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Forestry Advisory Board Agenda

2529 High Country Court - Conference Room

February 3, 2022
8:30 AM

Call to Order

Approval of Minutes

Approve Minutes from January Forestry Board Meeting

Election of Officers

Election of Chair and Vice-Chair

Forestry Updates

2022 Private ash treatment and replacement program update

Tree removal status update

Requested work nearly complete (Xcel and traffic control)

Whitman and Emerson Park

Black dot trees

New grapple truck has arrived

Seasonal hiring

Las Colonias and Rotary tree planting

New Business

Development Regulations update

If you have questions please contact Chair, Susan Carter at 244-1850 or Robert Davis, City Forester at 254-3825.

Special guest Lance Gloss, Grand Junction Community Development

Staff is convening a taskforce to review the landscaping code and guide potential revisions. The taskforce will clarify the goals of the landscaping section, consider alternative approaches, and utilize their expertise to ensure health and manageability of developed landscapes in the community. A key element of revisions will be water sensitive landscaping. The taskforce will evaluate both incentive-based and mandatory approaches to water conservation.

Education and outreach - Topic assignments

Economic Value of Trees (new reports from PlanIT Geo)

General Tree care - This could come from the Tree and Shrub Guide

How does tree care differ in a desert environment

Relationship between water and trees - smart landscape conversion

City vs Private Trees

Hiring a licensed arborist

List of Arborists and Nurseries

List of Resources - prioritize where to go first

Herbicides

Top 10 trees

Siberian elm added to CDA's noxious weed watch list - letter from GJFB?

Desire for new licensing categories

Chapter 8 review

Licensed contractor rules and regulations

Arbor Day 2022 agenda

Public Comments

Tanya Travis - CTC and organizing volunteers to assist with Forestry projects

Adjournment

Next Meeting Date

Thursday, March 3 - 8:30 am

Grand Junction Forestry Advisory Board
Minutes

January 13, 2022 - held digitally

Meeting called to Order by Kamie Long, at 10:32 AM.

Roll Call

Board Members Present:	Bennett Boeschenstein Bill Cooper Mollie Higginbotham Dan Komlo Kamie Long Chuck McDaniel, Mayor Vince Urbina
Absent Board Members:	Susan Carter
Parks & Recreation Staff Present:	Rob Davis, City Forester & Open Space Supervisor Ciara DePinto, Senior Administrative Assistant/Marketing Allison Little, Administrative Specialist

Approve Minutes

Mollie Higgenbotham made a motion to approve the minutes of the December meeting. The motion was seconded by Vince Urbina and carried unanimously.

Election of Officers

The current board chair is absent due to illness. The board tabled the election until the February meeting.

Forestry Updates

City Council reviewing code regarding Alternate Board Members

City Council is reviewing the structure of current boards and commissions and considering a change making current alternate members, full board members. No drawbacks have been identified to promoting alternate members. The change would require a change to the municipal code.

Private Ash Treatment and Replacement Program Update

The private ash program which the board discussed in December is available through the City purchasing process and is soliciting a vendor. The solicitation closes next Wednesday.

Education and Outreach

Basic information is on the City Forestry Website. Rob would like feedback from the board about the content by the end of January, though he is trying to keep it simple. www.gjcity.org/forestry

Ciara has created a flyer and the goal is to use the flyer to drive traffic to the website for more detailed information. Ciara is also working to develop a tri-fold handout to distribute to homebuyers. Vince Urbina offered to help with the creation of the flyer and the distillation of information. Where do citizens go for information, what are the best trees and where do citizens go for help. Mollie reminded the board of the importance of offering non-internet based resources. Board members suggested prioritizing resources, and making sure the internet is completely up to date since printed materials will drive traffic to the website.

Removal and Stump Grinding

There are less than 10 citizen removal requests remaining then crews will turn their attention to the 230 street trees identified as in need of removal. The new grapple truck is ready for pick up.

Penn State Arborist Series

All four City arborists are signed up for training being offered by Penn State. This training follows the ISA study guide and should help all of them obtain their ISA certification.

Landscaping Code Task Force

Community Development is updating the landscape code. Staff will attend the February meeting to talk with the Board about this in more depth.

Canopy Analysis detail update

PlanIT Geo is working on a rough appraisal of the value of the tree canopy (both public and private trees)

I-70 Business Loop – 1st to 4th

Rob shared with the board that CDOT is working on concepts for I 70 B from 1st through 4th. CDOT is interested in preserving the trees and keeping the area multi-modal. They are exploring ways to develop the area in such a way that the City would maintain areas which are currently maintained by the adjacent land owner. That would have a large staff impact for Parks and Recreation from a maintenance perspective.

New Business

Siberian elm added to CDA noxious weed watch list

The board tabled this item until February.

Certified Arborist Exam

The written ISA exams are scheduled for June 3 and August 3. City staff may test electronically if no April exam date is available.

Unlicensed Tree Services and Subcontracting

Rob talked with the board about a number of incidents where (generally) property management companies have hired unlicensed tree contractors to maintain trees in the city limits. C&D Tree was stopped maintaining trees for the Housing Authority. They are trying to find a way to work within the code where they could hire a sub-contractor to do the tree work and they would do all

the ground work. Initially they tried to have a certified arborist located in Florida served as their arborist for licensing purposes which does not meet the intent of the requirement. If they are allowed to sub-contract then Licensed company x would do the work, but all their trucks and equipment would still be on site and that muddies the waters when it comes to proving who is actually doing the work. This really dove tails well with the development conversation on the February Agenda. Tree work is dangerous and not everyone should be doing it.

Arbor Day 2022

Rob has worked with the City Clerk's office to have City Council proclaim April 23rd Arbor in Grand Junction. Plan to use the 2020 plan for Southwest Arborfest (that was our first COVID cancellation). Board members mentioned that there is a strong desire to keep the schools involved, and other ideas from that year (nature playground, tree raffle, urban wood raffle) are worth continuing as well. Rob shared that Juniper Ridge is very interested in an Arbor Day planting. Seedling availability is questionable. The usual vendor only has 2 varieties and an alternate vendor has more varieties, but doesn't ship seedlings in pots.

Kamie shared the original digital version of the Tree and Shrub Guide with board members for their revisions and updates.

Vince reminded the Board that the Western Slope Emerging Pests group decided to meet the last Wednesday of the Month. The first meeting is March 30.

Rob reminded the Board that part of the municipal code surrounding the Forestry Board indicates they will establish rules and regulations for Tree Services and regulations around tree protections.

Kamie Long reminded the Board of Action Items

- Review the Tree and Shrub Guide
- Review the top 10 shade/ornamental trees
- Review Municipal Code Chapter 8.32 around Trees

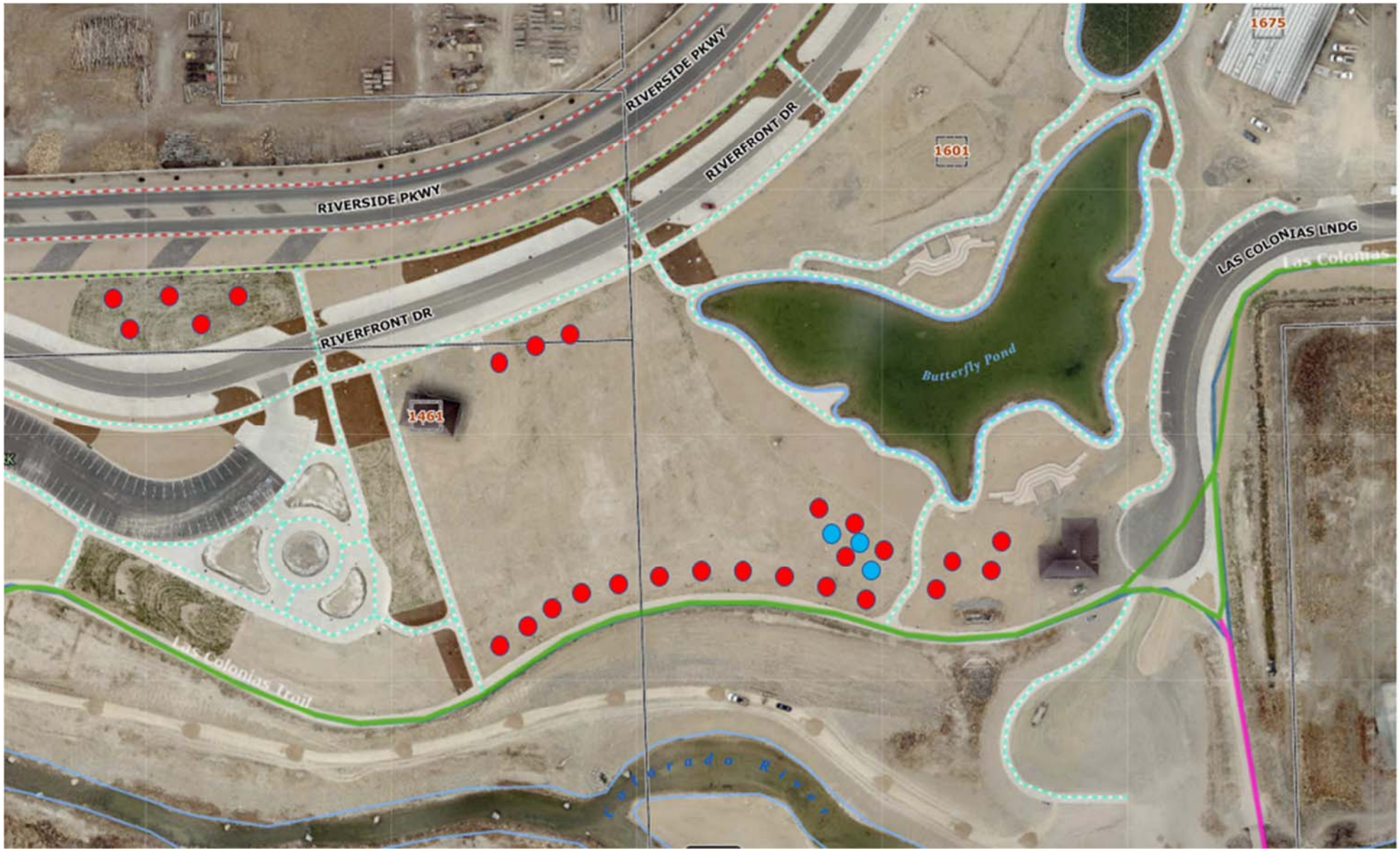
Public Comment

Adjourn

The meeting adjourned by acclimation at 11:47 AM.

Next Forestry Advisory Board Meeting - Thursday, February 3, 2021 at 8:30 AM. (The board will continue to discuss and may choose to meet on February 10 depending on member availability.)

Respectfully Submitted,
Allison Little, Administrative Specialist


RIVERSIDE PKWY
RIVERSIDE PKWY
RIVERFRONT DR
RIVERFRONT DR
1675
1601
LAS COLONIAS LNDG
Las Colonias
Butterfly Pond
1461
Las Colonias Trail
Colorado River

21.10.020 Terms defined.

Colorado Nursery Act means C.R.S. Title 35 Article 26 and any amendments made thereto.

Caliper means the diameter of a tree trunk measured 6 inches above the root ball at time of planting or 4.5 feet above the ground on the uphill side of the tree.

Canopy drip line means the area directly located under the outer circumference of the tree branches from which water drips onto the ground.

Distinctive landscape treatments means landscape designs that combine public art, plantings, and site design elements that establish a unique sense of place or strong visual impression.

Graywater system means onsite systems designed for irrigation of planted landscapes using domestic wastewater that has not been contaminated by toilet discharge, soap, or other chemicals and which can be beneficially used to supply or supplement other irrigation.

~~*Water wise*~~ *Low-water landscape* means landscape methods which conserve water through the use of drought-tolerant plants, planting and irrigation techniques.

Noxious or invasive species means non-native plants that have a recognized harmful impact on natural habitats and/or are likely to displace or out-compete native plant species for light, space, soil moisture and nutrients, including those noxious species identified under the Colorado Noxious Weed Act (C.R.S. Title 35 Article 5.5).

Suitable Plant List means a list of plant species and genera permitted to be installed in conjunction with site development as maintained by the Community Development Director.

Root ball means the mass formed by the roots of a plant and the soil surrounding them at the time of planting.

Rootzone means the area of the ground around the base of the tree where rooting occurs, as measured from the trunk to 5 feet beyond the outer base of its canopy.

Xeriscape or xeriscaping means landscape plantings that do not require supplemental watering at maturity.

21.06.040 Landscape, buffering and screening standards.

(a) Purpose and Goals. The purpose of this section is to enhance the aesthetic appeal of new development, achieve efficient use of water resources, and contribute to a livable urban environment. Landscaping reduces heat and glare, ~~facilitates movement of traffic within parking areas,~~ shades cars and parking surfaces reduc~~es~~ing local and ambient temperatures, buffers and screens cars from adjacent properties, promotes natural percolation of surface

waters, improves air quality, ~~buffers and screens potentially incompatible uses from one another,~~ and conserves and enhances the value of property and neighborhoods within the City.

(b) General Landscape Standards.

(1) Authority.

(i) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions, except for plantings in the right-of-way.

(ii) The Director may approve an applicant's request to vary from the required number and types of plants or landscaped area if:

(A) The number of trees exceeds 25 percent of the minimum number of trees; and/or

(B) Trees exceed the minimum caliper requirement by one inch or more; and/or

(C) Additional berming or other attractive buffering, community garden boxes or plots in residential developments, public art, enhanced paving treatments for public plazas (brick or concrete pavers, tinted and stamped concrete, etc.) is provided. The Director may grant up to a 10 percent reduction of the square footage of improved area used to calculate the landscape requirement where these types of enhancements are included in a development.

(D) If the total amount of required landscaping is provided, the Director may allow the owner to place the landscaping on another appropriate part of the lot.

(iii) The width of a landscape strip can be modified by the Director, provided the intent of this section is met.

(iv) The Director or assignee shall determine the suitability of hand watering as an alternative to irrigation for the establishment of low-water or xeric landscape designs. Hand watering is not permitted without prior approval by the Director.

(v) Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.

(vi) The City Forester shall decide all questions of plantings in the right-of-way.

Commented [GL1]: Caitlin – does this undermine authority of Director to delegate signing of landscaping plans?

(~~1~~2) All landscaping required by this code shall comply with the standards and requirements of this section. ~~The landscaping requirements of this code shall not apply to~~

~~a lot zoned for one or two dwellings.~~ Landscaping for new developments shall occur in buffer areas, all interior parking areas, along the perimeter of the property, around new and existing structures, and along street frontages and within any right-of-way not used ~~nor planned to be used~~ for infrastructure.

(~~2~~3) Plant Quantities. The amount of landscaping is based on gross area of proposed development. A list of plant type substitutions is provided in section 21.06.040(i) below.

(~~3~~4) Landscaping Standards. All new development must install ~~and~~ maintain, and protect landscaping as required by this code. (See subsection (~~b~~)(~~1~~k) of this section for an example of the landscaping requirements of this section.)

(i) On-site frontage landscaping may not apply in the B-2 zone downtown commercial. (See zone district standards.)

(ii) The landscaping requirements of this code shall not apply to a lot zoned for one or two dwellings.

(iii) Landscaping in the abutting right-of-way is required in addition to overall site landscaping requirements and must be installed and maintained as required by section 21.06.040(b)(16) of this Code.

(~~iii~~iv) Buffer landscaping is required in addition to overall site landscaping requirements.

Commented [GL2]: This may suggest that buffer landscaping does not count toward overall plant count. Otherwise it is redundant to (b)(1). Retain?

(~~4~~5) Acceptable Plant Material.

(i) Vegetation must be suitable for Grand Junction's climate and soils and shall be selected from the City of Grand Junction Suitable Plant List, to be maintained by the Director. Applicants may petition the inclusion of plants not found on the Suitable Plant List and shall provide sufficient information about the proposed species to facilitate review. The Suitable Plan List identifies the anticipated water needs of each plant species. The Director may allow the use of any plant if sufficient information is provided to show suitability including salt tolerance, sun and shade requirements based on planting locations, growth habit, etc. Noxious ~~weeds~~ or invasive species are not allowed. ~~(The Director will keep a list of suitable plants.)~~

(ii) High water use species, excluding turf, are not included in the City of Grand Junction Suitable Plant List and may not be petitioned to be included in landscape design, unless the proposed development can demonstrate that the plant's water requirements will be augmented by natural water flows resulting from proposed

grading, existing natural features, or existing riparian environments or from appropriately designed graywater systems.

(iii) Plant materials shall meet or exceed the plant quality and species standards of the current American Standard for Nursery Stock and be consistent with the Colorado Nursery Act.

(iv) All plants proposed for installation shall be selected, spaced, and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

(~~5~~6) Minimum plant sizes are:

(i) Shade tree, two-inch caliper (measured six inches above root ball) at time of planting. At maturity, a shade tree has a height and/or spread of 30 feet or greater. If two-inch caliper trees are not available due to documented seasonal shortages or shortages in desired varieties, the Director may approve the installation of smaller trees, provided the proportional difference in caliper inches is compensated for by installing additional trees. ~~For example, the installation of six one-and-one-half-inch caliper shade trees would result in a shortfall of three caliper inches, which could be compensated for with two additional one-and-one-half-inch trees.~~ However, a minimum caliper of one and one-half inches shall be required.

(ii) Ornamental tree, one-and-one-half-inch caliper (measured six inches above root ball) at time of planting. At maturity, an ornamental tree has a spread and height between 15 feet and 30 feet.

(iii) Evergreen tree, six feet tall at time of planting.

(iv) Deciduous shrub, five-gallon container.

(v) Evergreen shrub, five-gallon container.

(vi) Perennials and ground covers, one-gallon container.

(vii) Turf mix, native grasses and wild flower mix are the only vegetation that may be planted as seed.

(~~6~~7) Irrigation. All vegetation and landscaped areas must be provided with a permanent irrigation system or approved graywater system.

(i) Nonpotable irrigation water shall be used unless the Director allows the use of potable water.

(ii) An underground pressurized irrigation system and/or drip system is required for all landscape areas on the property and in any undeveloped right-of-way.

(iii) If connected to a ~~drinking~~ potable water system, all irrigation systems require State-approved backflow prevention devices.

(iv) All irrigation for nonpotable irrigation water systems must have adequate filters easily accessible above ground or within an appropriately sized valve box.

(v) Native grasses must have a permanent irrigation source that is zoned separately from higher water demand landscapes. Once the grasses are established, irrigation to native grass areas can be reduced to a level that maintains coverage typical of the grass mix and to suppress weed growth.

(vi) Efficient use of natural precipitation is encouraged to be achieved through alignment of landscaping plans with grading plans to expose planting areas to appropriate amounts of natural water flow.

(vii) An independent landscape water meter shall be installed for all non-residential landscapes and multifamily landscapes equal to or greater than 1,000 square feet.

(viii) All landscape plans shall include irrigation plans.

(~~7~~8) Landscape Plans ~~and Equivalent Plantings~~.

(i) Landscape plans must identify the genus and species and sizes of vegetation ~~(SSID manual)~~.

(ii) All landscaping shall be installed, maintained, and protected as shown on the approved plan.

(iii) An equivalent species may be substituted in the field without prior approval of the Director, provided that a written record of substitutions ~~revised drawing~~ is submitted to the Department. Plants are "equivalent" if they have the same growth habit and rate, same cover, leafing, shade characteristics and function, have similar water requirements as identified by the City of Grand Junction Suitable Plant List, and thrive in the same microclimate, soils and water conditions. Changes impacting trees in the right-of-way shall require approval of the City Forester prior to substitution in the field.

Commented [GL3]: City Forester's language. Can revise to remove reference to approver or change to Director.

(iv) All other changes to the landscape plan require prior approval ~~from the Director~~.

(v) All development plans shall designate required landscaping areas. ~~Subdivision plats shall designate required landscaping areas.~~

(vi) The owner shall keep each fire hydrant unobscured by plant material.

(vii) Plant materials shall be spaced appropriately to allow adequate room for root zone and vegetation at maturity.

(viii) Landscape plans shall be stamped by a licensed landscape architect. Inspection and compliance with approved landscape plan must be certified by a licensed landscape architect prior to issuance of a certificate of occupancy. A licensed landscape architect is not required to produce landscape plans if the plans are submitted for a Minor Site Plan review. All other requirements continue to apply to landscaping for Minor Site Plans.

(x) Expansion of a developed site as defined in GJMC 21.02.100(f) that requires a Site Plan Review shall require a landscaping plan and landscaping upgrades.

(xi) Maintenance requirements shall be noted on landscaping plans.

(xii) Tree protection measures shall be clearly identified on the construction and landscape plans.

(xiii) Wall and fence elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.

(ix) Distinctive landscape treatments are recommended for site and neighborhood entrances where a proposed development is accessed from a collector or arterial road.

(~~8~~9) Preservation of Significant Landscape Features

(i) Existing landscape features such as escarpments, large or mature ~~old~~ trees or stands, heavy vegetative cover, ponds and bluffs shall be identified by the Director and the Applicant as part of the development review process. This identification shall include a written inventory of significant features to be produced with a landscaping plan. Any significant tree as defined in subsection (c) below shall be identified on the proposed landscaping plan.

(ii) ~~To the extent the Director deems practicable, such~~ Significant landscape features shall be preserved unless deemed unreasonable or impractical by the Director ~~by the final plans and to such extent, count toward landscape and open space area requirements~~.

Commented [GL4]: Could require on ILC, but this would require a shift in practice away from standard surveying procedures. I.e. A Colorado PLS would not assume that a tree should be identified on an ILC and may take issue with the request to include trees or similar. Renee?

(iii) All trees not identified as noxious or invasive species that have a diameter exceeding 24 caliper inches shall be considered significant trees and are required to be preserved in development, or shall be replaced at a rate of 2 caliper inches of tree diameter per 1 caliper inch of the significant tree to be removed.

(iv) Significant trees to be preserved shall be healthy and free from serious disease or parasite infection.

(v) Features to be preserved shall be protected throughout site development. If a significant live feature which was to be preserved dies or is substantially damaged, the developer shall replace it with an equivalent feature as determined by the Director. No person shall kill or damage a landscape feature required to be preserved by this section. The developer shall protect trees from compaction under the canopy drip line of the tree unless determined impractical by the City Forester ~~says otherwise~~.

(~~i~~A) During construction, fencing or similar barriers shall isolate and protect the landscape features to be preserved.

~~(ii) All protection measures shall be clearly identified on the construction and landscape plans.~~

(~~iii~~B) No vehicles or equipment shall be driven or parked nor shall any materials be piled within the canopy drip line of any tree to be preserved.

(C) Adequate irrigation shall be provided to trees preserved during construction.

(~~9~~10) Protection of Landscape Areas. All landscape areas (except in the right-of-way where a street side curb does not exist) shall be protected from vehicles through the use of concrete curbing, large rocks, or other similar materials ~~obstructions~~.

(1~~0~~1) Utility Lines. If the location of utilities conflicts with the landscaping provisions, the Director may approve an equivalent alternative.

(i) Utility composite plans must be submitted with landscape plans.

~~(ii) Trees which will grow to a height of greater than 15 feet at maturity shall not be planted under electrical lines.~~

~~(iii) Ornamental and evergreen trees planted under an electrical line may count towards the total tree requirement.~~

(12~~1~~) Sight Distance. The owner shall maintain all vegetation, fences, walls and berms so that there is no site distance hazard nor road or pedestrian hazard.

(i) Vegetation in the sight triangle in the street frontage must not exceed 30 inches in height at maturity.

(132) Soil. Soil in landscape areas must be amended and all vegetation planted in accordance with good horticultural practices.

(i) Details for the planting of trees, shrubs and other vegetation must be shown on the landscaping plans.

(ii) Shrub beds adjacent to turf or native grass areas are to be edged with concrete, metal, brick or substantial wood material. Plastic and other light duty edgings are not allowed.

(iii) Mulch and weed fabric are required for all shrub beds, except where shrubs and trees overlap.

(iv) ~~The minimum square footage of planting area for a five-gallon evergreen or deciduous shrub is 16 square feet. These minimum square footages may be varied by a qualified professional.~~ Prior to planting, compacted soils shall be transformed to a friable condition.

(v) Compost or soil amendments shall be incorporated into the soil to a minimum depth of 6 inches at a minimum rate of 4 cubic yards per 1,000 square feet.

(vi) A minimum 3 inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications.

(vii) Trees shall be provided with a minimum soil volume at installation of 300 cubic feet for small trees, 600 cubic feet for medium trees, and 1,000 cubic feet for large trees.

(143) Trees.

(i) Trees should not be planted near a light pole if eclipsing of light will occur at maturity. Placing light poles in the parking lot, away from landscape area and between parking bays, helps eliminate this conflict and should be considered.

(ii) Tree canopies may overlap by up to 20 percent of the diameter of the tree canopy drip line at maturity. Tree clustering may be allowed with some species so long as clustering does not adversely affect the mature canopy.

(iii) Trees which will grow to a height of greater than 15 feet at maturity shall not be planted under overhead electrical lines.

(iv) Tree plantings shall not be located within 8 feet of dry utility lines locations unless deemed unreasonable or impractical by the Director.

(v) Weed fabric shall not be used within 8 feet of the base of a tree.

(vi~~ii~~) At planting, trees shall be healthy and free of disease. T~~t~~ree trunks must be reasonably straight with minimal doglegs. Roots shall be checked prior to planting and corrected for optimal growth patterns.

(vii) Wire baskets, burlap wrappings, rope, twine or any similar shipping materials shall be removed before planting.

(viii) Tree planting holes shall be of a diameter no less than three times the diameter of the tree's root ball at time of planting.

(ix~~v~~) The minimum square footage of planting area for a shade tree is 140 square feet. This minimum square footage may be varied if deemed unreasonable or impractical by the Director. ~~The Director may vary the minimum square footage.~~

(x) Ornamental trees shall be planted in a landscape strip that is no less than six feet in width (not including curb and gutter). Shade trees shall be planted in a landscape strip that is no less than eight feet in width (not including curb and gutter).

(~~v~~xi) ~~Species~~ Tree Diversity. The percent of any one type of tree that can be planted in a development shall be as follows:

(A) Zero through five trees: No limitation.

(B) Six to 21 trees: No more than 50 percent of one ~~species~~ genus.

(C) 21 or more trees: No more than 20 percent of one ~~species~~ genus.

(xii) Tree species are recommended to be selected at an appropriate type and scale to the form, texture, and composition of proposed and existing structures. Trees and shrubs are recommended to be located as vegetative screening for areas of low visual interest where feasible.

(xiii) Siting of trees is recommended to contribute to the reduction of energy requirements for proposed structures. Evergreen trees are encouraged to be placed on the west side of structures to reduce the cooling impacts of winter winds. Deciduous and evergreen trees are recommended to be concentrated on the south side of structures to reduce the heating effects and glare of summer sun.

(xiv) Drip irrigation applied to trees shall be expanded or supplemented as appropriate to rootzone expansion over the life of the tree.

