

## Johnson Ranch East

### Urban Forest Master Plan

#### Summary

There almost 1400 trees in the urban forest within the Johnson Ranch East landscape corridors. In order to become more knowledgeable about their forest and it's maintenance needs the Board commissioned a tree inventory and study of all the trees JR East has responsibility for. Because of the age of our Forest, the Board felt this was the appropriate time to begin to address current issues, as well as include any possible future needed expenditures into our annual Budget Forecast.

To date, the following covers the current scope of the findings available to the JRE Master Association Board.:

Infrastructure conflict, general maintenance, disease management, stocking density and appropriate watering are all important issues.

The study found the most pressing issue facing the urban forest is infrastructure conflict. Conflicts arise when trees have insufficient room to grow to their mature size. As trees and their roots grow they disrupt adjacent fences and sidewalks causing cracking and lifting which require repeated maintenance events over time. To manage infrastructure conflict, JR East has committed to XXXXXXXX. Nearly 2/3 of the trees at JR East (64%) are too close to adjacent infrastructure, increasing the likelihood of conflict. The most likely conflicts are fence lifting/cracking and sidewalk lifting/cracking due to tree roots, pool conflicts, both with roots and limbs. Some constituents are pruning incorrectly, vandalizing or reporting conflicts to JR East for management.

There are other significant issues within the urban forest at JR East. Overwatering contributing to extensive surface rooting, disease pressure, stocking density and routine maintenance. Watering trees on slopes is more difficult than watering trees on a flat plain. Surface rooting is a result of roots growing near the surface of the soil to find an optimal mix of available water and oxygen. As the tree ages and roots grow by increasing in girth they breach the surface of the soil and become visible. There are several problems with surface roots from a management perspective: they are a trip and fall hazard, they are more likely to damage adjacent infrastructure and almost all management strategies are expensive, take a long time to implement and are largely ineffective. In addition to damaging sidewalks and fences surface roots at JR East are being heavily pruned to provide access to irrigation boxes. Most trees can tolerate some level of root pruning. Consistent root pruning, or extensive root pruning, increase the chances of tree disease and can destabilize trees over time.

Tree disease is a significant issue at JR East. The two most common diseases observed are anthracnose (impacting sycamores, crape myrtles, oaks and liquidambar) and cytospora (impacting redwood trees).

Both are common in the area. Overwatering and poor tree spacing are both primary factors contributing to the extent of expressed disease in the forest. A long term strategy of disease management and selective removal of trees to promote the health of the remaining trees are key in helping reduce disease pressure in the forest.

Stocking density refers to the number of trees planted divided by the number of available planting spaces. JR East currently has a 90% stocking density. By contrast other high end residential settings with managed forests consider a stocking density of 70-80% to be “well treed” or “high density.” When stocking density is this high it is generally more expensive to maintain the forest and individual trees are more likely to underperform. JR East has been advised to reduce their total forest density. The Board would like to achieve(over time) a stocking density between 80-85% This can be accomplished by removing trees most likely to conflict with infrastructure, replanting fewer trees of smaller stature farther apart.

Routine maintenance of trees at JR East is another pressing issue. Maintenance of the forest has been consistently below currently accepted arboricultural practices with an emphasis on pruning for clearance only, with an occasional need for some tree removal.. JR East has adopted specifications for a maintenance program more in line with current arboricultural standards in order to preserve the health and safety of the urban forest asset.

## History

Johnson Ranch was developed on the former Johnson Sheep Ranch

“William Johnson, born in the former Mormon Island mining camp now deep under the waters of Folsom Lake, purchased his first piece of Roseville area property in 1905 on which he raised sheep, and by 1918, Johnson Ranch had grown to 2,000 acres. Additional land was purchased in 1927 and the final parcel, the former Brown Ranch, was purchased in 1941. Each year in late October and early November until 1961, Johnson would drive the sheep along Rocky Ridge Road (now Douglas Boulevard) through town and on to the Natomas Basin in Sacramento County for grazing. Johnson continued to raise sheep on his vast ranch until his death when son Clifton assumed full control of the family operation. The family still holds an agreement granted by the City of Roseville to run livestock through the city although they no longer raise sheep. Today, modern office buildings occupy pastures where Johnson’s sheep once grazed. Their last 40 acres was sold in the mid 1980’s and today, Johnson Ranch housing developments occupy land once owned by this early day ranching family.”

