



City of Laramie Community Forest Stewardship Plan



A plan to assist citizens, especially property owners, in being good stewards of public right-of-way trees abutting their property and for the City of Laramie to be a good steward of trees maintained by the City by using the most up-to-date tree maintenance technology.



RESOLUTION 2015 -38

**A RESOLUTION TO ADOPT AND APPROVE THE CITY OF LARAMIE
COMMUNITY FOREST STEWARDSHIP PLAN**

WHEREAS the Laramie City Code Chapter 12.16 provides authority over all trees, shrubs, hedges, and other ornamental plants located within the street right-of-way, parks and public places of the city;

WHEREAS the Laramie City Code Chapter 2.28 provides responsibility to the Parks/Tree and Recreation Advisory Board to study, investigate, counsel and develop written standards, rules, and regulations for the care, preservation, pruning, planting, replanting, removal or disposition of trees in parks, along street right-of-way, and in other public areas. Such standards will be presented to the city council and upon their acceptance and approval, shall constitute the official tree plan for the City of Laramie;

WHEREAS a Community Tree Assessment by Wyoming State Forestry Division of the Office of State Lands and Investment in 2007, Community Tree Assessment, and 2008, Trees within the Public Right of Way, which both require updating;

WHEREAS the City Council approved the hiring of a City Arborist to manage city owned trees;

WHEREAS the City Arborist has completed the Laramie Community Forest Stewardship Plan which includes: a Policy on Mitigating Public Nuisance Trees affecting the Safe Use of Public Right-of-Way, a Policy for Public Right-of-way Tree Maintenance Permits, an update to the Informational Bulletin of Recommended Tree & Shrub Varieties for Laramie, Wyoming, and a Tree Planting and Tree Replacement on City Public right-of-ways and on City Maintained Lands - Shawver Tree Fund Use Policy;

WHEREAS the Parks, Tree and Recreation Advisory Board considered and recommended the approval of the Community Forest Stewardship Plan on March 11, 2015;

WHEREAS the Parks, Tree and Recreation Advisory Board will make recommendations and assist with revisions of the Community Forest Stewardship Plan every five years after adoption. The Community Forest Stewardship Plan shall include revising the list of desirable trees for planting as street trees with suggested spacing and planting distances from curbs, sidewalks, and foundations, along with a list of trees not suitable for planting as street trees.

NOW THEREFORE, THE LARAMIE CITY COUNCIL RESOLVES:

SECTION 1. That foregoing all recitals are incorporated in and made part of this resolution by this reference.

SECTION 2. That the Laramie City Council accept and adopt the City of Laramie Community Forest Stewardship Plan.

PASSED, ADOPTED AND APPROVED on this, the 2nd day of June, 2015.



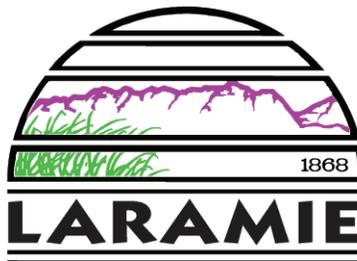
David A. Paulekas, Mayor and President
of the Laramie City Council

ATTEST:



Sue Morris-Jones, MMC
City Clerk

City of Laramie Community Forest Stewardship Plan



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A plan to assist citizens, especially property owners, in being good stewards of public right-of-way trees abutting their property and for the City of Laramie to be a good steward of trees maintained by the City by using the most up-to-date tree maintenance technology.



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Executive Summary

The population of Laramie is over 31,000. A survey of a small sample of Laramie residents indicated a primary importance for trees as scenery, with tree safety as the next factor. The City of Laramie Forest Stewardship Plan has several roles. The primary role is public safety. Tree assessments performed in 2008 on public right-of-way trees (street trees) and on trees maintained by the City will be updated. Current information will be collected on the condition and the health of the trees. The tree assessment information will be entered into the City's Geographic Information System (GIS) computer mapping program, which will show the location and the information gathered on each tree. Tree maintenance will be prioritized based on the level of condition and health for each tree. Property owners will be notified of any high priority tree maintenance required on public right-of-way trees abutting their property, as required by Laramie Municipal Code. A policy to mitigate public nuisance trees affecting the safe use of public right-of-way is included in this plan. A commercial tree maintenance company will be evaluated for qualifications and hired to perform tree pruning and tree removal on larger trees located in City maintained areas. The company will also perform tree maintenance on trees affecting the safe use of public right-of-ways in Laramie as part of code enforcement mitigation for properties not complying with City code. City Parks Division personnel will provide all aspects of needed maintenance on smaller trees maintained by the City.

The Shawver Tree Fund Use Policy, a memorial fund managed by the Rotary Clubs of Laramie, is in place to pay for half the cost of trees with property

owners paying the other half, for planting trees in the public right-of-way abutting the property owner's residence. Replacement and approved additional tree planting continues in city maintained areas. The consideration of several factors for tree selection and planning will increase the survival rate of future tree planting, reduce tree maintenance costs and reduce tree damage to infrastructure.

Properly planting a tree is the most important act in the life of the tree in a community forest. Laramie's elevation is at 7200 feet above sea level. The average precipitation per year is between 10 and 11 inches. Frequent dry winds, especially in the dormant season, along with intense sunlight at high elevation, and low precipitation are challenging factors for vigorous tree growth. Properly working and calibrated irrigation systems are required to maintain tree growth. Many considerations for trees that need to be made before planting include: origin of seed source for tree stock; species growth characteristics; climate adapted tree species; tree planting proximity to utility service lines, buildings, and other infrastructure; planting site preparation; and proper planting techniques.

Community participation along with public education opportunities, considering tree selection and long term tree maintenance are vital in successfully growing our community forest.

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Section 1

Plan Introduction

Authority – Required by City of Laramie Municipal Code

Appendix A contains the Laramie Municipal Codes pertinent to trees.

Community Forest Definition

(A Glossary of words and terms is on page 48) Trees within a community forest are primarily planned, planted and maintained by people. A community forest consists of all trees in various stages of growth and health, including the fluctuating relationship between trees, shrubs and other plants, within and adjacent to a community.

They are dynamic ecosystems that provide environmental services such as clean air and water. Trees cool cities and save energy; improve air quality; strengthen quality of place and local economies; reduce storm water runoff; improve social connections; complement smart growth; and create walkable communities.^[1]

The City of Laramie Forest Stewardship Plan

Will serve as a dynamic guide to property owners in the City of Laramie, including the City of Laramie, in providing common and current aspects of facilitating proper tree and shrub growth, protection, and maintenance, within the city’s community forest. This document will be reviewed approximately every five years and updated as changing and new conditions warrant.

Laramie’s Climate

Elevation 7,200 feet above sea level. Annual precipitation is 10 to 11 inches. USDA (United States Department of Agriculture) Plant Hardiness Zone is 4b with average annual extreme temperatures -20 to -25 degrees Fahrenheit (with occasional -30 degrees F). Dry wind events are common, especially in the winter to early spring months.

Laramie’s Tree History^[2]

In order to effectively plan for trees in Laramie’s future, it is helpful to understand a brief history of forestry in town.

Early Laramie

Laramie’s founding location as a railroad town on the plains necessitated citizen interest to have trees in the city. While forested mountains are visible from both sides of town, most species of trees find it difficult to impossible to grow on the High Plains unassisted. In 1870, Laramie was at one point described as “completely treeless.”^[3] After the frontier town’s founding in the 1860s, economic growth accelerated by the railroad quickly led to a proper city, complete with industries, elected government, and a university.

Efforts Begin

In the early 1900s, a beautification initiative initiated a series of tree plantings, culminating in what we call today the Tree Area. This part of town is well known for its impressively large cottonwood trees, giving the neighborhood a pleasant and natural personality. The University of Wyoming’s growth at the time led to a corresponding campus beautification effort,

which “undoubtedly increased the value of this neighborhood and led to corresponding efforts by neighboring property owners.”^[4] The two efforts fed into one another, leading to the acclaimed Tree Area we enjoy today.

Continuing Efforts and Success

The National Register of Historic Places added part of the Tree Area to its archives in 2009 as the University Neighborhood Historic District.^[5] Laramie also earned a “Tree City USA” designation by the national Arbor Day Foundation, recognizing its impressive and unique urban forest since 1998. Efforts of the town, the university, citizen initiative, and private business owners make Laramie as a tree city possible. Historical beautification efforts, along with a university campus and twenty four sites [6] on the National Register of Historic Places, give Laramie the space and utility to maintain trees worthy of recognition. With careful planning and action, Laramie can expect continued enjoyment of urban trees for decades to come as it has the past one hundred years. [ed. note: “Tree Area” is not an official designation in Laramie Municipal Code. The designation pertains to the older part of Laramie where the larger trees are located.]

City of Laramie Mission, Vision and Core Values

Mission

Building Our Community Through Respect, Integrity, Teamwork, and Stewardship.

Vision

Community Excellence in the Gem City of the Plains

Core Values

Respect	treat others with a high level of courtesy and dignity.
Integrity	honest and ethical interactions with each other and the community.
Teamwork	work together to meet common goals while considering the needs of others.
Stewardship	careful and responsible management of all of our resources and environment.



University of Wyoming campus



Many of Laramie's tree lined streets have trees that are planted in the public right of way.

Current State of the Laramie's Community Forest

The Parks Tree Assessment was completed by the Wyoming State Forestry Division in October 2007. (Appendix B.) The Parks Tree Assessment indicated a removal requirement of 233 trees throughout parks system. These trees were removed over the next few seasons by city crews.

The Public Right-of-Way Tree Assessment was completed by Wyoming State Forestry Division in July 2008. (Appendix C.) The Public Right-of-Way Tree Assessment found that 407 trees required removal. City of Laramie Code requires property owners whose property abuts City public right-of-way and where trees exist in the City public right-of-way, to maintain those public right-of-way trees at the abutting property owner's expense. Directives from code enforcement, in the form of a written notice delivered by Certified Mail™ with receipt of delivery, require property owners to rectify high risk tree conditions within the time frame stated on the written notice.

The July 2008 public right-of-way tree assessment did not record the street address for each tree assessed. The data was transferred and reconfigured so that each tree's assessment data could be correlated to a location, for example a street address on the City Geographic Information System (GIS) map. The Laramie Information Technology Division was able to reconcile the tree data to indirectly correspond with the tree location icon on the City of Laramie GIS Map.

The City of Laramie Information Technology Division finished an updated computerized mapping program in July 2014, which ties the data for each tree to the updated GIS map. The City Arborist uses a Nexus tablet with the GIS map and data loaded so tree data can be updated in the field. Software programming is still occurring to allow for category searches. The data from 2008 can be updated on the public right-of-way tree assessment layer database.

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Section 2

Citizen Input for Community Forest Needs & Desires

Citizen Survey

The online survey developed through Survey Monkey was advertised on Parks and Recreation News on the city website and in the Laramie daily newspaper Laramie Boomerang. The online survey was available June 14 – July 8, 2014 to all citizens. City employees and the members of the governing body were invited to participate through an e-mail invitation. A paper copy of the survey was available at outreach events: the Arbor Day tree sales event on June 14, 2014, and the Farmer's Market in Undine Park on June 19, 2014 and July 11, 2014. The survey had four opinion choices to 11 questions: Strongly Agree, Agree, Disagree and Strongly Disagree. We received 85 responses from the online survey and paper survey.

Based on the citizen survey, most respondents want the City of Laramie to plant and maintain the City managed trees following these top five priorities, beginning with the most important:

1. Scenery
2. Safety
3. Show community and town pride
4. Clean air
5. Wildlife habitat.

One survey question asked: If Laramie modeled its Community Forest Stewardship Plan on another city, which town or city has impressed you? The examples indicated were: Fort Collins, CO (9 mentions); Loveland, CO; New Harmony, IN; Sacramento, CA; Boulder, CO; Fergus Falls, MN; Halifax, Nova Scotia; Clarence, NY; Wichita, KS; and Salt Lake City, UT.

The results of the remaining 11 questions are as follows:

1. Trees are important to my community. 100% agree
2. Trees are important to me personally. 99% agree 1% disagrees
3. Trees increase property value. 96% agree 4% disagree
4. I prefer deciduous trees in town. 86% agree 14% disagree
5. I prefer coniferous evergreen trees in town. 76% agree 24% disagree
6. I am interested in learning how to receive City approval to plant and care for trees in the portion of street right-of-way abutting my property. 57% agree 43% disagree
7. When I visit other cities I notice trees, parks, and public landscaping, or the lack thereof. 98% agree 2% disagree
8. Community tree planting events interest me. 60% agree 40% disagree
9. Community tree care events and workshops interest me. 72% agree 28% disagree
10. I want to know more about a Community Forest Stewardship Plan in Laramie. 71% agree 29% disagree
11. I want to provide input in the development of a Community Forest Stewardship Plan in Laramie. 53% agree 47% disagree

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Section 3

Stewardship Plan Considerations

City of Laramie Parks & Recreation Department Community Forestry Vision, Mission and Guiding Principles

Vision: Every feasible public tree planting space in Laramie occupied by an attractive, healthy and safe tree appropriate for the climate and planting location.

Mission: Exhibiting good stewardship practices on City maintained trees and assisting Laramie citizens in planning, planting, growing, and sustaining a diverse community forest.

Guiding Principles:

1. Public Safety.
2. Science-Based Decision Making.
3. Industry-Recognized Best Management Practices.
4. Wise Use of Resources.
5. Sustainability.

Tree Worker and Public Safety around Tree Work

The Plan recommends the city adopt the American National Standard for Arboricultural Operations – Safety Requirements ANSI®Z133 – 2012 (or more recent revisions).^[7]

A. Planning before Planting

The use of the Shawver Tree Fund on page 22, along with other developed tree planting programs will drive the planting of public right-of-way trees. Planting locations for street trees are limited due to providing proper spacing between other public

right-of-way trees, potential public right-of-way tree planting spaces, existing private property trees, ground space amount and quality available, proximity to traffic control signals and signs, locations of overhead utility lines and underground utility lines, and proximity to other types of infrastructure.

Park tree plantings are initially focused on replacements. A determination of the ability of City crews and approved maintenance funding to perform required tree maintenance guides an expanded tree planting program on existing City maintained lands. Specific budget allocations for different levels of tree planting are determined especially on developing lands. Determining feasible tree planting locations for streets and on City maintained lands are based on the following considerations.

Pre-planning is the most important step in planting and maintaining trees. Proper planning can increase



Arbor Day Celebration Tree Planting



Trees along the Laramie River Greenbelt Trail

the life span and overall health and safety of the trees planted.

Canopy Cover Percentage

Shaded asphalt paved streets in summer last longer than paved streets in direct sunlight.^[8] The trade-off for shaded streets in summer is to allow ample sunlight to filter through leafless tree crowns in the winter to melt snow off the streets. Park your vehicle in the shade in summer to keep your car cool and minimize evaporation of fuel, reducing the cost of fueling your vehicle and reducing volatile organic compounds (VOC's) in the air.^[8]

Colorado Springs has a tree canopy coverage that covers 13% of their roads.^[9] Longmont, Colorado, has tree canopy coverage of nearly 9% over the entire city.^[10]

American Forests, the oldest national nonprofit conservation organization in the country, researched

and made tree canopy goal recommendations by geographic area, for metropolitan areas in the Southwest and arid West:

- Average tree cover counting all zones 25%
- Suburban residential zones 35%
- Urban residential zones 18%
- Central business districts 9%^[11]

Achieving an optimum tree canopy coverage percent along streets in Laramie is challenging, since property owners are financially responsible for the tree planting and the tree maintenance on public right-of-way trees abutting their property. The city can encourage and offer incentives, through the Shawver Tree Fund (explained later in this document), to partner with property owners in working toward a 25% summer tree canopy shading of city streets.

Diversity Goals

Tree Species Diversity defined as: a measure of the number and variety of different tree species found

in a given area. The City will research as many tree species as feasible to provide a wide diversity of trees on City maintained lands and to provide information to the public on trees suitable to grow in Laramie.

One of several tree species diversity goals is defined by Santamour in 1990^[12] as:

- No one Species makes up more than 10% of all trees.
- No one Genus makes up more than 20% of all trees.
- No one Family makes up more than 30% of all trees.