(154) Shrubs.

~~(i) Twenty-five percent of the required shrubs may be converted to turf based on one five-gallon shrub per 50 square feet of turf.~~

~~(ii) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three one-gallon perennials and/or ground covers for one five-gallon shrub.~~

(i) The minimum square footage of planting area for a five-gallon shrub is 16 square feet. This minimum square footage may be varied if deemed unreasonable or impractical by the Director.

(~~i~~ii) ~~Species~~ Shrub Diversity. The percent of any one ~~type~~ genus of shrub that can be planted in a development shall be as follows:

(A) Ten through 19 shrubs: 50 percent per genus.

(B) Twenty through 39 shrubs: 33 percent per genus.

(C) Forty through 59 shrubs: 25 percent per genus.

(D) 60 or more shrubs: 15 percent per genus.

(iii~~v~~) When calculating tree and shrub quantities, any fraction of a shrub or tree or other requirement is rounded up to the next whole number.

~~(iii) With the approval of the Director, the number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.~~

(165) Maintenance. The owners, tenants and occupants, including homeowners' associations, for all new and existing uses in the City must:

(i) Maintain landscaping in a healthy, growing, neat and well-maintained condition.

(ii) Maintenance includes watering, weeding, pruning, fertilization, pest control, trash and litter removal, replacement of dead or diseased plant material, reseeding and other reasonable efforts.

(iii) Any plant that dies must be replaced with an equivalent live plant within 90 days of notification ~~or, if during the winter, by the next April 1st~~.

(iv) Hay mulch used during the preparation or establishment of landscaping must be certified weed-free by the Colorado Department of Agriculture.

(v) ~~On his own or based on a citizen complaint, t~~The Director or designee may, without notice and without a warrant, walk on the landscaped portion of the property from time to time to inspect the condition of landscaping. Between one and two years after installation of required landscaping, Code Enforcement shall conduct a site inspection to verify that all required landscaping has been maintained in a healthy, growing, neat and well-maintained condition. Property owners shall be notified of necessary corrective action for failure to comply with the maintenance provisions of this section.

(vi) Maintenance of landscaping in unimproved rights-of-way shall be the responsibilities of owners, occupants and tenants.

~~(vi) Between one and two years after installation of required landscaping, Code Enforcement shall conduct a site inspection to verify that all required landscaping has been maintained in a healthy, growing, neat and well-maintained condition. Property owners shall be notified of necessary corrective action for failure to comply with the maintenance provisions of this section.~~

(1~~7~~6) Public Right-of-Way. ~~Except where a detached sidewalk exists or is proposed and approved (see subsection (b)(16)(iv) of this section), landscaping on public right-of-way shall not be counted toward any landscape or open space requirements of this code, unless specifically provided otherwise in this Code.~~

(i) All unimproved right-of-way adjacent on the side abutting a development which is not in the City's one-year capital plan to be improved must be landscaped. All right-of-way landscaping shall be irrigated and maintained by the adjoining private property owner, unless the City agrees to accept it for maintenance. If it is to be maintained by the City, a separate irrigation system shall be provided.

(ii) At least 75 percent of the unpaved adjacent right-of-way shall be landscaped ~~with turf,~~ low shrubs or ground cover. The Director may vary the required landscaping to obtain a consistent appearance in the area or with existing or planned right-of-way landscaping.

(iii) Except where a detached sidewalk exists or is proposed and approved (see subsection, landscaping on public right-of-way shall not be counted toward any landscape or open space requirements of this code, unless specifically provided otherwise in this Code.

Commented [GLJ5]: Can remove turf from this allowance to substantially discourage its use. It may be necessary to revise to a lower coverage. Tucson and St. George both use 50%, for example. For low water (see below) this figure is 50%.

Commented [GL6]: Need a section about trees planted within street rights of way. Tree protection standards for street trees, approved species planting list per code, City tree planting detail used, diversity standards, spacing, approval from CF on plans. -Rob Davis

(~~iii~~iv) The owner of the nearest property shall keep all rights-of-way, which are not hard surfaced, free of weeds, litter, junk, rubbish and obstructions. To prevent weed growth, erosion and blowing dust, right-of-way areas not covered by vegetation or paving shall be covered with mulch, wood chips, bark chips, decorative rocks or cobble or similar natural materials, to be underlain by weed fabric or other barrier.

(~~i~~v) Where detached sidewalks exist, or are proposed, a maximum of 50 percent of the public right-of-way landscaping may be counted toward the total required landscaping. The right-of-way landscaping between the curb and sidewalk shall contain street trees spaced every 40 feet. Right-of-way landscaping shall be a minimum of 6 feet wide in any direction unless deemed unreasonable or impractical by the City Forester.

(v~~i~~) The Director may allow decorative paving in landscaped areas in commercial or other high pedestrian traffic areas if the decorative paving is compatible with nearby right-of-way paving and landscaping.

(1~~8~~7) Pervious Coverage. Landscaped and buffer areas count toward the pervious area requirement.

~~(18) Authority.~~

~~(i) The Director shall decide all questions of soils, plant selection and care, irrigation installation and other vegetation and landscaping questions, except for plantings in the right-of-way.~~

~~(ii) The Director may approve an applicant's request to vary from the required number and types of plants or landscaped area if:~~

~~(A) The number of trees exceeds 25 percent of the minimum number of trees; and/or~~

~~(B) Trees exceed the minimum caliper requirement by one inch or more; and/or~~

~~(C) Additional berming or other attractive buffering, public art, enhanced paving treatments for public plazas (brick or concrete pavers, tinted and stamped concrete, etc.) is provided. The Director may grant up to a 10 percent reduction of the square footage of improved area used to calculate the landscape requirement where these types of enhancements are included in a development.~~

~~(D) Additional trees or larger trees can be exchanged on a per-caliper-inch basis with three shrubs equaling one caliper inch. Credit for using larger trees~~

~~would be based on a direct exchange of caliper inches. For example: 10 three-inch caliper trees equaling 30 caliper inches is the same as 15 two-inch caliper trees equaling 30 caliper inches; one two-inch caliper tree equals six shrubs. Trees may be substituted for shrubs, but shrubs may not be substituted for trees.~~

~~(E~~D) ~~If the total amount of required landscaping is provided, the Director may allow the owner to place the landscaping on another appropriate part of the lot.~~

(19) Water Wise.

~~Because of Grand Junction's desert environment, water wise design and the use of xeric (low water use) plants are strongly encouraged. Water wise designs shall employ the seven basic principles of xeric design which include "comprehensive planning and design for low water use, creating practical turf areas, selecting low water use plants and organizing plants by water usage, using adequate soil prep, using water conserving mulches, irrigating efficiently and maintaining the landscape appropriately" (source: Denver Water Board).~~

~~(i) Low water use plants are encouraged for use in the "typical" urbanized landscape, especially where the plants can be irrigated (zoned) separately from higher water use plant material. This way of using xeric plants is compatible with any of the requirements of this code.~~

~~(ii) Landscaping designs that mimic the "desert" character of Grand Junction's setting are also encouraged, but must be carefully designed so that the basic requirements for shade, screening and buffering are met. Because of this, the Director must approve "desert" or xeric landscape plans as well as variances from the required plant coverage ratios. To further encourage xeriscaping, one-gallon xeric plants shall be equivalent to five-gallon traditional plants. Trees shall be installed in accordance with subsection (b) of this section.~~

(20) Low Water Landscape Designs. Because of Grand Junction's desert environment, low-water landscape design and the use or xeric plants or plants requiring minimal supplemental watering are strongly encouraged in all landscape designs, including those that do not meet the requirements of a low water landscape design. It is the intent of this subsection to assist in achieving conservation through proper plant selection, installation and maintenance practices, and to encourage the conservation of water resources.

(i) A low water landscape plan shall be a landscape plan in which at least 75 percent of shrubs and groundcover are xeric or low water use.

Commented [GL7]: Rob is concerned about promoting low-water trees and about using an incentive structure that lowers the total tree count. That is much of the incentive structure as originally drafted, so this needs to be carefully considered. Tamra has noted that there may be a desire to require these standards to be implemented for commercial and industrial, while encouraging them for residential.

(ii) Low water landscape designs shall employ the seven basic principles of xeric design. These principles are:

(A) Appropriate planning and design.

(B) Limiting turf areas to locations where it provides functional benefits.

(C) Efficient irrigation systems.

(D) The use of soil amendments to improve water holding capacity of the soil.

(E) The use of mulches, where appropriate.

(F) The use of drought-tolerant plants.

(G) Appropriate and timely maintenance.

(iii) Low water use plants are identified by the City of Grand Junction Approved Plant Suitable by their watering requirements. Plants identified as xeric or low water use shall qualify for use in low water landscape designs. In addition to meeting the seven basic principles of xeric design, a low water landscape plan is defined as a landscape plan that includes low water use plants for no less then seventy-five percent of total shrubs and groundcover and no less than seventy-five percent of the total landscaped area.

(iv) Low water landscape plans shall identify irrigation zones ("hydrozones") and shall separate xeric and low water use plantings from medium and high water use plantings.

(v) Landscaping designs must be carefully designed so that the basic requirements for shade, screening and buffering are met. Low water use landscaping includes xeriscaping. The term "xeri" shall not be interpreted to mean "zero".

(vi) To encourage xeriscaping, one-gallon xeric groundcover and perennial plants may be substituted for five-gallon traditional groundcover and perennial plants when the landscape plan meets the definition of a low water landscape plan.

(vii) For low water landscape plans, a minimum of 50 percent of the street frontage landscape shall be covered by plant material at maturity.

(viii) When turf is used for low water landscape plans, all turf shall be low water use turf varieties including non-irrigated native, dryland, or restorative grasses.

(ix) Low water landscape plans shall include a method of irrigation for establishment of all plant materials. Acceptable methods of irrigation include automatic irrigation systems designed for low gallon use, such as low precipitation heads, drip systems, or other types of low gallon heads with the appropriate clock, pipes, and filtration devices. These systems may be removed or deactivated upon plant maturation.

(x) Low water landscapes shall be subject to all other requirements of this section.

(c) Parking Lots.

(1) Interior Landscaping Requirement.

Landscaping is required in the interior of parking lots to direct traffic, to shade cars and structures, to reduce heat and glare and to screen cars from adjacent properties. The interior of all parking lots shall be landscaped as follows:

(i) One landscaped island, parallel to parking spaces, is required for each 20 parking spaces. In lieu of the standard landscape island, one "orchard style" landscape island may be used for every six parking spaces. The orchard style landscape islands shall be evenly spaced between end landscape islands. (See subsection (j) of this section.)

(ii) Landscape islands must be at least 140 square feet. The narrowest/smallest dimension of a parking lot island shall be eight feet, measured from back of curb to back of curb.

(iii) One landscaped divider island, parallel to the parking lot drive aisles, designed to prevent diagonal movement across the parking lot, shall be located for every three parking lot drive aisles.

(iv) A landscape island is required at the end of every row of parking spaces, regardless of length or number of spaces.

(v) Wheel stop barriers on all sides adjacent to the parking lot surface are required to protect landscape islands from vehicles.

(vi) A corner area (where it is not feasible to park a vehicle) may be considered an end island for the rows on the perimeter of the parking lot.

(vii) Landscaping of the interior of a parking lot shall include trees and shrubs.

(viii) To improve the management of stormwater runoff, structurally-sound permeable pavers may be used in parking areas, subject to the approval of the Director. Use of permeable pavers for ten parking stalls shall result in a reduction of one required parking stall per the required parking ratios in GJMC 21.06.050.

Commented [GL8]: Prefer to move to parking section?

(2) Parking Lot Perimeter.

Landscaping is required around the entire perimeter of a parking lot ~~to assist in the shading of cars, to~~ assist in the abatement of heat, ~~and to~~ reduce the amount of glare from glass and metal, and to assist in the screening of cars from adjacent properties and rights-of-way. The perimeter of a parking lot is defined as the curb line defining the outer boundaries of the parking lot, including dumpster enclosures, bike racks, or other support facilities that are adjacent to the outer curb. Entry drives between a parking lot and the

street, drives connecting two internal parking lots or building entry plazas are not included in the perimeter area. The requirements of this subsection are applicable to all public and private parking areas but not to automobile storage areas associated with commercial uses including automobile dealerships (General Retail Sales, Outdoor Operations, Display or Storage) and self-service storage as defined in GJMC 21.04.

(i) Screening shall occur between a street and a parking lot. ~~and~~ When screening is required, street frontage landscape standards shall apply. (See subsections (c)(3) and (l) of this section.)

(ii) The minimum dimension allowed for the parking lot perimeter landscape strip is six feet. ~~The width of a landscape strip can be modified by the Director, provided the intent of this section is met.~~

Commented [GL9]: Option to increase to eight feet for best practices. Would impact standard designs.

(iii) Landscaping along the perimeter of parking lots shall include trees and shrubs.

(iv) Parking lots shared by more than one owner shall be landscaped around the perimeter of the combined lots.

(3) Screening.

All parking lots abutting rights-of-way, entry drives, and adjacent properties must be screened. For this subsection, a "screen" means a ~~turf~~ groundcover berm and/or shrubs.

(i) A 30-inch-high screen is required along 70 percent of parking lots abutting rights-of-way, entry drives, and adjacent properties, excluding curb cuts. The 30-inch screen shall be placed so as to maximize screening of the cars in the parking lot, when viewed from the right-of-way and shall be measured from the ground surface, or the elevation of the roadway if the adjacent road is higher than the property.

(ii) Screening shall not be required between parking lots on adjoining lots where the two lots are designed to function as one.

(iii) If a landscape area is 30 feet wide or greater between a parking lot and a right-of-way, the 30-inch-high screen is not required. This 30-foot-wide or greater area must be 100 percent covered in plant material within three years. Turf is not allowed.

(iv) The Director may approve a screen wall between a parking lot and a right-of-way if the lot or parcel is unusually small.

(v) A screen wall must not be taller than 30 inches, unless the adjacent roadway is higher than the property, in which case the screen wall shall be 30 inches higher than the adjacent roadway.

~~(vi) Two five-gallon shrubs may be substituted for four linear feet of wall; shrubs must reach a height of at least 30 inches at maturity.~~

~~(vii) A column or jog or equivalent architectural feature is required for every 25 linear feet of wall.~~

(viii) The back of the wall must be at least 30 inches from the face of curb for bumper overhang.

(~~ix~~viii) Shrubs must be planted on the street side of the wall.

(ix) There must be at least five feet between the right-of-way and the paved part of a parking lot to use a wall as a screen.

~~(x) Wall elevations and typical cross sections must be submitted with the landscape plan at a minimum scale of one-half inch equals one foot.~~

(xi) Walls shall be solid masonry with finish on both sides. The finish may consist of stucco, brick, stone or similar material. Unfinished or merely painted concrete block is not permitted.

(xii) Shrub plantings in front of a wall are not required in the B-2 downtown district.

(d) Street Frontage Landscape.

(1) Within all zones (except single-family uses in single-family, B-2 and form based zone districts), the owner shall provide and maintain a minimum 14-foot-wide street frontage landscape adjacent to the public right-of-way.

(2) Except for in low water landscape plans, a~~A~~ minimum of 75 percent of the street frontage landscape shall be covered by plant material at maturity.

(3) The Director may allow for up to 50 percent of the 14-foot-wide street frontage to be turf, or up to 100 percent turf coverage may be allowed if the parking lot setback from the right-of-way exceeds 30 feet. Low water usage turf is encouraged.

(4) ~~All unimproved right-of-way adjacent to new development projects shall be landscaped and irrigated by the owner and/or homeowners' association as per subsection (b)(16) of this section.~~

~~(5)~~ Landscaping within the street frontage shall include trees and shrubs. If detached walks are not provided with street trees, street trees shall be provided in the street frontage landscape, including one tree for every 40 feet of street frontage.

~~(6) Where detached walks are provided, a minimum street frontage landscape of five feet is acceptable.~~

Commented [GL10]: Deletion would yield a change in practice, as this is frequently used. Best practice is a minimum 6ft landscaping strip, per 16(iv). Rob would prefer to migrate to 8ft minimum for landscaping strips in the ROW and parking lots.

(e) Buffers.

(1) Buffers shall be provided between different zoning districts as indicated in subsection (k) of this section.

(i) Seventy-five percent of each buffer area shall be landscaped with turf, low shrubs or ground cover.

(ii) One ~~medium sized~~ shade tree is required per every 40 linear feet of boundary between different zones.

(2) Exceptions.

(i) Where residential or collector streets or alleys separate zoning districts, the Director can require more landscaping instead of a wall or fence.

(ii) Where walkways, paths, or a body of water separates zoning districts, the Director may waive a fence or wall requirement provided the buffering objectives are met by private yards.

(iii) Where a railroad or other right-of-way separates zoning districts, the Director may waive the buffer strip if the buffering objectives are met without them.

(f) Fences, Walls and Berms.

(1) Fences and Walls. When a higher density or intensity zoning district abuts a lower density or intensity zone district, it is the responsibility of the higher density or intensity property to buffer the abutting zone district according to subsection (k) of this section. When an existing fence or wall substantially meets the requirements of this section, and subsection (k) of this section requires the same form of buffering, an additional fence on the adjacent developing property shall not be required. However, if the new development requires the placement of a wall, and a fence exists on the adjacent property, the wall shall be required. If a wall is required and a fence is in place, the wall must be placed adjacent to the fence. (Subsection (k) of this section should be referenced to determine when a wall or a fence is required. The more stringent standard shall apply; i.e., if a wall is required and a fence is in place, the wall must be placed adjacent to the fence.) Fences must comply with GJMC 21.04.040(i), any design guidelines and other conditions of approval. Fences and walls required by this section must meet the following:

(i) Maximum height: six feet (outside of front setback, 30-inch solid height or four feet height if two-thirds open within the front setback and must meet all sight distance requirements).

(ii) Fence type: solid wood or material with a similar appearance, finished on both sides.

(iii) Wall type: solid masonry finished on both sides. Finish may consist of stucco, brick, stone or similar material but unfinished or merely painted concrete block is not permitted.

(iv) Location: within three feet of the property line unless the space is needed to meet landscaping requirements.

(v) A wall must have a column, jog, or other significant architectural feature every 25 ~~30~~ feet of length.

(vi) Any fence or wall over six feet in height requires a building permit.

(vii) No person shall construct or maintain a fence or a wall without first getting a fence/wall permit from the Director.

(2) Berms. Minimum requirements for berms are as follows:

(i) Maximum slope of 4:1 for turf or groundcover areas and 3:1 for shrub beds; and

(ii) To control erosion and dust, berm slopes must be stabilized with vegetation or by other means consistent with the requirements for the particular landscape area.

(g) Residential Subdivision Perimeter Enclosures.

(1) Intent. The ~~decision-maker~~ Director may require ~~(where deemed necessary)~~ perimeter enclosures (fences and/or walls) around all or part of the perimeter of a residential development. Perimeter enclosures shall be designed to meet the following objectives of protecting public health, safety and welfare: screen negative impacts of adjoining land uses, including streets; protect privacy; maintain a consistent or complementary appearance with enclosures in the vicinity; maintain consistent appearance of the subdivision; and comply with corridor overlay requirements.

(2) Applicability. When required by the Director, the standards of this subsection shall apply to all residential subdivisions and all mixed-use subdivisions where the square footage of proposed residential uses exceeds the square footage of proposed non-residential uses. Attached single family dwellings (i.e. townhomes) shall be landscaped per the requirements of this subsection.

(3~~2~~) Specifications. Unless specified otherwise at the time of final approval:

(i) A perimeter enclosure includes fences, walls or berms, and combinations thereof, located within five feet of the exterior boundary of a development.

(ii) The maximum height is six feet, including within front setbacks; however, an enclosure constructed on a berm shall not extend more than eight feet above the adjoining sidewalk or crown of road, whichever is lower.

(iii) New enclosures shall be compatible with existing enclosures in the vicinity, if such enclosures meet the requirements of this code.

(iv) A perimeter enclosure in excess of six feet is a structure and requires a building permit.

(v) A perimeter wall must have a column or other significant architectural feature every 30 feet.

(~~3~~4) Required Perimeter Enclosures. The ~~decision-maker~~ Director may require a perimeter enclosure ~~as a condition of the final approval~~ if the following conditions are met. The Director will notify applicants of the need for a perimeter enclosure, if required.

(i) Use or enjoyment of property within the development or in the vicinity of the development might be impaired without a perimeter enclosure.

(ii) A perimeter enclosure is necessary to maintain a consistent and complementary appearance with existing or proposed perimeter enclosures in the vicinity.

(iii) A perimeter enclosure is necessary to control ingress and egress for the development.

(iv) A perimeter enclosure is necessary to promote the safety of the public or residents in the vicinity.

(v) A perimeter enclosure is needed to comply with the purpose, objectives or regulations of the subdivision requirements.

(vi) A perimeter enclosure is needed to comply with a corridor overlay district.

~~(vii) The Director will notify applicants of the need for a perimeter enclosure, if required.~~

~~(4) Design of Perimeter Enclosures. A complete landscape plan for the required landscape buffer and a detail drawing of the perimeter enclosure must be submitted at~~

~~the time of final approval: perimeter enclosure detail at a scale of one-half inch equals one foot.~~

(5) Landscape Buffer. On the outside of a perimeter enclosure adjacent to a right-of-way, a 14-foot-wide landscape buffer shall be provided between the perimeter enclosure and the right-of-way for major and minor arterial streets and major or minor collectors. A five-foot-wide landscape buffer for side and rear yard perimeters shall be provided on all other streets between the perimeter enclosure and the right-of-way.

~~(i) Vegetation in the sight triangle (see TEDS, GJMC Title 29) shall not exceed 30 inches in height at maturity;~~

(ii) In the landscape buffer, one tree per 40 linear feet of perimeter must be provided;

(iii) All perimeter enclosures and landscape buffers must be within a tract dedicated to and maintained by the homeowners' association. The perimeter enclosure and landscaping must be installed by the developer and made a part of the development improvements agreement;

(iiiv) A minimum of 75 percent of the landscape buffer area shall be covered by plant material at maturity. Turf may be allowed for up to 50 percent of the 14-foot-wide landscape strip, at the Director's discretion. Low water usage turf is encouraged;

(iv) Where detached walks are provided, a minimum buffer of five feet shall be provided. In which case, the right-of-way parkway strip (area between the sidewalk and curb) will also be planted as a landscape buffer and maintained by the HOA.

(6) Construction of Perimeter Enclosures. The perimeter enclosure and required landscape buffer shall be installed by the developer and included in the development improvements agreement.

(7) Ownership and Maintenance. The developer shall refer to the perimeter enclosure in the covenants and restrictions and so that perpetual maintenance is provided for either that the perimeter enclosure be owned and maintained by the owners' association or by individual owners. The perimeter enclosure shall be identified on the plat.

(8) Alternative Construction and Ownership. If the Director ~~decision-maker~~ finds that a lot-by-lot construction, ownership and/or maintenance of a perimeter enclosure landscape strip would meet all applicable objectives of this section and the design standards of GJMC 21.06.060, ~~the final approval~~ approved plans shall ~~specify~~ note

specifications including the type and size of materials, placement of fence posts, and length of sections~~, and the like~~.

(9) Overlay District Conflicts. Where in conflict, the perimeter enclosure requirements or guidelines of approved overlay districts shall supersede the requirements of this section.

~~(10) Variances. Variances to this section and appeals of administrative decisions (where this code gives the Director discretionary authority) shall be referred to the Planning Commission.~~

(h) Substitutions. The requirements outlined in GJMC 21.06.040(i) above may be varied based at the following rates of substitution.

(1) Shade trees larger than two caliper inches and ornamental trees larger than one and a half caliper inches at the time of planting may be substituted for additional required trees on a per-caliper-inch basis, with one caliper inch of increased tree size equaling one caliper inch of trees not planted. For example: two trees three caliper inches in diameter may be substituted for three trees two caliper inches in diameter.

Commented [RD11]: Encouraging the planting of larger caliper trees to reduce the total number of trees planted is not beneficial in the long term; larger trees tend to be harder to successfully establish in CO, and after 10 years it is impossible to tell a difference... in this case in 10 years a property will simply have less trees.

(2) Additional trees or larger trees can be exchanged on a per-caliper-inch basis with three shrubs equaling one caliper inch. Credit for using larger trees would be based on a direct exchange of caliper inches. For example: 10 three-inch caliper trees equaling 30 caliper inches is the same as 15 two-inch caliper trees equaling 30 caliper inches; one two-inch caliper tree equals six shrubs.

(3) Trees may be substituted for shrubs, but shrubs may not be substituted for trees.

(4) Two five-gallon shrubs may be substituted for four linear feet of wall when walls are required per GJMC 21.06.040(c)(3). Shrubs substituted for walls must reach a height of at least 30 inches at maturity.

(5) Twenty-five percent of the required shrubs may be converted to turf based on one five-gallon shrub per 50 square feet of turf.

Commented [GLJ12]: Not desirable if the goal is to reduce turf

(6) Ten percent of the required shrubs may be converted to perennials and/or ground covers at a ratio of three one-gallon perennials and/or ground covers for one five-gallon shrub.

(7) The number of shrubs may be reduced in exchange for additional trees or tree size at a rate of three shrubs per caliper inch.

(8) Substitutions for low water landscape plantings are described in GJMC 21.06.040(b)(20). To use substitute using the requirements of this section, the landscape plan must qualify as a low water landscape plan per the requirements of GJMC 21.06.040(b)(20)(vi) and (vii).

(9) Preservation of existing trees may be included in the total planting count at a ratio of one caliper inch preserved trees to one caliper inch of required tree plantings, with the exception of significant trees. Preserved existing trees are subject to the ratios described in GJMC 21.06.040(8)(iii).

	Tree	Shrub		Groundcover/Perennials	Wall
Tree	Per caliper inch	3 shrubs for 1 caliper inch of tree		n/a	n/a
Shrub	3 shrubs for 1 caliper inch of tree	n/a		three one-gallon perennials and/or ground covers for one five-gallon shrub	2 five-gallon shrubs (minimum 30 inches in height) for four linear feet of wall
Groundcover /Perennials	n/a	three one-gallon perennials and/or ground covers for one five-gallon shrub		n/a	n/a
Wall	n/a	2 five-gallon shrubs (minimum 30 inches in height) for four linear feet of wall		n/a	n/a

Commented [GLJ13]: Table option. Need to discuss whether additional substitutions are merited and whether trees should be exchanged for larger trees per Rob's comments.

(~~h~~i) I-1 and I-2 Zone Landscape.

(1) Parking Lot Perimeter Landscape. Landscaping for the parking lot perimeter shall be per subsection (c)(2) of this section with the following addition:

(i) Turf may be allowed for up to 50 percent of the parking lot perimeter, at the Director's discretion. Low water ~~usage~~ and native turf ~~is~~ are encouraged.

(ii) A minimum of 75 percent of the parking lot perimeter landscape shall be covered by plant material at maturity.

