canadensis aurea – Golden Elder**

Golden-yellow foliage with white flowers followed by black fruit gives this shrub a picturesque look. Great in contrast with dark green cedar. Zone 4 to 9.



☀ **Spirea japonica – Neon Flash Spirea**

Neon Flash is a larger variety with carmine-red inflorescences and bright new growth turning deep green; a mature height of up to 3-feet and can grow in either acid or alkaline soils. Though it prefers moisture, can withstand some drought. Attractive to butterflies and humming birds due to their long flowers appearing in flat clusters in early summer. Their leaves are lance shaped, dark green and toothed. Zone 4 to 9.



☀ **Sorbaria sorbifolia – Ash Leaf Spirea**

A very decorative shrub. It is fast growing and exhibits large cluster of creamy white blossoms that have a soft, feathery look. The shape of the shrub itself can be unruly and can demand to be pruned back into some semblance of shape. But ideally the major pruning waits until late winter or very early spring. Zone 2 to 7.



☀ **Syringa – Lilac (15 varieties available)**

Lilacs have a stronger scent that carries quite a distance. Unfortunately, Lilacs bloom for only a very brief couple weeks in the spring. To prolong their presence in your yard, grow a variety of Lilacs, including, early, mid and late varieties. Once the blooms are over, you still have a nice shade bush, but you have to wait for up to 50 more weeks to see them again.



☀ **Tamarix ramosissima – Glow Tamarisk**

Masses of deep pink flowers create an ostrich plume effect in summer on this hardy shrub. Foliage is soft and feathery. Cut back almost to the ground each winter to improve its flowering display and growth habit. Ideal for creating a colorful splash in any sunny border! Zone 2 to 8.



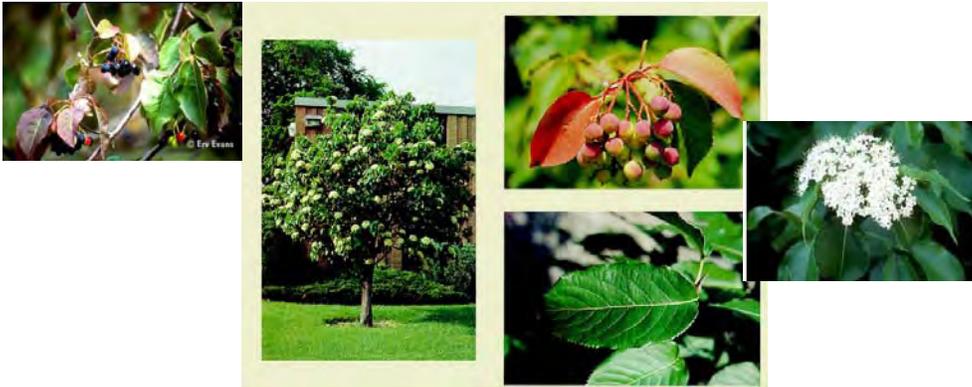
☀ **Viburnum lantana – Wayfaring Tree**

Very attractive in different seasons; with white flowers in spring, usually coming into bloom in mid May. Foliage is somewhat coarse with leaves. The plants usually have a dense habit of growth, maintaining foliage to the base without need for frequent renewal pruning. In August the fruit turn from green to bright red to black over a period of several weeks. Foliage will also turn a deep maroon red fall color in seasons when severe frosts do not occur early. Zone 4 to 8.



☀ **Viburnum lentago – Nannyberry Viburnum**

Large growing “leggy” native shrub that can be pruned into a small tree form. It produces clusters of white flowers in the spring. Mature fruit are black in color. Fall color is deep maroon and red. The leaves are a glossy green. Zone 2.



☀ **Viburnum opulus steril – Common Snowball**

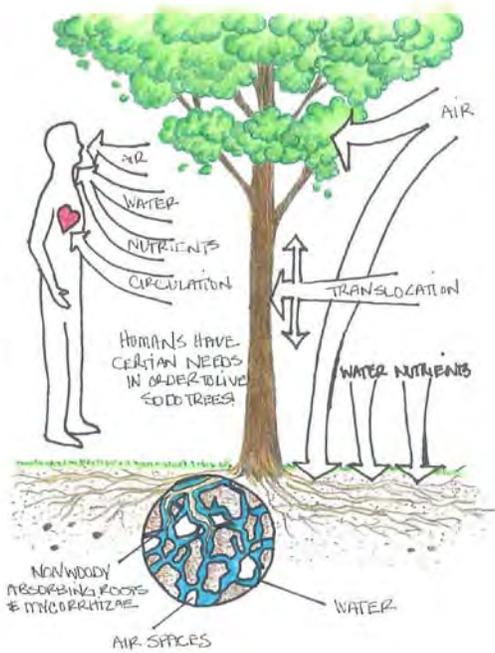
Produces white flowers in late spring. It is a deciduous thicket-forming shrub. In the fall, the leaves turn a wonderful burgundy reddish-purple. About the same time, the bright red, attractive berries ripen, and persist on the plant throughout the winter. Zone 4 to 8.



☀ **Viburnum trilobum – American Cranberrybush**

Excellent for screening; with growth as high as 10-12 feet high and a width of up to 8 feet with very dense growth of up to 3 feet per year in full sun or part shade. The bush has showy white flowers in spring followed by red berries in fall and winter. Zone 2.





## What Trees Need to Live

- Chlorophyll in leaves captures the sun's energy and manufactures glucose (a sugar). Glucose then provides the energy to "run" the tree. In this process, called *photosynthesis*, CO<sub>2</sub> is taken from the air and combined with water brought up from the roots. A byproduct – oxygen – is given off.
- A special layer of cells, called phloem, is just inside limbs, trunks and larger roots. These essential cells translocate the tree's "food" (glucose) from the leaves to all living parts the whole system going and produce new wood (growth).
- Another layer, called xylem, brings water and 14 essential elements (nutrients) up from the roots.
- Roots provide mechanical support and are the way a tree gets its water and nutrients. Roots

also store energy, usually in the form of starch. To survive, roots need oxygen from the air. Oxygen gets to the roots through pores in the soil.

## What Are the Roots?

### Rarely True:

This is how many people envision a tree's root system. While a few species do have deep tap roots, most do not. Nor is the top of the tree mirrored underground. This notion is more artistic than accurate.

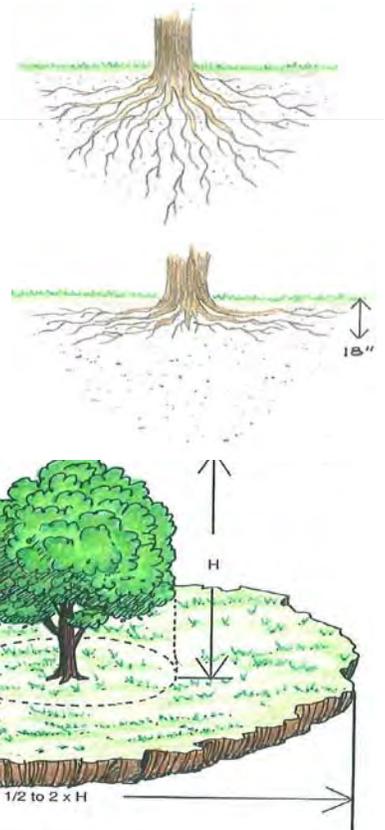
### More Common:

Roots spread to where soil conditions provide nutrients and moisture, which is usually near the surface. About 85% of a tree's roots are within the top 18 inches of soil.

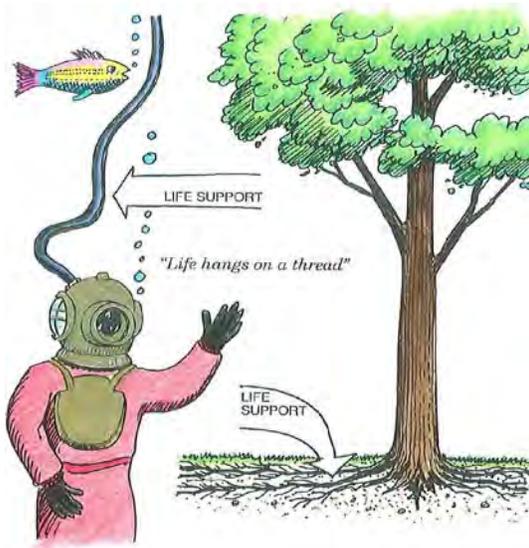


Roots ends taper out to tiny non-woody threads, some with "root hairs." These very thin ends, often in combination with a helpful fungus (mycorrhizae), absorb nutrients and water from the soil. They are often within inches of the surface.

Roots typically spread out from 1/2 to 2 times the height of a tree – or further! However, the essential mass of roots is usually considered to be within the "dripline," the area underneath the tree's branches. *The dripline area is sacred ground for tree protection!*

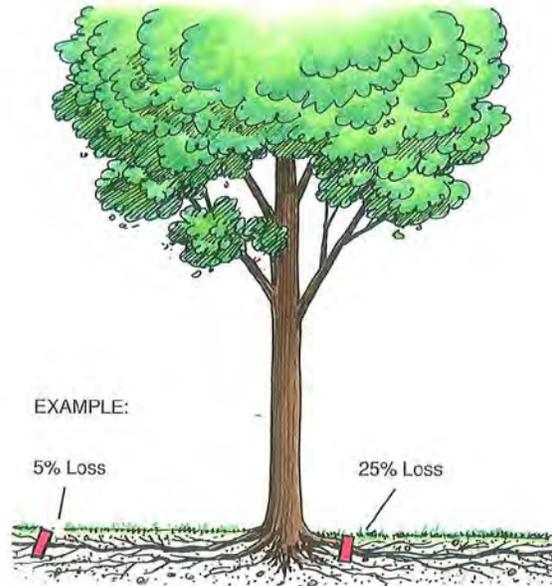


## Why Roots are Essential

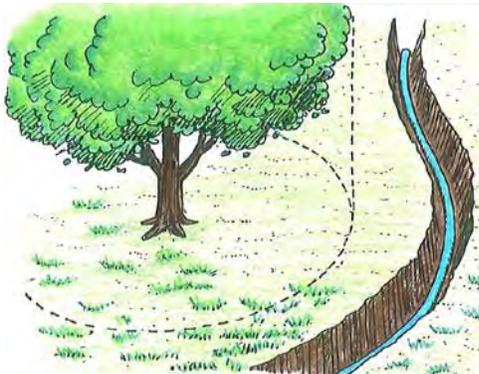


When a root is cut, the tree has no way of getting water and nutrients. (It is also more likely to be blown over by the wind.)

Which root is cut determines how much of the tree's life-support system is removed.