Public right-of-way Trees

The Wyoming State Forestry Division, 2008 public right-of-way tree assessment determined that cottonwood, poplar, aspen and willow all in the Salicaceae (willow) Family made up 59% of the total public right-of-way trees in Laramie. The Populus Genus (cottonwood, poplar and aspen), which is in the willow family make up 56% of all public right-of-way trees in Laramie. The species Populus tremuloides (quaking aspen) made up 15% of all public right-of-way trees.

City Maintained Trees

The Wyoming State Forestry Division, 2007 tree assessment done on City maintained lands (parks, detention ponds, Greenhill Cemetery, Laramie River Greenbelt, and around city buildings) found that the Pinaceae (pine) Family (pine, spruce, fir, and Douglas-fir, all found in Laramie, are all in the pine family), makes up 39% of all City maintained trees. Spruce trees, Genus Picea, form 36% of all trees in city maintained areas. The Salicaceae Family with the Populus Genus in this Family make up 35% of all City maintained trees.

Tree Species Diversity is Important

A diverse community forest reduces the impact of a disease epidemic or insect infestation killing all trees within a Family, Genus or Species. Many disease organisms and insects only attack specific trees. The mountain pine beetle attacked all pine Genus trees growing in this area. Some pine Species were more

heavily attacked. Douglas-fir tussock moth typically attacks spruce, but as its name implies it will also attack Douglas-fir.

Dutch elm disease can infect and often kill most large leaf elms, especially American elm. Many insects feed only on specific tree parts. Typically, insects in general, feeding on trees do not kill the tree. But, some insects and diseases, especially exotic introductions, can readily kill trees. A tree species diverse community forest slows the spread of the insects and diseases and moderates the impact of the specific loss of one Species or one Genus of trees. Many communities, especially in the eastern United States, had streets lined with American elm. Dutch elm disease was introduced into the U. S. from Europe and quickly spread from tree to tree through insect vectors and root grafts. The most common spread of the disease was from insects feeding on a diseased tree and getting fungus spores on their bodies, then moving to uninfected trees transmitting the disease spores.

Infrastructure Conflicts

Street trees can block traffic signals and signs as they mature. Plant trees with the mature size in mind to avoid tree growth blocking traffic signs and signals. Keep the mature size of tree in mind when planting near buildings, houses, and other structures. If the expected mature width of the tree crown is 50 feet, then plant the tree at least half that crown diameter in feet from the building or structure, in this example a minimum of 25 feet. Keep woody vegetation at least 10 feet from fire hydrants. Do not plant vegetation



Trees impacted by Mountain Pine Beetles

that will exceed 6 inches in height within a 10-foot radius safety zone around fire hydrants.

Irrigation Systems Required for Tree Planting on City Maintained Lands

The average annual precipitation in Laramie is 10 to 11 inches. Laramie’s average precipitation is one third of what most trees require to maintain adequate growth and health. The other two thirds of water will come from irrigation. An automated Evaporation/Transpiration based central controlled irrigation system is be the best long term economic and water conserving system to have for all non-native City maintained lands, primarily on turf grass areas, shrub beds and trees. Install a drip system in native areas that have no aerial broadcast irrigation. At planting, install two to three drip heads (emitters) to supply a minimum of 10 gallons of water per one inch caliper diameter of trunk for each watering event. Time between watering events depends on natural precipitation, wind, and temperature. Increase the

number of emitters as the tree increases in size. Move the emitters farther away from the trunk as the tree size increases. Periodically move the emitters to different locations around the tree.

Snow Management

Minimize the effects of tree shading on streets in winter by not planting evergreens along the south side of city streets and not planting deciduous trees that have fine textured and dense crowns. Use trees that allow the winter sun to shine through the tree crown and melt snow off of streets. Plant small trees under power lines along the public right-of-way. Otherwise, plant large canopy trees that have a coarse texture having few fine twigs in the crown. Minimize snow drifting onto roads, sidewalks, alleys, building entry ways, and parking lots by not planting shrubs or evergreens near these areas on the winter’s windward side. In Laramie, the prevailing wind between October and March is out of the southwest.



Right of way tree planting along Harney Street

Soil for Tree Growth

Depth: Unless the soil depth is engineered to specifically provide for water and air spaces for expanded root growth, the available growing depth in soil is limited by factors such as soil type and compaction. Most tree roots are in the top 18 inches of the clay type soils commonly found in Laramie. Sandier soils can usually support deeper root growth, if they are not often saturated with water.

Quality: Have the soil tested for pH (a measurement of the acidity or alkalinity of a soil), EC: Electrical Conductivity is a measure of the amount of salts in the soil, organic matter, nutrients available required for plant growth, lime and texture estimates, and fertilizer recommendations. Fertilize as needed with the right kind of fertilizer, the right amount, at the right time, follow label directions.

Space Available in the Public right-of-way (Parkway Strip)

Minimum parkway strip width for small, medium, and large tree species is based on minimizing infrastructure damage to the curb, street, and sidewalk from root flair upheaval.

Small Trees at Maturity: A five-foot wide parkway strip area is the minimum width for small sized trees based on a maximum trunk diameter of one foot with one foot wide root flair at the base of the trunk all around the trunk.

Medium Size Trees at Maturity: A seven-foot wide parkway strip area is the minimum width for medium size trees based on the expected mature diameter of the tree trunk at two feet and the root flair around the base of the trunk at one and one half feet wide.

Large Trees at Maturity: Minimum parkway strip width for large trees is nine feet based on a trunk diameter of three feet and a root flair width of two feet around the trunk.

Lanceleaf cottonwood, Plains cottonwood, silver/white poplar and silver maple trees can have trunk

diameters, just above the root flair, exceeding three feet. The root flair around the base of the trunk can exceed three feet all around the trunk. Roots on trees near the trunk are large, but considerably taper in size farther away from the trunk. These large trees should ideally have a minimum parkway strip width of 11 feet.

Spacing between Existing or Planned Public right-of-way and Private Property Trees:

Determine the expected mature width of tree crown on each tree species that is being planted. Plant trees so their mature crowns do not touch or barely touch any other nearby tree. When tree crowns grow together, mechanical injury on branch bark occurs from branches rubbing during high winds.

Ground Surface Area for Trees: This measurement is generally unspecified and varies widely based on several factors, including but not limited to tree species, soil type, precipitation / irrigation amounts, and evaporation. Often a public sidewalk separates the parkway strip from a residential lawn area where street tree roots can extend their growth. The parkway strip itself is usually a long stretch of landscape area broken by sidewalks and driveways which tree roots can grow under and continue down the parkway strip and extend growth into neighboring yards. The uninhibited growth of roots from the trunk can exceed the height of the tree by one and a half to three times. For example, a 30-foot tall tree could have a root system, with uninhibited growth, that extends 45 to 90 feet from the trunk in all directions. If your next door neighbor stops watering their previously well watered lawn, the trees in your yard could suffer. Tree roots grow where water and oxygen are available. The crack in the sidewalk or street will probably have a tree root underneath. Often, the tree root taking advantage of a crack didn't necessarily cause the crack.

Trees with Wide Trunks: Street tree plantings often form a standard spaced, inline row behind the curb. Large trees can have a trunk width that can exceed three feet. The trunks of mature trees that were planted too close can obstruct the line of sight

of motorists stopped at an adjacent intersection. Consider planting wide trunked tree species farther apart or mixing narrow trunked trees with wide trunked trees to open up visibility for motorists. City Code 12.16.040 A. (Appendix A pg. 61) states: “All trees and shrubs planted, grown, cultivated, or maintained or permitted to grow on city public right-of-way between any property line and the traveled street adjacent thereto shall be kept, maintained and trimmed by the owner or occupant of the adjacent property so as not to obstruct traffic, interfere with the visibility of traffic or pedestrians, or cause any unsafe condition for vehicular or pedestrian traffic.”

Trees with Low Branches and Tall Shrubs: Shrubs that grow taller than two feet and trees that are allowed to retain branches low to the ground can screen people and animal movement, when planted near the street, such as a child chasing a ball into the street, which may not be seen by a motorist until the child is in the street. City Code 12.16.040 B. (Appendix A pg. 61) states: “No tree or shrub on private property shall be kept, planted, grown, maintained or permitted to remain in such a condition as to limit the visibility or in any other manner constitute a danger, hazard or public nuisance to pedestrian or vehicular traffic.” Coniferous trees (spruce, pine, fir, juniper, larch and Douglas-fir) should not be planted along streets, alleys or sidewalks due to the nature of their growth, which is dense low branching and foliage year-round.

Trees and Shrubs Growing into the Travel Zone of Streets, Alleys and Sidewalks: Trees and shrubs that have limb growth encroaching into the street, alley, or sidewalk use area can cause damage to vehicles and injure pedestrians and bicyclists. City Code 12.16.040 C. requires a height clearance minimum for streets and alleys of thirteen feet and sidewalks of eight feet.

Species for Planting

The City of Laramie - Informational Bulletin #8 - Recommended Tree & Shrub Varieties for Laramie, Wyoming (Appendix D) contains: Shrub Varieties for Laramie; Recommended Street Trees for Laramie; and

Species Not Recommended as Street Trees. Laramie is classified as a USDA Plant Hardiness Zone 4b with average annual minimum temperatures of -20° to -25° F). Select tree and shrub species that will grow in Zone 4b or less (the lower the zone number the colder the climate). Try to select trees that have their seed source or their stock for cuttings near the same latitude as Laramie and within a similar precipitation and climate area.

Utility Lines Overhead

Electricity providers often contract for trees to be pruned in the utility easement to provide at least a ten foot clearance from each overhead electric line. Fast growing trees (cottonwood, poplar, Siberian elm, willow and boxelder), may require a 14-foot clearance or more around distribution electric lines. Higher voltage transmission lines require a farther distance between the electric line and tree branches. The City of Laramie - Informational Bulletin #8 (Appendix D) also contains the expected mature tree height and crown width of each species of tree and shrub on the list. Plant trees so that the expected mature size width or height of the tree’s crown will not grow into the electric line. If trees already exist under a power line and are pruned frequently to provide proper clearance from electrical lines, consider having the trees removed and replaced with a shorter tree species that will not grow into the power lines. Utility consumers collectively pay to have trees pruned repeatedly.

Phone and cable companies commonly don’t prune trees to provide clearance from their overhead lines. Tree limbs can fail from snow, ice, or wind, and damage these communication lines. Consider removing large trees growing into these types of overhead lines and replace them with shorter growing trees.

Property owners are usually responsible for pruning trees around the service utility lines going to their building. Hire a company qualified to do pruning around service utility lines.

Utilities Underground

While in the planning stage for tree planting, call 811 for underground utility locates. There is a \$500 fine for performing an excavation without calling for underground utility locates.^[13] Underground utilities are installed at varying depths in the ground. Water and sewer lines are often the deepest utilities within municipalities. Tree roots grow where there is adequate water and oxygen in the soil. Less compacted soil provides spaces where water can accumulate and oxygen can accumulate when the spaces are not completely filled with water. Contact the utility owners of marked lines or pipes in the vicinity of the planned tree planting location to determine the excavation distance they require away from their utility line. Some examples of underground utility lines are: water pipes, sewer pipes, fiber optic lines, large gas and petroleum pipes, smaller gas pipes for residential and small business service, electric and other communication lines.

Xeriscape - Low Water Use Areas

The City will consider the use of xeriscape (Denver Water coined the word xeriscape in 1981), in developing public green space lands, especially on sites where irrigation is difficult. Xeriscape, literally defined as “dry landscape”, is a method of landscaping that promotes water conservation. Xeriscape is outlined by seven principles: planning and designing, limiting turf areas, selecting and zoning plants appropriately, improving the soil, using mulch, irrigating efficiently, and maintaining the landscape. Tree and shrub species tolerant to drier conditions will be planted in the xeriscape areas away from higher water use areas.

B. Planting

Planting Standards

The Plan recommends the city adopt the most recent version of Tree, Shrub, and Other Woody Plant Management Standard Practices (Planting and Transplanting) and in general follow the Best Management Practices.^[14]

Nursery Stock Standards

The Plan recommends the city adopt the most recent version of American Standard for Nursery Stock.^[15]

Here are some important things that must be done during the planting process:

1. Spade or otherwise loosen the soil in an area five times the width of the root ball to a depth of eight to ten inches, if possible. For example, if the root ball surface is two feet in diameter, spade a five-foot radius around the intended location for the tree trunk. The spaded or loosened area is ten feet in diameter.
2. Dig the planting hole at least three times wider than the root ball (two-foot wide root ball equals a six foot wide planting hole).
3. Find the top primary roots in the soil ball. Dig the depth of the hole to allow the tree to be placed on solid ground with the top primary roots at the same level of the surrounding grade or up to three inches above surrounding grade. Often there are two or more inches of soil on the top of the root ball above the top primary roots. This extra soil will need to be removed, leaving one inch of soil on the top of the roots. When there is extra soil on top of the root ball the tree may grow some small roots from the trunk into the extra root ball soil. These are NOT the primary roots. The trunk should flare or widen out at the primary trunk/root junction. Many trees are grafted above the root flare. The graft will have



Trees planting preparations during a Community Service Day.

a swelling that resembles a root flare. Verify the trunk/root flare before planting.

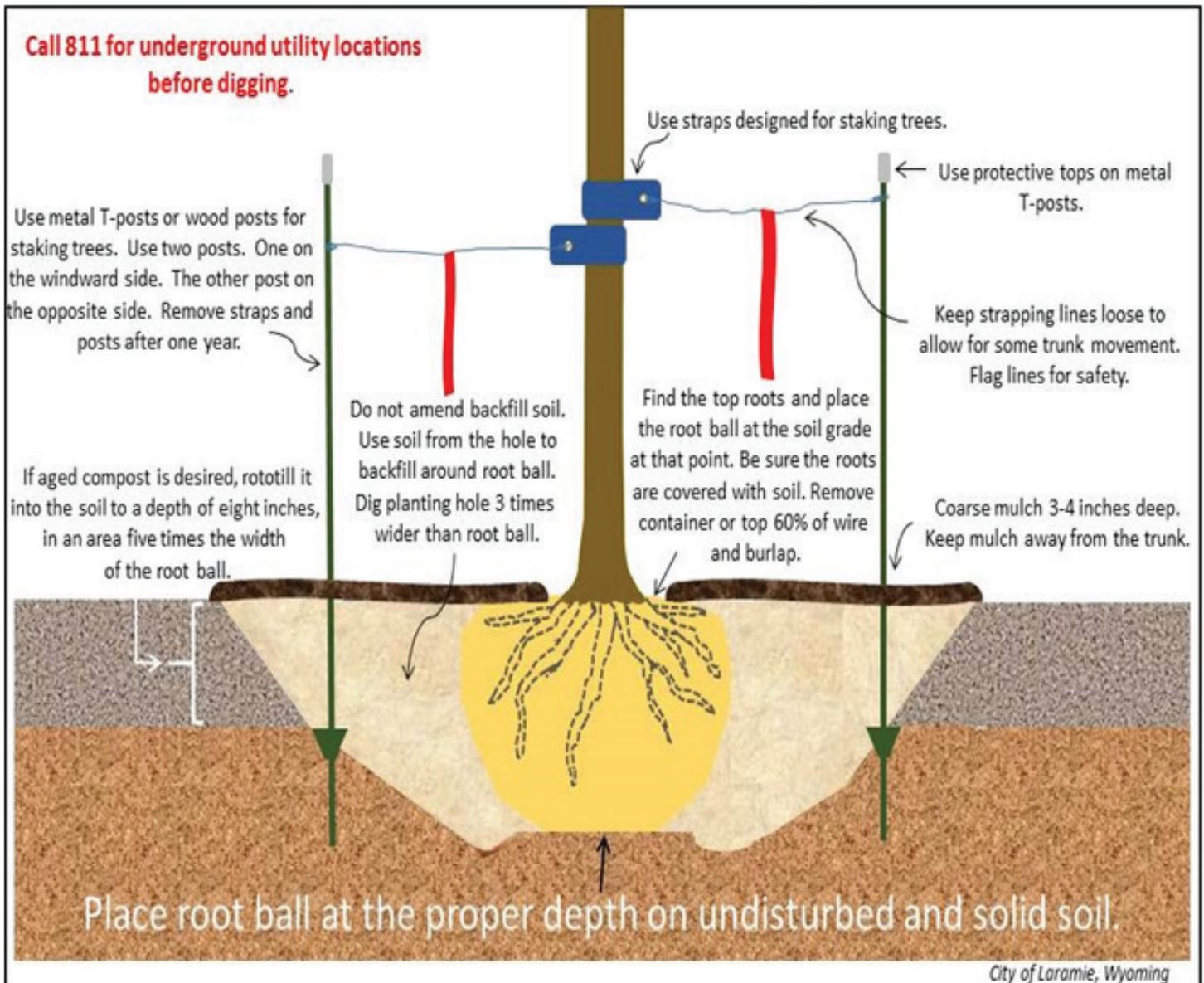
4. In our dry climate, the burlap and wire baskets that hold the root ball in place for balled and burlapped (B&B) trees do not deteriorate in a timely manner. Determine where the top roots are by opening the top portion of the burlap on the root ball. Dig the hole according to previous steps, place the root ball still wrapped in the wire basket and burlap in the hole. Remove and discard the top 60% of the wire basket and the burlap. Cut all twine, plastic, wire and any other

shipping material off of the top of the root ball and from around the trunk and branches.