(2) Street Frontage Landscape. Landscaping for the street frontage shall be per subsection (d) of this section with the following additions:

~~(i) Vegetation in the sight triangle in the street frontage must not exceed 30 inches in height at maturity.~~

(~~i~~i) One tree for every 40 linear feet of street frontage (excluding curb cuts) must be provided, 80 percent of which must be shade trees.

(3) Public Right-of-Way Landscape. Landscaping for the public right-of-way shall be per subsection (b)(16) of this section.

(4) Maintenance. Each owner or the owners' association shall maintain all landscaping.

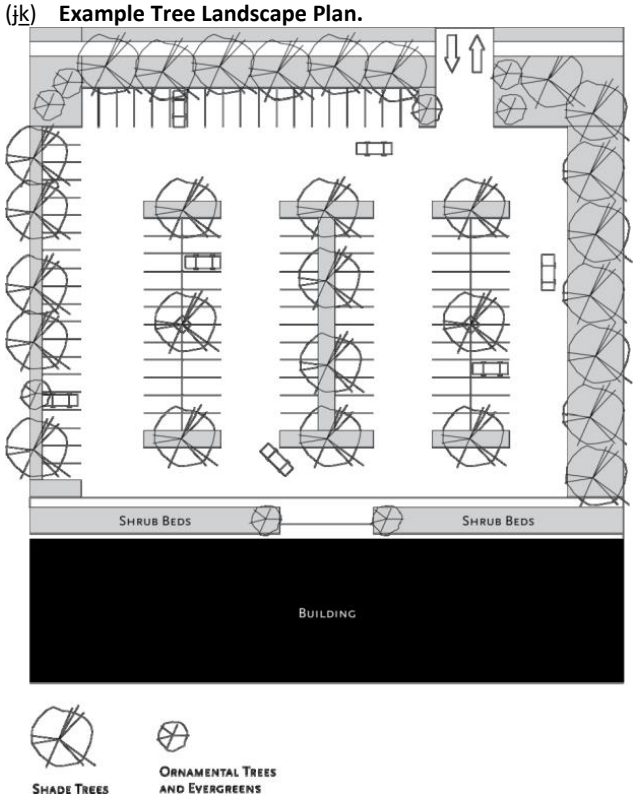
(5) Other Applicable Sections. The requirements of subsections ~~(i),~~ (j), (k) and (l) of this section shall also apply.

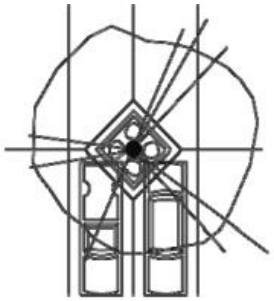
(~~i~~j) Landscaping Requirements.

Zoning of Proposed Development	**Landscape Requirement**	**Location of Landscaping on Site**
Single-family residential (R zones)	As required for uses other than single-family residential; and as required in subsections (b)(16) and (g) of this section	As required for uses other than single-family residential; and landscape buffer and public right-of-way
R-5, R-8, R-12, R-16, R-24, R-0, B-1, C-1, C-2, I-O, CSR, MU	One tree per 2,500 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved area	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-way
B-2	One tree per 2,500 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved area	Parking lot, park strip (in right-of-way)
I-1, I-2	As required in subsection (h) of this section and in other subsections of this section where applicable	Street frontage, parking lots, buffers and public right-of-way
MXR, MXG, MXS, MXOC	One tree per 3,000 square feet of improved area, with no more than 20 percent of the total being ornamental trees or evergreens. One five-gallon shrub per 300 square feet of improved	Buffer, parking lot, street frontage perimeter, foundation plantings and public right-of-

Zoning of Proposed Development	Landscape Requirement	Location of Landscaping on Site
	area. Plantings must be evenly distributed throughout the development	way
Facilities: mining, dairy, vineyard, sand or gravel operations, confined animal feeding operation, feedlot, forestry commercial, aviation or surface passenger terminal, pasture	One tree per 5,000 square feet of improved area. One five-gallon shrub per 600 square feet of improved area	Perimeter, buffer and public right-of-way

(jk) **Example Tree Landscape Plan.**





6' X 6' SQUARE SHOWN
7' X 7' ALSO POSSIBLE

ORCHARD-STYLE LANDSCAPE ISLAND

Commented [RD14]: This should be removed as an option; trees have very little chance of every maturing in a parking lot island this small.

(kl) **Buffering Between Zoning Districts.**

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
SF (Subdivisions)	-	-	-	-	-	-	F	-	F	W	W	W	F	-	F	-	-	-
R-5	-	-	-	-	-	-	F	-	F	W	W	W	-	-	F	-	-	-
R-8	-	-	-	-	-	F	F	-	F	W	W	W	F	-	F	A	-	-
R-12 & R-16	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
R-24	-	-	-	-	-	-	F	-	W	W	W	W	F	-	F	A	-	-
RO & MXOC	A	A	A	A	A	-	A or F	-	A or F	W	W	W	A or F	-	A or F	A	-	-
B-1	F	F	F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	A or F	-	A or F	A	-	-
B-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C-1	A&W	W	W	W	W	W	-	-	-	-	-	-	-	-	-	-	-	-
C-2 & I-O	W	W	W	W	W	W	F	-	-	-	-	-	A or F	A or F	A or F	A&W	-	-

Zoning of Proposed Development	Zoning of Adjacent Property																	
	SF	R-5	R-8	R-12 R-16	R-24	R-O & MXOC	B-1	B-2	C-1	C-2 I-O	I-1	I-2	M-U	CSR	BP	MXR-	MXG-	MXS-
I-1	W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
I-2	B&W	W	W	W	W	W	F	-	-	-	-	-	A or F	B&W	A or F	B&W	A or F	A or F
M-U	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	A or F	A or F	A or F	A or F	-	-	-	-	-	-
CSR3 [1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BP	A or F	A or F	A or F	A or F	A or F	A or F	A or F	-	-	-	-	-	-	-	-	A or F	A or F	A or F
MXR-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXG-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-
MXS-	-	-	-	-	-	-	F	-	-	W	W	W	F	-	F	-	-	-

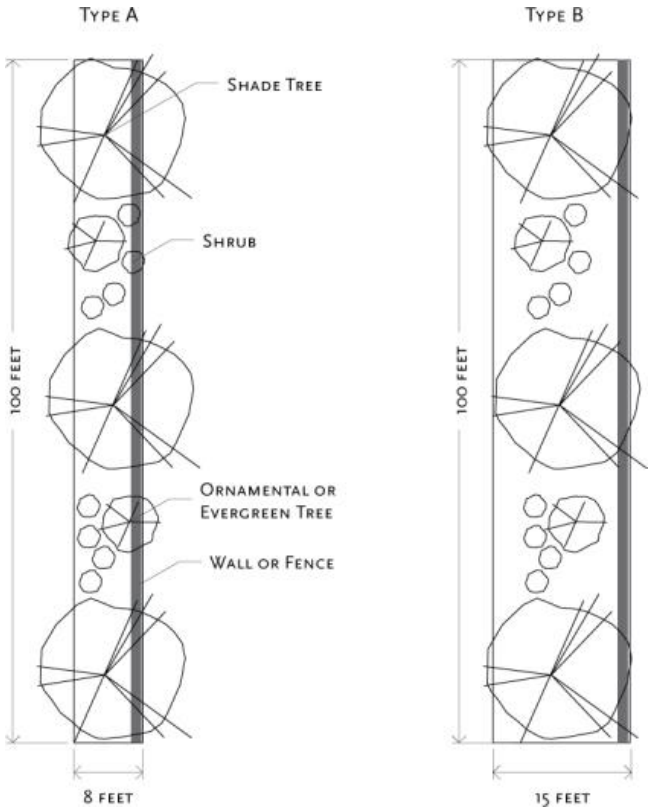
Notes
•A berm with landscaping is an alternative for a required fence or wall if the total height is a minimum of six feet.
•Where alleys or streets separate different zone districts, the Director may approve increased landscaping rather than requiring a wall or fence.
•The Director may modify this table based on the uses proposed in any zone district.
[1] Gravel operations subject to buffering adjacent to residential.

(ł<u>m</u>) **Buffer Requirements.**

Buffer Types	Landscaping Requirements	Location of Buffers on Site
Type A	Eight-foot-wide landscape strip with trees and shrubs	Between different uses
Type B	15-foot-wide landscape strip with trees and shrubs	Between different uses
Type F, W	Six-foot fence and wall (see subsection (f) of this	Between different uses

Buffer Types	Landscaping Requirements	Location of Buffers on Site
	section)	

Note: Fences and walls are required for most buffers.



(Ord. 4646, 11-19-14; amended during 2010 codification; Ord. 4419, 4-5-10)

GRAND JUNCTION, COLORADO

TREE CANOPY ASSESSMENT

TOTAL STUDY AREA

44,369 ACRES

TREE CANOPY

2019: 4.650 ACRES (11%)

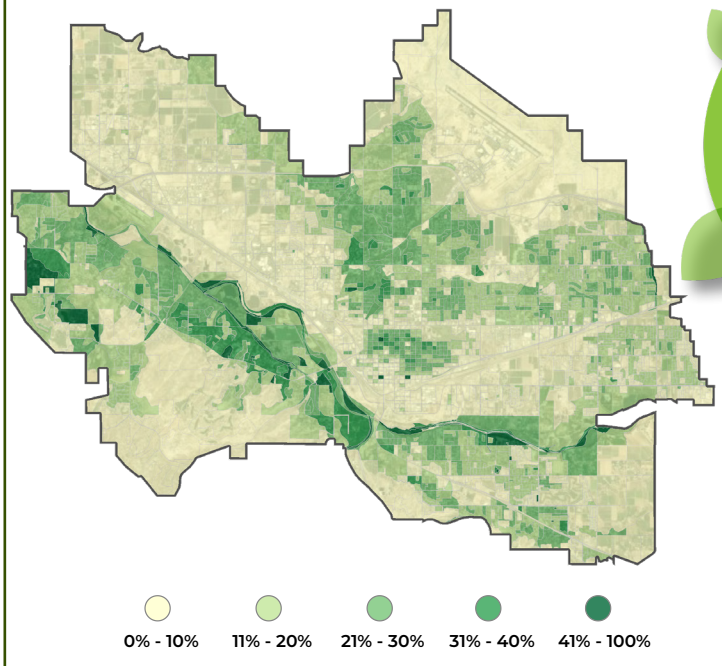
2011: 3,085 ACRES (7%)

PLANTABLE SPACE

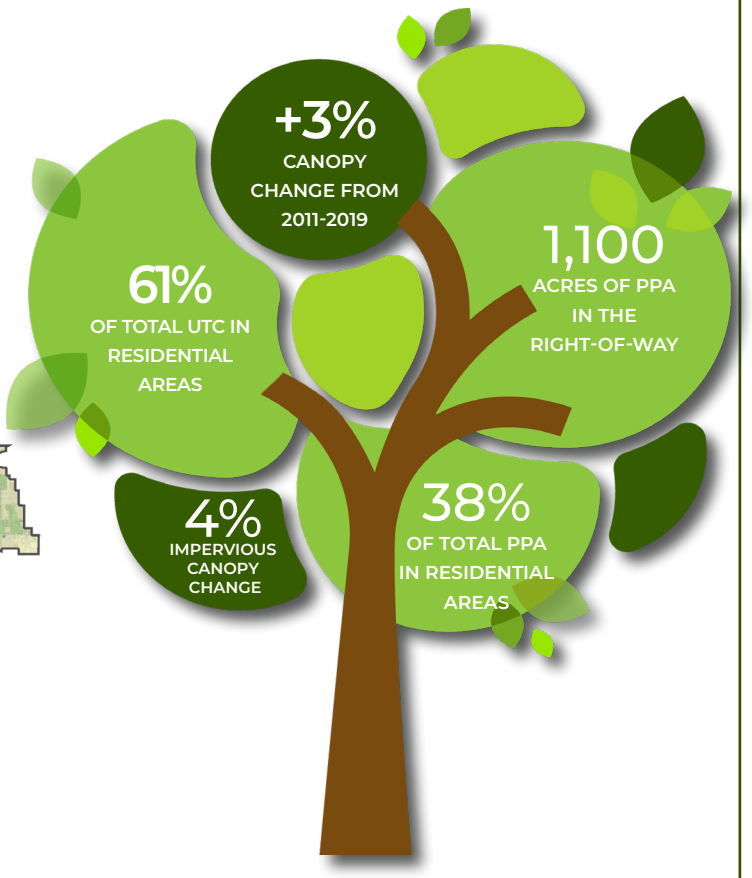
17,301 ACRES (40%)

The urban forest in Grand Junction is a valuable asset providing residents and visitors with many ecological, environmental, and communal benefits. This assessment analyzed urban tree canopy (UTC), possible planting area (PPA), and areas unsuitable for planting and how they are distributed throughout the City's urban development boundary, city limits, watersheds, city council districts, ZIP codes, land use, census block groups, and census blocks. The results provide insight into canopy change from 2011 and will allow the City to revise and develop existing and new strategies to protect and expand tree canopy. In 2019, Grand Junction had 11% urban tree canopy cover and 40% possible planting area within the urban development boundary. The maps and data provided in TreePlotter CANOPY™ help to concentrate efforts in areas where needs are greatest, tree planting space is available, and benefits can be realized.

URBAN TREE CANOPY DISTRIBUTION



KEY FIGURES



Assessment conducted by PlanIT Geo, LLC | www.planitgeo.com | Assessment funded by and prepared for the City of Grand Junction, Colorado (2021).

In 2019, tree canopy constituted 11% of Grand Junction's land cover; non-canopy vegetation was 40%; soil/dry vegetation was 19%; impervious was 29% and water was 2%. Tree canopy data were analyzed for several geographies to determine the distribution of existing and potential urban tree canopy throughout the City. Single Family Detached residential areas had the highest canopy coverage at 19%. In total, Residential areas contained the most canopy with 2,880 acres or 62% of all canopy in the City. Residential areas also contained the greatest potential for canopy expansion with over 6,500 acres or 38% of the City's total plantable space. Of all tree canopy in the urban development boundary, 49% was found within city limits. Within the urban development boundary, there was an increase in canopy of 4% from 2011 to 2019. All city council districts had between 7 and 10% UTC with District E at 10% and District D at 7%. All districts increased canopy cover by 2-3%.

$30 Million in Annual Savings

Stormwater Runoff Reduction:
34 Million Gallons Reduced
$395K in Savings

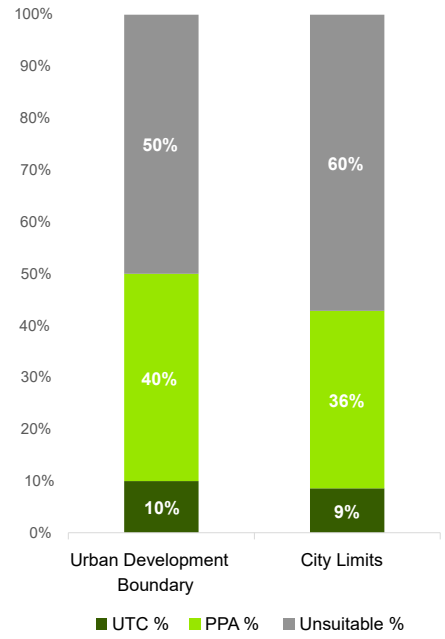
Air Quality Improvement:
171 Tons of Pollution Removed
$743K in Savings

Carbon Sequestration:
3,927 Tons Sequestered
166K Tons Stored
$29 Million in Savings

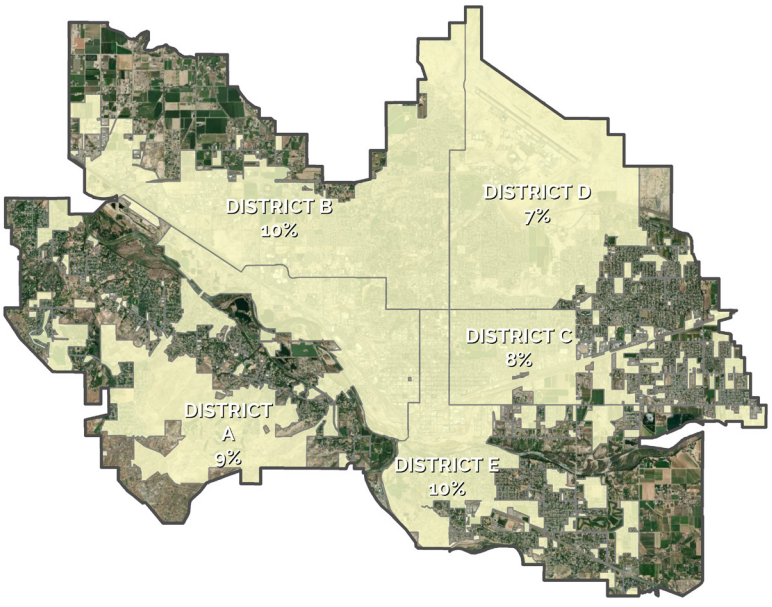
EXISTING UTC BY LAND USE

Land Use	Urban Tree Canopy			
	Acres	*%*	*Dist.*	*Change %*
Agricultural	441	5%	9%	1%
Airport/Industrial	54	1%	1%	1%
Commercial	59	4%	1%	2%
Manufactured Homes	65	18%	1%	4%
Multi-Family	47	14%	1%	4%
Office	85	7%	2%	3%
Open Space	496	18%	10%	7%
Parks	135	8%	3%	3%
Right-of-Way	544	9%	12%	3%
Schools	24	5%	1%	1%
Single-Family Attached	68	16%	1%	8%
Single-Family Detached	2,699	19%	57%	6%
Utilities	11	2%	0%	1%
Totals	**4,728**	**11%**	**100%**	**34%**

UTC POTENTIAL



UTC BY COUNCIL DISTRICT



**Possible Planting Areas (PPA) were defined as vegetated areas without tree canopy. These areas may not be suitable for planting to increase canopy due to slope, views, soils, or other limitations. Field surveys to identify suitable planting areas are advised.*

Urban Tree Appraisal Analysis Summary

Grand Junction, CO
January 2022

Purpose

This Urban Tree Appraisal Analysis provides an "asset value" of Grand Junction's tree population on all public and private lands. With this information, the City seeks to make more informed decisions on urban forestry budgeting, management practices, communications, public education, and natural resources planning.

Methodology & Assumptions

Tree Canopy

The urban tree canopy (UTC) is a measurement of the tree leaves, branches, and stems that provide coverage of the ground when viewed from above. The following steps were taken to accomplish this UTC analysis:

1. Aerial imagery processed by artificial intelligence (AI) identified tree canopy cover at 60 cm resolution with an overall accuracy of 96.6%, or 97.3% in census defined urban areas[1].
2. The pre-analyzed tree cover data was clipped to Grand Junction's land boundaries (with water bodies omitted) to calculate a citywide UTC.
3. The citywide UTC was divided using the City's land use classifications and then grouped into public or private land.

Tree Counts

1. The Forest Service regional estimates for tree size classes were obtained[2] for large (40' diameter), medium (30' diameter), and small/conifer (20' diameter) tree canopies.
2. Based on local and regional data[3], the distribution of size classes throughout Grand Junction was estimated to be 50% for large trees, 30% for medium trees, and 20% for small/conifer trees.
3. The tree size class distribution was applied to UTC area to produce the total tree canopy area per tree size class.
4. Finally, the total number of trees was calculated per size class by dividing the estimated canopy diameter per tree by the total area per size class.

Tree Appraisals

Grand Junction's trees were appraised using the Trunk Formula Technique (TFT) published in The Guide for Plant Appraisal, 10th Edition, Revised, authored by the Council of Tree and Landscape Appraisers (CTLA)[4]. Assumptions used in the TFT variables are:

- Trunk diameter by size class
  - (small = 5", medium = 10", large = 20")
- Condition rating = 70% (Fair)
- Functional limitations = 75% (site, utility lines, etc.)
- External Limitations: 80% (drought, pests, etc.)
- Replacement tree size: 3" caliper; at $450/tree.
- Additional Cost (installation, maintenance, etc.): $0

Trunk Formula Technique

1. Basic Reproduction Cost = CSA x UTC
   - CSA = Cross-sectional area of the subject tree
   - UTC = Unit tree cost, determined by the Regional Plant Appraisal Committee (RPAC) or local wholesale cost
2. Depreciated Reproduction Cost = CR x F x E x BRC
   - CR = Condition rating
   - F = Functional limitations rating
   - E = External limitations rating
   - BRC = Basic reproduction cost
3. Additional Costs = installation, maintenance, etc.
4. Total Reproduction Cost = DRC + TAC
   - DRC = Depreciated Reproduction Cost
   - TAC = Total Additional Costs
5. Appraisal Value = Total Reproduction Cost rounded to the nearest thousand.

Urban Tree Appraisal Analysis Summary

Grand Junction, CO
January 2022

Summary of Assumptions

Grand Junction's Urban Tree Appraisal Analysis uses methods and assumptions that are widely used as industry standards. The analysis uses 60 cm resolution tree canopy cover data, separated into public and private land by land use class. A total citywide tree count was achieved using regional tree size class assumptions published by the USDA Forest Service. The tree appraisal estimation uses the Trunk Formula Technique found in the revised 10th edition of the CTLA's Guide for Plant Appraisal, which is current as of 2020. The various other assumptions in this analysis were confirmed by the City of Grand Junction using local data and knowledge of the regional landscape.

Results

Grand Junction's tree canopy covers 11% of the City's land area. Private land contains 75% of the tree canopy, whereas only 25% of the canopy covers public property. An estimated 228,034 trees exist in Grand Junction. Based on local estimates for tree size class distribution, there are over 114,000 large trees, 68,000 medium trees, and 45,000 small or conifer trees. A closer examination of public and private trees shows an estimated total of 57,867 trees on public land and 170,167 trees on private land.

Grand Junction's trees are appraised at over $1.1 billion. This tree appraisal value approximates the costs to purchase the largest commonly available nursery trees relative to the size of the appraised trees. As such, each small canopy tree is valued at $500, medium at $2,100, and large at $8,400. The total value of all trees on private property is estimated at over $838 million, and trees on public property over $285 million.

11%
CANOPY COVER

228,034
TOTAL TREES

$1.1 billion
APPRAISAL VALUE

Comparison with Denver Metro Area

The Denver metropolitan area was assessed in 2013 using similar methodology to this Urban Tree Appraisal Analysis. Compared to Grand Junction's 11% canopy and 228,034 trees, the Denver metro area analysis resulted in 10.7 million trees covering 15.7% of the 721 square mile region. The UTC for the 29 cities within metro Denver ranged from 5-37%. The mean tree density for the metro area was 23.2 per acre, compared to 8.9 trees per acre in Grand Junction.

Endnotes

1. Urban tree canopy (UTC) results were gathered through a partnership with PlanIT Geo and EarthDefine.
2. McPherson, E.G., J.R. Simpson, P.J. Peper, S.E. Maco, Q. Xiao, and P.J. Hoefer. 2003. Northern mountain and prairie community tree guide: Benefits, costs and strategic planting. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, Center for Urban Forest Research, Davis, California, U.S.
3. Grand Junction City staff confirmed size class estimates using Google Street View and Colorado city case studies.
4. CTLA, 2020. Guide for Plant Appraisal, 10th Edition, Revised. Champaign Il.: International Society of Arboriculture.

Chapter 8.32
TREES

Sections:

8.32.010 Trees in right-of-way.

The Department of Parks and Recreation is hereby authorized to furnish the necessary personnel and services for the planting of trees or replacing damaged trees in the right-of-way of the City.

(a) As a part of its service, the Department shall give advice and counsel regarding the tree varieties to be selected, the soil conditions involved, fertilizers needed, protective devices suggested and other information concerning the selection of the tree sizes and varieties and the planting of trees. Such advice and information regarding the selection and care of trees shall be available to any person in the City requesting such information.

(b) The planting and other services rendered by the Department shall be upon the specific condition that all watering and care, except for spraying and trimming of the trees after the planting, shall be the responsibility of the person requesting the planting, and the services of the Department personnel will only be for the purpose of planting the trees. No guarantee or assurance whatsoever shall be made or assumed regarding the growth or survival of the trees so planted.

(c) The planting of trees and services by the Department for such planting shall be available only during the usual spring months of each year; provided, however, that subject to the availability of personnel, plantings may be had at other times of the year upon request therefor.

(Amended during 2009 recodification; Code 1994 § 40-51; Code 1965 § 20-80)

8.32.020 List of trees and plantings in public ways.

Trees, shrubs, vines and evergreens planted in public ways or parkings shall be in conformity with an official list approved by the Forestry Board. The Forestry Board shall consider in preparing an official list the growth habits, mature size, disease resistance or other factors which minimize maintenance costs and nuisances and conform with other provisions of the ordinances of the City. Plantings not in conformity with the approved list shall be removed by the owner or agent at the request of the City Manager.

(Amended during 2009 recodification; Code 1994 § 40-52; Code 1965 § 20-81(b))

8.32.030 Inspection of trees.

The City Manager or designated representative is hereby authorized to inspect trees, shrubs, plants, vines, logs or branches and every other type of plant material on all private and public property to ascertain the condition of such plantings in relation to disease and insects detrimental to the growth, health and life of such plantings, to discover incidence of disease, and take appropriate action to preserve and restore the growth, health and life of the plantings by spraying, removing, pruning or other remedial action. Further, the Director or designated representative is hereby authorized to inspect trees, shrubs and plantings on private property for the above-mentioned conditions. If such conditions are found to exist and, in the professional judgment of the City Manager, such conditions are or will become injurious to other private or public plantings, the owner of the property shall be given written notice to spray, remove, prune or take any other necessary remedial action in regard to the infested plantings within a specified period of time.

(Code 1994 § 40-53; Code 1965 § 20-83(a))

8.32.040 Planting of approved species.
It shall be the responsibility of the City Manager to prepare or cause to be prepared a list of approved trees for planting in public ways and parkings along the streets and highways, and the City Manager shall be available for consultation with property owners regarding such plantings.

(Code 1994 § 40-54; Code 1965 § 20-84)

8.32.050 Duty to replace trees.
If a tree is removed by contractors pursuant to any work done in a City right-of-way, such tree shall be replaced by the contractor responsible for such removal. The ratio of replacement shall be as follows: For every six inches of trunk diameter removed measured four feet aboveground, one two and one-half inch balled and burlapped, or equivalent method, tree shall be used in replacement thereof up to a maximum of five inches in diameter, the species of which shall be determined by the City Manager.

(Code 1994 § 40-55; Code 1965 § 20-85)

8.32.060 Duty to trim trees.
The owner of any house, building or premises shall not permit the branches of any shade, ornamental or other tree to project over any street, avenue or sidewalk in front of or alongside of such building or premises lower than eight feet from the surface of the sidewalk and 14 feet over the surface of the alley or street. In estimating such heights, personnel of the Department of Parks and Recreation shall take into consideration the variation of height due to normal rain, snow, sleet and foliage conditions.