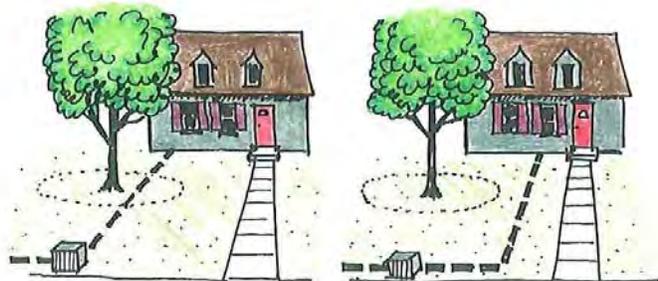


## Trenching Techniques That Save Trees Adjust the Route to Avoid Roots

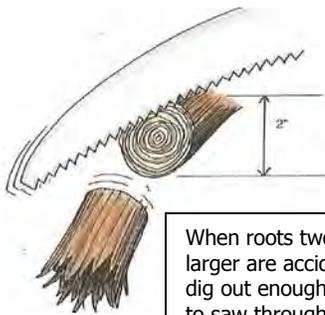


In open areas like lawns or parks, get permission to curve the ditch route as far from the tree as possible, and no closer than the dripline.

Look for alternatives to standard routes to avoid cutting roots.



## When You Must Cut, Make Sharp Cuts

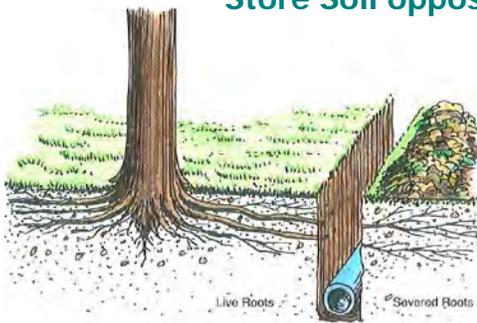


**Reason:** Roots with a sharply cut end will quickly produce a flush of new roots, helping the tree to recover from its injury. A crushed or torn root leads to decay and few new roots.

**Procedure:** When tunneling or avoiding roots is not possible, trench carefully by hand or machine near trees, *sawing* roots over two inches (2") in diameter. Make the cut flush with the side of the trench closest to the tree. No need to paint or treat the ends.

When roots two inches (2") or larger are accidentally broken, dig out enough of the trench side to saw through an undamaged portion of the root.

## Store Soil opposite the Tree Side of a Ditch



**Reasons:** Shovels or backhoes removing stored soil can cut into the surface and destroy absorbing roots, adding more injury to the tree.

Pile excavated soil on the side of the trench opposite the tree. If this is not possible, place the soil on a plastic tarp, plywood or a thick bed of mulch.

If even an inch of soil is left after back filling or hauling away soil, it can cut off vital oxygen.

## Backfill Quickly and Cleanly – Then Water

- In trenches where roots have been cut, backfill as soon as possible or keep all root ends moist with wet burlap, peat moss or similar material.

**Reason:** *Dried roots are dead roots.* In warm, dry weather, small roots can die in 10 or 15 minutes. Large, woody roots should never be exposed for more than an hour. Wind makes conditions even worse!

- Do not dispose of cable scraps, oil cans, wood scraps, machine fluids, paint, left over concrete or other debris in the backfill. *Keep it clean!*

**Reason:** Foreign objects take up valuable growing space and can introduce chemicals that kill roots.

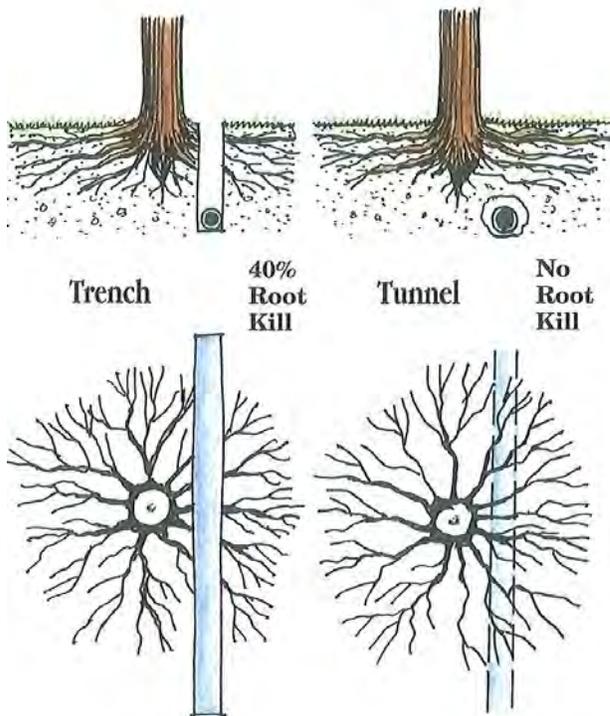
- Compact the backfill to original firmness, *but no more.*

**Reason:** Too much compaction removes pores and will prevent or slow root growth.

- Water the backfill.

**Reason:** This will *keep roots moist* and remove large air pockets that might retard the growth of new roots.

## Tunneling to Save Trees How Tunneling Saves Trees

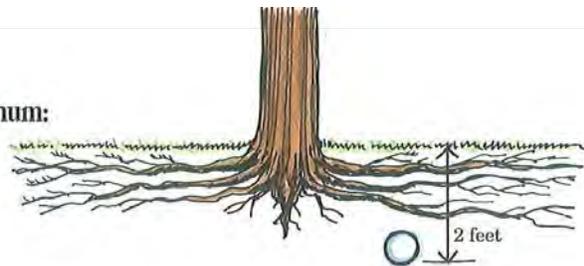


Trenching near a tree can kill as much as forty to fifty percent (40% - 50%) of its roots, almost certainly leading to poor health, wind throw or outright death of the tree.

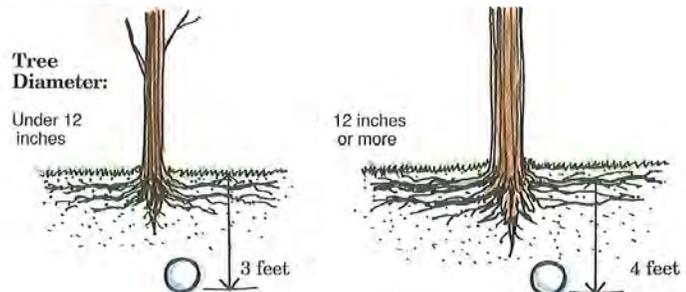
A tunnel in the same place will do virtually no damage to the tree.

Since most roots live in the top eighteen inches (18") of soil, a tunnel twenty-four inches (24") deep will usually do little damage. However, root patterns vary depending on species and size of tree, and the kind of soil. If it is apparent from trenching that roots are deeper than expected, boring should also be deeper.

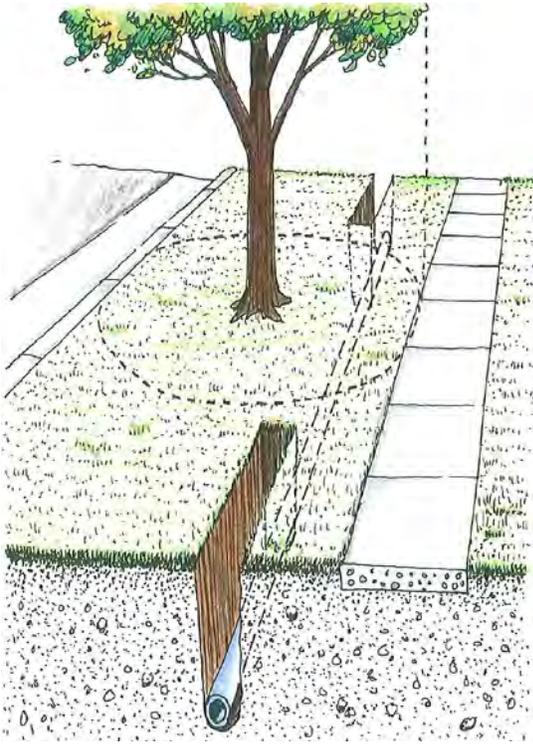
**Minimum:**



**Recommended:**



## Where to Start Tunneling



For trees six inches (6") in diameter or smaller at breast height (dihb)...

Trenching should come no closer to the tree than the dripline.

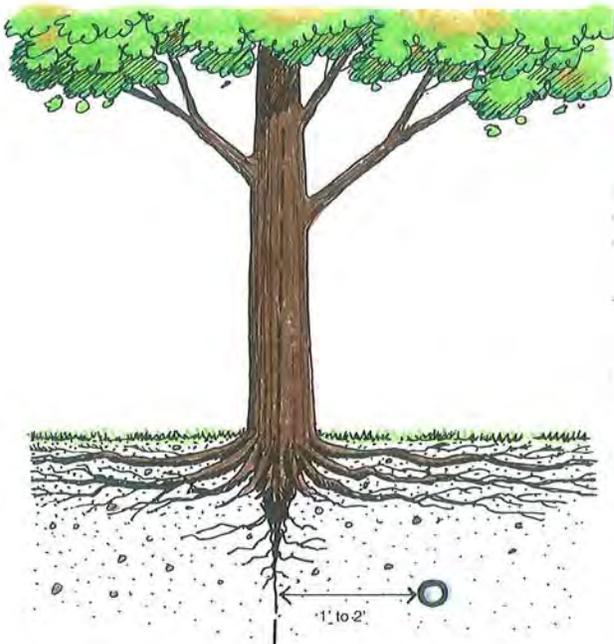
For trees over six inches (6") ddb...

If a tree's Diameter is:	The distance of tunneling from both sides of the tree should be at least:
6" – 9"	5'
10" – 14"	10'
15" – 19"	12'
Over 19"	15'

**Guiding Principle: No root two inches (2") or larger will be cut.**

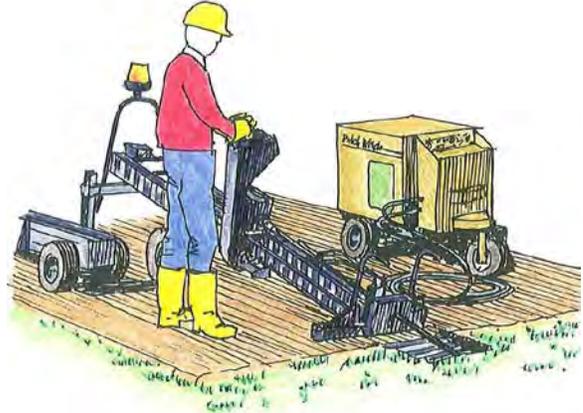
**Note:** this procedure is from a recommendation by the Municipal Foresters of Northeast Illinois and is currently a widely adopted tunneling standard.

## Where to Tunnel



If leeway permits, it is best to tunnel one to two feet (1'-2') on either side of the tree's center. In the way, the tunnel will miss the tap root in case there is one.