5. Trees in containers will most likely have roots growing in a circle along the inside container wall. Cut the circling roots or carefully straighten them out to grow away from the trunk. Cover the roots with 2 to 3 inches of soil sloping downward away from the trunk.

6. Apply some water to the backfill soil to help it settle around the root ball. Do not tamp the soil round the root ball.

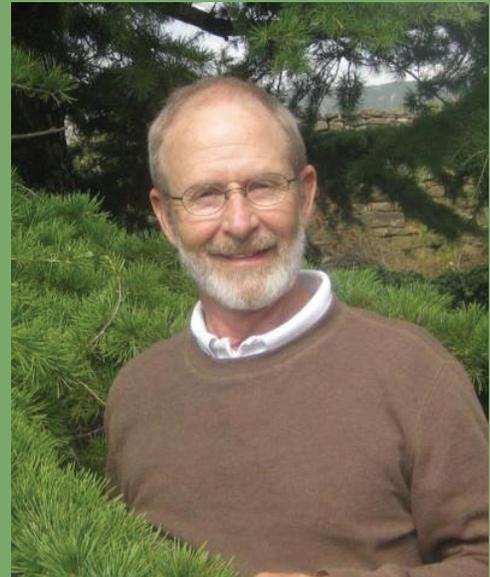
Tree Planting



Shawver Tree Fund

Chuck Shawver was a man passionate about Laramie's trees. Kristen Petersen, Chuck Shawver's daughter said about her father, "He especially worried about the city's aging cottonwood trees and the long term plan for replacing them. It was a passion of his." she said. "He spearheaded it (a plan for replacing Laramie's older trees), but was so busy doing so many different things that it never really transpired. It just seems like unfinished business." Shawver's many contributions to Laramie are now living on through the Shawver Tree Fund, established by the Sunrise Rotary Club and the Laramie Rotary Club in memory of Chuck Shawver.

The Shawver Tree Fund represents a wonderful opportunity for property owners to receive assistance in the purchase and placement of trees. Through the generous donations received the Laramie community will be able to reap the benefits of new trees for generations to come. The City of Laramie would like to extend their gratitude to everyone who has donated to the Shawver Tree Fund and the groups that have worked to see the fund come to fruition.



Chuck Shawver

Tree Planting and Tree Replacement on City Public right-of-ways and on City Maintained Lands

Shawver Tree Fund Use Policy

Approved by Laramie City Council October 21, 2014.
Available for use by private property owners to plant trees on the abutting city street public right-of-way.

I. Purpose of the Policy

A. To obtain the highest value, in the form of a cost share, from the donated funds of the Shawver Tree Fund in replacing high risk trees, or to restore or add trees in the public right-of-way along city streets or on public property maintained by the City of Laramie.

B. Definitions

1. City - City of Laramie.
2. Conifer tree - Cone bearing tree or other plant that has its seeds in a structure called a cone. Common characteristics: one main straight vertical trunk, pyramidal shaped, evergreen, with low growing branches while young and often, also at maturity, trees such as, pine, spruce, fir, Douglas-fir, larch (deciduous), and juniper.
3. Crown – upper part of a tree, measured from the lowest branch, all the branches and foliage.

The trunk supports the crown.

4. Deciduous tree – leaves dry or change color and most are shed according to a genetically scheduled cycle as impacted by climate factors usually during the cold season in temperate zones, not evergreen.
5. Evergreen tree – does not shed all of its foliage annually. Several years of green, live foliage may remain on the tree at one time.
6. Fund - Shawver Tree Fund.
7. Large tree – also known as canopy, overstory, dominant, or shade trees. Mature size height greater than 40 feet with a crown spread greater than 30 feet. A list of trees suitable for Laramie is contained in the Informational Bulletin #8 – Recommended Tree & Shrub Varieties for Laramie, Wyoming.
8. Medium tree – Mature size height 20 to 40 feet with a crown spread 20 to 30 feet. Use Informational Bulletin #8 – Recommended Tree & Shrub Varieties for Laramie, Wyoming.
9. Small tree – Mature size height less than 20 feet with a crown spread less than 20 feet. Use Informational Bulletin #8 – Recommended Tree & Shrub Varieties for Laramie, Wyoming.
10. Tree spaded tree – A truck or trailer mounted hydraulic machine specifically designed to dig up

trees and move them to a hole dug by the same machine, so the tree with the cone shaped soil plug is an exact fit into the tree spade pre-dug hole. Typically larger trees are moved with a tree spade.

II. The requirements for use of the Fund

A. Tree planting allowed only on the public right-of-way land that is abutting owner occupied - residential property, or on land maintained by the City.

1. Cost Share of 50% on tree purchase and shipping, for the owner occupied - residential property owner.

a. The Fund pays a maximum amount per tree of \$125.

b. The Fund pays a maximum amount per owner occupied - residential property of \$500.

c. There are a maximum number of public right-of-way trees that can be planted per residential property based on available public right-of-way frontage and tree spacing.

i. Public right-of-way tree planting spaces would be determined by the City Arborist or designee.

d. The property owner is allowed to apply for Fund assistance each calendar year based on \$500 per year maximum and available public right-of-way planting space.

B. Only tree purchase and shipping costs are covered by the Fund.

C. Large deciduous trees are required to be planted in the public right-of-way along city streets except:

1. In planting areas underneath overhead utility lines.

a. A small deciduous tree that will not grow into the utility lines shall be substituted.

2. When the landscape planting strip in the public right-of-way is less than six feet wide.

a. Then small and some medium size deciduous trees shall be planted.

III. Procedures for tree selection, proper planting, and maintenance responsibility

A. A list of trees will be given to the property owner

to select their choice of tree(s).

1. The City approved tree list for the Fund is indicated by mature tree size in these three categories: Large tree, Medium tree, and Small tree (see I. B. above for definitions).

B. The City Arborist or designee will determine the amount of planting space available and the maximum number and size category of trees which will fit in the public right-of-way planting.

C. Planting and extended care:

1. Proper planting instructions written and illustrated will be supplied in the application packet.

2. Technical instruction for tree planting is available from the City.

3. Long-term tree maintenance information is also included in the application packet.

4. The project will be checked for proper completion by the City Arborist or designee.

5. The City is not responsible for removing, maintaining, or replacing the trees.

6. Property owners are encouraged to replace trees after loss.

IV. Tree Specifications

A. The trees will meet the most recent American Standard for Nursery Stock ANSI Z60.1-2004.

B. Deciduous trees shall be 1.5 inches to 2.5 inches caliper in size.

1. Bareroot trees can be used, but shall be 1.5 inch to 1.75 inches in caliper.

2. Balled and Burlapped (B&B), containerized, and grow bag trees shall be in the 1.5 inch to 2.5 inches in caliper range.

C. Conifer trees shall not be planted in the public right-of-way.

D. Tree Spaded trees will be approved by City Arborist or other similarly qualified personnel, on a case-by-case request, and will not exceed \$250 total cost.

E. The trees will be shipped to a location, within Laramie, of the City Arborist or designee's choice.

1. The tree(s) will be delivered by the City to the planting site with acknowledgment of receipt of the trees in acceptable condition by property owner.

V. Financial Details and Cost Share

A. The City will draft a Memorandum Of Understanding (MOU) defining obligations of the City and of the property owner, signed by both parties.

B. Since the Shawver Tree Fund is earmarked for purchases of trees for public plantings, the City Parks Division will make arrangements to purchase trees at a lower cost through wholesale nurseries and/or bulk purchases.

C. The City will pay 50% of the tree and shipping cost, for each approved owner-occupied residential property owner planting project, out of the account specified for Rotary's allocation of funding for tree planting program use.

1. The recipient of approved Fund participation will pay the City their 50% of the tree and shipping cost, prior to the city placing the order for the tree(s).

D. The City will process the billing for the tree cost and shipping cost from the supplier upon accepted delivery of the trees.

Shawver Tree Application

Please fill out this application if you would like to replace or plant a new tree on public right-of-way land adjoining your residential property. This landscaped land is referred to as the parkway strip between the sidewalk and curb. The purchase cost and shipping cost of new trees will be 50-50 cost shared between the residential property owner and the Shawver Tree Fund. The cost that the Fund will pay per tree is a maximum of \$125 and \$500 per application. One application is allowed per property per year. Tree species selection is subject to City tree specifications and to limits on available funding from the Shawver Tree Fund, administrated by the two Laramie Rotary Clubs. The City of Laramie arborist will approve tree choice(s), number of trees and planting location(s).

The removal of old trees, installation of new trees, and perpetual tree maintenance are solely at the cost and duty of the property owner. Planting instructions and information for long term maintenance of new trees will be supplied by the City.

Name: _____ Phone: _____

Street Address: _____

E-mail address: _____

Species and Number of Tree(s) requested: _____

* See attached document for allowed tree species & specifications.

Return completed Application to: City Arborist, City of Laramie - Parks and Recreation, P.O. Box C, Laramie, WY 82073 or complete the application, scan it and send it via e-mail to roverstreet@cityoflaramie.org

C. Tree Maintenance after Planting through Removal

Topics are not intended to be all inclusive of factors influencing the health of trees, but only to serve as areas of consideration and awareness in tree selection, safety factors, and tree health influences. The City of Laramie Annual Tree Maintenance Tasks for City maintained trees is on page 30.

Pruning Trees

The Plan recommends the city adopt the most recent publications of American National Standard Institute A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning) and Best Management Practices (BMP) Tree Pruning [16], for pruning standards on City of Laramie maintained lands.

The best time to prune trees is at the end of the winter dormancy period, between mid-February and early April. Pruning in spring should be completed prior to leaf bud break. Birch, maple and walnut trees can bleed sap at pruning cuts and other bark wounds in late winter until full leaf out in spring. The bleeding sap is not necessarily harmful to the tree, but insects possibly carrying tree diseases, are attracted to the sap. Prune birch, maple and walnut trees in July. Another time to prune is late fall after leaf drop, mid-October through November. Avoid pruning during periods of time with frequent temperatures in the teens and below.

Tree Health Maintenance

Fertilization: The Plan recommends the city adopt the most recent publications of American National Standard Institute A300 (Part 2) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Soil Management a. Modification, b. Fertilization, and c. Drainage) and Best Management Practices (BMP) Tree and Shrub Fertilization [17], on City of Laramie maintained lands. Test soil to determine nutrient requirements. Avoid application of quick release, high nitrogen fertilizers in fall. Use slow release fertilizers in fall around trees as needed.

Integrated Pest Management (IPM) for Trees and Shrubs: The Plan recommends the city adopt the most recent publication for treating tree insects and tree pathogens. Use Best Management Practices (BMP) Integrated Pest Management, P. Eric Wiseman, International Society of Arboriculture [18]. Chemical treatment of tree pests will be directed to pests that are mortality causing or can cause unaccepted levels of tree decline. Proper property owner applied pesticides require an accurate identification of the insect or disease and a thorough reading of the pesticide label before application.

Tree Damage Agents affecting the Health and Safety of Trees

Abiotic factors: Are non-living stressors on trees; such as, wind, snow, ice, rain, temperature extremes, frost, and intense sunlight. Human causes of tree injuries include damage by vehicles, mowers, string trimmers and vandalism.

Biotic factors: Animals, and pathogens.

Animals: Many types of animals feed on trees or otherwise do damage to them. Some common animals in Laramie affecting trees are: deer, pronghorn, rabbits, voles, ground squirrels, and beaver.

Insects: Most parts of most trees are fed upon by different insects. Most insects that feed only on specific parts of a tree, other than the trunk, do not kill the trees. Insects in high numbers and repeated attacks of insects can weaken the trees. “New research from North Carolina State University finds that higher temperatures found in urban environments are a key contributor to higher populations of insect pests called scale insects – indicating that an increase in temperatures associated with global climate change could lead to a significant increase in scale insect populations”. [19] The higher temperatures are caused by asphalt, concrete, brick and other building materials. Some insects, usually in high numbers, can cause tree mortality; for example, the native mountain pine beetle; and the exotic introductions, emerald ash borer and gypsy moth. Insects can be moved long distances by having life stages (eggs, larvae, pupae, or

adults) in wood products, especially firewood. The transported insects emerge from the wood product and begin a new population, causing tree mortality or damage.

Exotic insect introductions: Many mortality causing insects are introduced to the U.S. from other continents in wood products like wooden shipping crates and pallets. These exotic introductions do not have the natural population control; for example, predator insects and other animal predators, viral, bacterial, and fungal diseases that would be found in their native environment. Gypsy moth caterpillars, an exotic introduction from Europe and Asia, have irritating hairs on their bodies that many native U.S. birds won't eat. Starling birds, an exotic introduction from Europe and Asia, will readily eat gypsy moth caterpillars.

Native insects: Mountain pine beetle is native to the Western United States. During periods of drought, which causes stress on all plants including pine trees, or winters that are warmer than normal, which allows more of the beetles to survive the winter, can cause explosive insect population growth. Eventually, the natural population control of the mountain pine beetle and chemical control done by humans along with a decrease in pine trees to feed on, all cause the mountain pine beetle infestation to decrease.

Most native insects rarely reach levels of high populations. Insect populations are often cyclic with peaks in high populations and valleys with low populations. Climatic events or other similar events that cause damage or cause stress in trees can precipitate an off cycle increase or a peak population period could be increased well above normal or above historic peak levels.

Scale insects, oystershell scale and pine needle scale, are the primary scale insects affecting trees in Laramie. Oystershell scale can be found on ash, aspen, cotoneaster, cottonwood, lilac, and poplar tree species. They are an armored scale meaning the shell is a cover over the insect and is mostly water resistant and also very impervious to chemical insecticide

applications. Some dormant season horticultural oils can be applied with some success. Rub the scales off on small trees and shrubs without damaging the bark. Have your trees that contain oystershell scale sprayed during the egg hatch in Late May through late June in Laramie. Monitor your trees for the insect crawler stage after emerging from the eggs, by wrapping electrician's black tape, sticky side out, around branches near heavy infestations of scale. The crawlers, very small and light yellow, will stick to the tape. Apply insecticides labeled for oystershell scale crawler control when crawlers are seen on the tape. Insecticides with the active ingredient permethrin are common and effective for use during the crawler stage. Carefully follow the label instructions when using insecticides yourself.

Pine needle scale insects attack most pines, spruce, and fir trees. They are also an armored scale. Dormant season applications of horticultural dormant oils are effective in controlling pine needle scale. Some dormant oils can discolor blue spruce. Have your tree sprayed in the spring after the eggs hatch, late May through late June in Laramie, to kill the crawler stage.

A systemic insecticide with the active ingredient dinotefuran, with brand names of Safari and Zylam, currently available to only commercial licensed applicators, is labeled for armored scale insect control. Dinotefuran can be applied as a soil drench or as a spray applied on the trunk. The systemic insecticide moves into the water conducting tissues of trees and is translocated throughout the plant.