Excerpted from: [http://www.roseville.ca.us/visit\\_roseville\\_history\\_of\\_roseville/1980s.asp](http://www.roseville.ca.us/visit_roseville_history_of_roseville/1980s.asp)

## Urban Forest Values and Priorities

Board members for JR East and community stake holders were surveyed to find out what priority they placed on 10 urban forest values. From most to least important the priorities of JR East are:

- Property Value
- Good Neighbor Actions
- Environmental Benefits
- Routine Maintenance
- Infrastructure Management
- Safety
- Ordinance Compliance
- Bio-diversity
- Native tree representation

Property Value is by far the highest ranking value, and typical of the priorities of many Home Owner's Associations. Communities that strongly value property value, infrastructure management, good neighbor actions, routine maintenance and infrastructure management typically prefer highly manicured forests with predictable maintenance costs.

According to the Arborist's review of the questionnaire, the values the values suggest that it is unusual to see environmental benefits valued highly for an HOA and may reflect the Sub- Associations within JR East that favor living in oak woodland areas. Also, it appears unusual for safety to come in 6<sup>th</sup> out of 10 values, this ranking may reflect the routine age and size of the forest. As trees mature and grow larger it would be typical for safety to be first or second on the list. Although native trees are identified as least important on the list they are currently providing the lion's share of the environmental benefits and property value. It may be that respondents to the survey felt natives were adequately covered in these values.



## Sample Survey

1. **Urban Forest Values:** Please rank the following on a scale of very important to not at all important.

**Bio-Diversity:**

You will be less likely to lose all of the trees in a given area at the same time when tree threats (disease/insect pests/extreme weather) emerge if there is a mix of species and age of trees. **How important is Bio-diversity to you?**

Not Important

Somewhat  
Important

Very Important

1	2	3	4	5
---	---	---	---	---

**Environmental Benefits:**

Trees provide a variety of benefits to the community improving air quality, storing carbon, removing particulates from the air, improving water quality, reducing erosion, and saving energy by shading buildings. **How important is it that trees be maintained to optimize those benefits?**

Not Important

Somewhat  
Important

Very Important

1	2	3	4	5
---	---	---	---	---

**Good Neighbor Actions:**

Pruning trees away from neighboring fences and managing insect disease/pest problems, like mistletoe, are considered good neighbor actions. If you don't take good neighbor actions, individual homeowners will have a more difficult time managing their own trees. **How important are good neighbor actions to you?**