## Minimize the Work Pit



Work pits for tunneling are sometimes five to eight feet (5'-8') wide and can damage enough roots to negate the benefits of tunneling. Using the latest technology, work pits can be eliminated or minimized to no wider than the trench.

Procedures for treating roots exposed by put walls are the same as for other trenching operations.

## Other Techniques

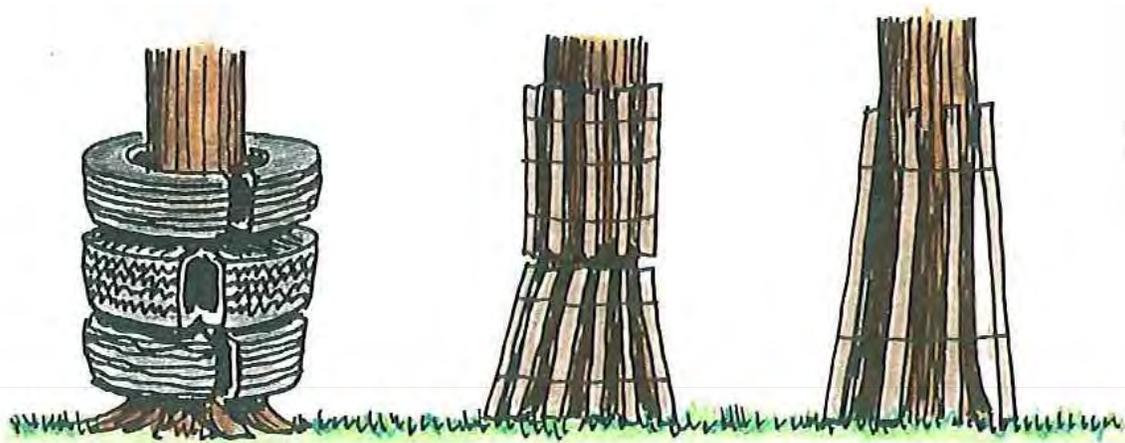
### **Protect the Bark**

Prevent scraping or gouging bark of trunk or lower limbs with heavy equipment.

**Reasons:** Any break in the protective bark of a tree allows microscopic spores to enter, causing disease.

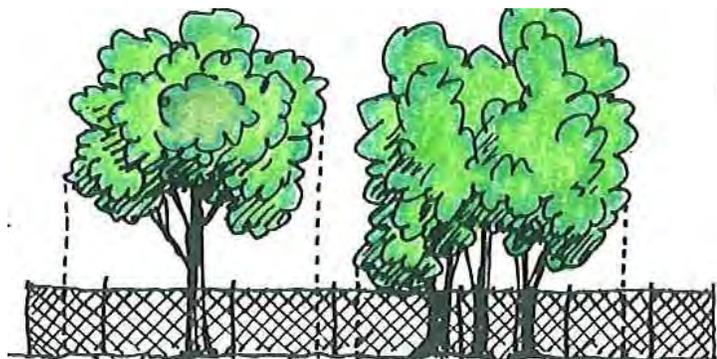
Exposed inner bark can attract insects.

Bark protects layers of cells that transport the tree's food and water and produce the new wood that provides growth. When these are destroyed, they do not restore themselves.



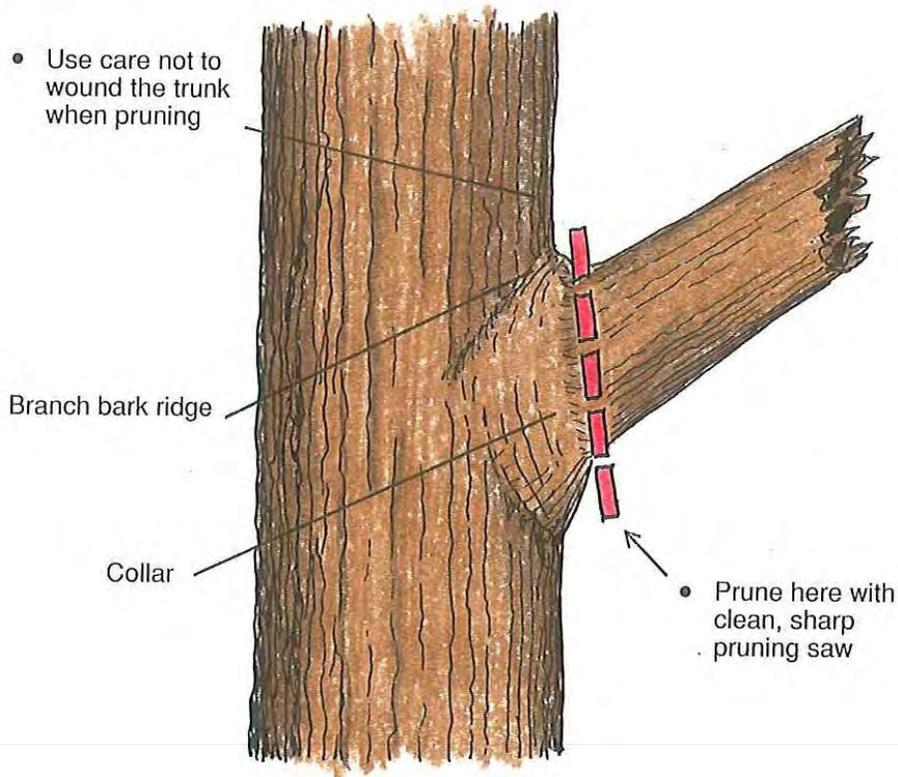
Where equipment is working in confined space near trees, wrap the tree trunk in old tires or snow fence, or place 2" x 4" studs around the tree and rope or band them in place.

Protect particularly valuable trees or groups of trees by erecting a fence at or just outside dripline.



## Prune Broken Branches

**Reason:** A properly pruned branch aids the tree's natural defense against the development of the rot.



When limbs are accidentally broken by equipment, remove the jagged edge by sawing at the broken limb's junction with the trunk or next larger limb. Cut as close as possible without cutting into the branch collar, and follow other good pruning practices as outlined in *Pruning Trees near Electric Utility Lines*. Do not paint the pruning wound.

It is often recommended that the crown of a tree be pruned to reduce its size in proportion to the amount of roots lost. That is, "to keep it in balance." It is called compensatory pruning.

But other experts correctly point out that leaves manufacture the food necessary to help roots grow and recover from being cut. Pruning the live crown reduces the tree's ability to do this.

**Procedure:** To help a tree recover from root loss, prune out only weak or dead branches and any others that appear to be hazardous.

Then, check the tree regularly and continue removing any dead or dying branches in the years following trenching/tunneling until the tree has fully recovered.

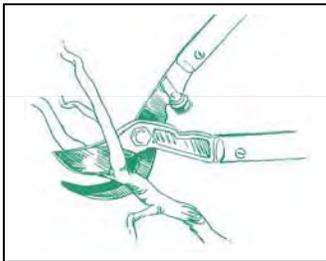
## Pruning Young Trees

Keep these few simple principles in mind before pruning a tree:

- Each cut has the potential to change the growth of the tree. Always have a purpose in mind before making a cut.
- Proper techniques are essential. Poor pruning can cause damage that lasts for the life of the tree. Learn where and how to make the cuts before picking up the pruning shears.
- Trees do not heal the way people do. When a tree is wounded, it must grow over and compartmentalized the wound. As a result, the wound is contained within the tree forever.
- Small cuts do less damage to the tree than large cuts. For the reason, proper pruning (training) of young trees is critical. Waiting to prune a tree until it is mature can create the need for large cuts that the tree cannot easily close.

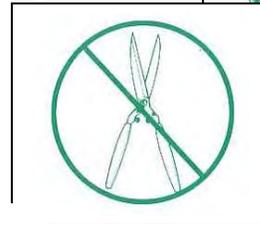
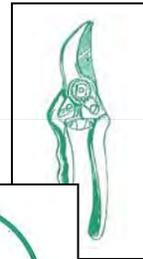
### Pruning Tools

When pruning trees, it is important to have the right tool for the job. For small trees, most of the cuts can be made with hand pruning shears



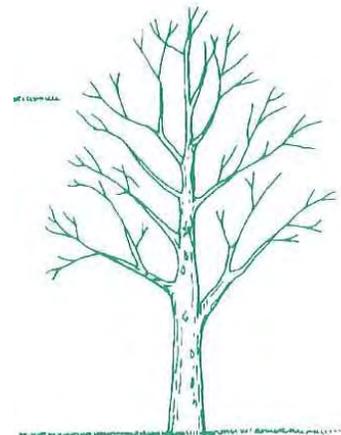
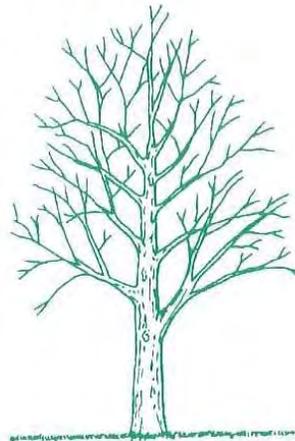
- Cuts made along a branch should be made at a lateral branch or bud.

(secateurs). The scissor-type, or bypass blade hand pruners, is preferred over the anvil type. They make cleaner, more accurate cuts. Cuts larger than one-half inch in diameter should be made with lopping shears or a pruning saw. Never use hedge shears to prune a tree. Whatever tool you use, make sure it is kept clean and sharp.



### Establishing a Strong Scaffold Structure

A good structure of primary scaffold branches should be established while the tree is young. The scaffold branches provide the framework of the mature tree. Properly trained young trees will develop a strong structure that requires less corrective pruning as they mature.

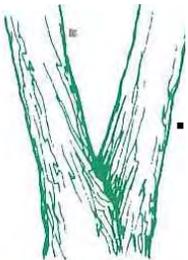


- Select strong, permanent scaffold branches that are spaced 12 to 18 inches apart.

The goal in training young trees is to establish a strong trunk with sturdy, well-spaced branches. The strength of the branch structure depends on the relative sizes of the branches, the branch angles, and the spacing of the limbs. Naturally, those factors vary with the growth habit of the tree. Pin Oaks and Sweet Gums, for example have a conical shape with a central leader. Elms and live oaks are often wide-spreading without a central leader. Other trees, such as lindens and Bradford pears, are densely branched. Good pruning techniques remove structurally weak branches while maintaining the natural form of the tree.

### Trunk Development

For most young trees, maintain a single dominant leader growing upward. Do not prune back the tip of this leader. Do not allow secondary branches to outgrow the leader. Sometimes a tree will develop double leaders known as co-dominant stems. Co-dominant stems can lead to structural weaknesses, so it is best to remove one of the stems while the tree is young.