Pathogens: Numerous viral, bacterial, and fungal disease types can infect all parts of trees causing loss of vigor, die-back, and sometimes tree mortality. Commercial retail firewood can be a high risk vector for these various diseases. "Old wood does not prevent exotic pathogens from moving on the firewood since fruiting bodies can remain viable for three or more years." [20]

Pathogens are difficult to successfully treat once the tree is infected. Apply pesticides to trees for

controlling the vectors of the diseases, which are often insects. Keep trees healthy by providing adequate water year-round. Avoid planting trees species that are attacked by a mortality causing pathogen that is active in the area.

Exotic pathogen introductions: Currently, white pine blister rust and Dutch elm disease are two exotic pathogens that have been found nearby and/or in Laramie. Pine wilt is becoming common in states immediate to the east of Wyoming with a high potential of moving into Wyoming in the future.

White pine blister rust, *Cronartium ribicola*: a fungus from Asia, can be lethal to all five-needle pines, primarily limber pines and bristlecone pines in and around Laramie. An alternate host plant for white pine blister rust is required for the completion of the life cycle of the fungus. *Ribes* spp., which includes currants and gooseberries, are the alternate hosts. The blister rust fungus requires both hosts to live and spread. [21]

Dutch elm disease: An exotic introduced fungus *Ophiostoma novo-ulmi* or *Ceratocystis ulmi* or *Ophiostoma ulmi*, often kills native elm trees. The fungus is carried by the native elm bark beetle, the smaller European elm bark beetle and possibly the banded elm bark beetle. The last two species of bark beetles are exotic introductions into the United States. The fungus clogs the water transport tubes in elms causing the tree to die from lack of water. [21]

Pine wilt: Actually a microscopic nematode, native to North America, carried and transmitted to the pine tree by the feeding activity of native and exotic longhorned pine sawyer beetles, causes pine wilt. The pine sawyer is a large beetle about an inch long with long antennae. The nematodes increase in number in the pine and spread through the water conducting tubes of pine trees. The numerous bodies of the nematodes clog the water conducting tubes in pines causing rapid wilt and browning of needles from lack of water. Pine wilt disease rapidly kills exotic pines such as Austrian and Scotch pine, but has little effect on native pines. Pine wilt disease is prevalent in South Dakota, Nebraska, and Kansas. [21]

Native pathogens: The many native pathogens are often tree family or tree genus specific. They are usually spread tree to tree by insects, wind, rain, root grafts, and by contaminated pruning tools. *Cytospora* canker is a common pathogen in Laramie.

Cytospora canker (*Cytospora chrysosperma*): Is caused by the fungus *Valsa sordida* is common on *Populus* genus trees; for example, aspen, cottonwood and poplar. This canker leaves the smooth light bark on aspen and on young cottonwood or poplar trees and limbs with a dried, sunken, and pimpled appearance. As the canker develops completely around the trunk or limb, it will typically kill the tree or limb above the canker. Sometimes entire, usually small, trees can be killed by this fungal canker. [21]

Valsa kunzei, also known as Cytospora canker, infects spruce and Douglas-fir trees. Typically only limbs are killed on these evergreen trees. Keeping tree bark from being injured and keeping trees healthy with proper and sufficient watering helps the tree ward off Cytospora canker from getting established. [20]

Tree Support Systems

The Plan recommends the city adopt the most recent publications of American National Standard Institute A300 (Part 3) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Supplemental Support Systems) and Best Management Practices (BMP) Tree Support Systems: Cabling, Bracing, Guying, and Propping [22], on City of Laramie maintained lands.

Use tree support systems on high value trees when the support system will solve the tree’s high risk problem and the support system will retain the aesthetic value of the tree.

Management in Construction Zones

The Plan recommends the city adopt the most recent publications of American National Standard Institute A300 (Part 5) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Management of Trees and Shrubs During Site Planning, Site

Development, and Construction) and Best Management Practices (BMP) Managing Trees During Construction, on City of Laramie maintained lands.^[23]

Protect trees during development projects and infrastructure improvements. Laramie City Code Chapter 12.16 - Trees and Shrubs, Chapter 15.14 - Development Standards, and in particular Chapter 15.14.170 - Tree Protection. Infrastructure improvements include: Street, curb, gutter, and grade reconstruction; new street paving and installation of curb and gutter; sidewalk reconstruction; repairing and preventing future infrastructure damage done by roots and branches; commercial and private development in areas around existing trees; overhead utilities - Laramie City Code Appendix B Telephone System Franchise, Appendix C Light and Power Franchise,



New Sidewalk replacement conflicted with a spruce tree root. City Arborist worked with the property owner, the contractor, and the Public Works Inspector to resolve this issue

Appendix D Cable Communications Franchise, Appendix E Electrical Utility Franchise; existing and new underground utility work; and preventing future damage done to trees.

Removing Trees

Trees are removed because they are dead or mostly dead or it is no longer safe to allow them to stand. If pesticide applications or pruning do not solve a mortality causing insect infestation or disease infection that threatens the health and safety of a high percentage of trees in the community forest, then tree removal and destruction of the tree debris may be necessary.

Tree Maintenance Schedule

An update of the parks tree assessment and the public right-of-way tree assessment conducted in 2007 and 2008 respectively, will guide tree maintenance according to priority. Trees that are determined to be in poor condition and requiring removal and trees that have limbs that are dead, broken or structurally weak, will be the first priority level for maintenance. Tree maintenance will be performed by contracted commercial arborist companies as allowed by approved budget. Parks employees will perform tree maintenance primarily structure pruning on younger trees.



Hazardous tree that requires removal

D. Public right-of-way Tree Risk Management & Code Enforcement

Authority for the Development of a Policy

Laramie City Code defines the authority in the following code chapters. Appendix A contains all portions of the Laramie City Code that pertains to public right-of-way trees.

Chapter 12.16.015 Powers and duties.

This chapter provides authority over all trees, shrubs, hedges, and other ornamental plants located within the street right-of-way, parks and public places of the city. The city manager or the manager's designee shall manage and maintain trees within the city in the following manner:

A. Promulgate standards and specifications governing the planting, pruning and removal of trees on the street right-of-way, parks, and public areas of the city.

B. Require that property owners maintain trees, shrubs, hedges and other ornamental plants on the right-of-way abutting their property line so they do not pose a hazard or public nuisance to pedestrian or vehicular traffic.

C. During or following an emergency created by man or natural phenomenon, the city may take all necessary steps to remove trees or tree parts or residue that might impede traffic movement or endanger persons or property, without being responsible for continued maintenance or care.

12.16.025 Parks/tree and recreation advisory board.

There is established a parks/tree and recreation advisory board under Chapter 2.28 of the Laramie Municipal Code. Under Section 2.28.070, Duties—Generally, the duties of the board in relation to trees, shrubs and other plants within public property of the city of Laramie are defined. (Ord. 1419 § 4, 1998)

Chapter 2.28.070 Parks/Tree and Recreation Advisory Board Duties—Generally.

The parks/tree and recreation advisory board shall have the following duties:

E. The board shall promote public education on tree planting and proper management of trees within the community.

F. The board shall study, investigate, counsel and develop written standards, rules, and regulations for the care, preservation, pruning, planting, replanting, removal or disposition of trees in parks, along street public right-of-way, and in other public areas. Such standards will be presented to the city council and upon their acceptance and approval, shall constitute the official tree plan for the city of Laramie.

G. When requested by the city council, the board shall consider, investigate, make findings, report and recommend upon any special parks trees, street trees, and other public open space matter or question regarding trees coming within the scope of its work.

H. The board shall develop and maintain a list of desirable trees for planting as street trees with suggested spacing and planting distances from curbs, sidewalks, and foundations. Lists of trees not suitable for planting as street trees shall also be created and maintained by the board.

Responsible Department

Laramie Municipal Code Chapter 12.16.020 Implementation. 12.16.020 Implementation.

The city manager or the manager's designee shall direct the community services department (Parks and Recreation Department, Ed.) to regulate and control the planting, pruning, and removal of all street and park trees. (Ord. 1419 § 3, 1998)

History of Public right-of-way Tree Assessments

In 1993, the City of Laramie had Wyoming State Forestry Division perform the first tree inventory along the public right-of-way (PRW) in the city (Appendix C). There were 3,844 trees documented with a total value of \$5,800,000. Mature cottonwood trees in fair condition dominated the street tree population. Poor placement of street trees was a common problem. A local Tree Ordinance was approved soon after this first tree inventory.

Tree Concerns and Code Enforcement Pertaining to Trees

A. Mitigation of Tree Concerns – Flow Chart description

1. The following Mitigation of Tree Concerns - Flow Chart starts with a concern from a person about a tree or trees.
2. The concern can be for their tree on their private property or in the public right-of-way abutting their property or on a tree somewhere else in the city on the public right-of-way, private property, or public property.
3. The Code Enforcement Inspector will inspect the trees located on private property that do not affect the safe use of the public right-of-way: streets, alleys or public sidewalks.
4. The City Arborist will assess public right-of-way trees, private property trees affecting the safe use of the public right-of-way, and public property trees.
5. The Flow Chart has various steps indicated by boxes containing instructions and the relating Laramie Municipal Code (LMC) Chapter.
6. The green boxes with green text indicate a successful solution.
7. Occasionally, a tree will be inspected that requires immediate attention and will be declared a public nuisance (red text).
 - a. Public access under and around the tree will be immediately cordoned off with traffic and sidewalk barriers and cones to direct vehicles and pedestrians around the safety zone.
 - b. The property owners will be contacted and required to mitigate the tree as soon as possible.
 - c. The property owners will be required to re-cordon off the safety zone at their own cost until the tree has been mitigated, using the United States Department of Transportation Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) [24] approved barricades, cones and other devices as needed.
 - i. Commercial tree maintenance companies will typically arrange for traffic and pedestrian safety when they are hired to do the tree maintenance.
 - ii. Traffic control companies can be hired to set-up vehicle and pedestrian safety zones.

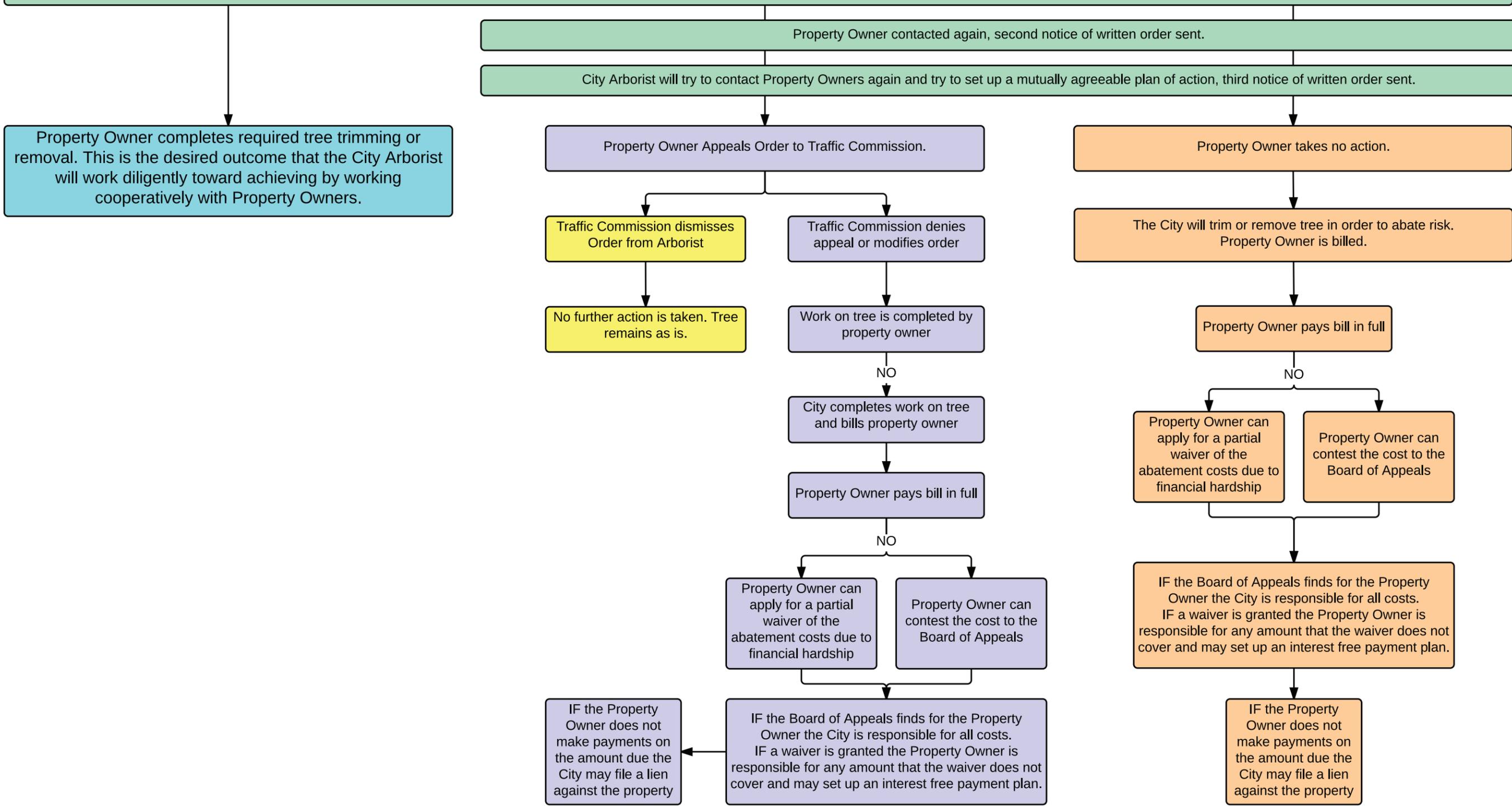
Beginning in the summer of 2007 and finishing in the summer of 2008, Wyoming State Forestry Division performed another PRW tree inventory. The PRW tree assessment had a count of 5,205 trees with a value of \$24,847,298. The tree ordinance was enacted in 1993. Currently the Laramie Municipal Code states in part: Require that property owners maintain trees, shrubs, hedges and other ornamental plants on the public right-of-way abutting their property line so they do not pose a hazard or public nuisance to pedestrian or vehicular traffic.

In 2008, a geographic information system (GIS) map of Laramie was loaded into a Trimble global positioning system (GPS) device. The Trimble unit could record the location in Latitude and Longitude of each tree or tree planting space assessed. In addition, the following attributes could be entered into the Trimble unit: species, placement, trunk dbh (diameter at breast height, 4.5 feet above ground), height, condition, hazard tree, location or management unit, need and general comments.

In 2014, a Geographic Information System (GIS) map with the ability to show streets, street names, parcels, and parcel addresses, among other features has the data from the 2008 tree assessment added showing the location of each tree, which is placed by the GIS program using latitude and longitude numbers collected by the Trimble. The tree symbol, a circle, is a hyperlink to the corresponding tree assessment data also recorded using the Trimble. Selecting each tree symbol will display the information gathered on that tree from the assessment done by Wyoming State Forestry Division for their submittal of the report Community Tree Assessment: Trees within the Public Right-of-Way for Laramie, Wyoming.

In July of 2014, the GIS Technician in the City of Laramie Information Technology (I.T.) Division was able to set-up for use a Nexus tablet with the 2008 Tree Assessment loaded, allowing the City Arborist to take it into the field and update, add, or subtract trees on the spot. The tablet can sync with and update the city's GIS Tree Inventory Map.

City Arborist conducts a tree assessment after receiving a complaint or a request in reference to a tree's health. The City Arborist contacts the Property Owner to discuss the options related to the tree trimming or tree removal. In cases where the tree affects the safe use of the public right of way the City Arborist will work with property owners to address immediate safety issues. The property owner will also receive a written order detailing the necessary steps to mitigate any issues with their tree.



City of Laramie: Policy for Mitigating Public Nuisance Trees affecting the Safe Use of Public Right-of-Way.

I. Purpose: Policy for City of Laramie risk mitigation on public right-of-way trees or on private property trees declared a public nuisance and affecting the safe use of the public right-of-way.