Not Important

Somewhat  
Important

Very Important

1	2	3	4	5
---	---	---	---	---

**Infrastructure Management:**

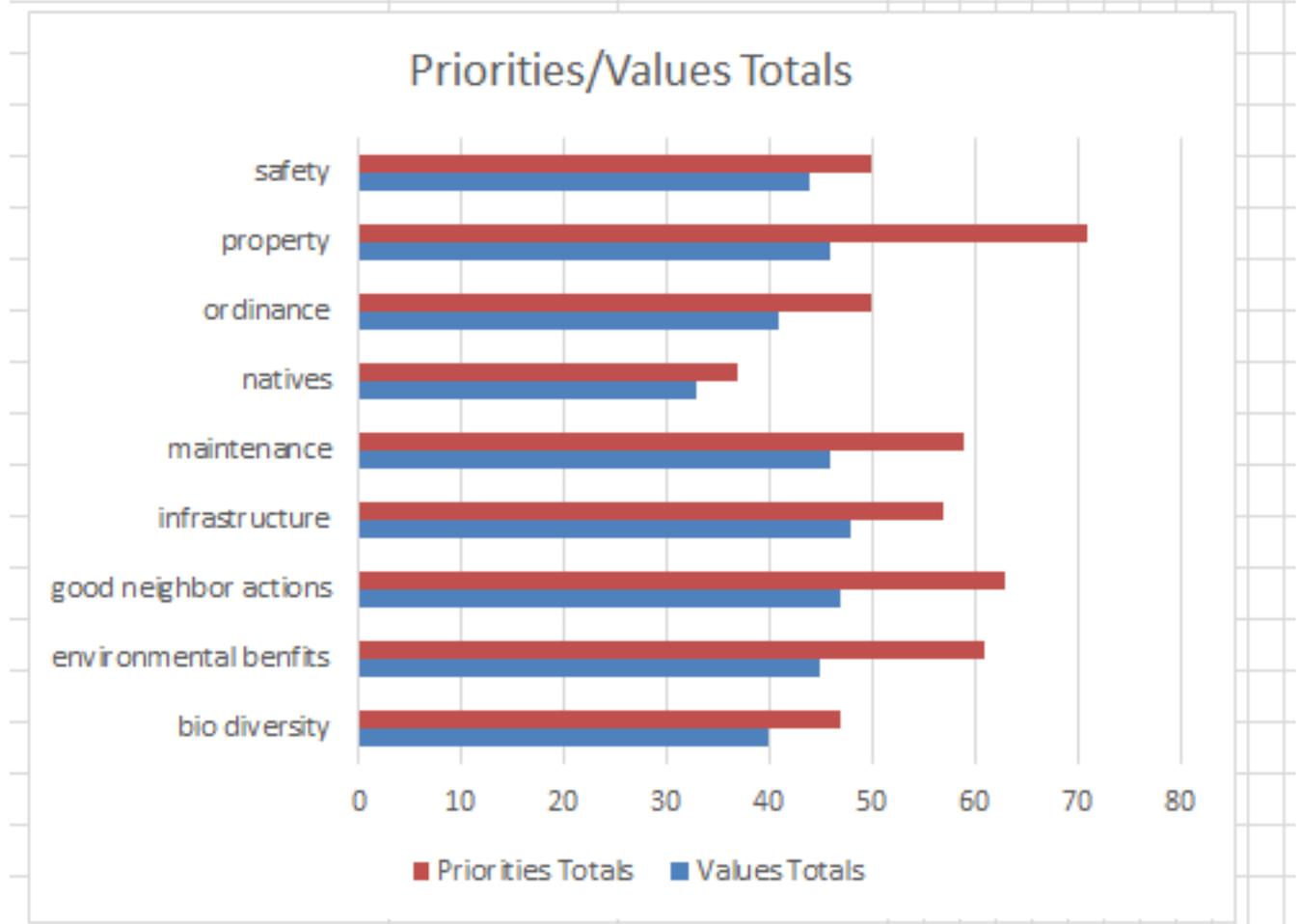
Maintenance performed to care for things and people near trees. Trees grown close to sidewalks can lift/crack pavement resulting in unsafe conditions. Likewise some tree species can have surface roots or spiky seed pods that can be hazardous. **How important is infrastructure management to you?**





## Survey Results

Value Categories	Values Totals	Priorities Totals																	
bio diversity	40	47	6	9	5	4	1	3	1	8	6	1	3						
environmental benefits	45	61	8	7	6	8	5	6	2	2	3	9	5						
good neighbor actions	47	63	7	3	1	9	4	7	8	5	5	8	6						
infrastructure	48	57	2	6	4	6	3	8	3	9	7	5	4						
maintenance	46	59	5	5	9	5	6	1	4	6	4	6	8						
natives	33	37	3	8	3	1	2	2	6	1	8	2	1						
ordinance	41	50	4	1	7	7	7	4	7	7	1	3	2						
property	46	71	9	2	2	3	9	9	9	3	9	7	9						
safety	44	50	1	4	8	2	8	5	5	4	2	4	7						



1379 trees at east

The following is a breakdown of tree types present in the Johnson Ranch East Forest, along with a discussion of recommendations for the future. The Board believes that as we are addressing these issues as a whole, they may come up on a case by case basis and will be treated as such. These recommendations are guidelines only, and will be treated as such.

### Coast redwood (*Sequoia sempervirens*)

Coast redwood represents 15% of the forest at JR East. The most common defect among redwoods (impacting 57%) is *Cercospora sp.*, a fungal infection common to redwoods in the region. In general terms the redwoods at JR East are planted too closely together and too close to adjacent infrastructure resulting in fence damage, sidewalk damage and neighbor pruning as trees encroach over the property line. Over 70% of redwoods at JR East are too close to other trees or adjacent infrastructure. Selective removal of trees that are planted too close to other redwoods will help reduce disease pressure on the trees that remain in the forest and improve overall bio-diversity.

