



**LEBANON TREE ADVISORY BOARD
JUNE 3, 2024 - 5:30 PM
MEETING ROOM 2, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE**

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- 1. Call to Order**
 - 2. Approval of Minutes**
 - A. May 6, 2024
 - 3. Old Business**
 - A. Grant Update
 - B. School St. Cemetery Planting Update
 - C. Remaining trees to plant
 - D. Watering
 - E. Volunteers
 - F. Contact with HACTC?
 - G. Hypertherm Sustainability Intern?
 - H. Fall Plantings (Location, Easements, Site Prep, Tree Orders)
 - I. Planning Submissions
 - J. Tree Master Plan
 - 4. New Business**
 - A. Table at Farmers Market
 - B. Tree Nursery
 - C. Tree Policy
 - D. Other New Business
 - 5. Future Agenda Items**
 - A. The next meeting is July 1, 2024, from 5:30pm -7pm.
 - 6. Adjournment**

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to LebanonNH.gov/Live where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

AGENDA
Tree Advisory Board
June 3, 2024

AGENDA ITEM 2
Approval of Minutes

May 6, 2024

City of Lebanon
Tree Advisory Board
Minutes, Monday, May 6, 2024 at 5:30pm
Meeting Room 1, City Hall or remote via virtual platform lebanonnh.gov/live

MEMBERS PRESENT (6/7): Kathleen Corrigan (via remote), Andrew Garthwaite, Susan Johnson, Kelsey Haigh, Mary Maxfield,

MEMBERS ABSENT (1/7) Charlie DePuy, Sarah Riley

STAFF PRESENT: Patrick McCarthy (DPW/TAB)

GUESTS PRESENT: None

Questions in RED:

- I. CALL TO ORDER: The meeting was called to order at 5:30pm
- II. APPROVAL OF MINUTES: Minutes from 4/1/24 were reviewed and approved as amended.

III. OLD BUSINESS

A. Grant Updates

- 1. (Pat) It's not back yet, but it looks like there will be no restrictions on where we can plant trees, i.e. we're not restricted to areas deemed underserved.
- 2. We should keep track of volunteer hours. That data might be important for future grant applications, for example.
- 3. We can start the inventory part of the grant.
 - a) Dena is waiting on the USDA.
 - b) We'll need to recruit volunteers for that.
 - c) "Brightly" is used. Tablets and phones. We will be able to download the Brightly app or whatever Dena pulls up.
 - d) We will have a training session with Dena.
 - e) We do have to report the trees we planted in Colburn Park.
 - f) Each tree will have a QR code.
 - g) The School St Cemetery trees are DPW trees, not "ours".

B. School Street Cemetery 4/27 Planting and Reflections:

1. The DPW guys were incredibly helpful. Such a great start to our long term collaboration.
2. Lessons learned:
 - a) The bolt cutters and watering equipment were all good and will be needed in the future.
 - b) Having roving experts was good.
 - c) Roving muscles were good
 - d) Basin sizes on some trees were too small.
 - e) Have more tarps next time.
 - f) Info on toilet locations is important.
 - g) Crews of 3-4 were just right.
 - h) The number of trees was just right.
 - i) In future plantings, “batch planting” (i.e. locations near each other) will help. For example, when we plant one tree at City Hall, are there other places nearby where we could also plant, such as the senior center?

C. Remaining trees to plant

1. All will be planted in the next month (before it gets hot) or in the fall.
2. Any trees we plant in the next month should be smaller trees because we won't need DPW, who are going to be busy.
3. Andrew/Charlie/Kelsey put together a list of all the trees to be planted.

D. Watering

1. DPW will be watering the trees in the cemetery.
2. Paul will be watering the trees in the park.
3. Berms should be 4-5” tall.
4. Each tree needs 4-5 gallons per watering.
5. For smaller trees, the gator bags will help if the basins/berms are not large enough.
6. The gator bags are good for one week.
7. Conifers cannot use gator bags.

E. Volunteers

1. Many thanks to Patrick and Susan for thanking the volunteers who joined us in April.
2. Susan is checking that everyone was included.
3. Volunteers' experiences were so good that we might have too many volunteers!