II. Authority: (Appendix A – Laramie Codes Chapter 12.16). Laramie Municipal Code 12.16.015 Powers and duties. This chapter provides authority over all trees, shrubs, hedges, and other ornamental plants located within the street public right-of-way, parks and public places of the city. The city manager or the manager's designee shall manage and maintain trees within the city in the following manner:

A. Promulgate standards and specifications governing the planting, pruning and removal of trees on the street right-of-way, parks, and public areas of the city.

B. Require that property owners maintain trees, shrubs, hedges and other ornamental plants on the right-of-way abutting their property line so they do not pose a hazard or public nuisance to pedestrian or vehicular traffic.

C. During or following an emergency created by man or natural phenomenon, the city may take all necessary steps to remove trees or tree parts or residue that might impede traffic movement or endanger persons or property, without being responsible for continued maintenance or care.

III. Procedures for tree assessment to determine and declare a public nuisance tree. Laramie Municipal Code 12.16.010, Definitions: Public Nuisance means any dangerous or unsafe tree or portions thereof on streets, within any public right-of-way, in parks, on other public places or posing a hazard thereto.

A. Standard used to determine if a tree is a public nuisance through risk assessment. American National Standard ANSI A300 (Part 9) - 2011 Tree Risk Assessment, a. Tree Structure Assessment (Appendix E). The three Levels of Assessment are defined:

1. A Level 1 (Limited Visual) Assessment of a public right-of-way tree is performed as a walk-by or windshield survey visual inspection of a tree.

a. Resulting from a citizen complaint.

b. Resulting from city employee observations.

i. Through a windshield survey or walk-by inspections after weather events.

ii. Through routine travel within the city.

c. A Level 1 assessment will be performed or verified by an International Society of Arboriculture (ISA) Certified Arborist

d. Contact the City Arborist for a Level 1 or Level 2 assessment.

i. A Tree Risk Assessor (hereinafter known as Assessor) is an ISA Certified Arborist and is ISA Tree Risk Assessment Qualified, will perform the Level 2 assessment using an International Society of Arboriculture Tree Risk Assessment Form (2013 or more recent) Appendix E.

2. A Level 2 (Basic) written Assessment on public right-of-way trees is done in response to a Level 1 assessment concern. A Level 2 (Basic) Assessment performed while standing on the ground, involves a detailed visual inspection around the entire tree, and may involve the use



Tree in the public right of way that has damaged the existing sidewalk

of non-invasive tools; such as, measuring devices, binoculars, a mallet for sounding the trunk or large roots (striking the mallet on the trunk and listening for tones that may indicate wood decay or hollow areas), a probe, and/or a trowel or shovel. Actively look for stinging insect feeding or nesting activity in any part of the tree.

3. A Level 3 (Advanced) written Assessment can be invasive; for example, but not limited to: boring or drilling into the trunk to inspect rings or define decay areas, load testing branches or trunks, and/or limited soil excavation around roots. The assessment may require getting into the crown of the tree by climbing or using other aerial access devices. Advanced assessments are performed to provide detailed information about specific areas of concern.

B. Public right-of-way tree assessment procedures and Declaration of a Public Nuisance Tree:

1. If a Level 1 assessment determines a concern, the City Arborist or a qualified (III. A. 1. c., on this page above) city designee will perform a written Level 2 assessment.

2. Upon conclusion of a Level 2 assessment the Assessor will determine if an entire tree or parts of a tree will be declared a public nuisance and maintenance requirements needed to correct the public nuisance tree.

C. Trees on private property that can potentially affect the safe use of the public right-of-way, assessment procedures:

1. The City Arborist or a city designee will deliver by hand or Certified Mail with Return Receipt, a signed letter on city letterhead requesting permission to enter private property to perform or verify a Level 1 Tree Risk Assessment on tree risk situations on private property.

2. Acquire signed written permission from the property owner to perform at minimum a Level 1 and Level 2, if needed, Tree Risk Assessments on private property. Upon conclusion of a Level 2 assessment the Assessor will determine if an entire tree or parts of a tree will be declared a public nuisance and maintenance requirements needed to correct the public nuisance tree.

3. If permission is not granted to perform any type of tree risk assessment the Laramie city attorney will be contacted to determine a legal method to determine if a public hazard exists pertaining to a tree or trees.

D. Categorize the risk assessment.

1. Use the International Society of Arboriculture (ISA) Basic Tree Risk Assessment Form:

a. Along with the Risk Rating Matrix a Work Priority section is included in the ISA Basic Tree Risk Assessment Form (Appendix E). Four selection boxes are labeled with numbers 1 through 4. Selection box 1 is equivalent to an Immediate Work priority, 2 is High priority, 3 is Medium priority, and 4 is Low priority. The work priority is selected by the assessor based on the outcome of Matrix 2 shown above.

E. Level 2 Basic Risk Assessments are documented.

1. The Tree Risk Assessment Form will be signed and dated by the Assessor.

2. Photos, other physical evidence of risk, and qualified witness accounts will be documented.

3. The property owner will be notified with the risk assessment results in writing and delivered in the same manner the property owner was contacted for permission to enter their private property.

IV. Declaration of public nuisance trees on or affecting the public right-of-way, with a Work Priority 1. Mitigation procedures included: In accordance with Laramie Municipal Code Chapters: 8.28 and 12.16 (Appendix A)

A. The tree, limb, or limbs will be declared a public nuisance if there is a rating of Extreme, High, or Moderate on the Risk Rating Matrix 2 with a Work Priority 1.

1. Work Priority 1 Trees with a Risk Rating of Extreme or High will have the zone of impact upon public property immediately but temporarily cordoned off by the city to keep the public safe.

a. The property owner will be notified of the high tree risk declaration.

b. The property owner will be required to replace the city's temporary traffic control by providing proper pedestrian and traffic safety measures in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). The cordoned off area and traffic control will remain until the public nuisance has been abated.

i. Tree maintenance companies can often arrange for traffic control procedures upon being hired to mitigate the code violation.

2. If the property owner disputes the public nuisance tree mitigation determination, they can hire a qualified tree assessor to perform a Level 3 assessment solely at their expense.

3. The City may or may not abide by the tree maintenance determination as determined by the written report of the Level 3 Assessor hired by the property owner.

4. The City can hire an independent assessor to provide another Level 3 Assessment if desired at the expense of the city.

a. The recommended tree maintenance will be determined from the two assessments.

5. The city has the authority to mitigate a public nuisance tree caused by an emergency (Laramie Municipal Code 12.16.010).

B. The property owner will be issued a Written Order through U.S. Postal Service – Certified Mail return receipt requested by the City Arborist or other city designee to abate the public nuisance within a specified time limit as indicated on the Written Order, 12.16.050.

1. 12.16.055 - Hazardous trees, shrubs and woody vegetation-Removal Order-Appeal. The property owner may appeal the order of the city manager or the manager's designee to the traffic commission in writing, within ten days after the date of such order. The traffic commission shall, within ten days after receipt of the written appeal, set the matter for hearing and notify the property owner of the time and date of such hearing, at which the property owner may be present or represented by counsel. At such hearing, the traffic commission will review the order of the city manager or the manager's



Failed tree limb that extends above the street

designee, and unless the order is revoked or modified, it shall remain in full force and be obeyed by the property owner.

2. 12.16.060 - Hazardous trees, shrubs and woody vegetation-Failure to remove-Penalties. If the property owner fails to comply with the final order within ten days after such appeal has been determined, or if no appeal is taken, within fifteen days after the mailing of the order, then the city manager or the manager's designee may cause such live, diseased or dead tree, shrub, overhanging bough, hedge, to be removed or destroyed and shall assess the expense thereof against the property owner of record. Failure to comply with the final order shall constitute a violation of the provisions of this section.

3. If the property owner does not abate the public nuisance and does not grant permission to the City to enter their property to abate the nuisance, then the City Attorney will be contacted to determine a legal method to abate a public hazard caused by a tree or trees.

C. City of Laramie employees, who are Certified by the International Society of Arboriculture (ISA) and trained to perform tree removals and pruning as part of their job requirements or a commercial tree maintenance business under an Agreement for Professional Services with the City or a request for a quote from a commercial

tree maintenance business through phone call or e-mail, may summarily abate the public nuisance for Extreme, High, and Moderate ratings on the Risk Rating Matrix, with a Work Priority 1, if the property owner does not abate within the Written Order time limit.

1. Remove the tree and stump if the entire tree is declared a public nuisance.
2. Prune or remove limbs that are the cause of a declaration of a public nuisance.
3. If any of the abatement occurs above or on private property, then written permission is required from the property owner to enter the property.
4. The property owner will be notified of the approximate cost of the City performed or contracted abatement.
5. The property owner is responsible for the cost of the abatement.
6. If the property owner does not agree to abatement or cost then the City Attorney will be contacted to determine a legal method to abate a public hazard caused by a tree or trees.

D. Remove tree and stump (stump removal for public right-of-way trees) if entire tree is declared a public nuisance.

E. Remove limbs, by proper pruning methods, which are the cause of a declaration of a public nuisance.

F. City personnel will facilitate any required Tree Work and Street Closure permit procedure for tree

maintenance business.

1. Follow approved permit procedure for tree maintenance businesses performing public right-of-way tree work that is not declared a public nuisance.

V. Public right-of-way trees with a Work Priority 2 determination as a public nuisance with required mitigation procedures: In accordance with Laramie Municipal Code Chapters: 8.28 and 12.16 (Appendix A)

A. Any tree, limb, or limbs, which threaten the safe use of public right-of-way, and which have a Risk Rating of Moderate with a Work Priority 2 (trees with Extreme and High risk ratings would be a work priority 1), will be prioritized by risk level by the City Arborist.

1. Following Laramie Municipal Code 8.28, notices or written orders will be sent out by the City Arborist or city designee as higher tree risk levels warrant a public nuisance determination.

VI. Recuperate the cost of remediation.

A. Full cost of remediation paid by property owner. Authority through Laramie Wyoming Code of Ordinances, Chapter 8.32.230: Costs of abatement; notice of assessment; appeal of charges.

OR

B. No cost to property owner.

1. Authority through Laramie Wyoming Code of Ordinances, Chapter 8.32.240: Waiver of abatement costs.



Tree failure causing damage in the on street parking lane

City of Laramie: Policy for Public Right-of-way Tree Maintenance Permits

I. Purpose:

A. Policy for the City of Laramie to evaluate and give written permission through a permit process to persons performing maintenance on trees located in the public right-of-way. Excluded under the permit process are the city personnel, who have a duty to perform tree maintenance.

II. Authority: Laramie Wyoming Municipal Code (Chapter 12.16 - Appendix A)

A. Laramie Municipal Code Section 12.16.015 - Powers and Duties. A. Promulgate standards and specifications governing the planting, pruning and removal of trees on the street right-of-way, parks, and public areas of the city.

B. Laramie Municipal Code Section 12.16.030 – Protection of public trees. A. No person shall excavate any ditches, tunnels, trenches or lay any drive within a radius of eight feet from any street or park tree without first obtaining written permission from the city manager or the manager's designee. All trees on any public property near any excavation or construction of any buildings, structure or street work, shall be guarded with a good substantial fence, frame or box of a size to be designated by the city manager or the manager's designee in accordance with the size, age, and species of the tree or trees in question. All building material, soil and other debris shall be kept outside the barrier, except where otherwise specified by the city in writing. B. No person shall deposit, place, store, or maintain upon any park, or public place of the city, any stone, brick, sand, concrete, or other materials which may impede the free passage of air, water and nutrients to the roots of any tree growing therein, except by written permit from the city manager or the manager's designee. (Ord. 1419 § 5, 1998)

III. Permit process:

A. A tree maintenance company, landscape company, utility company, property owner, or anyone that intends to prune, remove, plant, excavate around a city owned tree, or store anything on the ground surface around a city owned tree, shall notify the city manager or manager's designee in person, writing, e-mail, or by phone of such intent to perform work on a city owned tree or cause a ground disturbance around a city owned tree. City owned trees include, but are not limited to all city parks, cemeteries, Laramie River Greenbelt, public right-of-way landscape strips (parkway strip), and around city buildings.

1. Information required of a person intending to do tree maintenance:

a. Name of company and/or person to do tree work.

i. Qualifications of company and/or person to safely do the tree work.

A) Planned technique and equipment to use.

b. Property address where tree work will occur.

c. Property owner's name, address, phone number and/or e-mail address.

d. Which city owned tree(s) will have work done on them or around them?

e. Nature and extent of work to be done on or around city owned tree(s).

i. For tree pruning, follow these standards: American National Standards Institute (ANSI): Z.133 Arboriculture Safety Requirements and A300 Part 1 Pruning.

A) In addition, prune out dead, weak, and broken branches larger than one inch in diameter.

ii. For tree removing, follow this standard: ANSI Safety Standards Z133.

A) Safely remove the tree and haul off all tree debris.

B) Grind or remove stump to below ground surface (city code 12.16.040 D).

1) Call 811 for utility location service prior to grinding or otherwise removing the stump.

iii. For planting:

A) Tree species selected from approved tree list for City of Laramie.

1) Approval of species list- Parks/Tree, and

Recreation Advisory Board.

B) Underground utilities must be located prior to digging.

1) Call 811 for utility location service prior to digging planting hole.

C) The City will enclose a proper planting procedures diagram with the permit.

iv. For excavation within an eight foot radius of city owned tree trunk:

A) State how deep and wide the excavation will be.

B) Purpose of excavation.

C) Underground utilities must be located prior to digging.

1) Call 811 for utility location service prior to digging.

v. For material deposited, placed, stored or maintained over city owned tree's root system:

A) Material to be stored.

B) Amount of material that will be placed, stored, or maintained over the root system of the tree.

C) Length of time the material will be in place.

1) A ground covering may be required to protect the soil and root system.

f. Planned date for work to begin.

i. Allow two business days for permit to be issued after submittal of request.

g. Determine if a Street Closure from Laramie Engineering Division is required. If so, apply for the Street Closure.

i. 405 East Grand Avenue, Laramie, WY 82070.

ii. Application Fee is \$35.

iii. Allow two business days for application approval.

2. The city manager or manager's designee will perform pre-work inspection.

a. City owned tree to be pruned, removed, or the site to be planted.

b. The site around the city owned tree where



Fallen tree branch in the public right of way

excavation or storage of materials will occur.

i. Protective fencing may be required to exclude stored material or excavation from occurring in a critical root zone around a city owned tree.

3. The city manager or manager's designee will approve or not approve the permit.

a. Approved permit or reason for non-approval will be sent by:

i. U.S Postal Service 1st Class mail.

ii. E-mail. Recommended, due to the short turn-around time for permit. Or both.

B. There is no charge for the Public Right-of-way Tree Maintenance Permit.

E. Emergency and Routine Storm Preparedness

Tree limbs and entire trees can fail for many reasons. Usually tree failure is caused by excessive wind, rain, or snow load on a limb or tree that is damaged or decayed. Usually tree or limb failure is a culmination of high load events, each event reducing wood strength in an area of damage or decay. A significant storm event can cause widespread tree failure causing streets to become impassable, electric and communication lines to be knocked down, with possible fire and injury from downed electrical lines.

Tree debris in streets and alleys hampers the response of emergency vehicles.

Emergency response plan

Follow a community wide emergency response plan. Include tree damage and tree debris management concerns in the plan. Coordinate tree debris clean-up efforts on city streets starting principle arterials, minor arterials, and collector streets with local streets being last. Inform the lead agency media contact person about the prioritization and progress of the clean-up process.

Pre-storm media information: Remind citizens not park vehicles or put other possessions in the street under large trees, which are most prone to failure from high wind, heavy snow in late spring and late summer, and heavy rain storm events.

Primary transportation routes: Communicate the order of transportation route clearance: 1. Principle arterials, 2. Minor arterials, 3. Collector streets, 4. Local streets.

Level of response: Establish response levels for each storm event.

Available commercial and private assistance available: Establish an agreement for professional services with a commercial tree maintenance business or several if necessary. Check on establishing an agreement for professional services with private equipment operators to assist in emergency response as needed.

Wood waste storage / disposal: Use parking lots where “green” recycling containers are located to dump wood waste temporarily until it can be recycled or hauled off to the landfill.

After-storm clean-up media information: Through the lead agency media contact person keep the public informed of progress and what is recommended for the public.