### Valley oak (*Quercus lobata*)

Valley oak represents 13% of the forest at JR East. The most common defect among valley oak trees is co-dominant stems, present in 30% of trees. This defect can be corrected in one pruning cycle. The most significant issue impacting valley oak trees is the utility pruning of the valley oaks planted underneath power lines on Sierra College Blvd. Work with the local utility to remove these trees and replace them with tree species that are suitable underneath power lines.

### London Plane (*Platanus x. acerifolia*)

London Plane trees/sycamores represent 9% of the forest at JR East. The most common defect among sycamores is Anthracnose spp.(21%) and powdery mildew (19%), both common fungal infections in the region. When trees are infected they lose several leaf sets throughout the year. This can result in increased labor costs with leaf pick up in the summer. It negatively impacts the health of the tree and results in trees that are stunted, often with secondary problems like sunscald. There are several treatments available to manage anthracnose. Anthracnose very rarely kills trees. Heavily infected trees are usually removed due to an unacceptable plant appearance. 10% of sycamores have surface roots. 8% of sycamores are too close to adjacent infrastructure.

### Tupelo (*Nyssa sylvatica*)

Tupelo trees represent 8% of the forest at JR East. The most common defect among tupelo trees is mower/trimmer damage (23%). Tupelo are generally planted in turf, and are consistently hit with ride along mowers and string trimmers. Trees with this kind of damage consistently underperform; they remain small and prone to insect pests and diseases. 20% of tupelo trees have had non-standard

pruning performed in the past. The majority of the pruning that has taken place is clearance pruning to allow mowers to pass underneath. Establishing a large mulch ring around trees preventing weed and grass growth will significantly reduce these problems. 17% of tupelo trees have co-dominant stems. This defect can be corrected in one pruning cycle and is unusual for tupelo. 8% of tupelo trees have stem girdling roots. These roots can constrict vascular flow ultimately strangling the trees. They may also result in whole tree failure. It is possible to prune stem girdling roots to rehabilitate trees, however, given the size of the tupelos at JR East and the other defects present it may be more cost effective to remove impacted trees and replace them.

### Purple leaf plum (*Prunus cerasifera*)

Purple leaf plum represent 7% of the forest at JR East. 80% of the purple leaf plum trees are in poor condition. The most common defect among purple leaf plum trees is co-dominant stems (32%).

According to the Western Chapter of the International Society of Arboriculture and the Council of Tree and Landscape Appraisers, purple leaf plum is not considered to be a valuable specimen tree in the region. Given the cost of maintaining and restoring these trees relative to their overall value and contribution it may make more sense to prune the trees for safety as necessary, let them age out of the forest and replace them with a more valuable species.

### Liquidambar (*Liquidambar styraciflua*)

Liquidambar trees represent 7% of the forest at JR East. The most common defect of liquidambar (36%) is co-dominant stems. This defect can be corrected in one pruning cycle. Almost half (48%) of liquidambar trees have infrastructure conflicts and are planted too closely to sidewalks and fences. About one third (31%) of liquidambar trees have surface roots.

### Ornamental pear (*Pyrus calleryana*)

Ornamental pear (also called flowering pear, fruitless pear and callery pear) represents 7% of the forest at JR East. The most common defects in the pear trees are co-dominant stems, present in 48% of trees. 15% have non-standard pruning, primarily for mower clearance. 6% of the trees have mower/trimmer damage. 5% of the trees have current mistletoe infections. Given the age of the trees and the defects present these trees are not working as intended in the JR East landscape. They will continue to be costly to maintain over time.