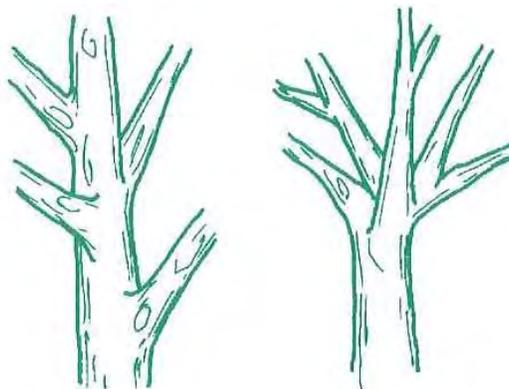
- When co-dominant stems develop, bark may become “included” in the crotch. It is best to prune one of the stems while the tree is young.

The lateral branches growing on the side contribute to the development of a sturdy

well-tapered trunk. It is important to leave some of these lateral branches in place, even though they may be pruned out later. These branches, known as temporary branches, also help protect the trunk from sun and mechanical injury. Temporary branches should be kept short enough not to be an obstruction or compete with selected permanent branches.

### Permanent Branch Selection

Nursery trees often have low branches that may make the tree appear well-proportioned when young, but low branches are seldom appropriate for large-growing trees in an urban environment. How a young tree is trained depends on its primary function in the landscape. For example, street trees must be pruned so that they allow at least 16 feet of clearance for traffic. Most landscape trees require only about 8 feet of clearance.



- Branches should be well spaced radially and along the trunk as shown in the tree on the left.

The height of the lowest permeating branch is determined by the tree’s intended function and location in the landscape. Trees that are used to screen an unsightly view or provide a wind break may be allowed to branch low to the

ground. Most large-growing trees in the landscape must eventually be pruned to allow head clearance.

The spacing of branches, both vertically and radially, in the tree is very important. Branches selected as permanent scaffold branches growing outward in each direction.

A good rule of thumb for the vertical spacing of permanent branches is to maintain a distance equal to three percent (3%) of the tree's eventual height. Thus, a tree that will be fifty feet (50') tall should have permanent scaffold branches spaced about eighteen inches (18") apart along the trunk. Avoid allowing two scaffold branches to arise one above the other on the same side of the tree.

Some trees have a tendency to develop branches with narrow angles of attachment and tight crotches. As the tree grows, bark can become enclosed deep within the crotch between the tree's trunk. Such growth is called included bark. Included bark weakens the attachment of the branch and can lead to branch failure when the tree matures. You should prune branches with weak attachments while they are young. Avoid over-thinning the interior of the tree. The leaves of each branch must manufacture enough food to keep that branch alive and growing. In addition, each branch must contribute food to grow and feed the trunk and roots. Removal of too many leaves can "starve" the tree, reduce growth, and make the tree unhealthy. A good rule of thumb is to maintain at least half the foliage on branches arising in the lower two-thirds of the tree.

### **Newly Planted Trees**

Pruning of newly planted trees should be limited to corrective pruning. Remove torn or broken branches, and save other pruning measures for the second or third year. The belief that trees should be pruned when planted to compensate for root loss is misguided. Trees need their leaves and shoot tips to provide food and the substances that stimulate new root production. Un-pruned trees establish faster with a stronger root system than trees pruned at the time of planting.

### **Wound Dressings**

Wound dressing were once thought to accelerate wound closure, protect against insects and diseases, and reduce decay.

However, research has shown that dressings do not reduce decay or speed closure and rarely prevent insect or disease infestations. Most experts recommend that wound dressing not be used. If a dressing must be used for cosmetic purposes, use a thin coating of material that is not toxic to the plant.

***Proper pruning is essential in developing a tree with a strong structure and desirable form. Trees that receive the appropriate pruning measures while they are young will require little corrective pruning when they mature.***

## Recognizing Tree Hazards

Trees are an important part of our world. They offer a wide range of benefits to the environment and provide tremendous beauty.

However, trees may be dangerous. Trees or parts of trees may fall and cause injury to people or damage to signify the risk involved with their presence. While every tree has the potential to fall, only a small number actually hit something or someone.

It is an owner's responsibility to provide for the safety of trees on his or her property. This brochure provides some tips for identifying the common defects associated with tree hazards. However, evaluating the seriousness of these defects is best done by a professional arborist. Regular tree care will help identify hazardous trees and the risk they present. Once the hazard is recognized, steps may be taken to reduce the likelihood of the tree falling and injuring someone.

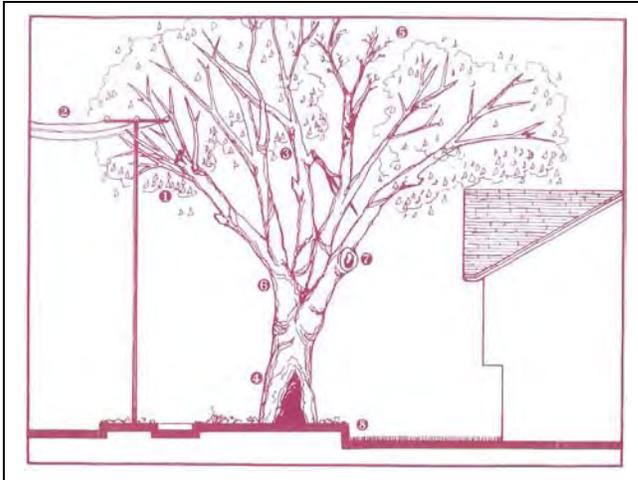
### **Hazardous Trees and Utility Lines**

Trees that fall into utility lines have additional serious consequences. Not only can they injure people or property near the line, but hitting a line may cause power outages, surges, fires, and other damage. Downed lines still conducting electricity are especially dangerous. A tree with a potential to fall into a utility line is a very serious situation.

### **Tree Hazard Checklist**

Consider these questions:

- Are there large dead branches in the tree?
- Are there detached branches hanging in the tree?
- Does the tree have cavities or rotten wood along the trunk or in major branches?
- Are mushrooms present at the base of the tree?
- Are there cracks or splits in the trunk or where branches are attached?
- Have any branches fallen from the tree?
- Have adjacent trees fallen over or died?
- Has the trunk developed a strong lean?
- Do many of the major branches arise from one point on the trunk?
- Have the roots been broken off, injured, or damaged by lowering the soil level, installing pavement, repairing sidewalks, or digging trenches?
- Has the site recently been changed by construction, raising the soil level, or installing lawns?
- Have the leaves prematurely developed an unusual color or size?
- Have trees in adjacent wooded areas been removed?
- Has the tree been topped or otherwise heavily pruned?



### Defects in Urban Trees

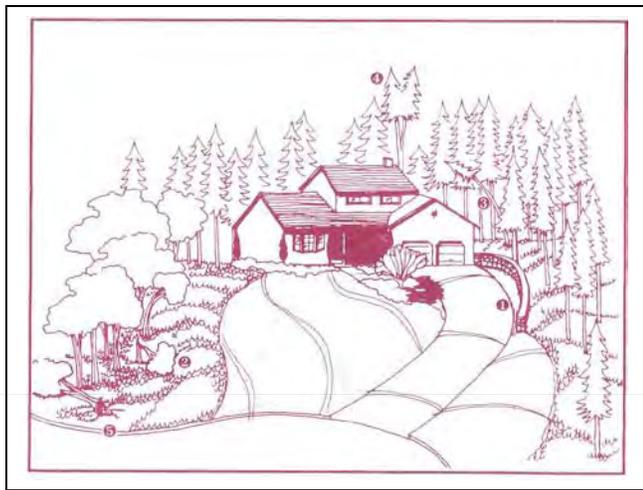
The following are defects or signs of possible defects in urban trees:

1. Re-growth from topping, line clearance, or other pruning.
2. electrical line adjacent to tree
3. broken or partially attached branch
4. open cavity in trunk or branches
5. branches arising from a single point on the trunk
6. decay and rot present in ole wounds
7. recent change in grade or soil level, or other construction

### Defects in Rural Trees

The following are defects or signs of possible defects in rural trees:

1. recent site construction, grading and tree removal, clearing of forests for development
2. previous tree failures in the local area
3. tree leaning near a target
4. forked trunk; branches and stems equal in size
5. wet areas with shallow soil



### Managing Tree Hazards

An arborist can help you manage the trees on your property and can provide treatments that may help make your tree safer, reducing the risk associated with hazardous trees. An arborist familiar with hazard tree evaluation may suggest one or more of the following:

- **Remove the target.** While a home or a nearby power line cannot be moved, it is possible to move picnic tables, cars, landscape features, or other possible targets to prevent them from being hit by a falling tree.
- **Prune the tree.** Remove the defective branches of the tree. Because inappropriate pruning may weaken a tree, pruning work is best done by an ISA Certified Arborist.
- **Cable and brace the tree.** Provide physical support for weak branches and stems to increase their strength and stability.
- **Provide routine care.** Mature trees need routine care in the form of water, fertilizer (in some cases), mulch, and pruning as dictated by the season and their structure.

Recognizing and reducing tree hazards not only increases the safety of your property and that of your neighbors but also improve the tree's health and may increase its longevity.

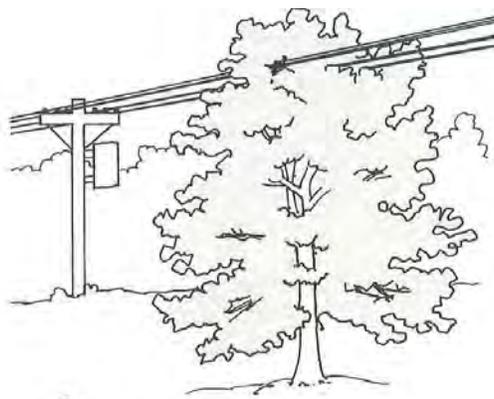
## Avoiding Tree & Utility Conflicts

*Determining where to plant a tree is a decision that should not be taken lightly. Many factors should be considered prior to planting. When planning what type of tree to plant, remember to look up and look down to determine where the tree will be located in relation to overhead and underground utility lines.*

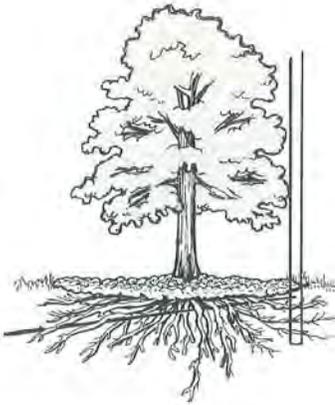
Often, we take our utility services for granted because they have become a part of our daily lives. For us to enjoy the convenience of reliable, uninterrupted service, distribution systems are required to bring utilities into our homes. These services arrive at our homes through overhead or underground lines. Overhead lines can be either electric, telephone, or cable television. Underground lines include these three plus water, sewer, and natural gas. The location of these lines should have a direct impact on your tree and planting site selection. The ultimate, mature height of a tree to be planted must be within the available overhead growing space. Just as importantly, the soil area must be large enough to accommodate the particular rooting habits and ultimate trunk diameter of the tree. Proper tree and site selection will provide trouble-free beauty and pleasure for years to come.