Storm water collection in trees: Trees can

intercept rain and snow slowing the flow of storm water runoff. Evergreen coniferous trees are the best tree, as opposed to broadleaf deciduous trees, for collecting snow and rain. “Interception can amount up to 15-50% of precipitation, which is a significant part of the water balance.”^[25]

Minimize tree debris affecting storm water drainage: Hail knocks deciduous leaves and twigs off trees which then flow with the runoff clogging storm water drain grates. Keeping storm water drainage grates and pipes clear of tree debris is challenging. Manual removal of tree debris on grates may be required if it can be safely done. Trees can be used to stabilize soils without hampering the flow of storm water.

Seasonal installation of snow fence: Installed in parks, detention ponds, and other City land, snow fence can be used with tree rows or alone to minimize snow drifting on streets and sidewalks. Snow fence captures snow around trees for a water source.

Section 4

Community Outreach

Community outreach efforts will include participating in radio show interviews, home & garden shows, Farmer's Markets, sponsoring Arbor Day public trees sales, Arbor Day tree planting projects, and submitting weekly community forest articles for the City's website and the Laramie Boomerang newspaper. Initially, sponsor three to four seminars and classes pertaining to tree species selection, care, and value per year.

A. Laramie Community Forestry Programs in Place, to Develop, and Community Resources

Programs in Place

Memorial tree donations in public parks are a nice tribute to the life of loved ones. Trees with a memorial

plaque have a higher value and interest to the public. Information on Memorial Trees and plaques is available through the Laramie Parks Division at 307-721-5264.

Annual Arbor Day activities include tree planting and a tree sale for the community.

Community Service Day in early September usually involves planting several trees along a City Gateway entrance or other City street beautification projects.

Future Development^[2]

A Heritage Tree concept can be developed, where the City recognizes trees on an individual basis due to age, species rarity, or size. Aesthetic, botanical, ecological, and historical values are also worth considering. A heritage tree registry in Laramie promotes community



Arbor Day Celebration - group photo after tree planting

engagement and interest in a community forest. The City would encourage citizens to nominate trees, with approval from the tree owner, to be considered as heritage trees. In addition, a guide brochure online and on paper can be developed, detailing Heritage Tree locations, age, species, scientific name, size, and best viewing times. A heritage tree program developed to this extent is a benefit to the community, especially for visitors into town: university students their friends and relatives, tourists, university ball game and conference attendees.

Community Resources^[2]

Laramie is fortunate to have an active and engaged community for a town its size. The city

may have interest in partnering with any number of community organizations. For example, the Farmers' Markets provide good outreach opportunities, with interested and active citizens coming together to discuss ideas and ask questions. Other citizen groups that may be willing to collaborate with money, time, or volunteer work are present as well. An incomplete list includes Albany County Tourism, Laramie Beautification Committee, Friends of Community Recreation, Wyoming Family Home Ownership Program, the University of Wyoming, and the Albany County Schools District #1.

The University and other schools can potentially provide a valuable resource. High school agriculture classes and university classes benefit from hands on experience in addition to classroom time. An internship program with a high school or the university may prove beneficial in several ways. First of all, with proper training, short internships expand Laramie's ability to care for city trees properly. More manpower means pruning can be done specifically to suit a tree's needs. UW has an excellent agriculture program and forestry students benefit from learning urban forestry in addition to commercial forestry.

Involving students has a long term benefit as well. Even though most young people will not immediately show passion for trees or forestry, exposure to ideas and methods will stay with them, possibly developing later. Even if high school students are not eligible for internships, an arborist or advanced university forestry student acting as a guest teacher for a class may benefit those students.

Section 5

Goals and Targets

A. Public Right-of-Way Tree Assessment Prioritized by Risk Level

Laramie Municipal Code Section 12.16.015

1. A complete assessment will be done on all public right-of-way trees.

a. First, use the 2008 PRW Tree Assessment to update trees that were assessed at that time (2007-2008) prioritized in order of the following management needed.

i. Hazard Removals: 168 trees identified.

ii. Hazard Prune Trees: 264 trees identified.

iii. Non-Hazard Removal Trees: 571 trees identified.

iv. Non-Hazard Priority 1 Prune Trees: 253 trees identified.

v. All Remaining Trees: 1206 trees.

b. Second, assess trees that have been planted since the 2008 Assessment.

B. Mitigation of High Risk Public Right-of-Way Trees

1. Send out written orders to the property owner's requiring abatement of the hazard removal or hazard prune trees.

2. Follow the Policy for Tree Risk Management & Code Enforcement for trees that are affecting the Safe Use of the Public Right-of-Way (pgs. 35-38).

C. Public Right-of-way Tree Replacement and New Tree Planting

1. Public right-of-way tree replacements are

encouraged for the parkway strip areas abutting private property for both commercial and residential properties.

2. The Shawver Tree Fund Use Policy provides a purchase cost share for property owners to plant trees on the street public right-of-way abutting their residential property.

D. Tree Species Diversity

Tree Species Diversity defined as: a measure of the number and variety of different tree species found in a given area. The area is defined as within Laramie city limits for this goal.

1. One of several tree species diversity goals is defined by Santamour in 1990 [12] as:

a. No one Species makes up more than 10% of all trees.

b. No one Genus makes up more than 20% of all trees.

c. No one Family makes up more than 30% of all trees.

2. The 2008 public right-of-way tree assessment determined that cottonwood, poplar, aspen and willow, all in the Salicaceae Family, made up 59% of the total public right-of-way trees in Laramie. The Populus Genus (cottonwood, poplar and aspen) made up 56% of all public right-of-way trees in Laramie.

3. Beginning in 2015, the city will plant in city maintained public right-of-ways a wider diversity of trees using the diversity percentage goals as defined by Santamour in D.1. above.

a. No trees will be removed to specifically meet these diversity goals.



4. The City will encourage property owners to diversify their public right-of-way tree plantings along the same percentage goals through various forms of educational formats.

5. Through an Ordinance amendment the City will prohibit the planting of conifers in the public right-of-way. Conifer trees as a growth habit develop and retain lower branches on the trunk that grow into the street and sidewalk area. Since the leaf and branch crown is lower, visibility of pedestrians on the sidewalk and vehicles and cyclists on the street are obstructed from motorists and pedestrians.

a. An Ordinance will be introduced to the city council to amend the municipal code to prohibit planting conifer trees in the public right-of-way.

b. An Ordinance will be introduced to the city council to amend the municipal code to prohibit planting shrubs that can naturally grow taller than 30 inches.

E. Establish a Pruning Cycle for Trees Maintained by the City

1. Beginning in 2015, the City will determine an appropriate pruning cycle for public right-of-way trees abutting City property and maintained by the City.

a. The public right-of-way tree work will be performed by parks division staff and/or by private contractors hired by the city.

2. Public right-of-way trees abutting private property.



Tree pruning

a. The city will prioritize tree work needed based on risk potential as the public right-of-way tree assessment progresses.

i. Trees indicated as either Extreme, High, or Moderate risk on the ISA Basic Tree Risk Assessment Form (Appendix E), shall be assessed to determine if a public nuisance exists.

a) Trees that are public nuisances shall enter the code enforcement process.

b) The permit process for tree maintenance will provide a tracking method for public right-of-way tree work done or contracted out by property owners.

F. Tree Damage Assessment

1. Trees in the public right-of-way accidentally or willfully damaged by the actions of a person or persons shall have the tree value and damage assessed using the “Guide for Plant Appraisal”^[26] by the City Arborist or another representative of the city. The abutting private property owner may hire a professional plant appraiser, wholly at their expense, to determine tree value and damage cost outside of the appraisal of the City Arborist or a representative of the city. The expense to appraise trees located on private property will solely be the responsibility of the abutting private property owner who has contracted for the outside service.

a. The person or persons responsible for the damage shall be liable and invoiced for the cost of the damage as assessed by the appraisal.

G. Education on Tree Health and Public Safety

1. Although the following practices are not specifically prohibited by city code, they are strongly discouraged.

a. It is strongly discouraged to temporarily or permanently place any type of structure, fastener, sign or document in a public right-of-way tree that is not specifically designed, properly placed, and affixed to the tree, to provide structural stability for the tree.

2. Restricted or prohibited practices covered by city code include:

a. 12.16.030 Protection of public trees.

i. No person shall excavate any ditches, tunnels, trenches or lay any drive within a radius of eight feet from any street or park tree without first obtaining written permission from the city manager or the manager's designee. All trees on any public property near any excavation or construction of any buildings, structure or street work, shall be guarded with a good substantial fence, frame or box of a size to be designated by the city manager or the manager's designee in accordance with the size, age, and species of the tree or trees in question. All building material, soil and other debris shall be kept outside the barrier, except where otherwise specified by the city in writing.

ii. No person shall deposit, place, store, or maintain upon any park, or public place of the city, any stone, brick, sand, concrete, or other materials which may impede the free passage of air, water and nutrients to the roots of any tree growing therein, except by written permit from the city manager or the manager's designee. (Ord. 1419 § 5, 1998)

b. 12.16.035 Tree topping. It is unlawful as a normal practice for any person, firm or city department to top any street trees, park trees, or other trees on public property. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from this section at the determination of the city manager or the manager's designee. (Ord. 1419 § 6, 1998)

c. 12.16.040 Maintenance of street trees.

(A.) All trees and shrubs planted, grown, cultivated, or maintained or permitted to grow on city right-of-way between any property line and the traveled street adjacent thereto shall be kept, maintained and trimmed by the owner or occupant of the adjacent property so as not to obstruct traffic, interfere with the visibility of traffic or pedestrians, or cause any unsafe



Variety of tree species at Kiowa Park

condition for vehicular or pedestrian traffic.

(B.) No tree or shrub on private property shall be kept, planted, grown, maintained or permitted to remain in such a condition as to limit the visibility or in any other manner constitute a danger, hazard or public nuisance to pedestrian or vehicular traffic.

(C.) The lowest branch of any tree shall not be less than eight feet above the ground where the same extends over a sidewalk. Any trees where limbs or branches extend over the streets, driveways or any place where traffic passes beneath shall be trimmed to at least thirteen feet above the surface of the street or alley.

(D.) All stumps of street trees hence removed shall be removed below the surface of the ground so that the top of the stump shall not project above the surface of the existing ground. (Ord. 1419 § 7, 1998)

H. Managing Trees and Tree Debris for Catastrophic Natural Events

1. The City Arborist will coordinate with the Albany County Emergency Management Agency to incorporate tree damage and tree debris mitigation into the city wide emergency management plan.

a. A prioritized list of streets from heavy use to least used will be determined for clearing tree debris to aid in emergency vehicle access through the city.

-
- i. Public and private resources will be identified with mutual aid agreements established.
 - b. Determine temporary waste wood disposal sites within quick access of various parts of the City.
 - c. Finalize the tree debris clean-up portion of the emergency management plan.

I. Practical Learning and Outreach Opportunities

1. Seasonal tree issues and other informational articles submitted weekly to the newspaper and City website.
 - a. Tree issues of immediate concern publicized to the public as the need arises.
2. Tree health and care presentations to groups or topics of public interest.
3. Tree informational presentations to students.
4. Hands on tree work classes for the public and special interest groups.

J. Communication Strategy

1. Use e-mail as a primary communication tool.
 - a. Develop a database of interested citizens to receive timely tree information.
2. Radio for public service messages pertaining to trees.
3. City of Laramie website.
4. Parks and Recreation weekly press release containing Community Forestry News.

Glossary

Abate or abatement: Means the action taken to remove or alleviate a nuisance, including but not limited to, demolition, removal, repair, boarding and securing or replacement of property.

Abiotic: Nonliving, as in abiotic factor, which is a nonliving physical and chemical attribute of a system, for example light, temperature, wind patterns, rocks, soil, pH, pressure, etc. in an environment.

Caliper: Means a measurement of the size of a tree taken six inches from above ground level for trees up to and including four-inch caliper sizes and twelve inches above ground level for larger trees.

Canker: Localized necrosis of the bark and cambium on stems, branches or twigs. They are often sunken because the stem continues to get bigger elsewhere. Also, callus may be produced around the canker that makes it more sunken.

Canopy: See ‘Crown’

Conifer tree: Cone bearing tree or other plant that has its seeds in a structure called a cone. Common characteristics: one main straight vertical trunk, pyramidal shaped, evergreen, with low growing branches while young and often, also at maturity, trees such as, pine, spruce, fir, Douglas-fir, larch (deciduous), and juniper.

Crown: also known as “canopy”, upper part of a tree, measured from the lowest branch, all the branches and foliage. The trunk supports the crown.

dbh: Diameter at Breast Height - Which means the diameter of a tree trunk at 4.5 feet above ground on the uphill side of the tree.

Deciduous: Means a plant with foliage that is shed annually. Leaves dry or change color and most are shed according to a genetically scheduled cycle as impacted by climate factors usually during the cold season in temperate zones, not evergreen.

Evergreen tree: Does not shed all of its foliage annually. Several years of green, live foliage may remain on the tree at the same time.

Exotic: Pertaining to insect, pathogen, and trees, means not native to the region, coming from a different location in the continent or from a different continent.

Landscape: Means the finished adornment of unpaved yard areas with materials and treatment generally including naturally growing elements such as grasses, trees, shrubs and flowers. This treatment may also include the use of logs, rocks, fountains, water features and contouring of the earth.

Notice of violation: Shall mean that written notice prepared by the city shall be served through Certified Mail to provide notice to individuals determined to be responsible for a public nuisance, or requiring notice of such due to their position, of that public nuisance and the steps deemed necessary to correct such nuisance.

Nuisance or Public Nuisance: Means any condition or use of premises or of building exteriors which is detrimental to the property of others or which causes or tends to cause substantial diminution in the value of other property in the neighborhood in which such premises are located or promotes urban blight and deterioration, or invites plundering, or creates fire hazards, or constitutes an attractive nuisance creating a hazard to the health and safety of minors, or creates a harborage for vermin, or to be injurious to the health, safety and general welfare of the public.

Owner or Property Owner: Shall mean that person(s) shown in Albany County tax records to be the recorded owner of the property. In the case of a landlord-tenant situation, regardless of any written lease, the landlord shall be solely liable for any violation maintained on the real property or other locations specified by this chapter.

Parkway strip: Also known as the: tree lawn,

landscape strip, planting strip, boulevard, streetscape, and 27 or more other names. Defined as the landscape area within the public right-of-way between the street curb and sidewalk, if the sidewalk is not attached to the curb. This area can vary in width between different street public right-of-ways. This is where most street trees are grown. If the sidewalk is attached to the curb or street then there is no parkway strip. A sidewalk attached to the curb can still have ground area within the public right-of-way but it is usually combined with the front yard ground area of abutting residential properties.

Park tree: Means trees, shrubs, bushes, hedges and all other woody vegetation on land in public parks, public cemeteries, and all areas owned by the city, or other areas to which the public has free access as a park.

Public Property: Public property includes, but is not limited to, the following exterior locations: streets, street medians, roads, road medians, catch basins, sidewalks, strips between streets and sidewalks, lanes, alleys, public rights-of-way, public parking lots, municipal parks, playgrounds, other publicly-owned recreation facilities, and municipal waterways and bodies of water.

Residence: Is the place of a person's actual habitation.

Shrub: Means a woody plant that usually remains low and produces shoots or stems from the base and is not usually tree-like or single stemmed.

Street tree: Means trees, shrubs, bushes, hedges and all other woody vegetation on land lying between property lines within all public right-of-way within the city.

Tree topping: Means the severe cutting back of limbs to stubs larger than three inches in diameter within the crown to such a degree so as to remove the normal canopy and disfigure the tree. Cutting a tree limb between branch unions or buds leaving the stub with no growth tissue to seal off

the cutting wound. Tree diseases can easily infect topping cut limbs.

Winter Dormancy: The deepest cycle of rest for a tree. Control of the potential growth response of the tree or shrub is seated in the buds. Most temperate climate trees require a chilling period before growth begins again in the spring.

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Appendix A

Laramie Municipal Code Relating to Trees

Laramie Code Chapters and Sections Pertaining to Trees

The following Laramie Municipal Code sections are not all listed in their entirety. Some chapters have only complete sections shown that pertain to trees.