### Blue oak (*Quercus douglasii*)

Blue oaks represent 3% of the forest at JR East. The most common defect among blue oaks is co-dominant stems, present in 24% of trees. This defect can be corrected in one pruning cycle. The most significant defect in the blue oaks at JR East are above average quantities of dead limbs. 11% of blue oaks at JR East have an above average quantity of dead limbs in the canopy and an additional 9% of blue

oaks at JR East have a significantly above average quantity of dead limbs in the canopy. Trees have dead limbs for a variety of reasons both biotic (living) and abiotic (non-living). The dead limbs at JR East may be from unusual weather patterns (late frost/freeze), disease pressure or even lingering construction stress. The blue oaks at JR East should be pruned to remove dead limbs as part of the routine maintenance cycle. If the trees continue to have limbs die further testing may be required to determine the cause of the dying limbs with interventions to reduce or prevent further limb dieback.

The remaining 28% of the forest includes deodar cedar, interior live oak, Liriodendron, red maple, Chinese pistache, red oak, pine and eastern redbud. The most common defects are co-dominant stems which should be addressed as part of a routine pruning program.

## Natives

JR East has no single specimen large tree. Instead of single trees there are groups of native oak trees along Old Auburn Road and East Roseville Parkway that pre-date construction. These first generation trees have been tucked into the landscape and work within it. Many of these trees qualify as “heritage” trees and are therefore entitled to extra legal protections. Communities generally hold these types of trees in very high esteem and are generally willing to allocate more resources for their preservation.

### East Roseville Parkway Grove

There are 30 oak trees (and 5 Chinese Pistache trees adjacent to the road) in this grove. The grove is predominantly blue oak (27 trees) with three live oak. The original grade was retained during construction to help preserve the trees. The trees are currently in below average condition. The trees are in need of routine maintenance and disease management.

### Old Auburn Road

First generation trees are tucked along the length of Old Auburn Rd. The most significant group straddles the road near the utility easement. In general these trees should be maintained to the same standard as their landscape counterparts.

## JR East Urban Forest Master Plan Work Plan

<b>Task</b>	<b>Value Addressed</b>	<b>Timeframe</b>	<b>Feedback Questions</b>
Institute Pro-Active Maintenance cycle	Safety, good neighbor actions, property value, ordinance compliance	2 three year cycles followed by feedback event with potential for longer cycles in the future	Does the forest enhance property values? Are there fewer branches/trees down after routine storm events? Are there whole tree failures?
Reduce water	Routine maintenance, property value, environmental benefit		Is overall water usage down, reflected in lower water bills?
Reduce infrastructure conflicts	Infrastructure, good neighbor actions, routine maintenance		Are reports of sidewalk lifting handled using the process chart? Are selective removals resulting in fewer conflicts reported?
Reduce overall stocking density to XX%?	Good neighbor actions, routine maintenance, bio-diversity	In the first pruning cycle remove trees as recommended for defects. In the second pruning cycle begin culling trees removing trees with the greatest potential for infrastructure conflict and disease potential.	Are there fewer trees?
Add mulch rings, increase size of weed abated rings around trees	Routine maintenance	Increasing mulch rings will decrease mower/trimmer damage.	Are there fewer instances of mower/trimmer damage? Are trees maturing in the landscape?
Institute a plant health care program including disease monitoring	Routine maintenance, good neighbor actions, property value, environmental benefits	Where trees are identified as showing signs of disease they will be treated and monitored for efficacy of treatment or removed. Where trees are identified as having insect infestations manage without the use of neonicotinoids.	Are fungal infections progressing? Are trees dripping due to insect infestation? Does the forest have an acceptable appearance?
Let less desirable species age out of the forest	Property value, bio-diversity,	Some species are identified as contributing little value to the overall forest. These species will be pruned for	Are there fewer purple leaf plum, camphor

	environmental benefits	safety until such time as they age out of the forest and be replaced, where appropriate, with more valuable species. Species slated for aging out include purple leaf plum, camphor and callery pear.	and callery pear in the forest?
--	------------------------	---	---------------------------------

## JR East Infrastructure Conflict Management

Infrastructure conflicts within the forest at JR East pose a significant risk to several of the expressed values held by the community. Property value, good neighbor actions, routine maintenance and infrastructure management are all important to JR East.