F. Contact with HACTC

1. Kathleen will contact them.

G. Hypertherm Sustainability Intern

1. Susan said that the UNH Sustainability Institute intern will come here.
2. Charlie is really interested in the Miyawaki Forest Method.
3. The Hypertherm contact is Robin Tindall.
4. Intern start date: May 30 or 31.

H. Parks and Recreation Tree Removal Hearing 4/3/24

1. This topic was on the agenda, but I have no notes...

IV. NEW BUSINESS

A. Looking ahead to fall planting

1. What will be most efficient and useful? The best timing?
2. Bus stops are a priority.
3. Kelsey did photos of and has notes on the top ten sites.
4. Places owned by the city are easy.
5. All of the bus stops are complicated, and all require easements.
6. Maybe some won't work. Ridership was our first impetus. Now we also need to consider plantability.
7. New developments especially affecting South Main St in West Leb:
 - a) At the West Lebanon bus stop by Church and the Sew and Vac store, there are now trees planned—so our former plan for that site is no longer needed.
 - b) Some trees at Kilton will need to be removed and new ones added because of city infrastructure projects like water lines, etc.
 - c) Two seasons of construction coming up: 2025 and 2026
 - d) Therefore don't plant anything on S. Main St.
8. The city hall site
 - a) DPW would have to rip up the sidewalk for this site, but that might affect ADA accessibility requirements.
 - b) Kelsey suggests that maybe we need a city engineer here.
9. Maybe we could send our recommendations for 5 trees to Patrick.
 - a) Patrick things we should go through Shaun regarding easements and approaching property owners.
10. In the meantime, Patrick will take our list and Kelsey's notes on the top ten sites though Kilton is out.
 - a) Kelsey suggests that we plan on more than one tree in the top spots.
11. Patrick suggested that because the city currently has access to the Miracle Mile Plaza, now would be a good time to plant.

12. At bus stops, 50-60 trees are planned. In other places in the city, 250 trees.

13. Susan: important to have parity in West Lebanon.

14. The best timing:

a) This month (May) if the grant money comes in.

b) Second week of September into October

15. If an area needs work, it's not shovel ready. The next few months will be critical for planning.

16. We're waiting on the grant and on the software from USDA/Brightly.

17. We can create a future tree site as an "asset".

18. Susan is available to help people who need a lesson on getting onto the shared google drive.

B. Planning Submissions

1. There are applications that will be reviewed by the Planning Board on Monday May 13th.

a) Adimab

b) MHMH

c) Starbucks

d) Casino (?) mentioned at our meeting

2. Andrew will forward photos and applications to us so that we can give feedback before the Monday meeting.

3. Kelsey will need our TAB comments by Thursday night so he can collate them and send them to Tim Corwin—when they'll become public.

V. MEETING ADJOURNED at 7:03 pm.

VI. NEXT MEETING will be held Mon May 6th at 5:30pm via remote and in person.
On the agenda: policy, visit by city engineer Rod Findley.

Respectfully submitted by Mary Maxfield, Recording Secretary

AGENDA
Tree Advisory Board
June 3, 2024

AGENDA ITEM 4
NEW BUSINESS:

4). C- Tree Policy

Notes on 29 May 2024 draft of the Tree Policy

Please read this latest draft of the tree policy and prepare any questions and/or suggested modifications in advance of our meeting.

Sections that have had significant changes include:

- Definitions.
- Appendix 2.
- Appendix 3. Previous versions had simply referred to the Portsmouth document on tree protection during construction. I chose to add a version of their doc as an appendix, because I think this is a very important part of our policy. That said, we might be able to whittle this version down a bit...also, consider how to reword '*trees of special value.*' Do we instead refer to "[Managing Trees During Construction, 3rd ed.](#)" How do those procedures differ from the Portsmouth procedures? The [PennState Extension reference](#) that I added is full of useful information...

Still missing:

- Does the policy need to cover tree placement?
- The draft does not yet cover damage avoidance (besides during construction).
- What are the consequences of not following policy?
- Native/non-native policy

Thanks,

Sarah



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ADMINISTRATIVE POLICIES & PROCEDURES

Urban Tree Management Policy

<i>Policy Number</i>	<i>Effective Date</i>	<i>Last Revision</i>	<i>Page No.</i>
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SECTION 1.0: PURPOSE

Urban trees are essential infrastructure. They provide relief from heat, absorb groundwater in times of flood, provide wildlife habitat, and improve quality of life. This policy provides guidance regarding the planting and care of trees on public property, including City rights-of-way. Chapter 164 of the City Code provides the authority and responsibility for managing public trees.