Laramie Municipal Code sections pertaining to this Tree Plan:

Title 2 - ADMINISTRATION AND PERSONNEL

Chapter 2.28 PARKS/TREE AND RECREATION ADVISORY BOARD

2.28.070 Duties—Generally.

The parks/tree and recreation advisory board shall have the following duties:

E. The board shall promote public education on tree planting and proper management of trees within the community.

F. The board shall study, investigate, counsel and develop written standards, rules, and regulations for the care, preservation, pruning, planting, replanting, removal or disposition of trees in parks, along street right-of-way, and in other public areas. Such standards will be presented to the city council and upon their acceptance and approval, shall constitute the official tree plan for the city of Laramie.

G. When requested by the city council, the board shall consider, investigate, make findings, report and recommend upon any special parks trees, street trees, and other public open space matter or question regarding trees coming within the scope of its work.

H. The board shall develop and maintain a list of desirable trees for planting as street trees with suggested spacing and planting distances from curbs, sidewalks, and foundations. Lists of trees not suitable for planting as street trees shall also be created and maintained by the board.

Title 5 - BUSINESS TAXES, LICENSES AND REGULATIONS

Chapter 5.76 - VENDING IN CITY PARKS

Sections:

5.76.040 - Prohibited acts.

C. Vendors shall not place or attach any sign, banner, or device upon or to any structure, tree, or bush in any park.

Title 8 - HEALTH AND SAFETY

[ed. note: Highlighted code sections indicate a reference to another code section that is included in this document for ease in reading, but was not included on the Laramie Municipal Code format.]

Chapter 8.28 - WEEDS AND DEAD TREES

Sections:

8.28.010 Definitions.

8.28.020 Dead trees or limbs and offensive growth—Public nuisance violation.

8.28.030 Duty to remove dead trees and limbs and offensive growth.

8.28.040 Notice of violation.

8.28.050 Abatement by owner.

public nuisance.

8.28.060 Abatement by the city.

(Ord. No. 1541, § 1, 11-5-2008)

8.28.070 Costs of abatement; notice of assessment; appeal of charges.

8.32.180 Abatement—Definitions.

As used in this chapter:

8.28.080 Waiver of abatement costs.

"Abate" or "abatement" means the action taken to remove or alleviate a nuisance, including but not limited to, demolition, removal, repair, boarding and securing or replacement of property.

8.28.090 Personal liability of owner.

"Board of appeals (board of adjustment)" shall mean the board designated by the city council as the proper board to hear appeals concerning this chapter on nuisances and associated matters.

8.28.100 Removal—Voluntary consent—Affidavit.

8.28.110 Emergency abatement.

8.28.120 Severability.

8.28.010 Definitions.

The definitions contained in Section 8.32.180 shall apply in this chapter as though such were set forth in full. As used in this chapter:

"Citymanager" shall include the position of city manager and such designated positions as are employed thereby for the enforcement of the Municipal Code, or those individuals that are otherwise designated by the city manager to perform those functions.

"Abate" or "abatement" means the action taken to remove or alleviate a nuisance, including, but not limited to cutting or digging and destroying or removing all dead trees or limbs and offending vegetation.

"Notice of violation" shall mean that written notice prepared by the city to provide notice to individuals determined to be responsible for a public nuisance, or requiring notice of such due to their position, of that public nuisance and the steps deemed necessary to correct such nuisance.

"Developed parcel" means any parcel of land that has been used or is being used for commercial or residential use with a principal structure covering over five percent of the parcel.

"Nuisance" or "public nuisance" means any condition or use of premises or of building exteriors which is detrimental to the property of others or which causes or tends to cause substantial diminution in the value of other property in the neighborhood in which such premises are located or promotes urban blight and deterioration, or invites plundering, or creates fire hazards, or constitutes an attractive nuisance creating a hazard to the health and safety of minors, or creates a harborage for vermin, or to be injurious to the health, safety and general welfare of the public. This includes, but is not limited to, the keeping or the depositing on, or the scattering over the premises of any of the following:

"Offending vegetation" or "offensive growth" means weeds, long grass, or other rank growth which violates the sections of this chapter.

"Ownership" means ownership of land which shall be deemed to exist from the centerline of any abutting alley, to and including the curb and gutter area of any abutting street of such lot or tract of land.

"Undeveloped parcel of land" means any parcel of land zoned for but not currently being used for commercial or residential use.

"Weeds, long grass, or other rank growth" means any plant which:

1. Ordinarily grows without cultivation, or;
2. Is not grown for the purposes of landscaping or food production, or;
3. Has not been maintained and has become a

1. Any nuisance declared in this chapter or within the entire city municipal code;

2. Abandoned, discarded or unused objects or equipment including, but not limited to automobiles, furniture, stoves, refrigerators, freezers, cans, or containers.

"Person" means any natural person, firm, joint venture,

joint stock company, partnership, association, club, company, corporation, business trust, organization or the manager, lessee, agent, sergeant, officer, or employee of any of them, or any other entity that is recognized by law as the subject of rights and duties.

"Occupier" shall mean that person(s) actually occupying the property.

"Owner" or "property owner" shall mean that person(s) shown in Albany County tax records to be the recorded owner of the property. In the case of a landlord-tenant situation, regardless of any written lease, the landlord shall be solely liable for any violation maintained on the real property or other locations specified by this chapter.

(Ord. 1483 § 10, 2006; Ord. 1499 § 3, 2006; Ord. No. 1540, § 1, 11-5-2008)

8.28.020 Dead trees or limbs and offensive growth—Public nuisance violation.

The existence of offensive dead trees or limbs, weeds, long grass, or other rank growth on developed and undeveloped parcels which endanger safety and health, are offensive to the senses, are a threat to safety, obstruct street or sidewalk traffic, or obstruct the free use of property so as to interfere with the comfortable enjoyment of life or property, constitutes a public nuisance violation specific to this chapter of the municipal code.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.030 Duty to remove dead trees and limbs and offensive growth.

A. Developed Parcel. It shall be the duty of every owner or occupier of a developed parcel to cut, destroy or remove, or cause to be cut, destroyed or removed, all dead trees or limbs and all weeds, long grass, or other rank growth having reached a height in excess of six inches growing thereon, and upon one-half of any road, street or alley abutting this property.

B. Undeveloped Parcel. Within one hundred fifty feet of any developed parcel, it shall be the duty of every owner or occupant of an undeveloped parcel to cut, destroy or remove, or cause to be cut, destroyed or removed, all dead trees or limbs and all weeds, long grass, or other rank growth having reached a height in excess of six inches growing thereon, and upon one-half of any road, street or alley abutting this property.

C. Traffic Hazards. It shall be the duty of every owner or occupier of a developed or undeveloped parcel to remove dead trees or limbs and offensive growth which obstructs street or sidewalk traffic. All dead trees or limbs and all offensive weeds, long grass, or other rank growth in developed and undeveloped areas shall also comply with and be subject to all requirements imposed under this code including Chapter 12.16.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.040 - Notice of violation.

A. Notice.

1. If, after inspection of the premises, the city manager determines that a public nuisance exists, a notice of violation shall be served upon the owner or the occupier of the property in one or more of the following ways:

i. Personal service by the city manager, or his designee; or

ii. Posting a copy of the notice in some conspicuous place on the offending property; or

iii. Certified mail, return receipt requested, signature required, to the address on file with the Albany County Assessor for tax purposes; or

iv. In the event that service cannot be perfected by any of the above listed methods, then notice of the violation, and the contents thereof, shall be published in a newspaper of general circulation in the community one time per week for two consecutive weeks, and shall cause a copy of the notice to be conspicuously posted on the property, or left with any occupier of the property. In the event that notice is left with the occupier of the property, notice shall be sent via certified mail to the owner also.

2. The notice of violation shall contain not less than the following information:

i. The address of the offending property.

ii. The name of owner as disclosed in the tax records of Albany County, Wyoming, or otherwise recorded.

iii. The date of the inspection of the property.

iv. A statement which clearly and concisely describes the nuisance that was observed on the property.

v. A statement of remedial action necessary, pursuant to Section [sic] **8.28.030**

8.28.030 Duty to remove dead trees and limbs and offensive growth.

A. Developed Parcel. It shall be the duty of every owner or occupier of a developed parcel to cut, destroy or remove, or cause to be cut, destroyed or removed, all dead trees or limbs and all weeds, long grass, or other rank growth having reached a height in excess of six inches growing thereon, and upon one-half of any road, street or alley abutting this property.

B. Undeveloped Parcel. Within one hundred fifty feet of any developed parcel, it shall be the duty of every owner or occupant of an undeveloped parcel to cut, destroy or remove, or cause to be cut, destroyed or removed, all dead trees or limbs and all weeds, long grass, or other rank growth having reached a height in excess of six inches growing thereon, and upon one-half of any road, street or alley abutting this property.

C. Traffic Hazards. It shall be the duty of every owner or occupier of a developed or undeveloped parcel to remove dead trees or limbs and offensive growth which obstructs street or sidewalk traffic. All dead trees or limbs and all offensive weeds, long grass, or other rank growth in developed and undeveloped areas shall also comply with and be subject to all requirements imposed under this code including Chapter 12.16.

(Ord. No. 1535, § 1, 9-2-2008)

vi. The date by which the remedial action must be taken in order to comply with the notice. The date of remedial action required shall be not less than five business days from the date of delivery of the notice, except in cases of emergency and summary abatement.

vii. The possible consequences of failure to comply with the Notice of Violation by the date contained therein.

3. Receipt of service of the notice shall be deemed completed upon delivery by personal service, by mailing of the certified letter plus three days, or upon the publication of the notice for the first time in the newspaper.

B. Each day of a continuing nuisance is a separate violation, subject to general penalty in accordance with §**1.28.010**, and may be separately noticed to the property owner.

(Ord. No. 1535, § 1, 9-2-2008)

1.28.010 Amount—Continuing violations.

Whenever in this code, or in any ordinance, rule or regulation promulgated by any officer or agency of the city under authority vested in him or it by law or ordinance, any act is prohibited or is declared to be unlawful, or the doing of any act is required, or the failure to do any act is declared to be unlawful, and no specific penalty is provided therefor, the violation of any such provision of this code, or any such ordinance, rule or regulation shall be punished by a fine of not more than seven hundred fifty dollars. Each day any violation of this code or any such ordinance, rule or regulation continues shall constitute a separate offense.

(Prior code § 1-6; Ord. 670 § 1, 1981)

8.28.050 Abatement by owner.

Upon receipt of the notice as specified in Section **8.28.040(A)(3)**, the owner or occupier of the property shall abate the nuisance, and provide proof thereof to the city manager, within the five business days period specified in the notice of violation.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.040 Notice of violation.

A. Notice.

3. Receipt of service of the notice shall be deemed completed upon delivery by personal service, by mailing of the certified letter plus three days, or upon the publication of the notice for the first time in the newspaper.

8.28.060 Abatement by the city.

A. In the event that a public nuisance is not abated during the period of time established in the notice of violation, the city shall have the right to enter the property and abate the public nuisance found thereon.

The abatement shall be in accordance with the proposal specified in the notice of violation, or such other means as is found to be reasonable at the time of abatement. The city shall make an effort to abate the nuisance at the least destructive or intrusive manner as is reasonable under the circumstances.

B. The city shall be entitled to employ private contractors to assist in the abatement of the public nuisance. If private contractors are utilized, the city shall impose a twenty percent administrative fee on the offending property owner.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.070 Costs of abatement; notice of assessment; appeal of charges.

A. After compilation of the costs and charges incurred by the city for the abatement of the public nuisance, the city shall mail by certified mail to the owner of the property a statement of the outstanding balance owed by the owner to the city for the nuisance abatement. Such balance shall be due and owing not more than thirty days following the mailing of the notice. The statement shall also include a statement of the rights of the owner to appeal such amounts as have been expended on the abatement of the nuisance within ten business days of the date of mailing.

B. If the owner of the property wishes to contest the amount that was expended on the nuisance abatement, he may file a written notice of appeal, in person or by certified mail, with the clerk of the board of appeals within ten business days from the date of mailing of the statement of charges. If no appeal is filed within that period, the appeal shall be deemed waived and the statement amount shall be immediately due and owing to the city.

C. If the owner files an appeal of the amount owed, then the matter shall be set for hearing with the board of appeals within twenty days from the date the notice is received by the clerk.

D. If payment in full is not received by the city within ten business days from the time the statement became final, then such shall be entered as a lien against the property and filed with Albany County Clerk of record.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.080 Waiver of abatement costs.

Adopted by reference to [Section] **8.32.240**. *Note:* (Chapter 8.32 – NUISANCES)

(Ord. No. 1535, § 1, 9-2-2008)

8.32.240 Waiver of abatement costs.

A. Notwithstanding the other provisions of the ordinance codified in this section, the cost of abating a nuisance shall be waived for those Wyoming residents meeting resource eligibility requirements under W.S. 39-11-109(c) (ii) through (vii). All persons wishing to qualify for waiver of nuisance abatement costs must:

1. Furnish proof of the age and/or income requirements as set forth in W.S. 39-11-109(c) (ii) through (vii);

2. Must own, or be in the process of purchasing the property from which the nuisance is abated; and

3. Be living on the property from which the nuisance is abated.

B. Applications for waiver of nuisance abatement costs shall be filed with the city manager on forms supplied by the city, within ten days after receipt of a notice of assessment. All information required to be given on such form shall be supplied and

verified by the applicant. The maximum amount that may be waived under this section for any one parcel of real property or any one person shall be five hundred dollars per calendar year.

(Ord. 1483 § 16, 2006; Ord. No. 1535, § 1, 9-2-2008)

8.28.090 Personal liability of owner.

Adopted by reference to [Section] **8.32.270**.

(Ord. No. 1535, § 1, 9-2-2008)

8.32.270 Personal liability of owner.

The owner of the property on which a public nuisance was abated by the city shall be personally liable to the city for the reasonable costs incurred as a result of that abatement.

(Ord. No. 1535, § 1, 9-2-2008)

8.28.100 Removal—Voluntary consent—Affidavit.

Adopted by reference to [Section] **8.32.280**.

(Ord. No. 1535, § 1, 9-2-2008)

8.32.280 Removal—Voluntary consent—Affidavit.

The author of a nuisance may voluntarily consent to its removal by the city. To give such consent, all responsible persons of the property shall execute an affidavit acceptable to the city manager, stating that there are no other responsible person(s) of the property or lien holders having a security interest in the property; that the responsible person(s) waive the right to hearing under Section **8.32.210**; that the responsible person(s) will reimburse the city for the actual costs of removal and administrative overhead attributable to removal; and that reimbursement will be made to the city within thirty days of removal. The affidavit shall contain an agreement by the responsible person(s) to indemnify the city for any loss, damage or expense alleged by any person as a result of removal or disposal. The affidavit shall release the city from any and all liability on account of the removal and disposal of a nuisance.

(Ord. No. 1535, § 1, 9-2-2008)

8.32.210 Appeal process; hearing.

A. The owner or occupant of property who has been served with a notice of violation pursuant to this chapter may, within ten business days from the date of service as defined in Section **8.32.190(A) (3)**, submit a written demand to the clerk of the board of appeals (board of adjustment) for a hearing on the question of whether a nuisance exists. If no appeal is filed within that period, the appeal shall be deemed waived.

8.32.190 - Notice of violation.

A. Notice.

1. If, after inspection of the premises, the city manager determines that a public nuisance exists, a notice of violation shall be served upon the owner or the occupier of the property in one or more of the following ways:

- i. Personal service by the city manager, or his designee; or
- ii. Posting a copy of the notice in some conspicuous place on the offending property; or
- iii. Certified mail, return receipt requested, signature required, to the address on file with the Albany County Assessor for tax purposes; or
- iv. In the event that service cannot be perfected by any of the above listed methods, then notice of the violation, and the contents thereof, shall be published in a newspaper of general circulation in the community one time per week for two consecutive weeks, and shall cause a copy of the notice to be conspicuously posted on the property, or left with any occupier of the property. In the event that notice is left with the occupier of the property, notice shall be sent via certified mail to the owner also.