(Code 1994 § 40-56; Code 1965 § 20-86)

8.32.070 Removal of dead trees.
It shall be the duty of the City Manager to require the owner or agent of any premises whereon are situated any dead trees or overhanging boughs dangerous to life, limb or property to remove the same within a reasonable time. If the owner or agent fails to follow the requirements of a notice to remove same, then it shall be the duty of the City Manager to remove or destroy the dead trees or boughs or otherwise correct the offending condition at the expense of the owner or agent, and if the owner or agent fails to pay the expenses, the City shall recover its cost by suit or assessment, as is provided in GJMC 8.04.080.

(Code 1994 § 40-57; Code 1965 § 20-87)

8.32.080 Maintenance of planting strip.
(a) “Planting strip” shall refer to that area between the back of any curb of any street and the edge of the sidewalk closest to the street, or if there is no curb then from the edge of the asphalt of any street to the edge of the sidewalk.

(b) **Duty of Owner to Maintain.** It shall be the duty and obligation of every person in the City to keep and care for in the manner provided in this section the planting strip fronting or adjoining the premises owned by such person. Such planting strip shall be maintained in an aesthetically pleasing manner in either drought-tolerant plant material, grass or other plantings, stone aggregate, decorative rocks, bark

mulch, or like materials or combinations thereof, with or without plantings. Vegetation shall be watered and fertilized to provide optimum growing conditions.

(c) **Trees.** Any trees planted shall be on the approved list of trees as provided in GJMC 8.32.020. The City shall provide maintenance (spraying, trimming and removal) of trees only. Prior to any maintenance, the City shall attempt to notify any contiguous property owner but the City shall not be held liable for failure to give notice.

(d) **Hard Surfacing.** In unusual situations where drainage or traffic problems exist, or in commercial zones or premises where public buildings or uses are involved, hard surfacing such as concrete, terrazzo, brick, flagstone, asphalt or other impervious substances may be authorized by written permit at the discretion of the City Manager. If hard-surfacing materials are authorized in conjunction with tree plantings, proper tree wells as determined by the City Manager shall be constructed by the owner.

(e) **Minimum Open Area Around Trees.** No person shall deposit or maintain, upon the parking strip in any street, stone, cement, debris or other substance which impedes the free entrance of water and air to the roots of any tree in such public highway or other public place without leaving an open space or ground outside the trunk of such tree, in area not less than six square feet for a tree three inches in diameter, and for every two inches of increase of such diameter there must be an increase of at least two square feet of open ground.

(f) **Compliance with Other Provisions.** Any shrubs or other plantings and the use of other materials shall comply with regulations concerning traffic safety and other provisions of this code.

(g) **Appeal.** Any person aggrieved by the decision of the City Manager may appeal such decision to the Forestry Board, and such Board may affirm, reverse or modify the decision of the City Manager.

(Ord. 4424 § 6, 5-5-10; Ord. 3431, 5-15-02. Code 1994 § 40-58; Code 1965 § 20-88)

8.32.090 Tree pruning for building movers.

(a) If, in the process of moving any building or other object along the streets, alleys or public ways of the City, it is necessary to trim any trees, the trimming shall be done by direction of the City Manager and the cost of labor, material and equipment shall be paid by the person requiring the trimming. Branches over three inches in diameter may not be removed unless in the opinion of the City Manager removal of the limb will not impair the aesthetic value or well being of the tree. If, in the process of moving any building, machine or other object, any tree, shrub or other planting is damaged, destroyed or removed, the replacement or repair of such shall be borne by the party moving or causing to be moved such building or other object. If such work has been performed by the City, payment thereof must be made within 10 days after billing has been made. The City Manager may, in his discretion, require a bond, deposit or other security in advance of such moving to indemnify the payment of the aforesaid expenses.

(b) If, in the process of moving any building, machinery or other object along the streets, alleys or public ways of the City, the City Manager determines that it is necessary to remove any branch over three inches in diameter or any major portion of any tree, or such branch or portion of a tree becomes broken or damaged and must be removed as a result of the moving, the person doing or requesting the moving shall pay to the City such amounts as determined by the City Manager as compensation for the loss of each such branch removed plus the regular service charges for all labor and materials used in connection with the removal of the branches. All measurements to determine the size of the branches shall be made by the City. When, in the process of moving any building or other object, it is necessary to remove a tree from the streets, alleys or other public ways of the City, the value of the tree so removed shall be paid for by the person requiring its removal and the moneys received shall be used to replace as nearly as possible a planting of comparable size and value. The determination of the value of the tree shall be made by the City Manager, and he shall consider in arriving at the value current nursery estimates including the age, variety and condition of the tree removed.

(Code 1994 § 40-59; Code 1965 § 20-89)

8.32.100 Use of equipment.

It shall be the duty of any person using tools on trees or shrubs to properly disinfect such tools immediately after any work done on any individual tree or shrub. Failure to so disinfect such tools shall be considered to be a misdemeanor, and any person convicted of such a violation shall be punished in accordance with GJMC 1.04.090.

(Code 1994 § 40-60; Code 1965 § 20-90)

8.32.110 License required.

(a) No person shall engage in the business of cutting, pruning, trimming or removing, and/or spraying of trees (collectively tree maintenance) in the City without first obtaining an annual license from the Forestry Board authorizing the person to engage in such business. Tree maintenance licenses may be issued to a person or to a business entity. If the person who completes the examination in accordance with GJMC 2.36.030 for or on behalf of a business entity leaves the employ of the business entity, then another responsible person shall be required to take and pass the examination within 14 days. A person taking/passing an examination for or on behalf of a business entity shall not be deemed to be a licensee after he/she leaves the employ of the business on whose behalf he/she took the examination. A person may hold a license only if he/she complies with all of the conditions of licensure; failure to continuously maintain compliance shall cause the license to be void.

(b) It shall be unlawful for any business entity to conduct or offer to conduct tree maintenance in the City unless at least one person within each crew performing and/or offering to perform tree maintenance is licensed by the City.

(c) The license required by this section shall establish minimum qualifications and competency. The manner and form of the license and the conditions and regulations imposed thereon are prescribed by GJMC 2.36.030 and Chapter 5.04 GJMC.

(d) The annual license fee shall be established by resolution of the City Council and be on file in the City Clerk's office beginning January 1st of each year.

(e) Every license shall show on its face the type(s) and classification or kind(s) of tree maintenance services that the licensee may perform.

(f) All motor vehicles and major equipment (chippers, stump grinders, trailers etc.) used in conducting tree maintenance services shall be clearly identified with the name of the licensee and the license number.

(g) No license shall be issued until the applicant therefor has presented to the City Manager a satisfactory liability insurance policy by a company licensed and duly operating lawfully in the State of Colorado covering all proposed operations of the applicant in such business in the City, including Colorado employee's liability (or worker's compensation insurance). The liability policy shall minimally provide coverage in the sum of at least $350,000 for the injury or death of any one person; $990,000 for the injury or death of any number of persons in any one accident; and $150,000 for damage to property. The policy may allow the first $1,000 of liability to be deductible. The policies must be valid for at least the term of the license and shall require at least 30 days' advance notice to the City before cancellation. If there are no employees of the company, a waiver of worker's compensation, in a form acceptable to the City Attorney, shall be permitted. In the event of the cancellation or termination of any such required insurance policy during the licensed term, the license shall be terminated and the holder thereof shall surrender such license to the City Manager unless the licensee presents to the City Manager a substitute insurance policy meeting the requirements of this section.

(Ord. 4608, 10-16-13)

Cross reference(s) – Businesses, GJMC Title 5.

8.32.120 Control of Dutch elm disease.

(a) It shall be unlawful to possess or transport into or within the City all or any part of trees infected with the Ceratocystis ulmi fungus; provided, however, that the wood, branches and roots of such trees may be transported to a safe place for burial under a minimum of two feet of earth within 10 days

following discovery of such infection, or to such sites and under such conditions as are approved by the City Manager for processing and subsequent elimination of the disease hazard.

(b) Trees or parts thereof of the genus Ulmus in a dead or dying condition that may serve as a breeding place for the smaller European elm bark beetle, Scolytus multistratus and the native bark beetle, Hylurgopinus rufipes, are hereby declared to be a threat and a hazard to all elm trees in the City. Transportation into or within the City or possession within the City of such trees or parts thereof, except for immediate burial or processing in a manner approved by the City Manager, shall be unlawful unless the bark has been completely removed. If such trees or parts thereof are found to exist, the owner of the property shall be given a written order by the City Manager to take necessary remedial action including, if necessary, the removal of such trees or parts thereof within a specified period of time.

(Code 1994 § 40-62; Code 1965 § 20-92)

8.32.130 Appeals from order of City Manager.

Any person aggrieved by any decision or order of the City Manager regarding the condition of trees, shrubs and plantings on private property may appeal such decision or order to the Forestry Board. If the decision of the Forestry Board is not favorable to the appellant, an appeal of the decision of the Forestry Board may be made to the City Council. Every appeal must be perfected within 10 days from the date of the order appealed from. It shall be lodged with the secretary of the Forestry Board and shall state the grounds for appeal. Such appeal shall operate as a stay of the order unless the City Manager shall certify that a stay would cause imminent hazard to landscape plantings within the City.

(Code 1994 § 40-63; Code 1965 § 20-93)

8.32.140 Failure to comply with notice – Payment of costs.

(a) It shall be unlawful for the owner, agent or occupant of the premises notified that conditions exist in the trees, shrubs and plantings on their property that will or are injurious to other private or public plantings to fail to comply with the written notice provided in GJMC 8.32.030.

(b) Should the owner, agent or occupant of premises fail or refuse to comply with the terms of the written notice sent by the City Manager, the City Manager, his employees or agents may enter upon the premises and cause to be removed, treated or otherwise cared for such diseased matter in order to eradicate or control the same, or to prevent the spreading of any threatening communicable disease or insect infestation.

(c) Payment of costs for failure to comply shall be the same as set out in GJMC 8.32.150.

(Code 1994 § 40-64; Code 1965 § 20-94)

8.32.150 Statement of costs – Notice of hearing.

(a) Upon the completion of the work done pursuant to this chapter and determination of the total cost thereof, the City Manager shall prepare an itemized statement showing the cost, including an additional fee as established by resolution of the City Council and on file in the City Clerk's office for the cost of collection and other incidentals and shall serve a copy of such statement upon the owner, agent or occupant of the real property upon which the work was performed, together with a notice to such owner, agent or occupant therein specifying:

(1) The whole cost of the work done.

(2) That any complaints or objections which may be made in writing by the owner or agent to the City Council must be made within 10 days from the date of such notice, and that such will be heard and determined by the City Council before the passage of any ordinance assessing the cost of such work.

(3) The date and place for hearing of such complaints or objections.

(b) At the time and place specified in the notice provided by subsection (a) of this section, or at some adjourned time, the Council shall hear and determine all complaints and objections and may thereupon make such modifications and changes as may seem equitable and just. The Council shall thereupon, by

ordinance, assess the cost of such work, and the passage of such ordinance shall be prima facie evidence that such assessment has been lawfully levied. More than one assessment against the same or different lots or tracts of land may be included in one ordinance.

(c) Any assessment made under the terms of this section shall be a perpetual lien against the land and shall have priority over all other liens excepting general tax liens, and shall be collected in one installment in the same manner as are other special assessments with interest at one percent from the date of passage of the assessing ordinance.

(Code 1994 § 40-65; Code 1965 §§ 20-95 – 20-97)

8.32.160 Service and notice of assessment.
Service of any notice or assessment statement required in GJMC 8.32.150 shall be made as follows:

(a) Personally, by handing to and leaving with the owner or agent or any member of his household over the age of 18 years a copy of such directive, statement or notice.

(b) Proof of service shall be made by certificate of service of the City Manager or any City employee actually making such service or by the affidavit of the person serving the same, if not a City employee.

(c) By certified mail, by mailing such directive, statement or notice, postage prepaid, return receipt requested, to be signed by addressee only, addressed to the last known address of the owner or agent. Service by certified mail shall be complete upon the date of receipt by the addressee. Proof of service shall be made by certificate of mailing of the City Manager, together with signed receipt of the addressee.

(d) If service cannot be made personally or by certified mail, such directive, statement or notice shall be served by publishing the same for one publication in the official City newspaper. Service shall be complete five days after the date of publication. Proof of service shall be made by the certificate of mailing of the City Manager, together with the publisher’s affidavit of publication.

(Code 1994 § 40-66; Code 1965 § 20-98)

Chapter 2.36
FORESTRY BOARD

Sections:

Cross reference(s) – Officers and employees, Chapter 2.08 GJMC.

2.36.010 Created – Composition – Terms – Officers.

(a) There is hereby created a board to be known as the Forestry Board. The Board shall be composed of five members and up to two alternate members who shall be appointed by the City Council. The Board shall include three persons selected from the following categories: professional arborist, nursery professional, landscape designer, pesticide applicator, otherwise trained or certified in a plant health industry and include a representative of the State Forest Service if possible. The other two members of the board may be lay persons. The alternate members shall otherwise have the qualifications of other members of the Board and at least one of the alternates shall be selected from the categories listed: professional arborist, nursery professional, landscape designer, pesticide applicator, or otherwise trained or certified in a plant health industry. Each alternate member shall attend all meetings and shall serve during the temporary unavailability, including recusal, of any regular Board member as may be necessary or required. The alternate member, in addition to other duties prescribed by this code, shall be allowed to vote in the absence of a regular member. Terms of service shall be three years. When a regular member resigns, is removed or is no longer eligible to hold a seat on the Board, the City Council may or may not select an alternate to fill the vacancy if the alternate meets the same qualifications as the member to be replaced. If an alternate fills a seat of a regular member, then the City Council shall then name a replacement alternate. A chairperson and a vice-chairperson shall be elected each year and vacancies owing to death or resignation shall be filled by appointment for the unexpired term.

(b) The City Manager or his designated representative shall be the Secretary of the Forestry Board.

(Ord. 4694, 4-20-16; Ord. 4164, 1-16-08. Code 1994 § 40-26; Code 1965 § 20-68)

2.36.020 Meetings – Records – Rules of procedure.

The members of the Forestry Board shall meet as required, the time and place thereof to be determined by such Board. Minutes shall be maintained of all meetings, and the Board shall adopt rules for its own organization and procedures.

(Code 1994 § 40-27; Code 1965 § 20-69)

2.36.030 Powers and duties.

The Forestry Board shall act as a reviewing body for the purpose of determining professional qualifications and competence to engage in the business of cutting, trimming, pruning, spraying or removing trees by giving written, oral and practical license examinations. The Board shall recommend to the City Council adoption of rules and regulations pertaining to the tree service business in the City, and it may hear complaints from any citizen of the City, including any of its own members, relating to a tree service business. Upon receipt of a complaint and after informing the licensee of the complaint and giving the licensee a chance to be heard, the Board may suspend a tree service license for up to 60 days or may revoke such license.

(Code 1994 § 40-28; Code 1965 § 20-70)

Cross reference – License for cutting, pruning, removing, trimming or spraying of trees, GJMC 8.32.110.

2.36.040 Appeals.

(a) Any person aggrieved by any decision or order of the City Manager may appeal such decision or order to the Forestry Board. Such appeal must be perfected within 10 days from the date of the order. It shall be lodged in writing with the secretary of such Board, and shall state the grounds for the appeal. Such appeal shall operate as a stay of the order unless the City Manager certifies that a stay would cause imminent hazard to trees and/or other landscape plantings within the City.

(b) Any person aggrieved by any decision or order of the Forestry Board may appeal such decision or order to the City Council. Such appeal shall be lodged with the City Clerk within 10 days from the date of the order or decision and shall be in writing stating grounds of appeal. The City Council shall hear such appeal at any subsequent meeting and may modify, reverse or affirm such decision or order of the Forestry Board.

(Amended during 2009 recodification; Code 1994 § 40-29; Code 1965 § 20-71)

Trees and Tree Care, Adopted April 15, 1971

These regulations are intended to serve as a guide for arboricultural activities on public street right-of-way and otherwise defines required practices and treatments pertaining to same within the City and County of Denver, Colorado.

Any failure to comply with these regulations will be considered subject to prosecution or serve as a basis for a hearing conducted by the Manager of Parks and Recreation or both.

CONTENTS

SECTION I – Planting and Maintenance of Tree and Plant Growth on Public Right-of-Way areas by Abutting Properties

1. Plantings made on such areas are a privilege allowed by the City to the owners of the abutting property with the provision that the property owner or owners, thereafter will be responsible for acceptable maintenance and removal of such growth in accordance with municipal ordinance and regulation.

2. Trees, or any other plant growth when permitted to grow upon public streets, or public right-of-way, shall be kept and maintained in such a manner as not to endanger, interfere, or otherwise conflict with requirements of safe public use thereon.

3. Any time that such plants or trees established under this privilege interfere with or jeopardize necessary public passage on public rights-of-way, or obstruct any improvements made thereon for public benefit, the owner of abutting property enjoying such privilege may be ordered to modify or eliminate such growth.

4. The City and County of Denver, Colorado, reserves the right at all times to do emergency trimming, removing, or otherwise treating any such trees or other plant growth, as may be deemed necessary in the public interest.

SECTION II – Specific Requirements Pertaining to Tree Trimming Activities upon Tree Growing in Denver's Public Street Rights-of-Way

1. No tree shall be cut back in such a manner that its health or eventual safety will be impaired – except in the process of tree removal or emergency relief of an immediate danger to persons or property. Any such emergency procedures must be reported promptly to the City Forester with plans for completion or follow-up work submitted for approval.

2. Permit authority to trim street trees does not authorize the cutting back of sound, healthy tree limbs in excess of 6 inches in diameter (outside bark) unless specifically described and written into the permit form by the City Forester or the Manager of Parks and Recreation.

3. When tree trimming cuts are made to a side limb, such remaining limb must possess a basal thickness of at least 1/3 of the diameter of the wound so effected. Such cuts shall be considered proper only when such remaining limb is vigorous enough to maintain adequate foliage to produce woody growth capable of healing the trimming cut so effected within a reasonable period of time.

4. All final tree trimming cuts shall be made in such a manner as to favor the earliest possible covering of he wound by natural callus growth. Excessively deep flush cuts which produce large wounds or weaken the tree at the cut shall not be made.

5. Tree limbs shall be removed and controlled in such a manner as to cause no damage to other parts of the tree, or to other plants or property.

6. All tools used on a tree, known to contain an infectuous tree disease shall be properly disinfected immediately after completing work in such a tree.

7. Hard maples, birches, and walnut trees shall usually be trimmed when in leaf, except where conditions hazardous to the public or property are involved. If such trees are trimmed during dormant periods, property owners shall be informed of bleeding potential from cutting wounds.

8. All cutting tools and saws used in making tree trimming cuts shall be kept sharpened adequately to result in final cuts with an unabraised wood surface and secure bark remaining adjacent thereto.

9. Whenever trimming cuts are to be made while removing limbs too large to hold securely in one hand during the cutting operation, the limbs shall be cut off first, one to two feet beyond the intended final cut. Then the final cut shall be made in a manner to prevent unnecessary tearing back of the bark and wood.

10. Any cutting of tree roots, other than when in the process of tree removal, shall give due consideration to the future welfare and safety of the trees. Proper action shall be taken to treat resulting wounds to prevent entry of decay organisms.

SECTION III – Authorized Types of Tree Trimming Applicable to Trees Growing Within Denver Public Street Rights-of-Way

1. “Complete” Trim
A. Description of “complete” trim: This operation of tree trimming shall consist of the total removal of those dead or living branches as may menace the future health, strength and attractiveness of the tree.
B. Specifications for “complete” trim:
(1) Properly remove all dead and dying branches of ¼ inch and over in diameter.
(2) Remove all broken branches or any loose branches lodged in the tree.
(3) Remove all dead and live stubs of previously broken or poorly cut limbs.
(4) Remove any live branches which interfere with the tree’s structural strength and healthful development, which will include the following:
(i) Limbs which rub and abrase a more important branch;
(ii) Limbs of weak structure which are not important to the framework of the tree;
(iii) Limbs which if allowed to grow would wedge apart the junction of more important branches;
(iv) Limbs with twigs and foliage obstructing the development of more important branches;
(v) Limbs forming multiple leaders in a single leader type tree;
(vi) Branches near the end of a limb which will produce more weight or offer more resistance to wind than the limb is likely to support;
(vii) Undesirable sucker and sprout growths;
(viii) Selective removal to one or more developing leaders where multiple branch growth exists near the end of broken or stubbed limbs;
(ix) Removal of branches which project too far outward beyond an otherwise symmetrical form;
(x) Removal or severance of any exposed roots which serve to restrict or act in a girdling manner and prevent proper expansion and growth of other major roots, or restrict the base of the tree trunk.
C. All final cuts shall be made flush to the remaining branch, limb or trunk of the tree. Extremely deep cuts which produce excessively wide wounds, or weaken the tree shall not be made.

2. “Minimum” or “Safety” Trim
A. Description of “Minimum” or “Safety” Trim: This operation of tree trimming shall consist of the minimum performance necessary to correct one or more extreme and undesirable conditions existent within a tree which may be hazardous to persons or property.
B. Specifications for “Minimum” or “Safety” Trim:
(1) Remove all dead and dying branches of 2 inches or more in diameter.
(2) Remove all broken or loose branches 2 inches or more in diameter.
(3) Reduce the length of limbs which extend extremely beyond the perimeter of an otherwise symmetrical form.
(4) Cut back ends of branches and reduce weight where excessive overburden appears likely to result in breakage of supporting limbs. Such cutting back shall not include the removal of any live, healthy limbs in excess of 6 inches in diameter unless a specific consent is given by the City Forester.

3. “Head Back” Trim:
A. Description of “Head Back” trim: This operation shall consist of reducing the height and/or spread of a tree by not more than 1/3 and shall only be applied to trees when such work is
necessary to control extended growth which may endanger overhead utility lines or interfere with adjacent structures.
B. Specifications for “Head Back” Trim:
(1) This form of trimming trees shall be done by means of a method called “drop crotching” which serves to shorten branch structure and thereby limits the extent of the foliage canopy to a natural appearing margin. This action consists of removing perimeter branches at their lower junction with shorter branch structure and thereby limits the extent of the foliage canopy to a natural appearing margin. This action consists of removing perimeter branches at their lower junction with shorter side branches.
(2) No cuts on living branches shall be made in excess of 6 inches in diameter without written permission from the Office of the City Forester.
(3) Extended perimeter branches shall be properly cut at their junction with lower branches having a basal diameter of at least 1/3 of the diameter of the cut so effected.
(4) The remaining lower branches so cut back to, shall be retained intact to form a reduced foliage perimeter at a specific height and/or spread.
(5) This technique of tree trimming shall only be applied when larger growing trees endanger overhead utility lines, or where excessive growth of trees interferes with adjacent structures, or otherwise creates a specific hazard to persons or property.
(6) “Head-back” trim should not be attempted or used if the metabolism of a tree would be seriously unbalanced by the use of this technique, or where the structure of the tree would be weakened by such action. Irreparable trees shall be removed rather than be worked on with this mode of tree trimming.

4. “Spot” Trim:
A. Description of “Spot” Trim: This operation of tree trimming shall consist of the removal of one or more branches localized in a particular area of the crown of a tree.
B. Specifications for “Spot” Trim:
(1) Street trees shall be trimmed in such a manner as to prevent branch and foliage interference with requirements of safe public passage. Overstreet clearance shall be kept to a minimum of 13 feet 6 inches above the paved surface of the street, and 8 feet over the surface of the public sidewalk or pedestrian way.
(2) Trunks of trees shall be clear of growth to a minimum height of 8 feet above the ground level. Exceptions are allowed for young trees which would be irreparably damaged by such trimming action.

(3) Individual or scattered dead or broken limbs shall be properly removed without the necessity of performing other work not immediately urgent for protection of the public or property, or the health of the tree.

SECTION IV – Regulations Pertaining to Species of Trees or Plants to be Planted

1. The following species of trees are hereby authorized for planting upon public street right-of-ways within permit jurisdiction. (Tree species other than those included herein must be specifically authorized for street tree planting by the Manager of Parks and Recreation.)

A. Trees capable of eventually attaining a height of forty (40) feet above the ground at maturity:
(1) Acer platanoides – Norway Maple
(2) Aesculus octandra – Yellow Buckeye
(3) Catalpa speciosa – Western Catalpa
(4) Celtis occidentalis – Common Hackberry
(5) Fraxinus pennsylvanica lanceolata – Green Ash
(6) Gleditsia triancanthos inermis – Thornless Honeylocust
(7) Quercus borealis – Red Oak
(8) Quercus macrocarpa – Bur Oak
(9) Quercus robur – English Oak
(10) Tilia americana – American Linden
(11) Tilia europa – European Linden
(12) Gymnocladus dioicus– Kentucky Coffee Tree

B. Trees of smaller mature sizes qualified for planting upon public street areas:
(1) Aesculus glabra – Ohio Buckeye
(2) Catalpa ovata – Chinese Catalpa
(3) Crataegus mollis – Downy Hawthorn
(4) Crataegus phaenopyrum – Washington Hawthorn
(5) Malus sp. – Flowering crabapples
(6) Sorbus aucuparia – European Mountain Ash
(7) Tilia cordata – Littleleaf Linden

2. Unless otherwise specifically authorized by the Manager of Parks and Recreation, the following species and types of trees and woody plants shall not be planted upon public street rights-of-way within Denver:
(1) Any of the poplar species (Populus sp.)
(2) Any of the willow species (Salix sp.)
(3) The box elder tree (Acer negundo)
(4) The Siberian (Chinese) elm (Ulmus pumila)
(5) Any weeping or pendulous type tree
(6) Any tree with bushy growth habit which cannot be maintained to a single leader or trunk.
(7) Any shrub or hedge growth which by its habit of growth would obstruct, restrict, or conflict with necessary and safe use of the public rights-of-way.

SECTION V – Regulations Pertaining to Spacing of Trees

1. Unless otherwise authorized by the manager of Parks and Recreation, all newly planted street trees shall be planted midway between the sidewalk and the curb at least 20 feet back from the projected property line at a street intersection. Trees which attain large size at maturity shall be spaced at least 40 feet apart so as to allow for safe, healthy, and attractive growth. Smaller types of trees, when designated as such by the City Forester, may be spaced to a minimum of 25 feet apart.

2. No tree will be planted closer than 5 feet to any driveway or alley, nor shall it be planted in such a manner that eventual growth cannot be reasonably controlled so as to avert interference with, or obstruction to any improvements installed for public benefit such as traffic and street signs and lights, fire hydrants, overhead utility wires, street lights, utility poles, etc.

3. At edges of streets where a space of less than 5 feet in width exists between the curb and the abutting private property line – no trees or woody plants shall be planted on the public area so involved.

4. Where the combination sidewalk-curb and gutter have been installed no tree plantings are to be made closer than 5 feet from the edge of any concrete installation.