Types of Conflicts:

There are generally 8 recognized conflict classes at JR East including:

- Tree to tree spacing conflicts
- Paved Surfaces (streets, sidewalks and curbs)
- Fences (fences and non-structural walls)
- Building foundations (and structural walls)
- Mounted utilities (electrical boxes, water boxes and traffic signal boxes mounted on concrete pads)
- Utilities below ground (cables, electric lines, water/sewer lines).
  - Irrigation lines are generally closer to the surface and generally easier to repair
- Utilities above ground (overhead power lines)
- Traffic signal, street lamp and street sign conflicts
  - These differ from other utilities above ground because they can generally be managed with clearance pruning within routine maintenance cycles and do not cause the same level of damage or potential hazard if not mitigated.

Removal and/or replacement of any tree, shrub, ground cover will be approved by the JR East Board after all pertinent factors have been considered.

## Infrastructure Conflict Management Strategies

### The beginning: Conflict is Expressed

JR East may become aware of a potential infrastructure conflict in a variety of ways. Reports from homeowners, reports from vendors, unrelated construction projects/repairs or even routine property walks may all reveal potential infrastructure conflicts.

### Decision Point 1: Who should evaluate the conflict?

Generally there is a natural progression for conflict resolution. The association manager may of the initial conflict evaluation and determine if no action, monitoring action or further action is required.

No action: communication with the entity that registered the complaint indicating that the conflict has been evaluated and falls within the standards used for evaluation by the community at that time.

Monitoring action: communication with the entity that registered the complaint indicating that the conflict has been evaluated and the conflict falls within the standards used for evaluation by the community at that time, but may exceed acceptable conflict limits and will be monitored on a specific schedule.

Further action: communication with the entity that registered the complaint indicating the conflict has been evaluated and referred for further action by the community.

### Decision Point 2: Escalated evaluation chain

If the primary responder has determined action may become necessary to mitigate a conflict it should be evaluated by the vendors the contractor will use to mitigate the conflict.

No action: contractor(s) determine the conflict falls within the standard for evaluation

Action required: evaluation of decision criteria to determine appropriate solution.

### Decision Point 3: Repair, remove or a combination?

If the contractor has determined action is necessary to mitigate the conflict it will be necessary to determine how severe the mitigation should be. Some criteria to consider include: the severity of the conflict, the likelihood of recurrence and time frame for same, the species of the tree (is this a valuable species to the community? Is it prone to conflict?) and the condition of the individual specimen.

Once all the criteria have been evaluated the most reasonable mitigation may be to remove the tree or take some other suggested action, based upon individual circumstances



## Tree Siting Guidelines

This document is adapted from a document created by the Technical Advisory Committee of the Sacramento Tree Foundation to reflect the species represented in the JR East landscape corridors. There may be individual trees that do not fit into the guidelines set forth yet continue to perform well for the association. The guidelines are not hard and fast, but are generalizations about how trees perform in our area.

<b>Name</b>	<b>Fence</b>	<b>Sidewalk</b>	<b>Mounted UTB</b>	<b>UTB offset</b>	<b>UTA offset</b>	<b>Bldg. Fndtn.</b>	<b>Tree to tree</b>
Blue oak ( <i>Quercus lobata</i> )	8	8	8	6	30	15	30
Coast live oak ( <i>Quercus agrifolia</i> )	8	8	8	6	30	15	30
Coast Redwood ( <i>Sequoia sempervirens</i> )	5	6	8	6	15	12	15
Crape Myrtle ( <i>Lagerstroemia indica</i> )	3	4	8	3	6	6	12
Deodar Cedar ( <i>Cedrus deodara</i> )	10	12	12	8	30	22	45
Eastern redbud ( <i>Cercis canadensis</i> )	3	4	8	3	6	6	12
Interior live oak ( <i>Quercus wislizenii</i> )	8	8	8	6	30	15	30
Liquidambar ( <i>Liquidambar styraciflua</i> )	6	6	8	6	30	15	18
Liriodendron ( <i>Liriodendron tulipifera</i> )	8	10	10	6	30	20	30
London Plane/Sycamore ( <i>Platanus x. acerifolia</i> )	6	8	8	30	15	15	30
Ornamental Pear ( <i>Pyrus calleryana</i> )	6	6	8	6	20	10	20
Pistache ( <i>Pistacia chinensis</i> )	6	6	8	6	20	15	25