SECTION 2.0: SCOPE

This policy applies to all departments, contractors, or subcontractors that are responsible for managing trees on City property as well as the interaction with the Tree Advisory Board and the role of the Tree Warden.

SECTION 3.0: DEFINITIONS

Critical Root Zone (CRZ) The horizontal extent of a tree canopy (dripline).

Graft Scar In a grafted plant, a scar on, or eventually just a swelling in, a woody plant stem where the rootstock and the cutting were joined.

Public Tree Any tree growing in a public place.

Root Flare Where a tree's roots meet the trunk and flare out.

Street Tree Any tree planted along a public road.

Tree Protection Enclosure (TPE) Semi-permanent fencing installed around the Critical Root Zone of a tree to be protected during construction.

Urban Tree Any tree growing in a public place in an urban center.



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SECTION 4.0: POLICY DETAIL

4.1 Benefits of Urban Trees

Urban and Street Trees are an important aspect of the City's urban infrastructure. Trees contribute significantly to the walkability of the City and the character of its neighborhoods. Trees are a critical tool in reducing urban heat islands, as they cool their surroundings through transpiration and provide shade; they benefit the health of the City's residents as extreme heat events become more common.

Trees provide additional environmental and economic benefits. They:

- reduce pollutants in the air and water
- provide wind breaks
- provide shelter and food for wildlife and pollinators
- enhance property values
- attract visitors for recreational activities
- and absorb and slow the flow of stormwaters.

4.2 Goals and Objectives

This policy is intended to improve care, management, and protection of the City's public trees so they remain a prominent part of the community's identity, culture, and history, while also providing shade, habitat, ecosystem services, and beauty.

The ultimate goal is to increase the tree canopy in urban areas of the City, with a special focus on locations that directly impact pedestrians, especially vulnerable populations: sidewalks, streets with no sidewalks, bus stops, and parking lots.

To that end, this policy outlines procedures for tree planting on City property, tree maintenance, and tree protection during construction.



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SECTION 5.0: PROCEDURES

5.1 Tree Species

The City will utilize professional guidance from federal and state agencies as well as from private or non-profit organizations regarding the appropriate species of trees to plant on city property. Planting objectives include: species diversity; ecosystem functionality; aesthetics; only using non-invasive species; using species suitable for harsher urban locations; and planting trees that are otherwise suitable for the site or the specific planting objective.

Trees native to this area are more likely to succeed in our climate. Other trees may have survival traits that make them especially useful as urban trees, such as drought- or salt tolerance.

For a list of native trees, see UNH Cooperative Extension's [List of New Hampshire Native Trees | Extension](#).

No species should be planted which is included on either the [New Hampshire Comprehensive Invasive Plant List](#) maintained by the NH Department of Environmental Services (NHDES) or on the most up-to-date version of the [NH Invasive Plant Species Watch List](#), maintained by the New Hampshire Invasive Species Committee.

See **Appendix 1** for the most up-to-date version of the [Tree Advisory Board Guide for Trees to Consider When Planting](#).

5.2 Procedures for Planting

The City will utilize professional standards regarding the planting of trees. See [Appendix 2](#) for techniques regarding tree procurement, planting, mulching, watering, and staking. Tree placement must also be carefully considered.

5.3 Care of Trees

The Department of Public Works (DPW) shall be responsible for planting, pruning, and maintaining trees within rights-of-ways for which the property owners have granted easements for tree rights; in cemeteries; and in all other DPW-managed properties/facilities as needed to ensure public safety, and to preserve or enhance the beauty of such public spaces and the health of the vegetation.



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All trimming shall be done in accordance with professional guidelines as established by federal, state, private or non-profit organizations.

Trees on city property managed by other departments shall be managed in accordance with this policy.

5.4 Construction Practices in the Vicinity of Public or Street Trees

Protection of tree roots and soil structure is crucial to tree health. Any construction within the Critical Root Zone (CRZ) of Public or Street Trees requires consultation with the Tree Warden, who may provide specific written recommendations for additional protection of tree canopies and root systems during construction, based on ANSI A300 or the current version available in the Planning and Development Department. See [Appendix 3](#) for details.