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City of Fort Collins
Tree Management Standards
and
Best Management Practices

Effective
3-31-10

City of Fort Collins
Parks Department
Forestry Division

City of Fort Collins
Tree Management Standards
And
Best Management Practices

License Required. A current arborist license, issued by the City Forester of Fort Collins, is required for all companies that work on trees located anywhere within City limits. This includes all public and private trees. Tree work that requires a license includes the following activities:

- Cutting, trimming, pruning or removing of trees when the cuts necessary for such cutting, trimming, pruning or removal are made at a height of ten (10) feet or greater above the ground.

- The application of pesticides to trees of any size.

Chapter 27 of the Fort Collins Municipal Code establishes the requirements for an Arborist License. Applicants must meet the following criteria to be licensed: 1) pass written and field tests approved by the City Forester; 2) all motor vehicles must clearly display the licensee's business name and telephone number; and 3) each licensee must carry commercial liability insurance covering all of the applicant's proposed tree service operations within City limits. The insurance must be at a minimum amount of $1,000,000 (one-million dollars) per occurrence.

The City Forester requires that all licensees that apply pesticides to trees within City limits have a current commercial applicator endorsement from the Colorado Department of Agriculture.

Applicability of Section A. City of Fort Collins employees and companies holding an arborist license issued by the City Forester must perform all tree pruning, removal and pesticide application on public or private property within the City in accordance with the standards of Section A. Any licensee not complying with this requirement may have its arborist license suspended or revoked pursuant to the provisions of Chapter 27 of the Fort Collins Municipal Code.

Applicability of Section B. City of Fort Collins employees, companies holding an arborist license or any other business or individual shall perform all work on or around trees located on City property in accordance with the Best Management Practices for arboriculture, as identified in Section B of this document, unless otherwise directed by the City Forester. The Best Management Practices are good guidelines for all arborists to follow. Companies holding an arborist license are encouraged, but not required, to follow the Best Management Practices when working on trees located on private property.

Applicability of Section C. This section sets standards for the protection of individuals and City trees that pertain to tree houses, swings, tree climbing and physical attachments to City owned trees.

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Section A: Pruning, Removal and Pesticide Application Standards.

(these standards were adapted in part from ANSI A300 (Part 1) – 2008 Pruning, Best Management Practices/Tree Pruning, and Best Management Practices/Utility Pruning of Trees). ANSI stands for the **American National Standards Institute**.

1 General Pruning and Removal Standards:

1.1 Companies holding a Fort Collins arborist license with the pruning and removal category shall maintain a current copy of the most recent edition of all of the following. Licensed companies with the low pruning category shall maintain a current copy of the most recent edition of a, b, d and f. (The Best Management Practices (BMP's) and American National Standards Institute (ANSI) standards can be purchased from the **International Society of Arboriculture**):

a. City of Fort Collins Tree Management Standards and Best Management Practices
b. Best Management Practices/Tree Pruning (ISA)
c. Best Management Practices/Utility Pruning of Trees (ISA)
d. ANSI Z133.1-2006 for Arboricultural Operations- Safety Requirements
e. ANSI A300 (Part1) – 2008 Pruning
f. Chapter 27 of the Fort Collins Municipal Code
g. ISA's Tree Climber's Guide (by Lilly and Kotwica)

1.2 Pruning recommendations and actual pruning work shall always regard tree health and the tree's structural integrity. There are situations where pruning to reduce risk (promoting structural integrity) must be made a priority over regard for tree health. Pruning to reduce risk need not be compromised in these situations to meet this standard.

1.3 Specifications for pruning and removal work should include location of tree(s). Specifications can be verbal or written. For private customers, written specifications should be offered that describe the major job components.

1.4 The following information shall be specified prior to the commencement of tree pruning:

1.4.1 Pruning objectives shall be established prior to the beginning of any pruning operation (see 7.1).

1.4.2 Pruning method (type – clean, thin, raise, reduce, structure, restore) shall be specified prior to commencement of work (see 8.1).

1.4.3 When pruning to clean, the location and minimum size of parts (see 2.41) to be removed shall be specified prior to commencement of work (see 8.2.1).

1.4.4 When pruning to thin, the location of parts to be removed shall be specified prior to commencement of work (see 8.3.4).

1.4.5 When pruning to reduce, the location of parts to be removed or clearance requirements shall be specified prior to commencement of work (see 8.5.5).

1.4.6 Exceptions for making an internodal heading cut shall be specified prior to commencement of work (see 5.11.1, 5.11.2, 5.11.4 and 5.11.5).

1.5 Specifications for pruning or removal should be administered by an arborist.

1.6 Pruning and removal cuts shall be performed by an arborist or arborist trainee under the direct supervision of an arborist. These are generic titles based on competency and experience, but they need not be the actual position titles (see 2.4 and 2.5). The arborist does not need to be on site at all times, but shall be familiar with the practices and hazards of the tree work assigned and the equipment used in such operations. Ground work does not need to be performed by an arborist or arborist trainee (see 2.25).

1.7 In conducting tree pruning or removal operations, all work shall be performed using methods and equipment in such a manner so as to avoid and prevent damage to other plants (except minor damage to turf), properties, structures or persons. The ANSI Z133.1 for Arboricultural Operations – Safety Requirements is the industry-developed national consensus safety standard. ANSI Z133.1 shall be referenced by the City Forester in interpreting this standard.

1.8 Tree pruning and removal should comply with the most recent edition of ANSI Z133.1 (the most current edition is the ANSI Z133.1-2006) for Arboricultural Operations-Safety Requirements.

1.9. Tree pruning and removal operations shall comply with all federal, state and local laws and regulations.

1.10 Off-site trees (see 2.39) shall not be cut or pruned beyond a property line without prior verbal or written approval from the owner(s) of the tree(s), or his or her authorized representative. An exception is that the City Forester can authorize pruning or removal of trees or shrubs posing a hazard to public property as described in Sec.27-57 of the Fort Collins Municipal Code, or for the control of tree diseases or insect infestations as described in Sec 27-58 of the Fort Collins Municipal Code.

1.11 For any arborist, arborist trainee, qualified line-clearance arborist or qualified line-clearance arborist trainee to perform tree pruning or removal work while climbing over 10 feet above the ground (measured from the ground to the climber's feet), an employee of the business shall have taken and passed a tree climbing test authorized by the City Forester. A currently licensed business that has adequately displayed or documented their climbing skills through ways other than testing, prior to the implementation of this standard, has qualified for the Climbing Category on their arborist license.

1.11.1 Businesses with the "Climbing Category" on their Fort Collins arborist license have met this standard.

1.11.2 Tree work from an aerial lift device is an exception.

1.12 During an emergency, tree work often needs to be performed as quickly as possible. At such times, it may be necessary, because of safety and the urgency of the operation, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

1.13 Licensed arborists should attend all meetings set up by the City Forester specifically for licensed arborists, including the **Annual Licensed Arborist** meeting.

1.14 Tree work crews of any licensed arborist company shall temporarily stop work on a job site when directed by the City Forester for possible violations of the safety standard 1.7, or the topping standard 8.5.3. Work shall remain stopped until the possible violation is discussed and/or corrected.

1.15 Specifications for removal work shall describe where the lowest cut will be made and if stump removal will be included.

2 Definitions:

2.1 **American National Standards Institute A300 standard (commonly referred to as the ANSI A300) –** In the United States, industry-developed, national consensus standards of practice for tree care.

2.2 **American National Standards Institute Z133.1 standard (commonly referred to as the ANSI Z133.1)** – In the United States, industry-developed, national consensus safety standards of practice for tree care.

2.3 **arboriculture** – Practice and study of the care of trees and other woody plants in the landscape.

2.4 **arborist –** Professional who possesses the technical competency gained through experience and related training to provide for or supervise tree pruning, tree removal or the management of trees and other woody plants in residential, commercial, and public landscapes.

2.5 **arborist trainee** – An individual undergoing on-the-job training to obtain the experience and the competence required to provide for or supervise tree pruning, tree removal or the management of trees and other woody plants. Such trainees shall be under the direct supervision of an arborist.

2.6 **bark inclusion –** See included bark.

2.7 **best management practices** – Best available, industry-recognized course of action, in consideration of the benefits and limitations, based on scientific research and current knowledge.

2.8 **branch** – A stem arising from a larger-stem; a subdominant stem; the pith in true branches has no connection to the parent stem.

2.9 **branch bark ridge** – Raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.

2.10 **branch collar** – Area where a branch joins another branch or trunk that is created by the overlapping vascular tissues from both the branch and the trunk. Typically enlarged at the base of the branch.

2.11 **branch protection zone** – Chemically and physically modified tissue within the trunk or parent branch at the base of a smaller, subordinate branch that retards the spread of discoloration and decay from the subordinate stem into the trunk or parent branch.

2.12 **cambium** – Thin layer(s) of meristematic cells that give rise (outward) to the phloem and (inward) to the xylem, increasing stem and root diameter.

2.13 **City Forester** – The City Forester of Fort Collins or a duly designated representative.

2.14 **cleaning** – Selective pruning to remove dead, diseased, cracked, and broken branches and foreign objects.

2.15 **climbing spurs** – Sharp devices strapped to a climber's lower legs to assist in climbing poles or trees being removed. Also called spikes, gaffs, irons, hooks, or climbers.

2.16 **closure** – The process in a woody plant by which wound wood grows over a

pruning cut or injury.

2.17 **codominant stem** – Forked branches nearly the same diameter (diameter ratios greater than 80%), arising from a common junction and lacking a normal branch union.

2.18 **compartmentalization** – Natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

2.19 **crown** – Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

2.20 **decay** – (1) (noun)An area of wood that is undergoing decomposition. (2) (verb)decomposition of organic tissues by fungi or bacteria.

2.21 **dominant leader/trunk/stem** – The stem that grows much larger than all other stems and branches.

2.22 **espalier** – The combination of pruning, supporting, and training branches to orient a plant in one plane.

2.23 **facility** – A structure or equipment used to deliver or provide protection for the delivery of an essential service, such as electricity or communications.

2.24 **good structure/architecture/form** – Branch and trunk architecture resulting in a canopy form that resists failure.

2.25 **ground work** – All work on a job site except the making of pruning or removal cuts.

2.26 **hanger** – Loose, dangling or unsecured limb in the canopy of a tree.

2.27 **heading** – Cutting a shoot back to a bud, or cutting a branch back to a bud, stub or lateral branch not large enough to assume apical dominance. Cutting an older branch or stem back to a stub. Depending on the placement of the heading cut it is called: 1) heading to a bud; 2) heading to a lateral; or 3) internodal heading.

2.28 **included bark** – Bark that becomes embedded in a crotch (union) between branch and trunk or between codominant stems. Causes a weak structure.

2.29 **internode** – The area between lateral branches or buds.

2.30 **job briefing** – The communication of at least the following subjects for arboricultural operations: work specifications, hazards associated with the

job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.

2.31 **interior foliage** – Typically small-diameter (less than 3 inches) branches with foliage on the interior or inner portion of the crown.

2.32 **kerf** – Slit or cut made by a saw in a log. Space created by a saw cut.

2.33 **lateral** – A branch arising from a large stem or branch.

2.34 **leader** – Primary terminal shoot or trunk of a tree. Large, usually upright stem. A stem that dominates a portion of the crown by suppressing lateral branches.

2.35 **lion tailing** – Poor pruning practice in which an excessive number of live branches are thinned from the inside and lower part of specific limbs or a tree crown, leaving mostly terminal foliage. Results in poor branch taper, poor wind load distribution, and a high risk of branch failure.

2.36 **live crown ratio** – The ratio of the height of crown containing live foliage to the over all height of the tree.

2.37 **mature tree** – Trees that have reached at least 75 percent of their typical final height and spread.

2.38 **method** – A procedure or process for achieving an objective.

2.39 **off-site tree** – A tree located on property other than where work is authorized to occur.

2.40 **parent branch or stem** – A tree trunk or branch from which other branches or shoots grow.

2.41 **parts to be removed** – The location in the crown of a tree where pruning work will be performed. This can be specified as all of the crown or just the section(s) of the crown to be pruned.

2.42 **petiole** – Stalk or support axis of a leaf.

2.43 **permanent branches (permanent limbs)** – In structural pruning of young trees, branches that will be left in place, often forming the initial scaffold framework of a tree.

2.44 **photosynthesis** – Process in green plants (and in algae and some bacteria) by which light energy is used to form glucose (chemical energy) from water and carbon dioxide.

2.45 **phytotoxic** – Term to describe a compound that is poisonous to plants.

2.46 **pollarding** – Specialty pruning technique in which a tree is kept relatively short. Starting on a young tree, internodal cuts are made at a chosen height, resulting in the development of callus knobs at the cut height. Requires regular (usually annual) removal of the sprouts arising from the cuts.

2.47 **pruning** – Removing branches (or occasionally roots), or shortening branches or leaders on a tree. Shearing is considered a type of pruning. Certain kinds of pruning are prohibited and a violation of the standards (for example topping a tree, pruning without regard for health or structural integrity, making incorrect pruning cuts etc…). Correct pruning follows the approved methods described in these standards, to achieve a specified objective(s). Parts removed in pruning can be live or dead. Pruning does not include making sculpture from the parts of any tree, or tree removal.

2.48 **qualified line-clearance arborist** – An individual who, through related training and on-the-job experience, is familiar with the equipment and hazards in line clearance and has demonstrated the ability to perform the special techniques involved. This individual may or may not be currently employed by a line-clearance contractor.

2.49 **qualified line-clearance arborist trainee** – An individual undergoing line-clearance training under the direct supervision of a qualified line-clearance arborist. In the course of the training, the trainee becomes familiar with the equipment and hazards in line-clearance and demonstrates ability in the performance of the special techniques involved.

2.50 **raising** – Selective pruning to provide vertical clearance; also known as lifting.

2.51 **reaction zone** – Natural boundary formed chemically within a tree to separate damaged wood from existing, healthy wood. Important in the process of compartmentalization.

2.52 **reducing** – Pruning to decrease height or spread on entire tree or one section; also referred to as reduction or reduction pruning.

2.53 **reduction cut (drop-crotch cut, lateral cut)** – Pruning cut that reduces the length of a branch or stem back to a lateral branch large enough to assume apical dominance – should be at least one third of the diameter of the cut stem (both stems measured perpendicular to their main branch axis at the branch junction). If less than one-third, the cut is a heading cut to a lateral.

2.54 **removal (tree removal)** – Removal of most of the above ground portion of a tree by cutting to a stump or to a point on the main trunk where no side

branches remain. May also includes stump removal.

2.55 **removal cut (thinning cut)** – Cut that removes a branch at its point of origin. Collar cut.

2.56 **restoring** – The process of pruning to improve the structure, form, and appearance of trees that have been improperly trimmed, vandalized, or damaged.

2.57 **risk assessment** – The process of evaluating the potential of a tree to fail, the environment that may contribute to tree failure, and a potential target.

2.58 **scaffold limb** – A limb or branch that is among the largest diameter on the tree and will remain on the tree perhaps to maturity.

2.59 **shall** – As used in this standard, denotes a mandatory requirement.

2.60 **shearing** – Cutting back exterior growth using internodal heading cuts in one to two year old wood resulting in a defined edge with thick outer growth. Outer growth is regularly shaved to maintain the shape and outer density.

2.61 **shoot** – New stem or branch growth on a plant.

2.62 **should** – As used in this standard, denotes an advisory recommendation.

2.63 **specifications** – Detailed plans, requirements, and statements of particular procedures and/or standards used to define and guide work.

2.64 **stem** – Woody structure bearing foliage and buds that gives rise to other stems (branches).

2.65 **starch** – Chain of sugar molecules linked together that serves as a form of energy storage in plants.

2.66 **structural pruning** – Pruning to establish a strong arrangement or system of scaffold branches.

2.67 **stub** – Portion of a branch or stem remaining after a stub cut, branch breakage, or branch death.

2.68 **subordination** – Pruning to reduce the size and ensuing growth of a branch in relation to other branches or leaders.

2.69 **sucker** – Shoot arising from the roots. Contrast with watersprout.

2.70 **thinning** – In pruning, the selective removal of live branches to provide light or air penetration through the tree or to lighten the weight of the remaining branches.

2.71 **throwline** – Thin, lightweight cord attached to a throw bag or throwing ball used to set climbing or rigging lines in trees.

2.72 **topping** – Inappropriate pruning technique to reduce tree size. Cutting back a tree to a predetermined crown limit; often, but not always, at internodes.

2.73 **tracing** – The removal of loose, damaged tissue from in and around a wound.

2.74 **tree** – A large woody perennial plant having a single, usually elongated stem, generally with few or no limbs on its lower part; or any of the species listed in Appendix A including all their cultivars, varieties and hybrids.

2.75 **tree attachment** – any foreign object affixed to a City owned tree, such as signs, holiday lighting, bicycle locks/chains, wildlife nesting boxes, etc…

2.76 **trunk** – Stem of a tree.

2.77 **trunk flare** – (1) The area at the base of the plant's trunk where it broadens to form roots. (2) The area of transition between the root system and trunk.

2.78 **union (crotch)** – The junction between a stem and branch or between stems.

2.79 **utility** – A public or private entity that delivers a public service, such as electricity or communications.

2.80 **utility space** – The physical area occupied by a utility's facilities and the additional space required to ensure its operation.

2.81 **vista/view prune** – Pruning to enhance a specific view without jeopardizing the health of the tree.

2.82 **watersprouts** – Upright, epicormic shoots arising from the trunk or branches of a plant above the root graft or soil line. Incorrectly called a sucker. Contrast with sucker.

2.83 **wound –** An opening that is created when the bark of a live branch or stem is cut, penetrated, damaged, or removed.

2.84 **wound dressing** – Compound applied to tree wounds or pruning cuts.

3 Tree Inspection Before Pruning or Removal:

3.1 An arborist shall visually inspect each tree before beginning pruning or removal work.

3.2 If a condition is observed requiring attention beyond the original scope of the work, the condition should be reported to an immediate supervisor, the owner, or the person responsible for authorizing the work.

4 Pruning Tools and Equipment:

4.1 Equipment, tools, and work practices that damage living tissue and bark beyond the scope of normal work practices shall be avoided.

4.2 Climbing spurs shall not be used when entering and climbing trees for the purpose of pruning, tree inspection, or any purposes other than removal. An exception will be made for aerial rescue operations.

5 Pruning Cuts:

5.1 Pruning tools used in making pruning cuts shall be sharp.

5.2 A pruning cut that removes a branch at its point of origin (removal cut) shall be made close to the trunk, or parent branch, without leaving a stub or without cutting into the branch bark ridge or branch collar (see BMP/Tree Pruning figure 13).

5.3 A pruning cut that reduces the length of a branch or parent stem by cutting back to another branch or stem (a reduction cut or heading cut to a lateral) shall be made at a slight downward angle relative to the remaining stem without damaging the remaining stem (see BMP/Tree Pruning figure 15).

5.4 When pruning to a lateral (reduction cut), the remaining lateral branch should be large enough to assume the terminal role (see BMP/Tree Pruning figure 15). A reduction cut removes a stem or branch back to a lateral branch or stem that is large enough to assume the terminal role. This lateral branch should be at least one-third the diameter of the removed portion. A larger ratio closer to one-half is usually preferred. If the lateral branch that remains is less than one-third the diameter of the removed stem (both stems measured perpendicular to their main branch axis at the branch junction), then the cut is considered a heading cut to a lateral. A heading cut to a lateral is considered inappropriate on most landscape trees. A reduction cut may lead to decay behind the cut. The extent of decay depends on the diameter of the cut and the tree species. Large-diameter

cuts (greater than about 2 to 3 inches) are likely to lead to more decay than smaller cuts.

5.5 Heading cuts to a lateral (less than the one-third rule in 5.4) shall only occur when the objective for pruning (for example to reduce risk of failure, provide clearance, improve view etc…) cannot be achieved with pruning cuts that cause less impact to the tree's health or structural integrity (there is not a way to prune so as to cause less impact to the tree's health or structural integrity and still meet the objective). Topping is an inappropriate technique in meeting an objective. Heading cuts to a lateral can cause significant problems and shall be used with a great deal of discretion. Heading cuts to a lateral can cause starvation due to the reduction of total leaf area and may result in irreversible decline of a tree or main branch. Heading cuts to a lateral can also cause a large wound that may allow decay to develop in a way that will negatively impact the structural integrity of the remaining lateral branches or sprouts that occur around the cut. Pruning recommendations and actual pruning work shall always regard the health and structural integrity of the tree (see 1.2).

5.6 The final pruning cut should result in a flat surface with adjacent bark firmly attached.

5.7 When removing a dead branch, the final cut shall be made just outside the collar of living tissue (see BMP/Tree Pruning figure 14).

5.8 Tree branches shall be removed in such a manner so as to avoid damage to other parts of the tree or to other plants or property. Minor damage to turf is often unavoidable and will be an exception. Branches too large to support with one hand shall be pre-cut using an acceptable three-cut method to avoid splitting of the wood or tearing the bark (see BMP/Utility Pruning of Trees figure 3). Multiple cutting techniques exist for application of a three-cut method. A number of them may be used to implement an acceptable three-cut method.

5.9 A cut that removes a branch with a narrow angle of attachment should be made in such a way that it will not cause damage to the parent branch or stem (see BMP/Tree Pruning figure 13).

5.10 Severed branches (hangers – see 2.26) shall be removed from the crown upon completion of the pruning, any time the tree is left unattended, or at the end of the workday.

5.11 Heading cuts (heading) in the internodal zone shall not be made on a branch, or a stem, two years old or older except for the following reasons:

5.11.1 On a mature tree, a large branch or stem stub may be left to slow

the movement of decay into a major branch or main stem. The exception and the reason shall be included in the specifications.

5.11.2. On a mature tree, a large branch or stem stub may be left for wildlife considerations. The exception and the reason shall be included in the specifications.

5.11.3 When shearing a tree to an unnatural shape, cuts may be made in two year old wood but not in wood three years old or older.

5.11.3.1 Pruning required to clear a street, sidewalk or other defined pedestrian or vehicle passageway may include shearing or cutting back into wood three years old or older. This exception shall have a height restriction of no more than ten feet above the ground.

5.11.4 Through a risk assessment conducted by an arborist it has been determined that the cut should be made to reduce risk. This situation would occur where access is not available, or permission to enter a property is not obtained from property owner, to make a more preferable cut. The exception and the reason shall be included in the specifications.

5.11.5 Pollarding is a specialty pruning technique in which a tree is kept relatively short. Starting on a young tree, internodal cuts are made at a chosen height, resulting in the development of callus knobs at the cut height. This requires regular (usually annual) removal of the sprouts arising from the cuts (see BMP/Utility Pruning of Trees figure14). The exception and the reason shall be included in the specifications.

6 Wound Treatment:

6.1 Wound treatments shall not be used to cover wounds or pruning cuts, except when necessary for disease, insect, mistletoe, or sprout control, or for cosmetic reasons.

6.2 Wound treatments that are damaging to tree tissues shall not be used.

6.3 When tracing wounds, only loose, damaged tissue shall be removed.

7 Pruning Objectives:

7.1 Pruning objectives shall be established prior to beginning any pruning

operation.

7.2 Objectives should include, but are not limited to, any of the following (see BMP/Tree Pruning pages 4 and 5):

- Reduce risk of failure
- Provide clearance
- Reduce shade
- Reduce wind resistance
- Maintain health
- Influence flower or fruit production
- Improve a view
- Improve aesthetics

8 Pruning Methods (Types):

8.1 Pruning method (type) shall be specified prior to commencement of work.

8.2 Pruning to **Clean**: Cleaning shall consist of pruning to remove one or more of the following non-beneficial parts: dead, diseased and/or broken branches (see BMP/Tree Pruning figure 2).

8.2.1 Location and minimum size of parts to be removed shall be specified prior to commencement of work.

8.3 Pruning to **Thin**: Thinning shall consist of selective removal of live branches to reduce crown density (see BMP/Tree Pruning figure 3).

8.3.1 Thinning should result in an even distribution of live branches on individual branches and throughout the crown.

8.3.2 Lion tailing is a poor pruning practice and shall not occur when pruning live branches during thinning.

8.3.3 Not more than 25 percent of the live crown should be removed within an annual growing season.

8.3.4 Location of parts to be removed shall be specified prior to commencement of work.

8.4 Pruning to **Raise**: Raising shall consist of selective removal of branches to provide vertical clearance. Crown raising should shorten or remove lower branches to provide clearance for buildings, signs, vehicles, pedestrians, vistas or other considerations (see BMP/Tree Pruning figure 4).

8.4.1 Live crown ratio should not be reduced to less than 50 percent (see BMP/Tree Pruning figure 5).

8.4.2 Location and size range of parts to be removed should be specified prior to commencement of work.

8.5 Pruning to **Reduce** (shape, drop crotch): Reduction shall consist of pruning branches or stems to decrease the height and/or spread of a tree. This type of pruning is done to minimize risk of failure, to reduce height or spread, for utility line clearance, or to clear vegetation from buildings or other structures (see BMP/Tree Pruning figure 6).

8.5.1 Not all trees can be reduced. Therefore, the species and plant health shall be considered prior to commencement of work.

8.5.2 Crown reduction should be accomplished using reduction and removal cuts. The trees form, branch structure, health and structural integrity shall be considered in determining the appropriate amount of reduction to meet the objective.

8.5.3 Topping shall not be used as a pruning technique to reduce tree size by cutting back a tree to a predetermined crown limit. (see BMP Utility Pruning of Trees figures 12 and figure 13). For the purposes of this standard, topping shall be interpreted using the definition in 2.72.

8.5.4 When a limb on a mature tree is cut back to a lateral (reduction cut), no more than one-fourth of its foliage should be removed.

8.5.5 Location of parts to be removed or clearance requirements shall be specified prior to commencement of work.

8.6 Pruning for **Structure**: Structural pruning shall consist of selective pruning to improve tree and branch architecture primarily on young and medium aged trees (see BMP/Tree Pruning figures 7 and 8).

8.6.1 Dominant leader(s) should be selected for development as appropriate.

8.6.2 Strong, properly spaced scaffold branch structure should be selected for and maintained by reducing or removing other branches.

8.6.3 Temporary branches should be retained or reduced as appropriate.

8.6.4 Interfering, overextended, defective, weak and/or poorly attached

branches should be removed or reduced.

8.6.5 Size and location of leaders or branches to be subordinated or removed should be specified prior to commencement of work.

8.7 Pruning to **Restore**: Restoration shall consist of selective pruning to redevelop structure, form and appearance of severely pruned, vandalized or otherwise damaged trees (see BMP/Tree Pruning figure 9).

8.7.1 Location in tree, size range of parts, and percentage of sprouts to be removed should be specified prior to commencement of work.

9 Utility Pruning:

9.1 **Purpose**: The purpose of utility pruning is to prevent the loss of service, comply with mandated clearance laws, prevent damage to equipment, maintain access, and uphold the intended usage of the facility/utility space while adhering to accepted tree care performance standards.

9.2 Pruning cuts shall be made in accordance with sub-clauses 5.1 through 5.11.

9.3 A minimum number of pruning cuts should be made to accomplish the purpose of utility pruning. The structure and growth habit of the tree shall be considered prior to commencement of work (see BMP/Utility Pruning of Trees figure 8).