### **Overhead Lines**

Overhead utility lines are the easiest to see and probably the ones we take most for granted. Although these lines look harmless enough, they can be extremely dangerous. Planting tall growing trees under and near these lines will ultimately require your utility to prune them to maintain safe clearance from the wires. This pruning may result in the tree having an unnatural appearance. Periodic pruning can also lead to a shortened life span for the tree. Trees which must be provided away from power lines are under greater stress and more susceptible to insects and disease. Small, immature trees planted today can become problem trees in the future. Tall growing trees contact wires. Children or adults climbing in these trees can be severely injured or even killed if they come in contact with the wires. Proper selection and placement of trees in and around overhead utilities can eliminate potential public safety hazards, reduce expenses for utilities and their rate payers and improve the appearance of landscapes.



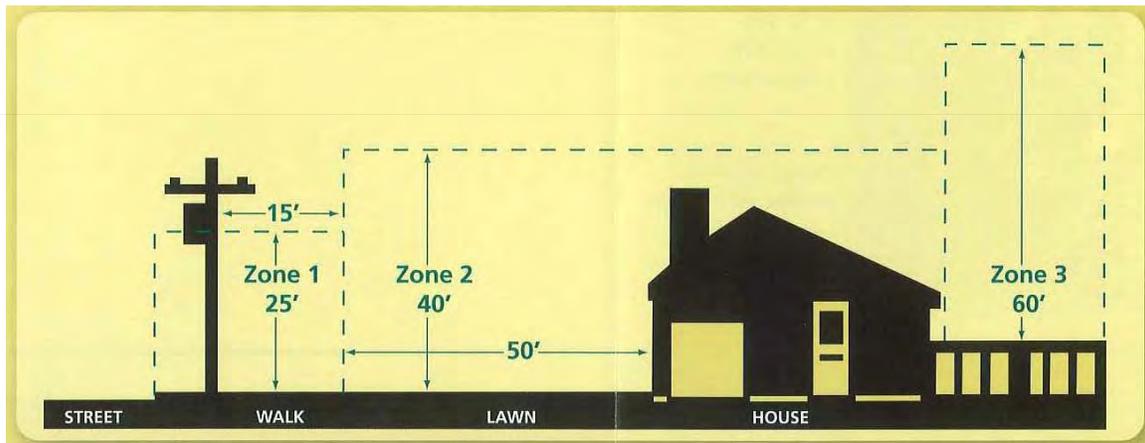
## Underground Lines



Trees are much more than just what you see overhead. Many times the root area is larger than the branch spread above ground. Much of the utility service provided today is buried below ground. Tree roots and underground lines often co-exist without problems. However, trees planted near underground lines could have their roots damaged if the lines need to be dug up for repairs. Consult your tree care professional or garden center staff for assistance in choosing the tree which will have the right type of root system for the location you have chosen. The biggest danger to underground lines occurs during planting. Before you plant, make sure that you are aware of the location of any underground utilities. To be certain that you do not accidentally dig into any lines and risk serious injury or a costly service interruption, call your utility company (Idaho Power Company) or utility protection service first. Never assume that these utility lines are buried deeper than you plan to dig. In some cases utility lines are very close to the surface.

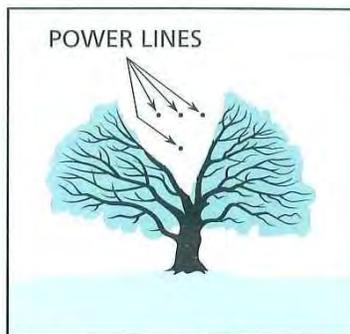
## Proper Places for Trees around Homes

The illustration below indicated approximately where trees should be planted in relation to utility lines. Urban Forestry and Planning & Zoning Staff will gladly help you select the right tree (also see Class One).

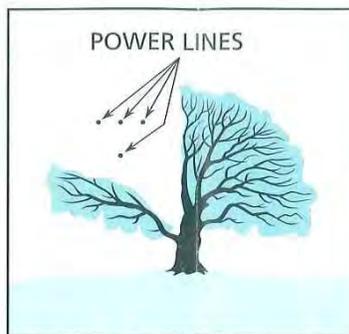


## Directional Pruning under Power Lines

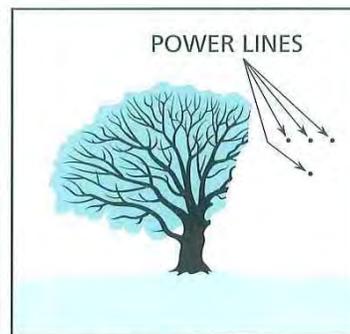
Per Idaho Power Company



Directional Pruning  
Under Lines

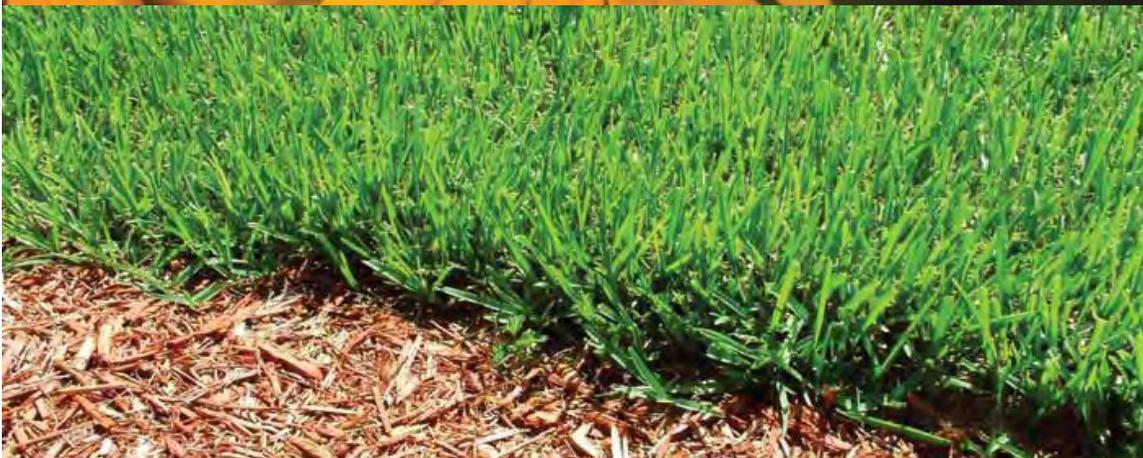


Side Clearing  
Deciduous ("L" Cut)



Side Clearing  
Deciduous

# WATER WISE



## Landscape and Watering Recommendations

# Saving Water is Easy when you think about it...

## Did you know?

- Many plant problems arise not from under-watering, but from over-watering.
- An inefficient sprinkler can deliver as much as 300 gallons an hour onto a lawn.



Watering efficiently is one of the best and easiest ways to save water – and money. Besides conserving water, proper watering will also keep your landscape plants healthy and beautiful throughout the year. A water-wise landscape doesn't mean giving up your lawn or making dramatic changes to your landscape or lifestyle. There are many simple ways to save water, and they all start with you.

Xeriscape, a set of principles for water-wise landscaping, combines the Greek word *xeros*, meaning *dry*, with the word landscape. Water-wise landscape principles described in this booklet are based on the original seven principles of Xeriscape:

1. Planning and Design
2. Soil Improvement
3. Practical Turf Areas
4. Efficient Irrigation
5. Mulch
6. Low Water-Use Plants (Recommended vine, groundcover, perennials & herbs, and native grasses in addition to the previous recommended tree species recommended earlier within the booklet.)
7. Appropriate Maintenance

*Note: Examples are based on residential landscaping of the homeowner's personal property, but can still be applied to subdivision or commercial landscape.*

## Water-wise Principle 1:

# PLANNING & DESIGN

Whether you're developing a new landscape, renovating an existing one, or just looking for ways to conserve water in an urban environment, proper planning and design are essential to creating a site that is water-wise. Most people want to skip right ahead to the planting, but it's better to look at the big picture first. How will you use your landscape? How will your landscape use water? This section will help you answer those questions and make a plan.

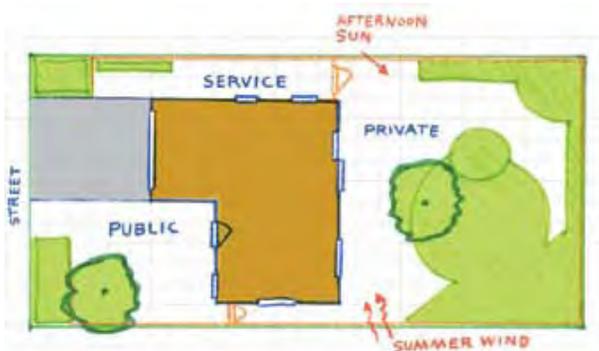
## MAP IT OUT

### 1. Identify Permanent Features

On a piece of graph paper, draw to approximate scale any permanent features of your development (hereafter known as property), including the location of your house, other buildings, large rocks, slopes, and existing trees or vegetation you plan to keep.

### 2. Identify Characteristics

Next, tape tracing paper over your base plan and sketch different qualities and characteristics of your property, including sun exposure, existing shade, direction of summer breezes, slopes, and street noise. You can also identify soil types on your property/development and any drainage problems that need to be corrected or considered. If you'd like to harvest rainwater, identify spots where rainwater falls or flows from your roof to the ground.



After sketching your permanent features, identify the primary use areas.

### 3. Identify Use Areas

Tape on another piece of tracing paper and identify use areas. You'll want to identify three different areas: public, private and service. Public areas are the highly visible areas that typically receive the most care (and the most water). Private areas (usually the backyard) are where the family plays the most. It should be functional in design and receive less water than the public areas. Service areas, such as the sides of the house, garage, or driveways, are least visible and should require the least care and watering.

## SHADE IS VERY COOL

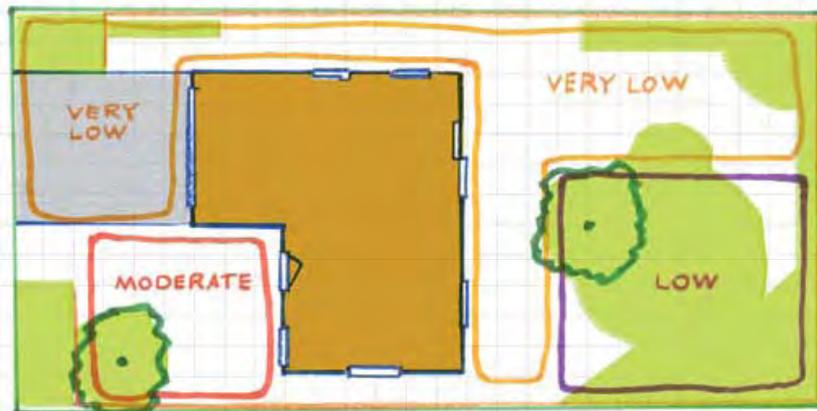
There's definitely a bright side to shade, so make sure you plan plenty of shade for your landscape. Shade cast by the trees or structures can cool the landscape by as much as 20 degrees, reducing heat buildup and water evaporation from the soil. A mature oak can dissipate as much heat as four central air conditioners running 24 hours per day! Shade also reduces heat buildup from hard surfaces, such as driveways, walks, and walls, so plan to shade these areas with trees and large shrubs whenever possible. Trellises, arbors, walls, or fences can provide shade or scatter light.