5.5 Inventory of Urban Trees

Trees planted or existing in the rights-of-way of the City's urban core areas, cemeteries, and public parks and those that are a component of the landscaping of city buildings shall be inventoried in the City's fixed asset management system. This inventory shall include:

- species of tree
- location (latitude and longitude)
- diameter at 4.5' above ground (DBH)
- multi-stem (yes, no)
- general condition (good, fair, poor, dead)
- hardscape damage (yes, no)
- overhead utilities (yes, no)
- as well as notes, photos, maintenance needs, and a maintenance log.

5.6 Training

All volunteers/personnel with a role in the design, installation, or maintenance of street trees, as well as those involved with drafting bids, RFPs, or contracts that



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involve work around or with Public or Street Trees, shall be provided with training or have licensing or certifications relative to the work being conducted.

5.7 Tree Warden

The Public Works Director may employ a Tree Warden who shall carry out their duties as detailed in the job description and as assigned by the Public Works Director. In the absence of a Tree Warden, the Public Works Director may utilize the services of licensed foresters, arborists, or appropriate officials from other governmental organizations for guidance. The purpose of the Tree Warden is the following:

1. Provide training and guidance to city staff.
2. Provide guidance to the Tree Advisory Board as well as other boards/committees/commissions of the City.
3. Assist in educating the general public regarding the care and maintenance of trees.
4. Assist or lead tasks as assigned by the Public Works Director to achieve the goals and objectives of this policy and City Code 164, Trees.

5.8 Tree Advisory Board

The Tree Advisory Board (TAB) was created by the City Manager to promote tree health throughout the City, to provide support to city staff regarding trees in general, and to enhance and protect trees on private property. See the [TAB charter](#) for further delineation of those duties. DPW will provide staff liaison support to TAB.

SECTION 6.0: REFERENCES (Charter/Code/State Statutes)

1. [Tree Advisory Board](#) Charter created on 8/19/2021
2. [NH RSA Chapter 231](#), sections 139-158, 172
3. [Chapter 134 Scenic Roads](#) of the Lebanon City Code
4. NH Administrative Rule, [Chapter Agr. 3800 Invasive Species](#)
5. Tree Care Industry Association, [ANSI A300 Standards](#)
6. UNH Cooperative Extension [List of New Hampshire Native Trees](#)



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7. UNH Cooperative Extension [Landscape Trees and their Susceptibility to Invasive Insects](#)
8. [How to Plant a Tree](#), the A.J. and Liz Way, an abridged version for the Lebanon Tree Corps, 2024
9. [A Guide to Preserving Trees in Development Projects](#), from PennState Extension

SECTION 7.0: POLICY & PROCEDURE REVISION HISTORY

	Section	Revisions	Date
Original Adoption			
Amendment			
Amendment			
Amendment			



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Appendix 1: Tree Advisory Board Guide for Trees to Consider When Planting (as per 02/05/2024)

Common Name	Botanical Name	USDA Zone	Native to NE	Small Tree (<30' tall)	Street Tree Ideal	Key Wildlife /Insect Trees	Notes
Striped Maple	<i>Acer pensylvanicum</i>	3	Y	Y		Y	Useful for a native smaller tree for shady location. Somewhat uneven growing but can be cultivated as a specimen.
Red Maple*	<i>Acer rubrum</i>	3	Y			Y	Sensitive to salt.
Silver Maple*	<i>Acer saccharinum</i>	3	Y			Y	For large spaces only. Sensitive to salt and compaction. Surface roots will disturb sidewalks and paving.
Sugar Maple*	<i>Acer saccharum</i>	3	Y			Y	Sensitive to salt and compaction.
Ohio Buckeye	<i>Aesculus glabra</i>	3	N	Y		Y	Difficult to transplant. Produces lots of litter. Plant in moist, protected areas.
Serviceberry	<i>Amelanchier canadensis</i>	3	Y	Y	Y	Y	Commonly multi-stem. 'Autumn Brilliance' is a common cultivar. Some drought tolerance. Sensitive to salt.
Amur Corktree	<i>Amur maackia</i>	4	N	Y	Y		Tough, adaptable tree, related to Yellowwood but smaller. Some pollinator value.
Yellow Birch	<i>Betula alleghaniensis</i>	3	Y			Y	
Sweet Birch	<i>Betula lenta</i>	3	Y			Y	May be difficult to source. Not a street tree.
River Birch	<i>Betula nigra</i>	4	Y			Y	Commonly multi-stem. 'Heritage' is a common cultivar.
Paper Birch	<i>Betula papyrifera</i>	2	Y			Y	Can be messy. Prefers cool soil.
Gray Birch	<i>Betula populifolia</i>	3	Y				Good tough sites, often multi stem. Somewhat pest prone. can be weak wooded.