9.4 Utility pruning should be accomplished by removing entire branches. Branches that, when cut, will produce vigorous sprouts that would grow into facilities and/or utility space should be removed (see BMP/Utility Pruning of Trees figure 8).

9.5 Branches shall be cut to laterals (reduction cuts), or the parent branches (removal cuts), and not at a pre-established clearing limit. If clearance limits are established, pruning cuts shall be made at laterals or parent branches outside the specified clearance zone (see BMP/Utility Pruning of Trees figures 9, 12 and13). Topping is an inappropriate technique in meeting this objective.

9.6 Trees growing next to, and into or toward utility spaces should be pruned by reducing branches to laterals to direct growth away from the utility space or by removing entire branches. Branches that, when cut, will produce vigorous sprouts that would grow into facilities and/or utility space should be removed (see BMP/Utility Pruning of Trees figures 9 and 10).

9.7 During a utility-declared emergency, service must be restored as quickly as possible. At such times, it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

9.8 Only a qualified line-clearance arborist or line-clearance arborist trainee shall be assigned to line clearance work in accordance with industry requirements and regulations.

9.9 Job briefings shall be performed as out-lined in ANSI Z133.1 sub-clause 3.1.4.

9.10 To be compliant with the Colorado Revised Title 9 Safety-Industrial and Commercial, Article 2.5 – High Voltage Power Line Safety Requirements, Statute: Only qualified employees of an electric utility shall perform any activity that may bring an individual or equipment within ten feet of high voltage overhead lines (lines in excess of 600 volts). Contractors working directly for the utility shall be considered qualified. Non-qualified employees or individuals must contact the appropriate utility to make arrangements for safe activity.

10 Pesticide Application Standards:

10.1 Companies holding a Fort Collins arborist license with the pesticide applicator category shall maintain a current copy of the most recent edition of the following (The Best Management Practices (BMP's) and American National Standards Institute (ANSI) standards can be purchased from the **International Society of Arboriculture**):

- City of Fort Collins Tree Management Standards and Best Management Practices
- ANSI Z133.1-2006 for Arboriculture Operations – Safety Requirements
- Best Management Practices/Integrated Pest Management
- Insect Management Recommendations for Turf and Ornamentals – Colorado State University Cooperative Extension
- Insects and Diseases of Woody Plants of the Central Rocky Mountains - Colorado State University Cooperative Extension

10.2 Pesticide application to trees shall adhere to all state and federal licensing, pesticide storage, handling, disposal and application regulations.

10.3 In conducting pesticide application operations, all work shall be performed using methods and equipment in such a manner so as to avoid and prevent

damage to other plants, properties, structures or persons. ANSI Z133.1 for Arboricultural Operations – Safety Requirements is the industry-developed national consensus standard for safety. ANSI Z133.1 shall be referenced by the City Forester in interpreting this standard.

10.4 Work should comply with the most recent edition of ANSI Z133.1 (most current edition is ANSI Z133.1-2006) for Arboricultural Operations-Safety Requirements.

10.5 Pesticide application practices shall comply with all federal, state and local laws and regulations.

10.6 Pesticide application crews of any licensed arborist company shall temporarily stop work on a job site when directed by the City Forester for possible violations of 10.3. Work shall remain stopped until the possible violation is discussed and/or corrected.

Section B: Best Management Practices.

1 Use of Best Management Practices:

1.1 Best Management Practices 1.3.1 and 1.3.2 shall be used as an aid in the interpretation of the standards in Section A.

1.2 City of Fort Collins employees, companies holding an arborist license or any other business or individual shall perform all work on or around trees located on City property in accordance with the Best Management Practices for arboriculture, as identified in 1.3, unless otherwise directed by the City Forester. The Best Management Practices are good guidelines for all arborists to follow. Companies holding an arborist license are encouraged, but not required, to follow the Best Management Practices when working on trees located on private property.

1.3 These documents are published by and available from **The International Society of Arboriculture.** The most recent editions of these Best Management Practices shall be used.

1.3.1 Best Management Practices/Tree Pruning

1.3.2 Best Management Practices/Utility Pruning of Trees

1.3.3 Best Management Practices/Tree Support Systems

1.3.4 Best Management Practices/Tree Lightning Protection Systems

1.3.5 Best Management Practices/Tree Planting

1.3.6 Best management Practices/ Integrated Pest Management

1.3.7 Best Management Practices/Managing Trees During Construction

1.3.8 Best Management Practices/Tree and Shrub Fertilization.

Section C: Miscellaneous Standards.

1 Miscellaneous Standards Regarding Human Health Risk and Protection of City Trees:

1.1 Tree houses and swings shall not be installed in trees on City property.

1.2 For trees on City property, all installation, placement or removal of any tree attachment (see 2.75) shall be done in a manner (including timing and duration of installation) so as not to cause damage to any tree in the present, or in the future, as determined by the City Forester.

1.3 Climbing to perform work shall not occur in City trees except by authorized and qualified individuals as determined by the City Forester.

1.3.1 Climbing of City trees shall occur only:
- when performing tree maintenance
- when installing or removing tree attachments or objects
- for City sponsored arboricultural training or competition
- during rescue or emergency situations
- when taking an arboricultural tree climbing test that has been authorized by the City Forester

1.3.2 During City sponsored arboricultural events, such as training or competitions, or during an authorized tree climbing test, participants of various skill levels may climb designated trees on City property if they have filled out and signed the appropriate waiver(s). Such events must have on-site supervision by one or more arborists that are qualified to climb.

Approved by: _____ Date: 3/31/10
Darin Atteberry, City Manager

Appendix A:
Tree species list referenced in section 2.74 under the definition of "tree"

Conifer List:

Scientific Name	Common Name
Abies concolor	white (concolor) fir
Abies lasiocarpa	subalpine (alpine) fir
Calocedrus decurrens	incense cedar
Cedrus atlantica	Atlas cedar
Cedrus deodora	Deodar cedar
Cedrus libani	Cedar of Lebanon
Chamaecyparis nootkanensis	Alaska cedar
Cupressus arizonica	Arizona cypress
Cupressus bakeri	Modoc cypress
Cupressus sempervirens	Italian cypress
Juniperus chinensis	Chinese juniper
Juniperus monosperma	one-seed juniper
Juniperus osteosperma	Utah juniper
Juniperus scopulorum	Rocky Mountain juniper
Juniperus virginiana	eastern red cedar
Larix decidua	European larch
Larix kaempferi	Japanese larch
Metasequoia glyptostroboides	dawn redwood
Picea abies	Norway spruce
Picea engelmannii	Engelmann spruce
Picea glauca	Black Hills (white) spruce
Picea omorika	Serbian spruce
Picea pungens	Colorado blue (blue) spruce
Pinus aristata	bristlecone pine
Pinus bungeana	lacebark pine
Pinus contorta	lodgepole pine
Pinus densiflora	Japanese red pine
Pinus edulis	pinyon pine
Pinus flexilis	limber pine
Pinus monophylla	single leaf pinyon pine
Pinus monticola	western white pine
Pinus mugo	Mugo pine
Pinus nigra	Austrian pine
Pinus parviflora	Japanese white pine
Pinus ponderosa	Ponderosa pine
Pinus strobiformus	southwest white pine
Pinus strobus	eastern white pine
Pinus sylvestris	Scotch pine
Pinus thunbergiana	Japanese black pine
Pinus wallichiana	Himalayan pine
Pseodotsuga menziesii	Douglas fir

Sequoiadendron giganteum	giant sequoia
Taxodium distichum	baldcypress
Thuja occidentalis	eastern arborvitae
Thuja orientalis	oriental arborvitae
Thuja plicata	western red cedar

Shade Tree and Ornamental List:

Scientific Name	Common Name
Acer buergeranum	trident maple
Acer campestre	hedge maple
Acer ginnala	Ginnala (Amur) maple
Acer glabrum	Rocky Mountain maple
Acer grandidentatum	canyon (bigtooth) maple
Acer griseum	paperbark maple
Acer negundo	boxelder (Manitoba or ash-leaved) maple
Acer nigrum	black maple
Acer palmatum	Japanese maple
Acer platanoides	Norway maple
Acer pseudoplatanus	sycamore maple
Acer rubrum	red maple
Acer saccharinum	silver maple
Acer saccharum	sugar maple
Acer tataricum	Tatarian maple
Acer truncatum	Shantung (purpleblow) maple
Aesculus glabra	Ohio buckeye
Aesculus hippocastanum	horsechestnut
Aesculus x camea	red horsechestnut
Aesculus californica	California buckeye
Ailanthus altissima	tree-of-heaven
Albizia julibrissin	mimosa (silk tree or albizia)
Alnus glutinosa	European (common) alder
Alnus tenuifolia	thinleaf (mountain) alder
Amelanchier alnifolia	Saskatoon (western) serviceberry
Amelanchier arborea	downy serviceberry
Amelanchier canadensis	thicket serviceberry
Amelanchier laevis	smooth-leaf serviceberry
Amelanchier utahensis	Utah serviceberry
Betula nigra	river birch
Betula occidentalis	water (river) birch
Betula papyrifera	paper birch
Betula pendula	European white birch
Carpinus betulus	European hornbeam
Carpinus caroliniana	American hornbeam
Carya illinoensis	pecan
Carya cordiformis	bitternut hickory
Carya laciniosa	shellbark hickory
Carya ovata	shagbark hickory

Castanea dentata	American chestnut
Castanea mollissima	Chinese chestnut
Catalpa bignonioides	southern catalpa
Catalpa speciosa	western (northern) catalpa
Celtis occidentalis	common hackberry
Celtis laevigata	sugarberry
Celtis reticulata	netleaf hackberry
Cercidiphyllum japonicum	Katsuratree
Cercis canadensis	eastern redbud (Judas tree)
Cercis occidentalis	western (California) redbud
Cercocarpus ledifolia	curlleaf mountain-mahogany
Chilopsis linearis	desert willow
Cladrastis lutea	yellowwood
Cornus alternifolia	pagoda (alternate-leaf) dogwood
Cornus florida	flowering dogwood
Cornus kousa	Kousa dogwood
Cornus mas	Cornelian cherry dogwood
Corylus americana	American (hazelnut) filbert
Corylus columa	Turkish (hazelnut) filbert
Corylus cornuta	beaked (hazelnut) filbert
Cotinus coggygria	common smoketree (smokebush)
Cotinus obovatus	chittamwood or American smoketree
Cowania mexicana	cliffrose (quininebush)
Crataegus species	hawthorns
Elaeagnus angustifolia	Russian olive
Fagus grandifolia	American beech
Fagus sylvatica	European beech
Fraxinus americana	white ash
Fraxinus anomola	singleleaf (dwarf) ash
Fraxinus excelsior	European ash
Fraxinus pennsylvanica	green ash
Fraxinus quadrangulata	blue ash
Fraxinus velutina	Modesto (velvet) ash
Gleditsia triacanthos	honeylocust
Gymnocladus dioicus	Kentucky coffeetree
Juglans cinerea	butternut
Juglans major	Arizona walnut
Juglans microcarpa	little walnut
Juglans nigra	black walnut
Juglans regia	English (Persian) walnut
Koelreuteria paniculata	golden rain tree
Laburnum x watereri	goldenchain tree (Waterer laburnum)
Liquidambar styraciflua	American sweetgum
Liriodendron tulipifera	tuliptree (yellow or tulip poplar)
Maclura pomifera	Osage-orange
Magnolia acuminata	cucumber magnolia
Magnolia kobus	Kobus magnolia
Magnolia stellata	star magnolia
Magnolia x loebneri	Loebner magnolia
Magnolia x soulangiana	saucer magnolia

Malus species	apples and crabapples
Melia azedarach	Chinaberry
Morus alba	white mulberry
Morus rubra	red mulberry
Ostrya knowltonii	Knowlton hophornbeam
Ostrya virginiana	eastern hophornbeam (ironwood)
Phellodendron amurense	Amur corktree
Pistacia chinensis	Chinese pistache
Pistacia vera	pistachio
Platanus occidentalis	American sycamore (planetree)
Platanus x acerifolia	London planetree
Populus alba	white (silver) poplar
Populus angustifolia	narrowleaf cottonwood
Populus balsamifera	balsam poplar
Populus bolleana	Bolleana poplar
Populus deltoides	eastern cottonwood
Populus fremontii	Fremont cottonwood
Populus nigra	Lombardy poplar
Populus sargentii	plains cottonwood
Populus species	miscellaneous cottonwood
Populus tremuloides	quaking aspen
Populus trichocarpa	black cottonwood
Populus x acuminata	lanceleaf cottonwood
Populus x canadensis	hybrid poplar
Prosopsis glandulosa	honey mesquite
Prunus americana	American plum
Prunus armeniaca	apricot
Prunus avium	sweet (mazzard) cherry
Prunus cerasifera	purpleleaf (cherry) plum
Prunus cerasus	sour cherry
Prunus domestica	common plum
Prunus mahaleb	St. Lucie cherry
Prunus mume	Japanese apricot
Prunus nigra	Canada plum
Prunus padus	Mayday tree or European birdcherry
Prunus pennsylvanica	pin cherry
Prunus persica	peach
Prunus salicina	Japanese plum
Prunus sargentii	Sargent cherry
Prunus serotina	black cherry
Prunus serrulata	Japanese flowering (oriental) cherry
Prunus subhirtella	Higan cherry
Prunus virginiana	common chokecherry
Prunus x yedoensis	Yoshino cherry
Ptelea angustifolia	wafer-ash or western (common) hoptree
Pyrus species	pears
Quercus acutissima	sawtooth oak
Quercus alba	white oak
Quercus bicolor	swamp white oak
Quercus buckleyi	Texas red oak

Quercus cerris	turkey oak
Quercus gambelii	Gambel (scrub) oak
Quercus imbricaria	shingle (laurel) oak
Quercus macrocarpa	bur oak
Quercus muehlenbergii	chinkapin oak
Quercus palustris	pin oak
Quercus robur	English oak
Quercus rubra	northern red oak
Quercus shumardii	Shumard oak
Quercus turbinella	shrub live oak
Quercus undulata	wavyleaf oak
Robinia neomexicana	New Mexican locust
Robinia pseudoacacia	black locust
Robinia x ambigua	Idaho flowering locust
Salix amygdaloides	peach leaf willow
Salix babylonica	weeping willow
Salix fragilis	crack willow
Salix matsudana	Navajo or globe willow
Salix nigra	black willow
Sambucus cerulea	blue elder
Sophora japonica	Japanese pagodatree (scholar tree)
Sorbus alnifolia	Korean mountain ash
Sorbus americana	American mountain ash
Sorbus aucuparia	European mountain ash (rowan)
Sorbus decora	showy mountain ash
Sorbus scopulina	Greene mountain ash
Syringa pekinensis	Peking tree lilac
Syringa reticulata	Japanese tree lilac
Tamarix ramosissima	common tamarisk (salt-cedar)
Tilia americana	American linden
Tilia cordata	littleleaf (European) linden
Tilia tomentosa	silver linden
Tilia x euchlora	Crimean linden
Ulmus americana	American elm
Ulmus davidiana	David elm
Ulmus japonica	Japanese elm
Ulmus parvifolia	lacebark (Chinese) elm
Ulmus procera	English elm
Ulmus pumila	Siberian elm
Ulmus species	miscellaneous elms
Zelkova serrata	Japanese zelkova

City of Longmont
Forestry Standards and Specifications

Effective 9/16/2020

Department of Public Works and Natural Resources
Forestry Services

The following document is intended as a guiding tool for City of Longmont Licensed Tree Contractors and City of Longmont Forestry Staff. It aims to detail best practices for various aspects of tree care. This document was prepared utilizing many sources including the International Society of Arboriculture (ISA) Best Management Practices, Chapters 6.88 and 13.24 of the Longmont Municipal Code, American National Standards Institute (ANSI) Z133-2012, ANSI A300 (part 1), United States Department of Agriculture/Animal and Plant Health Inspection Service (USDA/APHIS), Colorado State University (CSU) Cooperative Extension, Ohio State University (OSU) Extension, ISA BMP's - Integrated Pest Management (IPM), and ISA Trees are Good – Insect and Disease (I&D) Problems. Tree work shall always keep in mind the health and structural integrity of the tree.

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Section A: License Requirements

Tree Contractor License

1) A 'Tree Contractor License', issued by the City of Longmont, is required for all businesses that perform work on trees located within the city limits. This includes all public and private trees. Tree work that requires a license includes the following activities:

a) Cutting, trimming, pruning, or removing of trees.

2) The following businesses that provide only these specialized type of service are exempt from needing to obtain a Tree Contractor License:

a) Stump grinding, tree planting, crane operations, or pesticide application. Businesses that apply pesticides to trees within city limits must be a Commercial Pesticide Applicator with the Colorado Department of Agriculture and adhere to guidelines laid out in The Integrated Weed Management Plan found here https://www.longmontcolorado.gov/Home/ShowDocument?id=18401.

3) The City of Longmont does not accept reciprocal licenses from other municipalities.

4) A license waiver may be requested for a specific tree removal operation or project such as site demolition by a qualified demolition company.

5) Chapter 6.88. – Tree Contractor License, of the City of Longmont Municipal Code, establishes the requirements for a Tree Contractor License.

Applicants Must Meet the Following Criteria to be Licensed:

1) At least one staff member shall obtain and maintain a minimum of one of the following International Society of Arboriculture (ISA) Certifications:

a) Certified Tree Worker Climber Specialist
b) Certified Tree Worker Aerial Lift Specialist
c) Certified Arborist Utility Specialist
d) Certified Arborist
e) Board Certified Master Arborist

2) Pass an aerial tree pruning practical field test, administered by Forestry Services. City staff will provide a ground person for exam and clean up debris generated from pruning test. Practical field tests will include a gear check to ensure safe, industry standard gear. Practical field test evaluates safe work practices as well as proper pruning technique and will include pruning one tree with the assistance of a Senior Arborist. The applicant should plan on spending 2 to 3 hours for the pruning practical field test.

3) All motor vehicles must clearly display the licensee's business name. Signage letters and numbers shall be a minimum size of 2 inches in height and visible from a distance of 60 feet.

4) Each licensee must carry general liability and automobile liability insurance covering all of the applicant's proposed tree service operations and vehicles.

a) General liability insurance coverage with minimum coverage of $1,000,000.00 per occurrence.
b) Automobile liability insurance coverage with minimum coverage of $1,000,000.00 per occurrence. Coverage shall include owned, hired, and non-owned vehicles.
c) If applicable, workers' compensation and employer's liability coverage pursuant to Colorado state law for persons performing work on behalf of the applicant or licensee.

Section B: Applicability of Standards

City of Longmont employees and companies holding a Tree Contractor License issued by the City shall perform all pruning and removal of trees on public or private property within the city in accordance with these Standards and Specifications, International Society of Arboriculture (ISA) Best Management Practices, American National Standards Institute (ANSI) A300 (part 1) pruning standards, and the City of Longmont Municipal Code. Any licensee not complying with these requirements may have their Tree Contractor License suspended or revoked at the discretion of the Director of Public Works and Natural Resources or a designee.

Section C: Best Management Practices

City of Longmont employees and companies holding a Tree Contractor License shall perform all work on or around trees in accordance with International Society of Arboriculture (ISA) Best Management Practices (most recent editions) unless otherwise approved by Forestry Services.

Section D: Pruning and Removal Standards

These standards were adapted in part from ANSI A300 (Part 1), ISA Best Management Practices/Tree Pruning, and ISA Best Management Practices/Utility Pruning of Trees. Most recent editions of all documents shall always be used.

Licensed Tree Contractors and City of Longmont Forestry staff shall be familiar with the City of Longmont Forestry Standards and Specifications, Chapter 6.88 and 13.24 of the Longmont Municipal Code, the most recent editions of all applicable ANSI A300 documents, and ISA Best Management Practices regarding tree pruning and removals.

Pruning recommendations and actual pruning work shall always regard tree health and the tree's structural integrity. Specifications for pruning and removal work should be based on objectives, describe the major job components, explain work type (pruning type or removal), and include location of tree(s) on the property. All specifications shall be written. Written specifications for pruning or removal should be administered by an arborist.

1) Scope of Work:

The following information shall be specified in writing prior to the commencement of tree pruning or removal and provided to the customer:

a) Pruning:
- Pruning Objectives (see section D, #7).
- Pruning Type - crown clean (CC), crown thin (CT), crown thin light (CTL), crown raise (CR), crown reduction, crown restoration, or structure pruning (see section D, #8).
- Location - address or location and specific details on location of tree(s) on the property.

b) Removal:
- Lowest final cut for removal and whether or not stump removal is to be included.
- Location - address or location and specific details on location of tree(s) on the property.

2) Tree Inspection Prior to Pruning or Removal:

a) An arborist shall visually inspect each tree before beginning pruning or removal operations.

b) If a condition is observed requiring attention beyond the original scope of work, the condition shall be reported to customer/client.

3) General Pruning and Removal Standards:

a) Pruning and removal cuts shall be performed by an arborist, or an arborist trainee under the direct supervision of an arborist. These are generic titles based on competency and experience, but they need not be the actual position titles. The arborist does not need to be on site at all times, but shall be familiar with the practices and hazards of the tree work assigned and the equipment used in such operations. Ground work does not need to be performed by an arborist or arborist trainee.

b) Any licensed Tree Contractor shall stop work on a job site when directed by the City for any reason such as possible violations of a safety standard, tree topping, or improper tree care. The contractor may only resume work once Forestry Services has deemed it alright to do so. Violations of these Standards may include suspension or revocation of

the Tree Contractor License. For details about suspension or revocation of a Tree Contractor License please see Chapter 6.88 Tree Contractor License of the Municipal Code.

c) In conducting tree pruning and removal, all work shall be performed using methods and equipment in such a manner so as to avoid and prevent damage to landscape, properties, structures, and/or persons.

d) Tree pruning and removal shall comply with all federal, state, and local laws and regulations.

e) Migratory Bird Treaty Act (MBTA): "The MBTA provides that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, egg or any such bird, unless authorized under a permit issued by the Secretary of Interior." In practice, all tree work shall cease if there is found to be nesting birds within the tree. Bird nests shall remain in the original location whenever feasible. Contractors working on behalf of the City shall only continue tree work once birds have fledged from the nest and the City Forester has approved the continuation of work.

f) Off-site trees shall not be cut, pruned, or removed beyond a property line without prior verbal or written approval from the owner(s) of the tree(s), or his/her authorized representative. An exception is that the City can authorize pruning or removal of trees or shrubs posing a hazard to public property, or for the control of tree diseases or insect infestations as described in Chapter 13.24 of the Longmont Municipal Code.

g) During an emergency, because of safety and the urgency of the operation, it may be necessary to deviate from the use of proper pruning techniques as defined in this Standard. Following the emergency, corrective pruning should be done as necessary.

h) Standards specific to removal operations:

- Specifications for removal work shall describe where the lowest final cut will be made.
- Specifications for removal shall include whether or not stump removal is to be included as part of the removal.

4) Pruning Tools and Equipment:

a) Equipment, tools, and work practices that damage living tissue and bark beyond the scope of normal work practices are prohibited.

b) Climbing spurs are prohibited when entering and climbing trees for the purpose of pruning, tree inspection, or any purposes other than removal. An exception will be made for aerial rescue operations.

c) Pruning tools used in making pruning cuts shall be sharp and disinfected at appropriate variables when applicable.

5) Wound Treatment:

a) Wound dressings shall not be used to cover wounds or pruning cuts, except when directed by the latest research.

b) When tracing wounds, only loose, damaged tissue shall be removed.

6) Pruning Cuts:

a) General Pruning Guidelines:
- The smallest diameter cut is preferred.
- The number and size of cuts that expose heartwood should be minimized.
- The final pruning cut should result in a flat surface with adjacent bark firmly attached.
- Tree branches shall be removed in such a manner so as to avoid damage to other parts of the tree, or to other plants or property.
- Distribution of remaining foliage should be consistent throughout the interior and exterior of the crown.
- Branches too large to support with one hand shall be pre-cut using an acceptable three-cut method or rigging to avoid splitting of the wood or tearing the bark. Multiple cutting techniques exist for the application of a three-cut method.
- A cut that removes a branch with a narrow angle of attachment should be made in a way that it will not cause damage to the parent branch or stem.
- When removing a branch with included bark, the cut should be made as close as possible to the point where the wood of the stems join without damaging the remaining stems.
- When removing a dead branch, the final cut shall be made just outside the collar of living tissue and without leaving a stub.
- Severed branches or hangers shall be removed from the crown upon completion of the pruning, any time that tree is left unattended, or at the end of the workday.
- Per Chapter 13.24. - Trees and Plants, of the City of Longmont Municipal Code, minimum clearance over city streets is 15 feet, and minimum clearance over city sidewalks is 8 feet, for all the following listed prune types.

b) Removal Cut: A pruning cut that removes a branch at its point of origin. This cut shall be made close to the trunk or parent branch, without leaving a stub, and without cutting into the branch bark ridge or branch collar.

c) Reduction Cut or Heading to a Lateral Cut: A pruning cut that reduces the length of a branch or parent stem by cutting back to another branch or stem. These cuts shall be made at a slight downward angle relative to the remaining stem without damaging the remaining stem.

- When pruning to a lateral (reduction cut), the remaining lateral branch should be large enough to assume the terminal role. This lateral branch should be at least 1/3 the diameter of the removed portion. A larger ratio, closer to 1/2 is usually preferred. If the lateral branch that remains is less than 1/3 the diameter of the removed stem (both stems measured perpendicular to their main branch axis at the branch junction), then the cut is considered a heading cut to a lateral. A heading cut to a lateral is considered inappropriate on most trees.
- Heading cuts to a lateral that are less than the 1/3 rule, shall only occur when the objective for pruning cannot be achieved with pruning cuts that cause less impact to the tree's health or structural integrity. **Topping is an inappropriate technique in meeting an objective.** Heading cuts to a lateral can cause significant problems and shall be used with a great deal of discretion. Pruning recommendations and actual pruning work shall always regard the health and structural integrity of the tree.

d) Heading cuts in the internodal zone shall not be made on a branch, or a stem, 2 years old or older, except for the following reasons:

- On a mature tree, a large branch or stem stub may be left to slow the movement of decay into a major branch or main stem. The exception and the reason shall be included in the specifications.
- On a mature tree, a large branch or stem stub may be left for wildlife considerations. The exception and the reason shall be included in the specifications.
- Pruning required for clearance of a street, sidewalk or other defined pedestrian or vehicle passageway may include shearing or cutting back into wood 3 years old or older. Minimum clearance over a city street is 15 feet. Minimum clearance over a sidewalk is 8 feet. Tree health, species, and age shall be considered and therefore no more than 30% of the crown of a tree shall be pruned at one time.