## ZOOM IN ON YOUR WATERING ZONES

The next step in planning your landscape is to identify the microclimates in your yard. Moisture, sun, shade, wind, and heat – as well as the physical characteristic of your landscape – create different zones that require different amounts of water. Once you have identified these microclimates, you can plant “with nature” by selecting plants that can survive and thrive within these zones without much watering. Tape another sheet of tracing paper over your base plan and sketch your water-use zones.

### Very Low Water-Use Zones

There are two kinds of Very Low Water-Use Zones. There are zones that don't need any watering, such as driveways, decks, patios, rock gardens, or pathways, and there are naturally wet zones – protected areas where exposure, shade, and contour work together in inhibit evaporation. In these areas, irrigation is only necessary to establish new plantings. Since Very Low Water-Use Zones offer the greatest potential for water savings, you'll want to keep any well-established plants in these areas. Shaded areas not only reduce water demand, they lower indoor temperatures and reduce summer cooling costs.



Sketching your water-use zones will help you select the right plants for each area.



Low water-use plants, mulch, and drip irrigation combine to create an effective low water-use zone.

### Low Water-Use Zones

Low Water-Use Zones are somewhat exposed areas that need some watering, but take advantage of runoff from downspouts, patios, and driveways for most of their water. Using low-volume irrigation systems and effective mulching over the soil and plant roots can often turn a Moderate Water-Use Zone into a Low Water-Use Zone.

### Moderate Water-Use Zones

Moderate Water-Use Zones are sunlit areas with grass or plants that require more water. In your landscape plan, keep these zones small and limited to only highly visible or functional area, such as front entrances or recreational lawns.

## PLANT SELECTION



### Should You Hire A Landscape Designer?

An experienced professional can help you a great deal to plan and implement a water-wise landscape. You may want to hire one simply to help establish a master plan that you can execute yourself.

### Finalize Your Plan

Before you begin your landscaping, check with your local cooperative extension or nursery for plant selection. You'll want to know the answers to the following questions before buying:

1. Which of the shrubs or groundcovers you have chosen are shade-tolerant? Which require sun? Which is low water-use?
2. Compare colors and bloom cycles of the plants you have selected. Which bloom when? What colors are they?
3. Which plants have you selected to provide variety as well as visual harmony within their water-use zones?
4. Which kind of mulches will you need for the plants you have selected?
5. How much care will these new plants require?
6. Can you use shrubs, trees, or groundcovers that need little or no regular watering as an alternative to conventional cool-season grasses such as fescue?
7. Do you have the option to use zoysia, centipede, or Bermuda grass instead of fescue?

In the final step of your plan, sketch in your tree, shrubs, groundcover, and turf areas.

### Right Plant, Right Place

Once you've planned out your landscape, you can start picking the best plants for each of your zones. Tape another sheet of tracing paper over your base plan and add your plants, considering site characteristics, use areas, water-use zones, and shade needs.

Many of the native plants that thrive in Kuna are already water-wise. They've adapted to hot, dry weather. There are dozens of species of beautiful and hearty plants to choose from. Just plant them in the right spot and give them room to get established. Refer to the trees recommended previously with this booklet when making selections. Additional recommended plant species pertaining to vines, groundcover, perennials & herbs, and native grasses will also be listed under principle number 6 of this booklet.

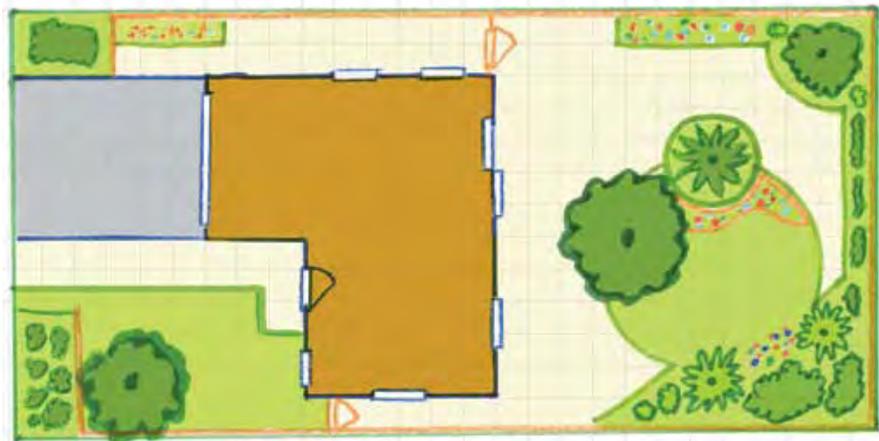
### Put Like with Like

To reduce watering maintenance, group plants with greater water needs together, and place them in a spot that is naturally moist, such as a low-lying area or at the bottom of a hill.

Low water-use plants should be used in dry spots, windy or exposed areas, and against sunny south or west walls of buildings. Keeping plants with similar needs together allows you to provide just enough water to keep them healthy. Whether you're irrigating by hand or using an automatic timer, grouping like with like can simplify your watering sequence.

### Little Plants Are Big Winners

Most people like the idea of super-sizing their shrubs from the nursery. However, if you go smaller, you'll save big – not only on nursery costs, but also on water bills. A less expensive one-gallon plant can quickly catch up to five-gallon plant.



## Water-Wise Principle 2:

# SOIL IMPROVEMENT



## **PAY DIRT: IMPROVING YOUR SOIL ENCOURAGES WATER-WISE PLANTS**

Carefully prepared plant beds can reduce water usage by almost half. That's because soil plays a huge part in a water-wise landscape. Good soil absorbs and holds moisture better and encourages plants to grow soil now can help your plants become healthier and better suited to handle low-water conditions later.

### **What is Good Soil?**

Good soil has organic materials that; (1) holds water well, (2) provides nutrients, (3) is aerated to allow water to penetrate several inches to reach deep roots, and (4) has large particles that allow water flow and absorption. Dense soils such as clay are slow to absorb water, so they're prone to runoff.

### **Get Your Soil Tested**

Healthy plants start with healthy soil. So, before planting or installing an irrigation system, making sure to test your soil. Your local cooperative extension can test your soil and tell you how to improve it. When collecting samples, keep the following in mind:

1. Remove a small amount of soil from a depth of about four inches (4") at ten (10) scattered spots around the yard. Do the back and front yards separately.
2. In a clean plastic bucket (don't use galvanized steel), mix the soil gathered from the ten (10) spots together into a single soil sample.
3. Pack your soil into the soil sample box provided by the agency.
4. Repeat these steps for the backyard and mail out both samples for testing.

Typically, within a few weeks, the agency will reply with a letter explaining what your soil is missing and how to enhance it. Once you know what your soil is needs, follow the steps on the explained next to add the recommended improvements.



### **Think Natural**

Avoid chemical fertilizers with nitrogen and phosphorus that can wash into creeks, rivers, and lakes, causing plumes of harmful algae. If you must use chemical fertilizers, use them sparingly and never during or just before rainstorms. Avoid fertilizing sloped areas where the chemicals will be washed away by rain. Whenever possible, use natural organic material, such as compost, with natural levels of nutrients, and work it into the soil by tilling or "topping off" the soil.

### **How to Improve Your Soil**

1. Begin with deep spading, plowing, or rototilling – to a depth of about six inches – to break up compacted soil and allow root systems to grow deeper into the earth.
2. While tilling, add organic matter such as compost or shredded leaves to improve penetration, distribution, and retention of moisture.
3. Add soil amendments as recommended by a soil test.

### Water-Wise Principle 3:

# PRACTICAL TURF AREAS



## CUT BACK YOUR GRASS

Lawns that stretch from property line to property line just don't make much sense these days. Besides requiring a lot of fertilizers, herbicides, and fungicides – chemicals that often end up in our streams, lakes and bays – large lawns with conventional spray irrigation waste one of our most precious resources: drinking water.

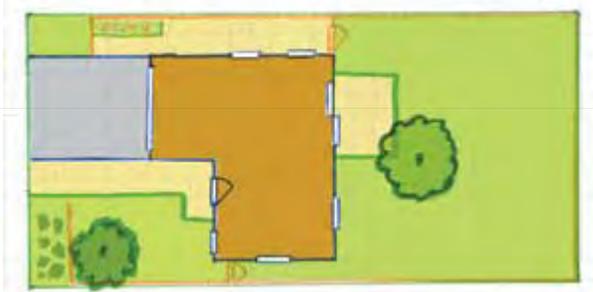
However, you don't have to give up your lawn. Instead of thinking of grass as the focal point of your yard, think of it as having a function: play area, for example, or visual frame for larger natural setting. With good soil, the right grass selection, and the right maintenance, you can still have a naturally resilient. It protects itself by going dormant in very dry conditions and bringing back when normal rainfalls returns.



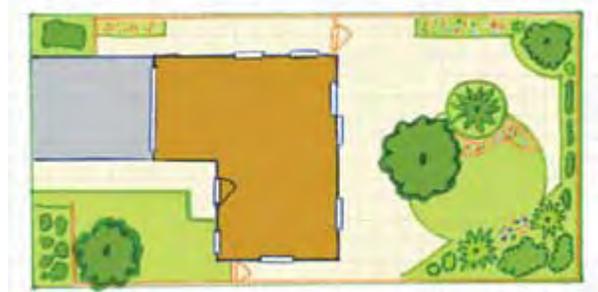
### Reclaim Your Landscape, One Patch at a Time

Start by giving up turf areas that don't get much use, such as those near foundations, along medians, or on steep slopes. Replace these turf areas with groundcover, flower gardens, ornamental shrubs, and shade trees that are water-wise and drought-resistant. Be careful adding impervious surfaces, such as paved walkways and patios. They increase runoff and may cause drainage problems. In the end, your water-wise yard will look far more interesting than it ever did with plain old turf.

### BEFORE



### AFTER





## SELECT A LOW WATER-USE TURF GRASS

Where you do have grass, consider a water-conserving, warm-season turf grass species, such as centipede, *zoysia*, or Bermuda. Of the tree, Bermuda cultivars are by far the best at conserving water and are most drought-resistant. Keep in mind that Bermuda grass will turn brown in the winter, so including shrubs, evergreen trees, and cool-season flowering plants will help enhance the appearance of your landscape year-round.