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American Hornbeam	<i>Carpinus caroliniana</i>	3	Y	Y			Tough tree once established. Generally prefers moist soil.
Bitternut Hickory	<i>Carya cordiformis</i>	4	Y			Y	Large tree. Produces lots of litter. Best in moist, rich soils.
Shagbark Hickory	<i>Carya ovata</i>	4	Y			Y	Difficult to transplant. Large tree. Produces lots of litter. Best in moist, rich soils.
Catalpa	<i>Catalpa speciosa</i>	4	N			Y	Showy, interesting tree. Straight species produces litter.
Hackberry	<i>Celtis occidentalis</i>	3	Y		Y	Y	Adaptable, tough tree. Arching habit.
Redbud	<i>Cercis canadensis</i> 'MN Strain'	5	Y	Y			Minnesota strain is a cultivar with greater cold hardiness. Some drought tolerance. Prone to broken branches.
FringeTree	<i>Chionanthus virginicus</i>	5	N	Y			Salt tolerant. Susceptible to Dutch Elm Disease.
Yellowwood	<i>Cladrastis kentukea</i>	4	N				Will do best in good soil. Lovely blooms when established. Branches somewhat susceptible to breakage. Can have low branching.
Pagoda Dogwood	<i>Cornus alternifolia</i>	4	Y	Y		Y	Prefers afternoon shade and moist soil. Generally not long lived.
Cornelian Cherry	<i>Cornus mas</i>	5	N	Y	Y		Edible fruits.
American Smoketree	<i>Cotinus obovatus</i>	4	N	Y		Y	Native to Southern US. More difficult to source than <i>C. coggygia</i> , also a great, tough shrub, non-native.
Hawthorn	<i>Crataegus spp.</i>	4	Some	Y	Y	Y	Tough trees. Use Thornless varieties. Generally grow larger than crabapples.
American Persimmon	<i>Diospyros virginiana</i>	4	Y			Y	Can tolerate dry soil. Sometimes uneven growth.
Ginkgo	<i>Ginkgo biloba</i>	4	N		Y		Very tough tree, salt tolerant. Use fruitless Male varieties as fruit is very odorous
Thornless Honeylocust	<i>Gleditsia triacanthos</i> var. <i>inermis</i>	4	Y		Y		Creates dappled shade. Somewhat messy depending on cultivar selected. Commonly overplanted, but not in Lebanon.



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Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	4	Y		Y	Great, adaptable tree. Espresso is a commonly available cultivar that is fruitless so less messy
Witch Hazel	<i>Hamamelis virginiana</i>	4	Y	Y	Y	Multi-stemmed shrub. Interesting flowers in fall.
Eastern Red Cedar	<i>Juniperus virginiana</i>	3		Y	Y	Tough evergreen tree. Useful for screening. Avoid planting near apples or hawthorns.
Tulip Poplar	<i>Liriodendron tulipifera</i>	4	Y		Y	Very tall tree. Fast growing. Use cold hardy seed source.
Crabapple	<i>Malus spp.</i>	4	N	Y	Y	Tough trees. Use varieties with persistent fruit for less messy trees
Blackgum	<i>Nyssa sylvatica</i>	4	Y		Y	Tough tree, salt tolerant. Great fall color. Somewhat difficult to transplant.
Persian Ironwood	<i>Parrotia persica</i>	4	N	Y		Adaptable smaller tree.
Sycamore	<i>Platanus occidentalis</i>	4	Y		Y	Not as tolerant of drought as London Plane but native. Might be difficult to source.
London Planetree	<i>Platanus x acerifolia</i>	5	N		Y	Widely available and planted global street tree. 'Ovation' and 'Morton Circle' are more cold hardy. Fast growing, tough.
Hoptree	<i>Ptelea trifoliata</i>	4	Y	Y	Y	Adaptable small tree or shrub. Bushy habit. Avoid planting near sidewalks or streets.
White Oak	<i>Quercus alba</i>	3	Y		Y	Large, adaptable tree. Somewhat difficult to establish.
Swamp White Oak	<i>Quercus bicolor</i>	4	Y		Y	High wildlife value.
Bur Oak	<i>Quercus macrocarpa</i>	3	Y		Y	Can be difficult to transplant. High wildlife value.
Pin Oak	<i>Quercus palustris</i>	4	Y		Y	Can take very compacted soils. Sensitive to salt. Lower branching can be a problem as a street tree.
Red Oak	<i>Quercus rubra</i>	3	Y		Y	High wildlife value.