7) Pruning Objectives:

a) Pruning objectives shall be established prior to beginning any pruning operation.

b) Objectives should always keep in mind the health and structural integrity of the tree.

c) Objectives should include, but are not limited to, any of the following:

- Reduce risk
- Improve and maintain health
- Provide clearance
- Manage wildlife habitat
- Aesthetics
- Influence flower or fruit production

8) Pruning Type:

Pruning type shall be specified prior to commencement of work. These pruning types are all part of a natural pruning system. A natural pruning system conserves the characteristic growth pattern and adaptations of the tree but also allows for pruning to develop preferred structure and branch architecture, and to avoid conflict with infrastructure, lines of sight, and other obstructions. Pruning types include:

a) **Crown Clean (CC)**: Shall consist of safety pruning to remove one or more of the following non-beneficial parts: dead, diseased and/or broken branches.

- Location and minimum size of parts to be removed shall be specified prior to commencement of work.

b) **Crown Thin (CT)**: A complete prune that shall consist of selective removal of live branches to reduce crown density. This pruning type includes crown clean as defined above.

- Thinning should result in an even distribution of live branches on individual branches and throughout the crown.
- Cuts should be focused on the ends of the limbs.
- Lion tailing is a poor pruning practice and shall not occur when pruning live branches during thinning.
- No more than 30% of the live crown should be removed within an annual growing season.
- Location of parts to be removed shall be specified prior to commencement of work.

c) **Crown Thin Light (CTL)**: A complete prune that shall consist of selective removal of live branches with an emphasis on a lower percentage of live crown removal than a crown thin. This pruning type includes crown clean as defined above.

- No more than 25% of the live crown should be removed within an annual growing season.
- Cuts should be focused on the ends of limbs.

- Lion tailing is a poor pruning practice and shall not occur when pruning live branches during thinning.
- Location of parts to be removed shall be specified prior to commencement of work.

d) **Crown Raise (CR)**: Shall consist of selective removal of branches to provide vertical clearance. Crown raising should shorten or remove lower branches to provide clearance for buildings, signs, vehicles, pedestrians, vistas, or other considerations.

- Trunk to crown ratio in terms of tree height should not be reduced to less than 50%. Tree health, size, age and species shall be considered. A higher percentage of crown to trunk ratio is preferred when appropriate.
- Minimum clearance over city streets is 15 feet, and minimum clearance over city sidewalks is 8 feet.
- Location and size range of parts to be removed should be specified prior to commencement of work.

e) **Structure Pruning**: A complete prune that shall consist of selective pruning to improve tree and branch architecture primarily on young and medium aged trees.

- A central leader should be selected for development as appropriate.
- Strong, uniformly spaced scaffold branch structure should be selected for and maintained by reducing or removing other branches.
- Temporary branches should be retained or reduced as appropriate.
- Interfering, overextended, defective, weak and/or poorly attached branches should be removed or reduced.

f) **Crown Reduction**: Shall consist of pruning branches or stems to decrease the height and/or spread of a tree. This type of pruning is done to minimize risk of failure, to reduce height or spread, to provide utility line clearance, or to clear vegetation from buildings or other structures.

- Species and plant health shall be considered prior to commencement of work. No more than 30% of the crown should be removed. The tree's form, branch structure, health, and structural integrity shall be considered in determining the appropriate amount of reduction to meet the objective.
- Topping or heading shall **not** be used as a pruning technique to reduce tree size by cutting back a tree to a predetermined crown limit.
- When a limb on a mature tree is cut back to a lateral, no more than 1/3 of its foliage should be removed.
- The one-third rule should be abided by unless otherwise specified.
- Location of parts to be removed and/or clearance requirements shall be specified prior to commencement of work.

g) **Crown Restoration**: Shall consist of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or otherwise damaged trees.

- Location in tree, size range of parts, and percentage of sprouts to be removed should be specified prior to commencement of work.

9) Utility Pruning:

The purpose of utility pruning is to prevent the loss of service, comply with mandated federal clearance laws, prevent damage to equipment, maintain access, and/or uphold the intended usage of the facility while adhering to accepted tree care performance standards.

a) Companies performing utility pruning are required to obtain a City of Longmont Tree Contractor License.

b) Pruning cuts shall be made in accordance with sub-section "Pruning Cuts" of this document (Section D, #7). The structure and growth habit of the tree shall be considered prior to the commencement of work.

c) Utility pruning should be accomplished by removing entire branches. A tree interfering with a utility space should be pruned by reducing branches to laterals to direct growth away from the utility space or by removing entire branches.

d) Branches shall be cut to laterals or parent branches and not at a pre-established clearing limit. If clearance limits are established, pruning cuts shall be made at laterals or parent branches outside the specified clearance zone. Topping is an inappropriate technique in meeting this objective.

e) During a utility-declared emergency, service must be restored as quickly as possible. At such times it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques. Following the emergency, corrective pruning should be done as necessary.

f) Only a qualified line-clearance arborist or line-clearance arborist trainee hired by the utility provider shall be assigned to line-clearance work in accordance with industry requirements and regulations.

g) To be compliant with the OSHA 29 CFR 1910.268, 269, 331, 333 and ANSI Z133.1, only utility pruning contractors with qualified employees shall perform any activity that may bring an individual or equipment within 10 feet of high voltage (600 volts or greater) overhead lines. Contractors working directly for the utility shall be considered qualified. Incidental line-clearance arborists must contact the appropriate utility to make arrangements for safe activity.

h) When an incidental line-clearance arborist is unable to safely maintain a minimum approach distance of 10 feet from a conductor they shall stop work operations until a qualified line-clearance arborist can provide adequate clearance from the conductor.

Section E: Planting Standards

These standards apply to anyone planting trees on City property. Contractors that only perform planting operations do not need to be licensed by the City, however, they still need to follow these general standards if planting on City property.

Planting on City Property must adhere to Planting Details, which can be found in Appendix B of this document.

1) Scope of Work:

The following information shall be specified in writing prior to the commencement of planting operations:

a) Location - address or location and specific details on location of tree(s) to be planted on the property.

b) Species, size, and nursery stock type - specific tree species to be planted along with the caliper inches, and the nursery stock type.

- All trees must be approved by Forestry Services prior to planting.

c) Mulching - the depth mulch will be applied and the size of the mulch ring.

d) Staking - indicate whether or not contractor or City is responsible for staking.

e) Initial Watering - indicate whether or not contractor or City is responsible for initial watering.

f) Irrigation - adhere to specific irrigation guidelines laid out in Planting Details (found in Appendix B).

2) Irrigated or Non Irrigated Site

a) Planting details will vary for different slopes and irrigation. For specific planting requirements refer to the planting details found in Appendix B.

Section F: Stump Removal Standards

These standards apply to anyone removing a stump on City property. Contractors that only perform stump removal services do not need to be licensed by the City, however, they still need to follow these general standards if removing a stump on City property.

1) Scope of Work:

The following information shall be specified in writing prior to the commencement of stump removal operations:

a) Location - address or location and specific details on location of stump(s) on the property.

b) Depth - the depth the stump is to be ground or removed to.

c) Grind radius - the radius around the above ground portion of the stump that needs to be removed.

d) Clean up and backfilling.

2) Utility Locates

a) It is the responsibility of the excavator to request and confirm all utility locates are complete and clear prior to excavation.

Section G: Safety Standards

These standards were compiled and adapted in part from ANSI Z133-2012. Contractors holding a Tree Contractor License and City of Longmont Forestry staff shall be familiar with and utilize the literature regarding safety standards in arboriculture (most recent editions).

1) General Safety Standards:

a) All workers present on-site shall wear appropriate Personal Protective Equipment (PPE). At minimum, PPE must include: head protection (helmet), eye protection, hearing protection, ankle high boots, long pants and a shirt. All clothing shall be free of holes, rips, and tears.

b) Chainsaw protective leg coverings (chaps or chainsaw protective pants) shall be worn when operating a chainsaw on the ground.

c) Chainsaw safety components (chain brake, throttle interlock, chain catcher) shall not be removed or modified. A chainsaw shall not be operated if the safety components are not in working order.

d) Two hands shall be used at all times when operating a chainsaw unless the operator is placed in danger or a significant hazard is presented by operating the chainsaw with two hands.

e) A work zone must be established and properly marked with signage, flagging, or cones when there is a possibility that non-workers could enter unknowingly. Non-workers and non-essential personnel should not enter a work zone.

f) Do not chip brush while wearing loose clothing, climbing equipment, harnesses, lanyards, or gauntlet-style gloves; because of a higher chance of becoming caught up by material being pulled into the chipper.

g) A visual inspection of the tree, trunk flare, and root zone shall be completed and potential hazards shall be identified before the arborist or arborist trainee climbs or performs any work on the tree.

h) A second arborist, arborist trainee, or ground worker trained in aerial rescue shall be within sight and/or oral communication range during aerial operations above 12 feet.

i) While engaged in aerial climbing operations and/or ascending a tree (including using spurs/spikes) an arborist shall have available an appropriate length climbing line. Additionally, the arborist shall be secured (tied-in) by at least one means (climbing line or work-positioning lanyard) while working aloft.

j) When using a ladder to gain aerial access to a tree, an arborist shall not work from or step-off the ladder onto the tree until they are tied-in or secured. Ladders should only be used when there is solid ground to place it on. Ladders should comply with Z133 7.5.

k) Aerial lifts shall be equipped with a fall protection anchor to secure a personal fall protection device (full body harness with energy-absorbing lanyard or regular harness with lanyard) which shall be worn by the arborist aloft at all times. These required pieces of PPE must meet the ANSI/SIA A92.2 Standard.

l) Arborists working aloft in a tree shall be tied-in and secured by a second means (work-positioning lanyard or second climbing line) when operating a chainsaw. Using two lanyards or both ends of a two-in-one lanyard shall not be considered acceptable as two means of securement when operating a chainsaw aloft.

m) Workers having roles and responsibilities with a temporary traffic control plan shall be trained in traffic control techniques, sign usage/placement, and how to perform work near traffic while mitigating their risk/exposure to injury.

n) Workers exposed to the risks of traffic shall wear high-visibility safety gear meeting the standards of ANSI/ISEA 107.

o) Traffic flow should be restricted as minimally as possible while moving through a temporary traffic control area. Workers shall use necessary signage and devices to provide clear signals to drivers in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

p) A Working in the Right of Way Permit shall be obtained from City of Longmont Engineering Services, 303-651-8757. Appropriate traffic plans are required when impacting defined pedestrian or vehicle passageway. A permit fee is required when obtaining a permit.

q) Prior to beginning any tree operation, employees have both a need and a right to know the hazards they are exposed to when working. They also need to know what protective measures are available to prevent injury or accidents from occurring.

r) Longmont Power & Communication (LPC) will provide various levels of service to aid in the maintenance of trees near electrical conductors. To request a temporary shut off for maintenance pruning, general safety clearance pruning, or covering of the lines for safety call Longmont Power & Communications during business hours at 303-651-8386.

2) Sight Distance Triangle:

In order to preserve sight distance and the safety of pedestrians and vehicles, an unobstructed area shall be maintained at intersections per Section 200 of the City of Longmont Design Standards.

Section H: Insect and Disease Standards

These standards were compiled and adapted in part from United States Department of Agriculture/Animal and Plant Health Inspection Service (USDA/APHIS), Colorado State University (CSU) Cooperative Extension, Ohio State University (OSU) Extension, ISA BMP's - Integrated Pest Management (IPM), ISA Trees are Good - Insect and Disease (I&D) Problems.

1) General Insect and Disease Standards:

City of Longmont Licensed Tree Contractors and City of Longmont Forestry staff shall be familiar with and utilize in business practice City of Longmont Forestry Standards and Specifications, Chapter 6.88 and 13.24 of the Longmont Municipal Code, and the most current literature reflecting the latest research regarding insect and disease issues.

The goal of integrated pest management (IPM) is to manage insect and disease (I&D) and their damage to tolerable levels utilizing a broad range of tactics including preventative and control tactics. IPM focuses on pest prevention and suppression rather than eradication. However, when dealing with a highly damaging I&D issue, eradication may be the desired goal. IPM shall promote tree appearance, structure, and vitality as well as void harmful effects on non-target organisms and cause minimal disturbance to the built/natural environment.

Steps taken in IPM processes shall begin with prevention, followed by necessary action, continuing with maintenance and proper disposal of material.

a) Prevention will consist of reducing stressing factors to trees through regular maintenance, care, and watering. Other preventative measures based on specific I&D issues may be considered based on the latest research.

b) Necessary actions shall be taken if insects and/or diseases are present beyond tolerable levels. Those actions can include pruning, removal, or treatment.

c) When pruning or removing diseased or infested material, proper material disposal protocol shall be followed.

d) Handling and disposing of disease or infested material shall comply with all federal, state, and local laws and regulations.

e) Public education is an important component regarding local I&D issues. Forestry Services shall keep the public informed about I&D issues that are threatening the City's urban forest.

2) Pesticide Application:

a) Companies solely performing pesticide application are not required to have a City of Longmont Tree Contractor License. These companies must be licensed by the Colorado Department of Agriculture and adhere to guidelines laid out in The Integrated Weed Management Plan found here https://www.longmontcolorado.gov/Home/ShowDocument?id=18401.

b) Pesticide applicators shall comply with all federal, state, and local laws and regulations.

c) In conducting pesticide application operations, all work shall be performed using methods and equipment in such a manner so as to avoid and prevent damage to other non-target plants, properties, structures, or persons.

d) Applications shall comply with the most recent edition of ANSI Z133.1 Safety Requirements for Arboricultural Operations.

Section I: Tree Protection

A copy of the Tree Protection Detail, Section 600-27: Tree Protection, can be found in Appendix C of this document.

1) General Tree Protection and Preservation Standards:

a) An applicant for a Construction permit or a Working in the ROW permit shall protect public trees on any project or construction site where public or private improvements are proposed.

b) An applicant for a Construction permit or a Working in the ROW permit shall submit a tree protection plan incorporating proposed tree protection measures for any existing trees located on public property.

c) Work that shall occur within the dripline of a public tree requires consultation from the City Forester. Contact the Call Center at 303-651-8416 to set up an appointment with the City Forester.

d) The tree protection plan shall identify any potential detrimental effects to existing public trees that might result from proposed construction activities within the drip line of any existing trees. The plan shall include the species, size, and location of all existing trees that are 2 inches or larger in diameter. Existing trees approved to be removed or relocated shall be clearly identified on the landscaping plan. If no existing trees are present that require protection, this shall be noted on the plan.

e) The applicant for a Construction Permit or a Working in the ROW permit shall notify the City within 24 hours of any suspected damage to trees resulting from construction activities. If damage occurs to public right of way trees during construction the applicant shall have the damaged tree assessed by Forestry Services. The applicant will be responsible for all costs associated with damage mitigation, restoration work and/or the appraised tree value.

f) Disposing of chemicals or foreign material anywhere on site is prohibited. This shall include but is not limited to: paint, stain, solvents, fuel, oil, concrete, rinsing water from any receptacles tools or equipment containing chemicals, or any construction material on site.

2) Preventing Soil Compaction:

a) To prevent soil compaction, designated routes for equipment and foot traffic by work crews shall be determined prior to commencing construction activities and indicated in the tree protection plan.

b) These planned routes shall be marked at the site before construction commences. Durable fencing shall be used. Flagging tape or other materials that may be moved or evaded is not acceptable.

c) The contractor shall inform all construction crew members and subcontractors of the routes and will ensure that only these routes are used.

d) To prevent soil compaction and reduced tree root respiration; no soil stockpiles, supplies, equipment, or any other material shall be placed or stored within a tree drip line or within 10 feet of the tree trunk, whichever distance is greater. Heavy objects such as wood pallets or metal railings shall not lean against, or come in contact with the trunk of a tree.

e) When foot traffic or equipment use is unavoidable within the drip line, this area shall be mulched with wood chips to a predetermined depth before construction activity begins. Mulch depth and possible planking shall be maintained for the duration of the project and removed when construction activities are completed. Situations such as this need to be discussed and approved by Forestry Services prior to beginning work.

3) Tree Fencing:

a) Fencing material shall encircle any tree whose drip line edge is within 20 feet of any construction activity.

b) Fencing material shall be a bright, contrasting color, durable and at least 4 feet high. Fence posts shall be comparable to metal T-posts or heavier posts and placed at least 12 inches in solid ground.

c) Fencing material shall be placed at the drip line or at least 10 feet from any tree trunk, which ever distance is greater. Fencing shall be maintained in an upright position throughout the duration of construction activities.

d) Gates or other access shall not be allowed in tree fence areas. Crews may not take breaks or reside in the fenced in tree protection area.

e) See Appendix C: Tree Protection for more detail.

4) Soil Grade Changes:

a) Grade changes, such as removing topsoil or adding fill material, shall not occur within the drip line of any existing tree. If necessary as part of project or site development, retaining walls and tree wells to maintain the existing grade within the drip line of any tree may be acceptable when constructed prior to site grading changes near the tree. A tree protection plan containing an illustrated design scheme of the tree protection improvement shall be approved by the City prior to initiating any grade changes near existing trees.

5) Tree Root Protection:

a) Tree roots shall not be cut unless cutting is unavoidable. When root cutting is unavoidable, a clean sharp cut shall be made. Whenever possible a root cut shall be made back to a lateral root.

b) Whenever possible tree roots shall be cut between late fall and bud break in the spring.

c) Forestry Services shall be notified of any cutting of two or more roots with a diameter greater than 3 inches.

d) Whenever possible roots shall be tunneled or bored under. Tunneling or boring may be required when open trenching would result in major root destruction.

e) Power tools and large equipment shall not be used to prune roots unless it is industry standard approved root-cutting equipment used under the supervision of the City. Examples of approved tools include: hand pruner, non-anvil type lopper, pruning saw, chainsaw, or demo saw with approved diamond bit root cutting blade.

f) Exposed roots shall be covered immediately with soil or kept moist with wet burlap.

g) When more than one root 2 inches or larger in diameter on any public tree is cut supplemental watering shall be provided if the tree lacks an operational irrigation system. The contractor, person performing the work or adjacent landowner shall provide the watering. If roots are cut between April and August, trees may require supplemental watering (minimum of 20 gallons of water per inch of trunk diameter) once per week for at least two months after the root(s) are cut.

h) Roots with fresh wounds present shall not come into contact with building materials such as concrete, cement, mortar, asphalt, pavement, chip seal, tar, or any other non-solid surfacing material. A minimum soil barrier of 2 inches shall be provided between the root wound and listed materials. When a soil barrier cannot occur, an impermeable layer of plastic shall be used as a barrier between root wounds and any materials listed above.

i) If four roots greater than 4 inches in diameter are to be cut, the tree may need to be removed due to structural instability. If said roots are cut, the individual or contractor shall be responsible for the cost of the tree removal and the appraised value of the tree.

j) Alternatives to root cutting shall be considered when excavating under the drip line of trees for root/sidewalk conflicts. Alternatives can be discussed with a representative from Forestry Services. Alternatives include:

- Sidewalk grinding
- Sidewalk cutouts
- Sidewalk meandering
- Sidewalk ramping
- Flexible paving materials

Section J: Permitted Uses of Public Trees

Tree attachments, such as swings, birdhouses, or other items can allow Longmont residents to interact with public trees and help build support for urban forestry programming. However, Forestry Services is a steward to public trees and needs to weigh the balance between tree health, public safety, and resident interests. Attachments, if installed inappropriately, can cause damage to the affected tree or injure people and/or property.

Per Chapter 13.24 Trees and Plants, of the City of Longmont Municipal Code, it is a violation, *"to attach any material to a tree on city property which can affect the natural growth, injure, cause harm to, or impair the health of the tree."*

1) Temporary attachments: such as holiday lights, bird houses, or other items, that are to be used on a temporary basis are permitted uses of public trees. The attachments shall be placed in the tree as to not cause damage to the whole tree or tree parts, by puncturing the bark, or girdling a limb, branch or trunk.

2) Climbing of City Trees shall occur only during the following circumstances:

a) When performing approved tree maintenance
b) When installing or removing approved tree attachments or objects for approved arboricultural training or competition
c) During rescue or emergency situations
d) When performing an arboricultural tree climbing test, authorized by the City
e) For approved City Recreation Department sponsored classes

3) All other attachments must be permitted by Forestry Services. To contact Forestry Services call 303-651-8416.

Section K: Nuisance Trees

1) A nuisance tree is a tree with undesirable characteristics and declared to be a public nuisance by the Director of Public Works and Natural Resources or a designee. The City cannot enforce removal of nuisance trees on private property. If a tree is considered a noxious weed, as defined by the Colorado Noxious Weed Act, and planted on private property, City of Longmont Code Enforcement will need to be contacted to amend the issue according to CRS 35-5.5-109, management of noxious weeds on private property. Siberian elm and cotton-bearing trees in the genus *Populus* shall not be exempted from tree mitigation when a property is being reviewed for development purposes.

2) The following tree species shall be considered a nuisance and are prohibited from being planted on City properties as defined in chapter 13.24.100 of the Longmont Municipal Code:

a) cotton-bearing cottonwood - (*Populus sp.*)
b) cotton-bearing white poplar - (*Populus sp.*)
c) female boxelder maple - (*Acer negundo*)
d) Siberian elm - (*Ulmus pumila*)
e) Russian olive - (*Elaeangus angustifolia*)
f) salt cedar - (*Tamarix sp.*)

For more information on nuisance trees please see chapter 13.24.100 of the Longmont Municipal Code.

3) Noxious Weeds: Noxious weeds are defined and managed according to CRS 35-5.5 the Colorado Noxious Weed Act. To see which trees are on the Colorado Noxious Weed list or for a copy please contact the Colorado Department of Agriculture or visit their website https://www.colorado.gov/pacific/agconservation/noxiousweeds.

Section L: Definitions

aerial operations – any tree maintenance operations performed with feet not firmly planted on the ground.

American National Standards Institute ANSI/ISEA 107 standard (commonly referred to as the ANSI/ISEA 107) – in the United States, industry-developed, national consensus standards for high visibility safety apparel.

American National Standards Institute A922.2 standard (commonly referred to as the ANSI A922.2) – in the United States , industry- developed, national consensus standards for vehicle-mounted elevating and rotating aerial devices.

American National Standards Institute Z133.1 standard (commonly referred to as the ANSI Z133.1) – in the United States, industry-developed, national consensus safety standards of practice for tree care.

American National Standards Institute Z87.1 standard (commonly referred to as the ANSI Z87.1) – in the United States, industry-developed, national consensus standards for specific impact resistance rating and safety design for eye protection.

American National Standards Institute A300 standard (commonly referred to as the ANSI A300) – in the United States, industry-developed, national consensus standards of practice for tree care.

apical dominance – condition in which the terminal bud inhibits the growth and development of the lateral buds on the same stem formed during the same season.

appraisal – (1) placing a monetary value on a tree, other plant, other landscaping, including hardscape, or an entire property. (2) a report stating an opinion of appraised value.

arboriculture – practice and study of the care of trees and other woody plants in the landscape.

arborist – professional who possesses the technical competency and knowledge gained through experience and related training to provide or supervise tree pruning, tree removal, and/or the management of trees and other woody plants in residential, commercial and public landscapes.

arborist trainee – an individual undergoing on-the-job training to obtain the experience and the competence required to provide or supervise tree pruning, tree removal, and/or the management of trees and other woody plants.

best management practices (BMP's) – best available, industry-recognized course of action, in consideration of the benefits and limitations, based on scientific research and current knowledge.

branch – a shoot or stem arising from another branch or stem.

branch bark ridge – raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.

branch collar – area where a branch joins another branch or trunk that is created by the overlapping vascular tissues from both the branch and the trunk. Typically enlarged at the base of the branch.

City Forester – the City Forester of Longmont or designee.

climbing spurs – sharp devices strapped to a climber's lower legs to assist in climbing poles or trees being removed. Also called spikes, gaffs, irons, hooks, or climbers.

codominant stem – forked branches nearly the same diameter (diameter ratios greater than 80%), arising from a common junction and lacking a normal branch union.

collar cut – see removal cut.

compartmentalization – natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

crown – upper part of a tree, measured from the lowest branch up, including all the branches and foliage.

crown clean (CC) – consists of safety pruning to remove one or more of the following non-beneficial parts: dead, diseased and/or broken branches.

crown raise (CR) – consists of selective removal of branches to provide vertical clearance.

crown reduction – consists of pruning branches or stems to decrease the height and/or spread of a tree.

crown restoration – consists of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or otherwise damaged trees.

crown thin (CT) – a complete prune that shall consist of selective removal of live branches to reduce crown density. This pruning type includes crown clean as defined.

crown thin light (CTL) – a complete prune that shall consist of selective removal of live branches with an emphasis on a lower percentage of live crown removal than a crown thin. This pruning type includes crown clean as defined.

decay – (1) (noun) an area of wood that is undergoing decomposition. (2) (verb) decomposition of organic tissues by fungi or bacteria.

dominant leader – the stem that grows much larger than all other stems and branches.

drip line – a projected line from the outer most branches of a tree to the ground.

easement – legal interest in real property that conveys use or partial use, but not ownership, of a portion of an owner's property.

facility – a structure or equipment used to deliver or provide protection for the delivery of an essential service, such as electricity or communications.

flagging – (1) symptom in which leaves on a branch wilt and may ultimately turn brown without falling from the shoot. (2) colored tape used to mark trees.

ground work – all work done from the ground.

hanger – loose, dangling, cracked or unsecured limb in the canopy of a tree.

heading cut – pruning a shoot back to a bud, or cutting a branch back to a bud, stub or lateral branch not large enough to assume apical dominance. Depending on the placement of the heading cut it is called: 1) heading to a bud; 2) heading to a lateral; or 3) internodal heading.

hazard – situation, condition, or thing that may be dangerous. (1) in tree management, a tree or tree part that is likely to fail and cause damage or injury, and the likelihood exceeds an acceptable level of risk. (2) in tree care or forestry operations, the presence of a condition or situation that may cause harm or injury to workers.

included bark – bark that becomes embedded in a union (crotch) between branch and trunk or between codominant stems resulting in weak structure.

infectious – capable of being spread to plants from other plants or organisms.

integrated pest management (IPM) – method of controlling plant pests by combining biological, cultural, mechanical, physical, and/or chemical management strategies.

International Society of Arboriculture (ISA) – an organization devoted to research, technology and education to promote the professional practice of arboriculture and foster a greater worldwide awareness of the benefits of trees.

internode – the area between lateral branches or buds.

invasive species – non-native organisms likely to spread, disrupting the natural balance of an ecosystem.

interior foliage – typically small-diameter (less than 3 inches) branches with foliage on the interior or inner portion of the crown.

lateral – secondary or subordinate branch or root.

leader – primary terminal shoot or trunk of a tree; a stem that dominates a portion of the crown by suppressing lateral branches.

liability – (1) something for which one is responsible. (2) legal responsibility.

lion tailing – poor pruning practice in which an excessive number of live branches are thinned from the inside and lower part of specific limbs or a tree crown, leaving mostly terminal foliage. Results in poor branch taper, poor wind load distribution, and a high risk of branch failure.

live crown ratio – the ratio of the height of the crown containing live foliage to the overall height of the tree.

mature tree – trees that have reached at least 75% of their typical final height and spread.

mitigation – in tree risk management, reducing, alleviating, or minimizing risk of harm (damage or injury).

native species – plants indigenous to a region. Naturally occurring and not introduced by man. Contrast with exotic species, introduced species, invasive species, and naturalized species.

off-site tree – a tree located on property other than where work is authorized to occur.