By choosing a low water-use grass suited to your region, enhancing the soil, and mowing high, you can grow healthy grass with a strong root system that will:

- Survive dry and drought conditions when they occur.
- Resist disease, insects, and weeds on its own. Reduce or eliminate the need for chemical applications.
- Use less water and be easier to maintain.

## Water-Wise Principle 4:

# EFFICIENT IRRIGATION

## GOING WITH THE FLOW: WATERING & CONSERVING

Just by following a few simple guidelines, water-wise gardeners can create hearty landscapes that can withstand hot, dry conditions.



## PROS & CONS OF DIFFERENT IRRIGATION SYSTEMS



### Sprinkler Systems

Sprinklers can cover large areas. Manual sprinklers require you to open the valve, time the watering yourself, and then shut off the flow. Automatic sprinkler systems offer the benefit of programmable controllers.

If you choose an automatic sprinkler system, make sure you set it correctly and adjust it as conditions change. Water early in the morning to reduce the evaporation rate. If water runs off your yard, split your watering times into two or more sessions. And be sure to turn off your system if you're getting enough water from rain showers.

### Watch the Weather

A good way to prevent over-watering is to install rain or soil moisture sensors to override your automatic watering system when necessary.

A rain sensor simply senses rainfall. Once a designated amount of water has been detected, it shuts down any regularly scheduled irrigation. Rain sensors are small, simple devices and are generally less expensive and easier to install and maintain than soil moisture sensors.

Soil moisture sensors are more accurate than rain sensors because they can detect moisture at the level of the root system. They are more exact in measuring how much water your plants are receiving and thus offer greater water savings. However, they are somewhat complicated to install and manage.





### Drip Irrigation

This system is good for a small yard or for watering individual plants. Drip irrigation is highly effective at supplying one to four (4) gallons of water per hour. The advantage of drip irrigation over sprinklers is that there is little water loss due to evaporation or runoff. It's particularly good for mulched areas because it can directly soak the soil without washing away the mulch.



### Hand Watering

The simplest and most common irrigation system is a garden hose or a portable sprinkler. The advantage of hand watering is that you can easily avoid over-watering. Use a nozzle to control the flow. When water stops being absorbed into the ground, move to another location. Wait an hour, then plunge a long screwdriver or spade into the ground to check that the soil is moist to a depth of six to ten inches (6"-10").



#### Nozzle That Hose!

Using a hose without a nozzle is an inefficient way to water. It delivers water much more quickly than the landscape can absorb it, causing runoff that wastes water and carries away precious topsoil. It's better to use a watering can for hand watering. Water each plant once then repeat 15 minutes later after the water has soaked into the soil. If you must use a hose, make sure to attach a hose nozzle so water comes out in a spray and can easily be turned off when not in use.

## WATERING BY THE NUMBERS

There are three steps to practical landscape watering:

1. Know how much water your plants need.
2. Know how much water each part of your watering systems applies.
3. Match your watering system output to your plants' needs.

Follow these three steps to figure out the best watering plan for your two main plant types.



# EFFICIENT IRRIGATION

## WATER-WISE LAWN WATERING

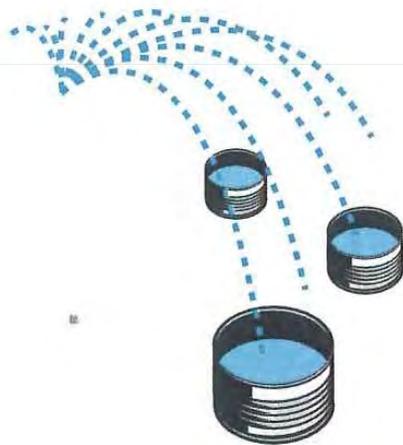
### 1. How Much Water Does Your Lawn Need?

For lawns, water deeply but infrequently to encourage deep roots. The key to watering your grass is to apply enough water to soak down to the depth of the roots. The amount varies with soil type, but a good guide is to apply no more than one inch (1") of water every time, which is enough to soak the soil to between six to ten inches (6"-10").

### 2. Measure Your Sprinkler Output

Without knowing it, you could easily drop up to 300 gallons of water in one hour and end up over-watering your lawn. Here's how to test your sprinkler output so you can adjust your watering time:

1. Place six to eight shallow, flat-bottomed cans at scattered locations around your lawn. Tuna or cat food cans work well.



2. Run your sprinklers for 15 minutes

3. Use a ruler to measure the depth of water in each can. Add all the numbers then divide by the number of cans to find the average output.



4. This average number is your sprinkler number. It is the average amount of water your sprinklers apply in 15 minutes.

### 3. How Long and How Often Should You Water?

After you've calculated your sprinkler number in the previous step, you can calculate how long to run your sprinklers. Simply locate your sprinkler number in the chart below, then find the corresponding watering time.

**Sprinkler Run Time to Apply 1 inch**

Sprinkler Number	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Watering Time in Minutes	75	50	37	30	25	22	19	16	15

Now put your numbers to work. Set your sprinkler timer and water your lawn for the correct number of minutes. Wait one hour, and then push a spade or long screwdriver into the ground to see if you've soaked the soil to the appropriate depth. It will slide easily through the wet soil but will be difficult or impossible to such through the dry soil.

By the way, if you run your sprinklers for the correct number of minutes but water pools or run off your lawn, then you need to split your watering time into two or more sessions. Wait an hour between sessions for the water to soak in.

Now, how often should you water? Water only when your turf is stressed from the lack of water. How can you tell? Step on it. If you leave distinct footprints or the grass doesn't spring back, it's time to water, then no more than once a week is typically enough to keep your lawn green throughout the summer.



# WATER-WISE LANDSCAPE WATERING

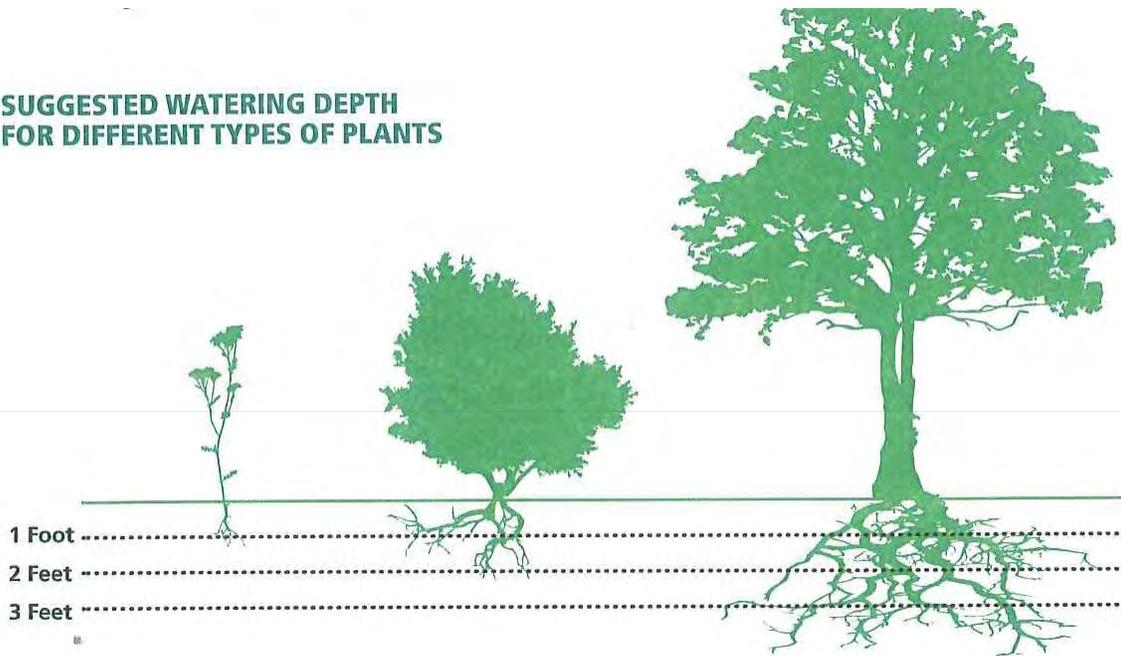
## 1. How Much Water Do Your Plants Need?

Just like grass, the most effective way to water your landscape plants is to water deeply but infrequently. Larger plants, like trees, need more water because they have deeper roots and larger root zones and can store more water. This also means they can be watered less frequently, but we'll get to that in a moment.

The **1-2-3 Rule** is an easy way to remember how deeply to water:

- 1 Foot** is the correct depth for small plants, such as groundcovers and annuals.
- 2 Foot** is the correct depth for shrubs.
- 3 Foot** is good for large shrubs and trees.

### SUGGESTED WATERING DEPTH FOR DIFFERENT TYPES OF PLANTS



The following chart shows how much water is required to wet the root zone of different plants.

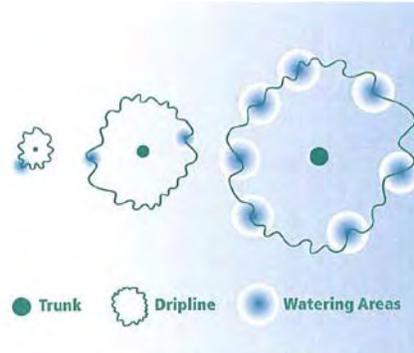
### GALLONS OF WATER REQUIRED

	Plant Canopy Diameter in Feet												
	1	2	3	4	5	6	8	10	12	14	16	18	20
Tree	1.5	5	11	16	22	26	38	59	85	115	150	190	235
Shrub	1	4	8	12	17	20							
Small Plant/ Groundcover	0.5	2	3.5	5	7	9							



#### Aim for the Dripline

When watering trees and shrubs, don't water at the trunk or on the leaves. Neither carries water to the tree. Instead, water under the edge of the leaf canopy, which is called the dripline. That's where the roots are. If you use drip emitters, place several of them along the dripline. If you water by hand, contour your landscape so water collects under the dripline of your trees and large shrubs.



## 2. How Much Water Does Your System Apply?

Here are some typical output numbers for common plant watering systems. Notice the huge difference between the drip emitter, bubbler, and watering hose outputs.

Drip Emitter	$\frac{1}{2}$ - 4 gallons per <i>hour</i>
Bubbler	$\frac{1}{2}$ - 2 gallons per <i>minute</i>
Hose	2 - 5 gallons per <i>minute</i>

## 3. How Long and How Often Should I Water?

Refer to the chart to the left and write down the watering needs of all or your plants. If you use drip emitters, adjust the number and size of emitters on each plant so that your plants get the water they need in two to six (2-6) hours. For example, the chart shows that a ten foot (10') tree needs fifty-nine (59) gallons of water. A good setup for this tree would be six (6) four (4) gallons per hour emitters, running for two and one-half (2  $\frac{1}{2}$ ) hours (6 x 4 x 2.5 = 60 gallons).