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Black Willow	<i>Salix nigra</i>	4	Y		Y	Great for insects, wet areas. Can be messy and weak-wooded with invasive roots.
Bald cypress	<i>Taxodium distichum</i>	5	N			Can be used in moist soils but adaptable. Source cold hardy variety.
American Linden	<i>Tilia americana</i>	4	Y		Y	Best on sites with good soil and moisture. Sensitive to salt.
Little Leaf Linden	<i>Tilia cordata</i>	3	N	Y	Y	Commonly planted urban tree. Can have low branching. Sensitive to salt.
Elm	<i>Ulmus americana</i> 'Valley Forge'	4	Y	Y		Use cultivar that show good resistance to Dutch Elm Disease (DED), 'Valley Forge', 'New Harmony' 'Princeton' etc. . Should not be widely planted as they can still succumb to DED.
Japanese Zelkova	<i>Zelkova serrata</i>	5		Y		Tough tree. Similar arching form to Elm. 'Green Vase' and 'Halka'

*Maple species are currently overabundant in Lebanon. Planting of Maples should be limited to encourage species diversity and resilience from pests. Overplanting of Elms on American streets led to low diversity and drastic changes with DED.

Note, while Callery Pear, Japanese Tree Lilac, and Hedge Maple are commonly planted, tough urban trees, they have exhibited invasive seeding tendencies. We do not recommend planting these species



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Appendix 2 Tree Planting and Maintenance

Tree Selection

Quality nursery stock should be chosen for plantings. Stock should be transported and stored properly until planting time.

Trees of any size can be transplanted, and bigger is not better in terms of tree health and accommodation to a new site. Transplant stress increases with plant size.

Planting Guidelines

New trees for urban Lebanon should be planted by trained staff, professional landscape contractors, arborists, or by volunteers under the supervision of a trained team leader.

Planting holes should be 2-3 times the diameter of the root ball depending on soil compaction level and rootball size, and the sides should slope down like the sides of a saucer. The hole should be **no deeper** than the distance between the base of the root ball and the root flare (**see Figure 1**). The soil at the bottom of the hole should remain firmly packed so that the tree doesn't sink after planting.

When planting larger specimens, where heavy equipment is needed to transport or lift them, care should be taken to **minimize soil compaction**.

Trees should be planted so that the root flare is at or slightly above the surrounding soil level. For plantings on sloped surfaces, the root flare should be at or just above the original grade (**see Figure 2**). Graft scars should be well above the ground once the tree is planted.

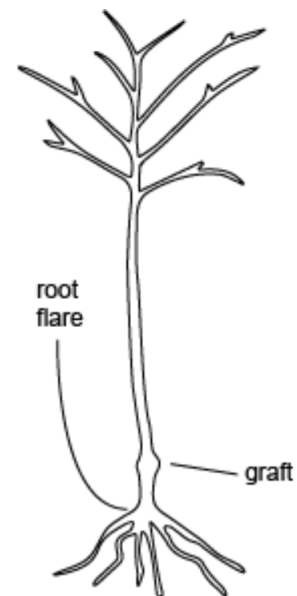


Figure 1. Locations of root flare and graft.



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Wire cages, burlap, and planting containers should be completely removed before the tree is planted (but may be removed once the tree has been lowered into the hole).

Trees should be planted with the central leader as close to plumb as possible.

Roots should be teased apart and laid straight out. Container-grown trees often require significant root pruning.

Do not amend the soil.