Purple leaf plum ( <i>Prunus cerasifera</i> )	3	6	8	5	6	8	15
Red oak ( <i>Quercus rubra</i> )	8	8	8	6	30	15	30
Red maple ( <i>Acer rubrum</i> )	8	8	8	6	30	15	25
Tupelo ( <i>Nyssa sylvatica</i> )	6	6	8	6	20	15	18
Valley Oak ( <i>Quercus lobata</i> )	8	8	8	6	30	15	30

## Tree species palette

Where Johnson Ranch Community Owner's Association has the interest and space to replant trees here are some suggestions and guidelines for trees that could work well in the community grouped by size:

Name	Desirable characteristics for JRCOA	Height at maturity	Mounted UTB	Building Foundation	Paved Surface	Fence	UTB	UTA	Tree to Tree
River Birch ( <i>Betula nigra</i> )	Can take wet, compacted soils. Exfoliating bark provides year round interest. Fast growing.	60 ft.	8	15	8	6	6	30	30
Dawn Redwood ( <i>Metasequoia glyptostroboides</i> )	Can take wet, compacted soils. Considered to be a tree-of-interest since it is deciduous. Shape and size consistent with redwood. Resistant to most pests and diseases present at JRCOA.	100 ft.	8	15	8	6	6	30	15
Willow Oak ( <i>Quercus phellos</i> )	Can take wet, compacted soils. Unusual leaf shape is not reminiscent of most oaks.	80 ft.	8	15	8	6	6	30	30
Bur Oak ( <i>Quercus macrocarpa</i> )	Can take wet, compacted soils. Very large leaves are distinctive and can have excellent fall color.	80 ft.	8	15	8	6	6	30	30
Hybrid Elm ( <i>Ulmus</i> x. 'Frontier' or 'Accolade')	Can take wet, compacted soils. New varieties are DED resistant. Fast growing.	80 ft.	8	15	8	6	6	30	30
Sawtooth Zelkova ( <i>Zelkova serrata</i> )	Under-represented in forest (resulting in a resistance to pests and diseases). Long lived. Exfoliating bark provides year round interest.	80 ft.	8	15	8	6	6	30	30

Name	Desirable characteristics for JRCOA	Height at maturity	Mounted UTB	Building Foundation	Paved Surface	Fence	UTB	UTA	Tree to Tree
Mushishino Zelkova ( <i>Zelkova serrata</i> 'Musashino')	Tightly columnar form works well in tight areas. Under-represented in forest (resulting in a resistance to pests and diseases). Long lived.	65 ft.	8	15	8	6	6	30	15
Little leaf linden ( <i>Tilia cordata</i> )	Low-pollen bloom Slow growth defers maintenance over a longer period. Resistant to most pests and diseases.	40 ft.	8	15	6	6	6	20	20
Shantung Maple ( <i>Acer truncatum</i> )	Excellent fall color. Under-represented in forest (resulting in a resistance to pests and diseases).	40 ft.	8	10	6	6	6	6	15
Hedge maple ( <i>Acer campestre</i> )	Excellent fall color. Under-represented in forest (resulting in a resistance to pests and diseases).	40 ft.	8	10	6	6	6	6	15
Goldenrain tree ( <i>Koelreuteria paniculata</i> )	Under-represented in forest (resulting in a resistance to pests and diseases). Lantern-like seed pods are desirable in flower arranging. Resistant to most pests and diseases.	40 ft.	8	10	6	6	6	6	18
Chinese flame tree ( <i>Koelreuteria bipinnata</i> )	Excellent fall color. Under-represented in forest (resulting in a resistance to pests and diseases). Lantern-like seed pods are desirable in flower arranging. Resistant to most pests and diseases.	40 ft.	8	10	6	6	6	6	18
Wireless zelkova ( <i>Zelkova serrata</i> 'Schmidtlow')	Small statured tree. Under-represented in forest (resulting in a resistance to pests and diseases).	20 ft.	8	6	6	3	3	3	12