Water only as frequently as your plants need it. Most plants only need water when they start to wilt. However, some plants look wilted during the day, but actually have plenty of water at their roots and will recover in the evening. If your plants are still wilting at night they need water.

## OTHER GREAT WATERING IDEAS

- Morning is the best time to water, because watering in the evening can invite fungus to grow on your plants at night.
- Put a rain gauge in your yard. If you get  $\frac{3}{4}$  to 1 inch of rain in week, you can skip your next lawn watering.
- If you have an automatic sprinkler system, attach a rain sensor or moisture sensor shutoff device.
- Use a rain barrel to collect rainfall and runoff from downspouts. Use the rainwater to water container plants and gardens. Make sure your rain barrel has a good, well-fitted screen so it will not harbor mosquito larvae.



A rain barrel is a great way to harvest rainfall and runoff.

## Water-Wise Principle 5:

# MULCH

## MUCH ADO ABOUT MULCHING

Think of mulch as sun block for plant roots. Just two to four inches (2"-4") of mulch can substantially retain soil moisture, slow evaporation, and protect roots from overheating, which is especially helpful to ornamentals and vegetables. Hate weeding? Start mulching. Mulch can reduce or eliminate weeds that compete with landscape plants for moisture, nutrients, and sunlight.

Mulch can be organic or inorganic material. Organic mulches, such as Pine Straw, Pine Bark, and shredded Hardwood, are the best choices because they retain moisture and add nutrients to the soil they decompose.



### How Much Mulch

1. Before mulching a plant bed, remove all weeds. Do it early in the year before weeds get established. This will save you weeding time later.
2. Work a thin layer of mulch into the soil and then add two to four inches on top. Spread it out, and avoid making big mounds of mulch.
3. Mulch the entire root zone of the plant out to the dripline (leaf canopy).
4. When mulching around shrubs and small trees, make an earth basin and keep the mulch pulled back a few inches to prevent rotting the trunks. Shallow plants, such as azaleas, rhododendrons, and dogwoods, need the most mulching.



Wise Principle 6:

# LOW WATER-USE PLANTS



## VINES

*Euonymus Fortunei 'Colotatus' – Winter Creeper*



## GROUNDCOVER

*Ajugs Reptans – Bungle Weed*



*Ophiopogon Japonicum – Mondo Grass*



*Phlox Stolonifera – Creeping Phlox*



*Chrysogonum Virginianum – Green and Gold*



*Tiarella Cordifolia – Foam Flower*



*Plumbago Ceratostigma – Leadwort*



*Liriope Muscari; L. spicata – Lilyturf*



*Onoclea Sensibilis – Sensitive Fern*



*Hypericum – St. John's Wart (several species)*



*Phlox Divaricata – Woodland Phlox*



**PERENNIALS & HERBS**

*Aster Novae-Angliae; A. novae-belgii – Aster*



*Hemerocallis – Daylily (several species)*



*Rudbeckia Fulgida – Blanket Flower*



*Liatris Spicata – Gayfeather*



*Gaillardia x Grandiflora – Butterfly Bush*



*Solidago Rugosa - Goldenrod*



*Asclepias Turberosa – Butterfly Weed*



*Eupatorium Fistulosum – Joe-Pye Weed*



*Rudbeckia Fulgida – Black-Eyed Susan*



*Stachys Byzantina – Lambs Ear*



*Cotoneaster – Cotoneaster (several species)*



*Stachys Byzantian – Lantana*



*Lavandula - Lavender*



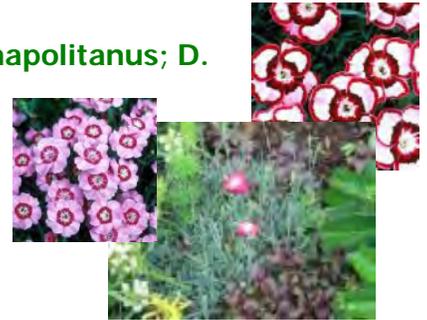
*Petroselinum Crispum – Parsley*



*Santolina Chamaecyparissus – Lavender Cotton (several species)*



*Dianthus Gratianopolitanus; D. deltoids – Pinks*



*Mentha – Mint*



*Echinacea Angustifolia – Purple Coneflower*



*Eupatorium Colestinum – Mist Flower*



*Daucus Carota – Queen Anne’s Lace*



*Vernonia Noveboracensis – New York Ironweed*



*Rosemarinus Offcinalis – Rosemary*



*Origanem – Oregano (several species)*



*Salvia – Sage (several species)*



*Sedum – Stonecrop (several species)*



*Geranium Maculatum – Wild Geranium*



*Asclepias Incarnata – Swamp Milkweed*



*Achillea Millefolium – Yarrow*



*Thymus – Thyme (several species)*



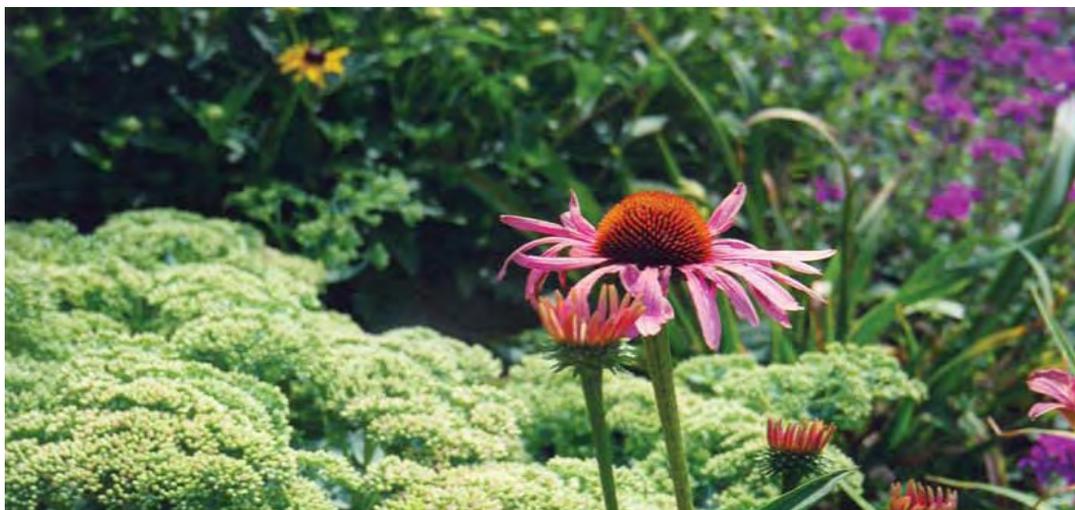
*Aquilegia Canadensis – Wild Columbine*



*Coreopsis – Tickseed (several species) Heart*



*Dicentra Eximia – Wild Bleeding Heart*



**NATIVE AND ORNAMENTAL GRASSES**



**Andropogon gerardii – *Big Bluestem Little***



**Schizachyrium scoparium – *Bluestem***



**Festuca glauca – *Blue Fescue***



**Pennisetum alopecuroides – *Fountain Grass***



**Sorghastrum nutans – *Indian Grass***



**Miscanthus sisensis – *Maiden Grass***



**Panicum virgatum – *Switch Grass***



**Cortaderia Selloana - *Pampas***



**Calamagrostis – *Karl Forester Reed Grass***



**Pennisetum alopecuroides – *Little Bunny***



## Water-wise Principle 7:

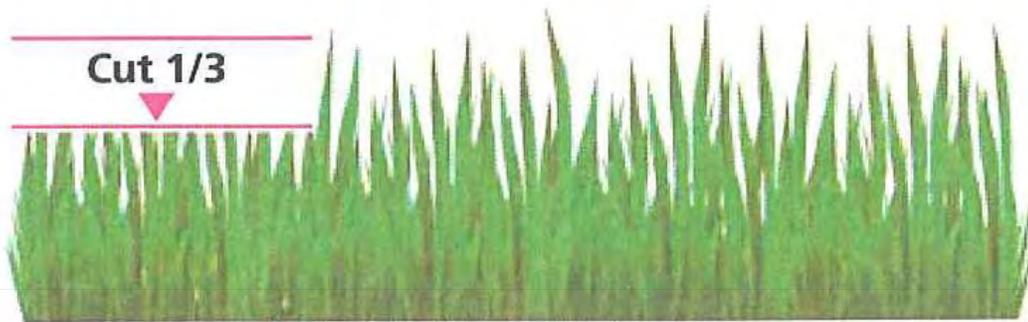
# APPROPRIATE MAINTENANCE

## KEEP YOUR LANDSCAPE GROWING STRONG

Now that you have an efficient, water-wise landscape, you can keep it growing strong by following a few simple guidelines each week.

### Mow

During the summer, never cut more than one-third of the height of your grass. Not sure? Set your mower to its highest setting. Taller grass cools the soil, encourages deep roots, and reduces stress. If you mow your grass too short, root growth slows down, making the grass more susceptible to heat and drought. Also, leave grass clippings on the lawn to return nutrients to the earth and encourage growth.



### Weed Control

Weeds are thieves. They steal nutrients and water from your grass and other plants. Keep under control by weeding early in the year and consistently throughout the growing season.

### Test Your Soil

Healthy soil has the proper balance of plant nutrients and pH. Contact your cooperative extension or nurseries in your area for soil testing services. It can make a real difference in the health of your soil.

### Fertilize

Adding a light top dressing of compost or organic fertilizer does wonders. It reduces thatch buildup on the leaves, improves soil texture, and increases root mass and surface area. "Top dress" your lawn and plant areas early in the year when conditions are wet. Also see *How to Improve Your Soil* above.

### Prune

Avoid heavy pruning. Pruning stimulates growth, so plants require more water. Make sure you prune your trees and shrubs in the dormant (winter) season before the weather gets hot and dry.





## References:

[www.About.com/Landscaping](http://www.About.com/Landscaping)

[www.Botany.com](http://www.Botany.com)

*Idaho Power Company*

*International Society of Arboriculture (ISA)*

*City of Kuna Urban Forestry Tree Recommendation*

*Forest Service Department of Agriculture*

*Monrovia Growers*

*Tree Selection Guide Boise Urban Forestry*

[www.plants.usda.gov](http://www.plants.usda.gov)

*The National Arbor Day Foundation*

*Waterwise: Landscape & Watering Guide*

*Wikipedia Encyclopedia*

*What Tree Is It?*

[www.yahoo.com/images/pictures](http://www.yahoo.com/images/pictures)

[www.backyardgardner.com](http://www.backyardgardner.com)

[www.davesgarden.com](http://www.davesgarden.com)

[www.ufl.edu](http://www.ufl.edu)

[www.naturehillsnursery.com](http://www.naturehillsnursery.com)

*Enjoy*



*Your City*



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