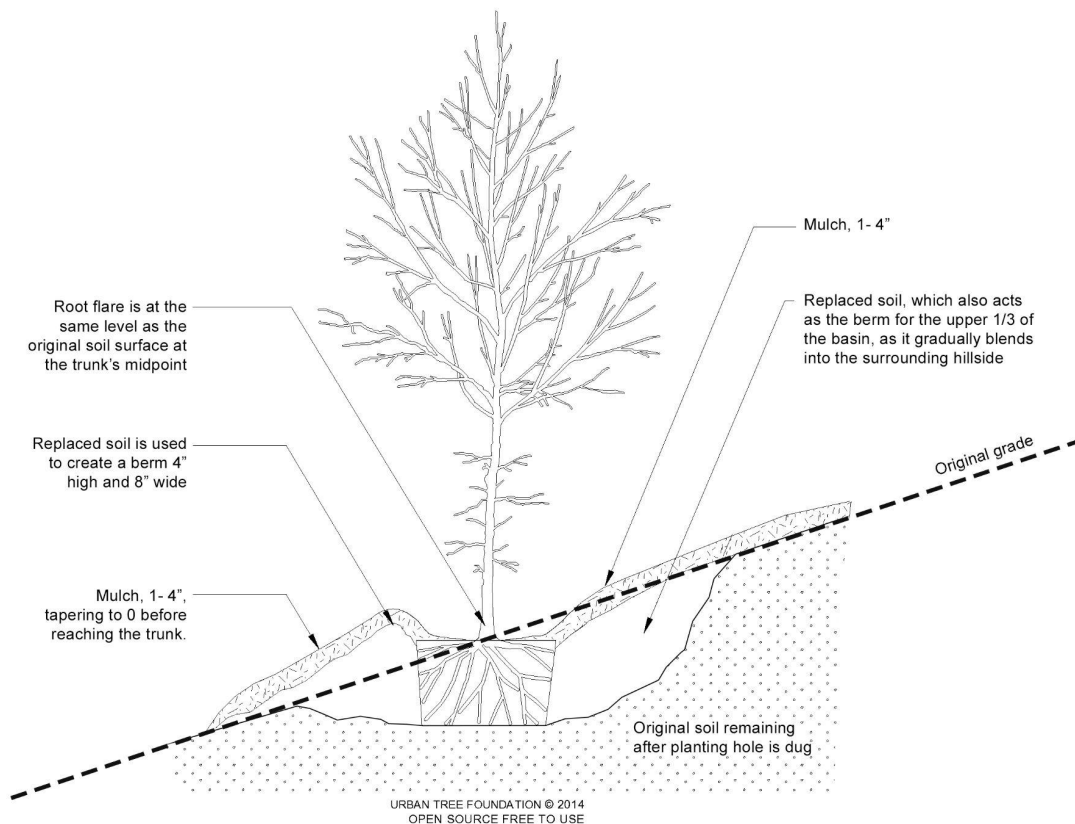


Figure 2. Planting on a Slope



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Return half of the soil to the hole. Water thoroughly to remove air pockets. Once the water has drained, add soil, firming it by hand. Stop adding soil when it reaches the level of the root flare.

Berms, made of remaining soil and sod, should be created 4" high x 8" wide around the tree approximately 1.5x the root ball diameter to hold around 10 gallons of water for 1-2" caliper trees and 20 gallons for trees over 2" caliper.

Mulch the soil inside the berm with 1-4" of bark mulch, tapering to **no mulch** 2-3" around the trunk. A berm can be eliminated if using watering bags.

Tree staking is generally not required but can be added at the discretion of an arborist or landscape professional if the tree is prone to shifting out of plumb.

Slightly different methods can be used to achieve these planting goals depending on whether the stock is balled and burlapped (B&B), container grown, or bare-root. For more detailed planting information see [How to Plant a Tree](#).

Watering Guidelines

Newly planted trees should be deeply watered 1-2 times per week for the first and second growing seasons to maintain evenly moist soil. Watering can be skipped in the case of soaking rain or if the soil is still moist to the touch 1" below the surface.

Pruning Guidelines

In the 3rd-4th growing season from planting, trees should be inspected by an arborist and pruned correctively if necessary. Future pruning and pruning of established trees would be at the discretion of an arborist or as needed to maintain public safety. Public trees should be inspected by an arborist or Tree Warden on a 3-5 year basis. Species that are highly prone to disease and pests should be evaluated by an arborist and put on a regular treatment plan if deemed a tree of value by the managing City department in conjunction with the arborist and the Tree Advisory Board.