Name	Desirable characteristics for JRCOA	Height at maturity	Mounted UTB	Building Foundation	Paved Surface	Fence	UTB	UTA	Tree to Tree
Washington Hawthorne ( <i>Crataegus phaenopyrum</i> )	Small statured tree. Under-represented in forest (resulting in a resistance to pests and diseases). Has a two inch, true wood thorn. Excellent fall color. White blooms in spring, orange fall color and red berries that persist after leaf drop provide year round interest.	20 ft.	8	6	6	3	3	3	12
Japanese snowbell ( <i>Styrax japonicas</i> )	Small statured tree. Resistant to most pests and diseases. Small white blooms are very showy.	20 ft.	8	6	6	3	3	3	12

**Name:** The botanical and common name for each tree is listed

**Mounted UTB:** Includes pad mounted utilities like electrical boxes

**Building Foundation:** includes buildings and structural/retaining walls

**Paved surface:** includes sidewalks, streets, parking lots and curbs

**Fence:** includes non-load bearing fences

**UTB:** utilities below ground

**UTA:** utilities above ground

**Tree to tree:** this is the recommended distance between trees from trunk to trunk. Where trees will be different sizes at maturity use the mean distance. For example, a willow oak tree should be 30 ft. from other large trees. A Japanese snowbell should be 12 ft. from other small trees. Where you are considering planting a snowbell near a willow oak, the trunks should be 21 ft. apart.

## Pruning

JR East will adopt an initial Five year pruning rotation, consistent with the standard in other residential settings. (See pruning specifications.) Contracting with one qualified or highly qualified arborist/tree service will be beneficial in terms on continuity of care and out-of-cycle pruning requests (clearance pruning, storm clean up, emergency damage, etc.)

### Pruning Specifications

Pruning operations at JR East shall be covered by the ANSI A 300 Part 1 (and the companion Best Management Practices Document) and the ANSI Z 133 safety standards.

Goals of the pruning program at JR East include:

Ongoing safety and sustainability of the forest including:

Reducing risk of failure

Development of a dominant central leader in each tree as appropriate to the age and size of tree.

Cleaning, reducing or restoring trees as appropriate to age, species and size of tree.

Maintaining health:

Removal of dead or diseased tree parts or parasites (including mistletoe.)

Improving Aesthetics

Strategic removal of branches to improve overall tree appearance

Minimum pruning specifications and guidelines:

1. Clearly state which trees are to be pruned, include a map
2. Include the following statement: "All work shall be performed in accordance with the ANSI A 300 Part 1 Pruning Standards and the ANSI Z 133.1 safety standards."
3. Include the above pruning objectives
4. Specify pruning types to meet objectives (structure, end weight, clearance)
5. Specify minimum and maximum branch sizes to be removed
6. Specify the maximum live tissue to be removed

## Sample Pruning Specification

Objectives: 425 trees in JR East landscape corridors shall be pruned to improve structure and reduce the risk of limb failure by:

1. Promoting a dominant central leader by removing or reducing competing limbs.
2. Cleaning the entire crown of each tree by removing all undesirable branches > 1 inch in diameter.
3. Reducing or removing limbs with included bark at the attachment by 20%.
4. Reducing end weight on limbs that extend past the natural line of the crown or are sharply attached to the main stem by 20%

### Procedures:

1. All pruning cuts shall be in accordance with ANSI A 200 Part, 1, Pruning standards and work shall be performed in accordance with the ANSI Z 133.1 safety standards. Pruning shall be in accordance with the ISA's Best Management Practices: Pruning.
2. No trees shall be lion's tailed; although some interior limbs may need to be removed the person performing the work will leave interior and mid-canopy branches intact except as such branches conflict with overall pruning objectives. Limbs < 1 inch will be left in the interior and mid-canopy (acknowledging some branches may need to be removed to allow the arborist to enter and work in the tree).
3. Dead, diseased or broken branches > 1 inch shall be removed from the canopy of all trees.
4. No more than 25% of live foliage shall be removed from any one tree without the prior approval of the owner's agent.
5. All waste must be removed from site daily. Site shall be left in broom clean condition at the end of each day.

### Qualifications:

All work shall be performed under the on-site supervision of an ISA Certified Arborist. A ratio of 1 Certified Arborist: 9 uncertified personnel shall be maintained. Where there are Certified Tree Workers performing work they shall be supervised by an on-site Certified Arborist at a ratio of 1 Certified Arborist: 20 Certified Tree Workers.