Occupational Safety and Health Administration (OSHA) – the Agency dealing with health and safety in the workplace.

Occupational Safety and Health Administration 29 Code of Federal Regulations 1910.268, 269, 331, 333 (commonly referred to as OSHA 29 CFR 1910) – for the purpose of this document the sections that apply to the regulations that govern safe work distances. Anyone who works within 10 feet of energized conductors must have additional training requirements beyond those necessary for regular tree care and urban forestry operations.

one-third rule – remaining limb after pruning is at least one third the diameter of the removed limb.

parent branch – larger branch or stem from which a smaller, lateral branch arises.

parts to be removed – the location in the crown of a tree where pruning work will be performed. This can be specified as all of the crown or just the section(s) of the crown to be pruned.

permanent branches (permanent limbs) – in structural pruning of young trees, branches that will be left in place, often forming the initial scaffold framework of a tree.

personal protective equipment (PPE) – personal protective equipment as defined by Z133 designed to protect the worker.

pest – organism (including, but not limited to, weeds, insects or fungi) that is damaging, noxious, or a nuisance.

pesticide – any chemical used to control or kill unwanted pests such as weeds, insects, or fungi.

plant health care (PHC) – comprehensive program to manage the health, structure, and appearance of plants in the landscape.

pruning – removing branches (or occasionally roots), or shortening branches or leaders on a tree to achieve a specified objective(s). Certain kinds of pruning are prohibited and a violation of the standards such as: topping a tree, pruning without regard for health or structural integrity, making incorrect pruning cuts, etc.

qualified line-clearance arborist – an individual who, through related training and on-the-job experience, is familiar with the equipment and hazards in line clearance and has demonstrated the ability to perform the special techniques involved. This individual may or may not be currently employed by a line-clearance contractor.

qualified line-clearance arborist trainee – an individual undergoing line-clearance training under the direct supervision of a qualified line-clearance arborist. In the course of the training, the trainee becomes familiar with the equipment and hazards in line-clearance and demonstrates ability in the performance of the special techniques involved.

reduction cut (drop-crotch cut, lateral cut) – pruning cut that reduces the length of a branch or stem back to a lateral branch large enough to assume the primary role.

removal – removal of most of the above ground portion of a tree by cutting to a stump or to a point on the main trunk where no side branches remain. Whether or not stump removal is part of the removal shall be included in the proposal.

removal cut (thinning cut) – cut that removes a branch at its point of origin. Collar cut.

rigging – method of using ropes and hardware. (1) in tree pruning or removal, to control or direct the descent of cut material or to handle heavy loads. (2) with cranes, loaders, or other equipment, to life heavy loads.

right-of-way (ROW) – defined area of land, usually a linear strip, reserved for the passage of traffic (paths and roadways) or the construction, maintenance, and operation of various aboveground or underground utilities. ROW users may be owners (public and private roadways are common examples) or may be granted easement rights by the owners (utility corridors are common examples).

risk assessment – the process of evaluating the potential of a tree or tree part to fail on a potential target.

root flair – see trunk flair.

root protection zone – surface area of tree root concentration to be protected from construction damage, usually soil compaction damage. Best accomplished by fencing off the entire root protection zone.

scaffold limb – (1) pertaining to tree architecture or form, a strong and properly spaced arrangement, framework, or system of branches throughout the crown. (2) a work platform, which may be stationary or moving.

service drop – low-voltage (generally 110 to 750 volts) electric supply lines that connect end users to an electric distribution supply network. Also known as service lines.

shall – denotes a mandatory requirement.

shearing – cutting back exterior growth using internodal heading cuts in 1 to 2 year old wood resulting in a defined edge with thick outer growth. Outer growth is regularly shaved to maintain the shape and outer density.

shoot – new stem or branch growth on a plant.

should – denotes an advisory recommendation.

sight distance triangle – an unobstructed area maintained at intersections per Section 200 of the City of Longmont Design Standards.

sign – in insect and disease: physical evidence of a causal agent (e.g., insect eggs, borer hole, frass). Contrasts with symptom.

soil compaction – compression of the soil, often as a result of vehicle or heavy equipment traffic, that breaks down soil aggregates and reduces soil volume and total pore space, especially macro-pore space.

specifications – detailed plans, requirements, and statements of particular procedures and/or standards used to define and guide work.

stem – woody structure bearing foliage and buds that gives rise to other stems (branches).

stress – (1) in Plant Health Care, a factor that negatively affects the health of a plant; a factor that stimulates a response. (2) in mechanics, a force per unit area.

structural defects – any naturally occurring or secondary conditions such as cavities, poor branch attachments, cracks, or decayed wood in the trunk, crown, or roots of a tree that may contribute to structural failure.

structural pruning – a complete prune that shall consist of selective pruning to improve tree and branch architecture primarily on young and medium aged trees.

structural roots – large, woody, tree roots that anchor and support the trunk and crown. Roots characterized by secondary thickening and relatively large diameter, giving form to the root system and functioning in anchorage and support.

stub – portion of a branch or stem remaining after a stub cut, branch breakage, or branch death.

stump – the remaining portion of the tree above ground after removal of the majority of the trunk and crown.

subordination – pruning to reduce (suppress) the size and ensuing growth of a branch in relation to other branches or leaders.

sucker – shoot arising from the roots. Contrasts with water sprout.

symptom – in insect and disease: plant reaction to a disease or disorder (e.g., wilting, dieback). Contrast with sign.

target – person, object, or structure that could be harmed (damaged or injured) by a tree or tree part in the event of failure.

temporary branches – in structural pruning of young trees, branches (generally the lower branches) that are left in place or subordinated but should be removed in the future.

three-cut method – a method for removing a branch involving two cuts to remove the majority of the weight of the branch to prevent bark tearing before making the final cut.

topping – inappropriate pruning technique to reduce tree size. Indiscriminate cutting back of a tree without regard to tree health or structural integrity. Not a recommended industry standard and is considered malpractice.

tracing – in tree maintenance: the removal of loose, damaged tissue from in and around a wound.

tree – woody perennial usually having a single elongated trunk or stem.

tree attachment – any foreign object affixed to a City owned tree, such as signs, holiday lighting, bicycle locks/chains, wildlife nesting boxes, etc.

tree protection zone (TPZ) – defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development.

tree value – (1) appraised, monetary value placed on a tree. (2) non-monetary benefits(s) of a tree.

trenching – linear, open excavation, often used to install utilities or structural footings. Can cause tree root damage. Contrasts with horizontal boring, tunneling, and radial trenching.

trunk – main stem or stems of a tree.

trunk flare – transition zone from trunk to roots where the trunk expands into the buttress or structural roots. Also known as root flare.

tunneling – digging, often with special machinery and shoring or other supports, below the surface of the ground without an open trench. Alternative for installation of underground utilities that avoids cutting of tree roots or damage to hardscape or existing utilities. Contrasts with horizontal boring, trenching, and tunneling.

urban forestry – management of naturally occurring and planted trees and associated plants in urban areas.

union (crotch) – the junction between a stem and branch or between stems.

utility – a public or private entity that delivers a public service, such as electricity or communications.

utility-declared emergency – a loss of power or other utility infrastructure within the City of Longmont.

utility space – the physical area occupied by a utility's facilities and the additional space required to ensure its operation.

vector – the carrier of a disease that affects tree health.

water sprouts – upright, epicormic shoots arising from the trunk or branches of a plant above the root graft or soil line. Contrasts with sucker.

wound – an opening that is created when the bark of a live branch, trunk, or stem is cut, penetrated, damaged, or removed.

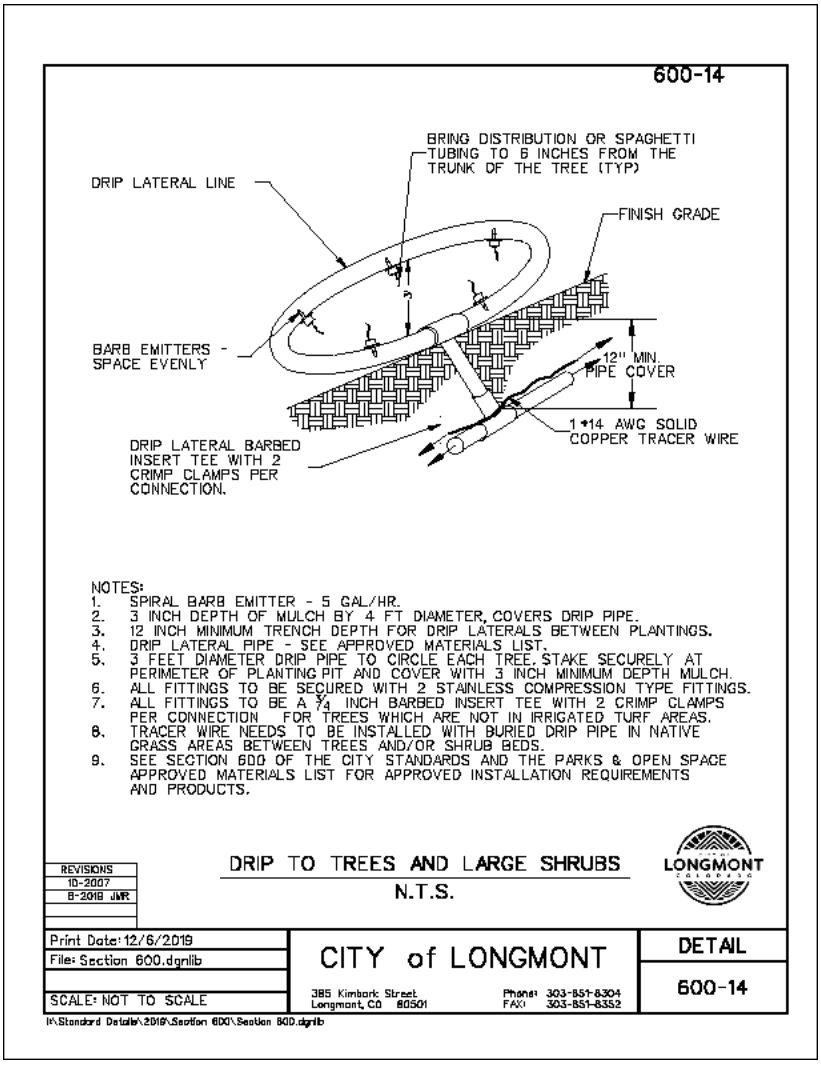
wound dressing – compound applied to tree wounds or pruning cuts.

Appendix A: Recommended Trees for City Regulated Areas, 20202

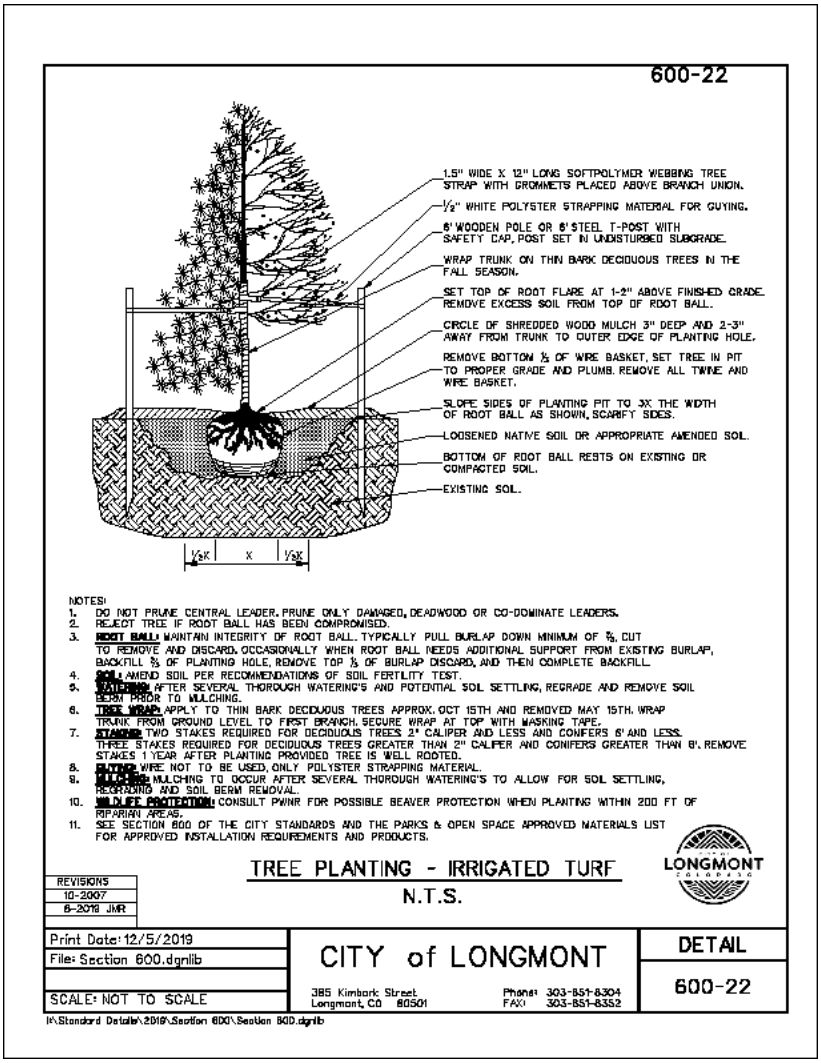
Appendix A located in separate document

Appendix B: Tree Planting Details

Section 600-14: Drip to Trees and Large Shrubs

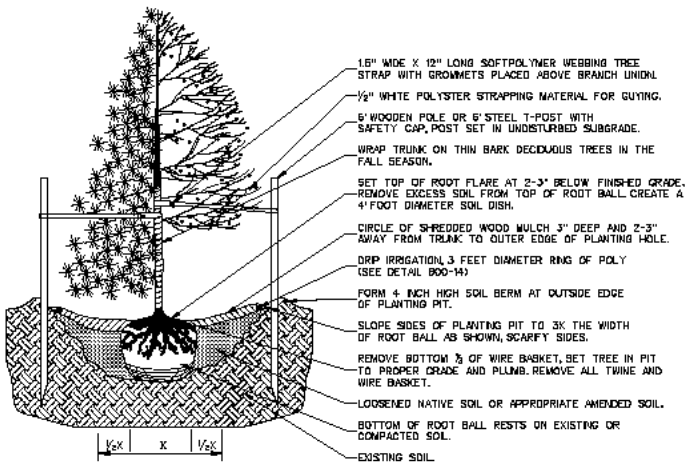


Section 600-22: Tree Planting – Irrigated Turf



Section 600-23: Tree Planting Dryland with Drip Irrigation

600-23



NOTES:
1. DO NOT PRUNE CENTRAL LEADER. PRUNE ONLY DAMAGED, DEADWOOD OR CO-DOMINATE LEADERS.
2. REJECT TREE IF ROOT BALL HAS BEEN COMPROMISED.
3. **ROOT BALL:** MAINTAIN INTEGRITY OF ROOT BALL. TYPICALLY PULL BURLAP DOWN MINIMUM OF ⅔ CUT TO REMOVE AND DISCARD. OCCASIONALLY WHEN ROOT BALL NEEDS ADDITIONAL SUPPORT FROM EXISTING BURLAP, BACKFILL ⅔ OF PLANTING HOLE, REMOVE TOP ⅓ OF BURLAP DISCARD, AND THEN COMPLETE BACKFILL.
4. **SOIL:** AMEND SOIL PER RECOMMENDATIONS OF SOIL FERTILITY TEST.
5. **WATERING:** AFTER SEVERAL THOROUGH WATERINGS AND POTENTIAL SOIL SETTLING, REGRADE AND REMOVE SOIL BERM PRIOR TO MULCHING.
8. **TREE WRAP:** APPLY TO THIN BARK DECIDUOUS TREES APPROX. OCT 15TH AND REMOVED MAY 15TH. WRAP TRUNK FROM GROUND LEVEL TO FIRST BRANCH. SECURE WRAP AT TOP WITH MASKING TAPE.
7. **STAKING:** TWO STAKES REQUIRED FOR DECIDUOUS TREES 2" CALIPER AND LESS AND CONIFERS 6' AND LESS. THREE STAKES REQUIRED FOR DECIDUOUS TREES GREATER THAN 2" CALIPER AND CONIFERS GREATER THAN 6'. REMOVE STAKES 1 YEAR AFTER PLANTING PROVIDED TREE IS WELL ROOTED.
8. **GUYING:** WIRE NOT TO BE USED, ONLY POLYSTER STRAPPING MATERIAL.
9. **MULCHING:** MULCHING TO OCCUR AFTER SEVERAL THOROUGH WATERING'S TO ALLOW FOR SOIL SETTLING, REGRADING AND SOIL BERM REMOVAL.
10. **BEAVER PROTECTION:** CONSULT PWNR FOR POSSIBLE BEAVER PROTECTION WHEN PLANTING WITHIN 200 FT OF RIPARIAN AREAS.
11. SEE SECTION 600 OF THE CITY STANDARDS AND THE PARKS & OPEN SPACE APPROVED MATERIALS LIST FOR APPROVED INSTALLATION REQUIREMENTS AND PRODUCTS.

TREE PLANTING
DRYLAND WITH DRIP IRRIGATION
N.T.S.

REVISIONS
10-2007
8-2018 JMR

Print Date: 12/5/2019	CITY of LONGMONT	DETAIL
File: Section 600.dgnlib		600-23
SCALE: NOT TO SCALE	385 Kimbark Street, Longmont, CO 80501 — Phone: 303-651-8304, FAX: 303-651-8352	

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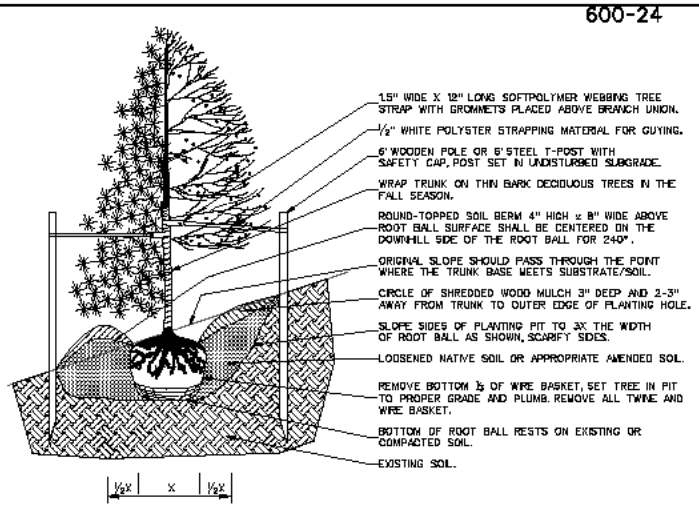
Section 600-24: Tree Planting – On a Slope

600-24



NOTES:

1. DO NOT PRUNE CENTRAL LEADER. PRUNE ONLY DAMAGED, DEADWOOD OR CO-DOMINATE LEADERS.
2. REJECT TREE IF ROOT BALL HAS BEEN COMPROMISED.
3. **ROOT BALL:** MAINTAIN INTEGRITY OF ROOT BALL. TYPICALLY PULL BURLAP DOWN MINIMUM OF ⅔ CUT TO REMOVE AND DISCARD. OCCASIONALLY WHEN ROOT BALL NEEDS ADDITIONAL SUPPORT FROM EXISTING BURLAP, BACKFILL ⅔ OF PLANTING HOLE, REMOVE TOP ⅓ OF BURLAP DISCARD, AND THEN COMPLETE BACKFILL.
4. **SOIL:** AMEND SOIL PER RECOMMENDATIONS OF SOIL FERTILITY TEST.
5. **WATERING:** AFTER SEVERAL THOROUGH WATERING'S AND POTENTIAL SOIL SETTLING, REGRADE AND REMOVE SOIL BERM PRIOR TO MULCHING.
6. **TREE GUARD:** APPLY TO THIN BARK DECIDUOUS TREES APPROX. OCT 15TH AND REMOVED MAY 15TH. WRAP TRUNK FROM GROUND LEVEL TO FIRST BRANCH. SECURE WRAP AT TOP WITH MASKING TAPE.
7. **STAKING:** TWO STAKES REQUIRED FOR DECIDUOUS TREES 2" CALIPER AND LESS AND CONIFERS 6' AND LESS. THREE STAKES REQUIRED FOR DECIDUOUS TREES GREATER THAN 2" CALIPER AND CONIFERS GREATER THAN 6'. REMOVE STAKES 1 YEAR AFTER PLANTING PROVIDED TREE IS WELL ROOTED.
8. **GUYING:** WIRE NOT TO BE USED, ONLY POLYSTER STRAPPING MATERIAL.
9. **MULCHING:** MULCHING TO OCCUR AFTER SEVERAL THOROUGH WATERING'S TO ALLOW FOR SOIL SETTLING, REGRADING AND SOIL BERM REMOVAL.
10. **WILDLIFE PROTECTION:** CONSULT PWNR FOR POSSIBLE BEAVER PROTECTION WHEN PLANTING WITHIN 200 FT OF RIPARIAN AREAS.
11. SEE SECTION 600 OF THE CITY STANDARDS AND THE PARKS & OPEN SPACE APPROVED MATERIALS LIST FOR APPROVED INSTALLATION REQUIREMENTS AND PRODUCTS.

REVISIONS
10-2007
8-2018 JMR

TREE PLANTING - ON A SLOPE
N.T.S.

LONGMONT

Print Date: 12/5/2019	CITY of LONGMONT	DETAIL
File: Section 600.dgnlib		600-24
SCALE: NOT TO SCALE	385 Kimbark Street, Longmont, CO 80501 — Phone: 303-651-8304, FAX: 303-651-8352	

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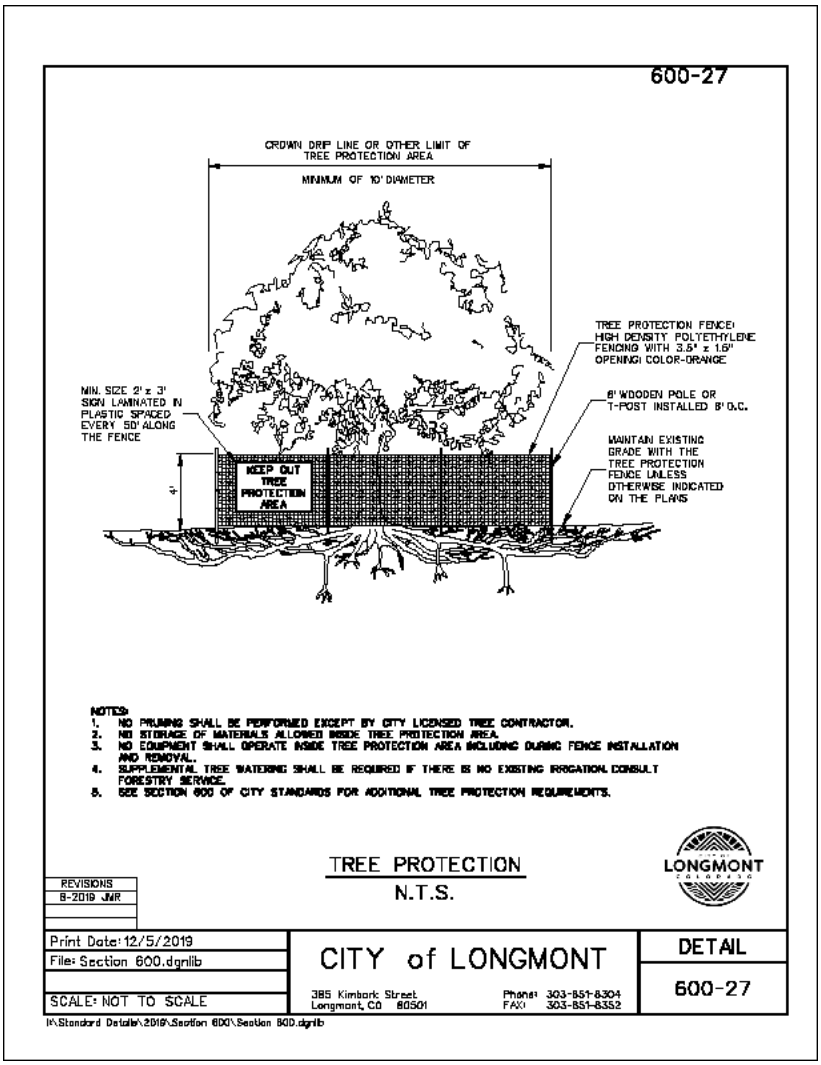
Appendix C: Tree Protection

Section 600-27: Tree Protection




Restrooms
Hand Washing Station
Beer Vendors
Mac & Cheese Cook Off Judging
Mac & Cheese Vendor
Food Vendor
Beer Tokens and ID Checking
Mac & Cheese Tasting Tickets
Tree Give-a-Way
Arbor Booths
Touch-A-Truck and Kids Activities
Booths and Earth Day Vendors
Trash Dumpster
N 12TH ST

CITY OF Grand Junction COLORADO

PARKS & RECREATION

Arbor Day / CSU Extension Demo Day 2020
Southwest Arbor Fest

April 25th from 9:30-2:30 at Lincoln Park

The City of Grand Junction has proclaimed Saturday April 25th as the 2020 date to celebrate Arbor Day in our community and residents are invited out to Lincoln Park to help make their neighborhood a greener place to live.

The City is working to improve this spring's program by adding new hands-on opportunities for residents in hopes of making the Southwest Arbor Fest experience even better. For the first time ever, Colorado State University Extension will be joining forces with the City of Grand Junction by bringing their Demonstration Day event into the Arbor Day celebration. Click here for more details on CSU Extension's Demonstration Day.

Arbor Day 2020 (contact for the event: robd@gjcity.org)

9:30 am – 2:30 pm
- Custom built nature playground area
- Tree care informational booths
- CSU Extension Demonstration Day booths
- Donate $5 for a ticket to win free larger containerized trees

9:30 am
- Urban wood silent auction opens
- Round 1 of free tree seedling giveaway
    - Choose from: bur oak, chinkapin oak, Ohio buckeye, bigtooth maple, bristlecone pine, Bosnian pine, and eastern red cedar.

10:00 am
- Round 1 drawing for free larger trees

11:00 – 11:40 am
- Lincoln Park notable tree tour with Vince Urbina from the Colorado State Forest Service

12:00 pm
- Round 2 of free tree seedling giveaway
    - Choose from: bur oak, chinkapin oak, Ohio buckeye, bigtooth maple, bristlecone pine, Bosnian pine, and eastern red cedar.

1:30 pm
- Round 2 drawing for free larger trees

1:45 pm – 2:15 pm
- Tree identification learning experience with Colorado State University's Susan Carter and the Master Gardener Program

2:00 pm
- Urban wood silent auction winners announced