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Appendix 3 CITY OF LEBANON TREE PROTECTION PLAN (adapted from the [City of Portsmouth Tree Protection Plan](#))

The following steps should be taken to preserve and protect trees from damage during construction.

1. The critical root zones (CRZs) of trees to be preserved shall be protected during the entire construction process.
2. **Prior to the start of any site work, the contractor will erect semi-permanent fencing around the CRZs of trees which are to be protected within the construction site.** The radius of these Tree Protection Enclosures (TPEs) may be increased at the Tree Warden's discretion to further protect trees of special value. The location of the fencing will be marked by the Tree Warden prior to fence installation. Plans must be reviewed by the Tree Warden and/or the Tree Advisory Board, and signed off on before commencement of work.
3. The Contractor shall be responsible for installation and maintenance of all TPEs.
4. TPEs shall remain undisturbed until **ALL** site work has been completed. The Contractor shall remove fencing at completion of project. If a TPE is damaged, the Contractor shall immediately execute the necessary repairs to re-establish the protective fencing to original configurations. No removal of, or encroachment into, TPEs shall be permitted unless coordinated with the Tree Warden.
5. All work conducted in the ground within any TPE should be accomplished with hand tools only. An air excavation tool (i.e., an Airspade) shall be used for root pruning prior to machine excavation where digging abuts the dripline of trees of special value.
6. The Contractor shall be held liable for any damages to protected trees, including their root zones, caused by unauthorized intrusions into TPEs during construction. Additionally, the Contractor shall be held liable for damages incurred to any tree branches that extend over protective fencing and to any trees or other plant material located on the site and indicated on the plan to remain. The Contractor shall be held liable for all remedial measures required to treat broken limbs, or damaged trees and roots, or for unauthorized removal of existing trees or plant material. All tree surgery and remedial treatments will be accomplished under the supervision of the Tree Warden.
7. The Contractor shall notify the Tree Warden when any overhanging branches or other plant materials are interfering with, or risk damage due to, construction activity.



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8. Any grading, construction, demolition, remedial measures, or other work that is expected to encounter tree roots shall be made in consultation with the Tree Warden.
9. No machine digging shall take place within a radius of 1.5 feet for each 1-inch diameter at breast height (DBH) of any tree with a historic or specimen designation unless an air excavation tool has been used to prune roots along dripline beforehand.
10. Any pruning of protected trees that may be required during the course of construction shall be performed by the Tree Warden. Coordinate pruning requests with the Tree Warden.
11. For construction projects requiring access- or haul roads that must pass over the CRZ of trees to be retained, a roadbed shall be installed using 4 inches (minimum) of mulch or wood chips covered with approved logging mats. The roadbed shall be replenished and maintained as necessary to provide desired root zone protection. For projects requiring materials storage within the root area of trees to be retained or protected, this area shall be constructed using an approved Geotextile base covered with 4 inches (minimum) of coarse wood mulch or chips. The area shall be replenished as necessary to maintain a 4 inch (minimum) depth.
12. There shall be no vehicular traffic, parking, or stockpiling of materials permitted in the CRZ of ANY tree to be retained or protected within the construction site, unless approved tree root protection measures have been installed. Foot traffic shall be kept to a minimum in the CRZ. If temporary foot traffic must be directed over the root zone of trees to be retained or protected, a pathway shall be installed using an approved Geotextile base covered with 3 inches (minimum) or mulch or wood chips. The pathway material shall be replenished as necessary to maintain a 3-inch (minimum) depth.
13. "Natural" or pre-construction grade should be maintained for as great a distance from the trunk of each tree as construction permits. At no time during or after construction should soil or mulch be in contact with the trunk of the tree above natural grade.
14. When removing pavement, as little disruption of soil as necessary should be attempted.
15. Any required trenching which has options for trench path location should be routed in such a manner as to minimize root damage. Radial trenching (radial to the tree trunk) is less harmful than tangential trenching because it runs parallel to tree roots rather than diagonal or perpendicular to them. If roots can be worked around, cutting of roots should be avoided (i.e. place pipes and cables below uncut roots whenever possible). When possible, utilize the same trench for as many utilities as possible.