2. The notice of violation shall contain not less than the following information:

- i. The address of the offending property.
- ii. The name of owner as disclosed in the tax records of Albany County, Wyoming, or otherwise recorded.
- iii. The date of the inspection of the property.
- iv. A statement which clearly and concisely describes the nuisance that was observed on the property, including a brief description of any vehicle which might be considered to be a part of the violation.
- v. A statement of remedial action required to correct the violation on a permanent basis. Alternative actions may be listed as well.
- vi. The date by which the remedial action must be taken in order to comply with the notice. The date of remedial action required shall be not less than thirty days from the date of delivery of the notice, except in cases of emergency and summary

abatement.

vii. The possible consequences of failure to comply with the notice of violation by the date contained therein.

viii. The right of the owner to request a hearing before the board of appeals (board of adjustment) if the owner does not believe a nuisance exists, and the date before which the written request for hearing must be received by the municipal clerk. There shall also contain a brief statement of the appeals process and contact persons with associated addresses and telephone numbers.

3. Receipt of service of the notice shall be deemed completed upon delivery by personal service, by mailing of the certified letter plus three days, or upon the publication of the notice for the first time in the newspaper.

B. Each day of a continuing nuisance is a separate violation, subject to general penalty in accordance with **Section 1.28.010**, and may be separately noticed to the property owner.

(Ord. 1483 § 11, 2006; Ord. No. 1535, § 1, 9-2-2008)

1.28.010 - Amount—Continuing violations.

Whenever in this code, or in any ordinance, rule or regulation promulgated by any officer or agency of the city under authority vested in him or it by law or ordinance, any act is prohibited or is declared to be unlawful, or the doing of any act is required, or the failure to do any act is declared to be unlawful, and no specific penalty is provided therefor, the violation of any such provision of this code, or any such ordinance, rule or regulation shall be punished by a fine of not more than seven hundred fifty dollars. Each day any violation of this code or any such ordinance, rule or regulation continues shall constitute a separate offense.

(Prior code § 1-6; Ord. 670 § 1, 1981)

8.32.210 Appeal process; hearing.

(Continued)

B. In the event that a hearing is demanded by the alleged violator, a hearing shall be scheduled within twenty days from the date of receipt of the written demand. The matter

shall not be continued, unless both the alleged violator and the city agree to such continuance.

C. The hearing shall be scheduled and conducted by the board of appeals (board of adjustment) pursuant to the procedures contained within Municipal Code Section **1.20.010** et seq., including maintaining a taped transcript of the proceeding.

1.20.010 Adoption.

In accordance with the provisions of W.S. 9-276.19 through 9-276.33, these rules of practice and procedure are adopted.

(Prior code § 2-47)

D. The alleged violator shall be given the opportunity to appear, with counsel if desired, and may present evidence at the hearing.

1. The burden shall be on the city to prove the existence of a nuisance by substantial evidence.

2. All relevant and reliable evidence shall be admitted by the board of appeals (board of adjustment).

E. After hearing the evidence and argument in the matter, the board of appeals (board of adjustment) shall make a finding as to the existence of a nuisance, and may make findings as to the abatement procedure proposed by the city or the alleged violator, the costs to be allocated to the parties if such has been abated by the city prior to the hearing and the time in which such abatement will be completed by the alleged violator, if not completed by the time of the hearing. If a nuisance is found to exist, the time for completion allowed by the board of appeals (board of adjustment) shall not exceed sixty days from the date of the final order.

(Ord. 1483 § 13, 2006; Ord. No. 1535, § 1, 9-2-

2008)

8.28.110 Emergency abatement.

Adopted by reference to [Section] 8.32.260.

(Ord. No. 1535, § 1, 9-2-2008)

8.32.260 Emergency abatement.

If any nuisance exists in such a condition so menacing to the public health, peace or safety that it is necessary that it be summarily abated, the city manager may proceed to abate the nuisance without notice or hearing. The determination of costs, notice of assessment and an appeal of charges for an emergency abatement shall be subject to the provisions of Section **8.32.230**.

(Ord. No. 1535, § 1, 9-2-2008)

8.32.230 Costs of abatement; notice of assessment; appeal of charges.

A. After compilation of the costs and charges incurred by the city for the abatement of the public nuisance, offset by any receipt of funds for salvaged materials, the city shall mail by certified mail to the owner of the property a statement of the outstanding balance owed by the owner to the city for the nuisance abatement. Such balance shall be due and owing not more than thirty days following the mailing of the notice. The statement shall also include a statement of the rights of the owner to appeal such amounts as have been expended on the abatement of the nuisance within ten business days of the date of mailing.

B. If the owner of the property wishes to contest the amount that was expended on the nuisance abatement, or the amount received from the salvaged materials, he may file a written notice of appeal, in person or by certified mail, with the clerk of the board of appeals (board of adjustment) within ten business days from the date of mailing of the statement of charges. If no appeal is filed within that period, the appeal shall be deemed waived and the statement amount shall be immediately due and owing to the city.

C. If the owner files an appeal of the amount owed, then the matter shall be set for hearing with the board of

appeals (board of adjustment) within twenty days from the date the notice is received by the clerk.

D. If payment in full is not received by the city within ten business days from the time the statement became final, then such shall be entered as a lien against the property and filed with Albany County Clerk of Record.

(Ord. 1483 § 15, 2006; Ord. 1499 § 5, 2006; Ord. No. 1535, § 1, 9-2-2008)

8.28.120 Severability.

If any section, subsection, sentence, clause, phrase or portion of the ordinance codified in this chapter is for any reason held to be invalid or unconstitutional by the final decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance codified in this chapter.

(Ord. No. 1535, § 1, 9-2-2008)

FOOTNOTE(S)

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Editor's note— Ord. No. 1541, § 1, adopted Nov. 5, 2008, amended former Ch. 8.28, §§ 8.28.010, 8.28.020, in its entirety to read as herein set out. Former Ch. 8.28 pertained to similar subject matter and derived from the prior Code and Ord. No. 780, § 1; 1984; Ord. No. 1483, §§ 2, 3, 2006.

Title 9 - PUBLIC PEACE, MORALS AND WELFARE

Chapter 9.16 - OFFENSES AGAINST PROPERTY

Sections:

9.16.060 - Damaging—Lawns and gardens.

It is unlawful for any person to walk, run, ride or in any other manner cross over or upon any lawn garden or otherwise improved lot or damage the trees or shrubbery thereon, whether the same are separated by a fence or not, within the city, without the permission of the owner or occupant thereof.

(Prior code § 26-26)

Title 12 - STREETS, SIDEWALKS AND PUBLIC PLACES

Division I. – Generally

Chapter 12.04 - USE RESTRICTIONS

Sections:

12.04.050 - Damaging parkings.

No person shall walk, run, ride, drive or propel any vehicle over or upon or in any other manner cross over or upon any parking or damage the trees, grass or shrubbery thereon within the city, whether or not such parking is separated from the streets and alleys by a curbing or fence.

(Prior code § 34-4)

Chapter 12.16 TREES AND SHRUBS

Sections:

12.16.010 Definitions.

12.16.015 Powers and duties.

12.16.020 Implementation.

12.16.025 Parks/tree and recreation advisory board.

12.16.030 Protection of public trees.

12.16.035 Tree topping.

12.16.040 Maintenance of street trees.

12.16.045 Hazardous trees, shrubs and woody vegetation—Abatement—Owners duty.

12.16.050 Hazardous trees, shrubs and woody vegetation—Removal order—Delivery.

12.16.055 Hazardous trees, shrubs and woody vegetation—Removal Order—Appeal.

12.16.060 Hazardous trees, shrubs and woody vegetation—Failure to remove—Penalties.

12.16.065 Restitution.

12.16.010 Definitions.

For the purpose of this chapter the following terms, phrases, words, and their derivations shall have the meaning given herein. When not inconsistent with the

context, words used in the present tense include the future, words in the plural include the singular, and words in the singular include the plural. The word shall is mandatory and not merely directory.

"Board" means City of Laramie parks/tree and recreation advisory board.

"City" means City of Laramie, Wyoming.

"Council" means the Laramie City Council.

"Park tree" means trees, shrubs, bushes, hedges and all other woody vegetation on land in public parks, public cemeteries, and all areas owned by the city, or other areas to which the public has free access as a park.

"Person" means any person, firm, partnership, association, corporation, company or entity of any nature.

"Public nuisance" means any dangerous or unsafe tree or portions thereof on streets, within any public right-of-way, in parks, on other public places or posing a hazard thereto.

"Street tree" means trees, shrubs, bushes, hedges and all other woody vegetation on land lying between property lines within all public right-of-way within the city.

"Tree topping" means the severe cutting back of limbs to stubs larger than three inches in diameter within the crown to such a degree so as to remove the normal canopy and disfigure the tree.

(Ord. 1419 § 1, 1998)

12.16.015 Powers and duties.

This chapter provides authority over all trees, shrubs, hedges, and other ornamental plants located within the street right-of-way, parks and public places of the city. The city manager or the manager's designee shall manage and maintain trees within the city in the following manner:

A. Promulgate standards and specifications governing the planting, pruning and removal of trees on the street right-of-way, parks, and public areas of the city.

B. Require that property owners maintain trees, shrubs, hedges and other ornamental plants on the right-of-way abutting their property line so they do not pose a hazard or public nuisance to pedestrian or vehicular

traffic.

C. During or following an emergency created by man or natural phenomenon, the city may take all necessary steps to remove trees or tree parts or residue that might impede traffic movement or endanger persons or property, without being responsible for continued maintenance or care.

(Ord. 1419 § 2, 1998)

12.16.020 Implementation.

The city manager of the manager's designee shall direct the community services department to regulate and control the planting, pruning, and removal of all street and park trees.

(Ord. 1419 § 3, 1998)

12.16.025 Parks/tree and recreation advisory board.

There is established a parks/tree and recreation advisory board under Chapter 2.28 of the Laramie Municipal Code. Under Section 2.28.070, Duties—Generally, the duties of the board in relation to trees, shrubs and other plants within public property of the city of Laramie are defined.

(Ord. 1419 § 4, 1998)

12.16.030 Protection of public trees.

A. No person shall excavate any ditches, tunnels, trenches or lay any drive within a radius of eight feet from any street or park tree without first obtaining written permission from the city manager or the manager's designee. All trees on any public property near any excavation or construction of any buildings, structure or street work, shall be guarded with a good substantial fence, frame or box of a size to be designated by the city manager or the manager's designee in accordance with the size, age, and species of the tree or trees in question. All building material, soil and other debris shall be kept outside the barrier, except where otherwise specified by the city in writing.

B. No person shall deposit, place, store, or maintain upon any park, or public place of the city, any stone, brick, sand, concrete, or other materials which may impede the free passage of air, water and nutrients to the roots of any tree growing therein, except by written permit from the city manager or the manager's designee.

(Ord. 1419 § 5, 1998)

12.16.035 Tree topping.

It is unlawful as a normal practice for any person, firm or city department to top any street trees, park trees, or other trees on public property. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from this section at the determination of the city manager or the manager's designee.

(Ord. 1419 § 6, 1998)

12.16.040 Maintenance of street trees.

A. All trees and shrubs planted, grown, cultivated, or maintained or permitted to grow on city right-of-way between any property line and the traveled street adjacent thereto shall be kept, maintained and trimmed by the owner or occupant of the adjacent property so as not to obstruct traffic, interfere with the visibility of traffic or pedestrians, or cause any unsafe condition for vehicular or pedestrian traffic.

B. No tree or shrub on private property shall be kept, planted, grown, maintained or permitted to remain in such a condition as to limit the visibility or in any other manner constitute a danger, hazard or public nuisance to pedestrian or vehicular traffic.

C. The lowest branch of any tree shall not be less than eight feet above the ground where the same extends over a sidewalk. Any trees where limbs or branches extend over the streets, driveways or any place where traffic passes beneath shall be trimmed to at least thirteen feet above the surface of the street or alley.

D. All stumps of street trees hence removed shall be removed below the surface of the ground so that the top of the stump shall not project above the surface of the existing ground.

(Ord. 1419 § 7, 1998)

12.16.045 Hazardous trees, shrubs and woody vegetation—Abatement—Owners duty.

It shall be the duty of all property owners within the city to keep the property owned by them, together with the adjacent parkway between the sidewalk and the traveled portion of any street or public highway, hereby referred to as the street right-of-way free and clear of any live, diseased or dead tree, shrub,

overhanging bough, hedge, which, in its then condition, reasonably constitutes a hazard to traffic or danger to life, limb or property, and the presence of it upon such property or parkway is declared to be a public nuisance. (Ord. 1419 § 8, 1998)

12.16.050 Hazardous trees, shrubs and woody vegetation—Removal order—Delivery.

The city manager or the manager's designee may require the owner of any property whereupon, or upon whose adjoining right-of-way, is situated any such live, diseased or dead tree, shrub, overhanging bough, hedge, to remove the same within a reasonable time, which time shall be fixed by city manager or the manager's designee in a written order delivered by certified mail, return receipt requested, to the owner of record of the property as it appears on the county tax rolls. (Ord. 1419 § 9, 1998)

12.16.055 Hazardous trees, shrubs and woody vegetation—Removal Order—Appeal.

The property owner may appeal the order of the city manager or the manager's designee to the traffic commission in writing, within ten days after the date of such order. The traffic commission shall, within ten days after receipt of the written appeal, set the matter for hearing and notify the property owner of the time and date of such hearing, at which the property owner may be present or represented by counsel. At such hearing, the traffic commission will review the order of the city manager or the manager's designee, and unless the order is revoked or modified, it shall remain in full force and be obeyed by the property owner. (Ord. 1419 § 10, 1998)

12.16.060 Hazardous trees, shrubs and woody vegetation—Failure to remove—Penalties.

If the property owner fails to comply with the final order within ten days after such appeal has been determined, or if no appeal is taken, within fifteen days after the mailing of the order, then the city manager or the manager's designee may cause such live, diseased or dead tree, shrub, overhanging bough, hedge, to be removed or destroyed and shall assess the expense thereof against the property owner of record. Failure to comply with the final order shall constitute a violation of the provisions of this section. (Ord. 1419 § 11, 1998)

12.16.065 Restitution.

Any person found liable for injuring or destroying a street or park tree shall be liable for the replacement cost of that tree. The cost shall be determined by the city manager or the manager's designee. (Ord. 1419 § 12, 1998)

Division II. - Construction

Chapter 12.24 - EXCAVATIONS

Article III. - Public Convenience and Safety

12.24.200 - Safety precautions.

The permittee shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. The permittee shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to all employees on the work and other persons who may be affected thereby, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not to be removed, relocated or replaced in the course of excavation, construction and restoration.

(Prior code § 34-50; Ord. 844 § 16, 1985)

Article IV. - Property Damage

12.24.270 - Lawns and parkings.

Whenever it may be necessary for a permittee under this chapter to trench through any lawn area, the sod shall be carefully cut and rolled and replaced after ditches have been backfilled as required in this chapter. All construction and maintenance work shall be done in a manner calculated to leave the lawn area clean of earth and debris and in a condition as near as possible to that which existed before such work began. The permittee shall not remove, even temporarily, any trees or shrubs which exist in parking strip areas without first obtaining the consent of the appropriate city department or city official having control of such property.

(Prior code § 34-33)

Title 13 - PUBLIC SERVICES

Division I. - Water

13.04.310 - Use restrictions—Protection of water supplies.

The city manager may adopt, amend, enforce, and remove restrictions upon the use of municipal water for the purpose of protecting the city's surface and underground water resources and the municipal water system. The restrictions may include, but are not limited to:

- G. Regulating or prohibiting watering turf, trees, shrubs, and flowers in public parks, cemeteries, and golf courses.

(Ord. 1414 § 1, 2003)

Division V. - Cemetery

Chapter 13.64 - GENERAL PROVISIONS

Sections:

13.64.070 - City to care for lots and grounds.

Except as otherwise provided in this title, all grading, landscape work and improvements of any kind, and all care of lots, shall be done by the city, and all trees, shrubs and herbage of any kind shall be planted, trimmed, cut or removed, and all opening or closing of graves and all interments, disinterments or removals shall be made by the city.

(Ord. 884, § 7, 1987)

13.64.080 - City not required to grow grass where difficult.

The city shall not be required to try to grow grass under evergreen trees or elsewhere in the city cemetery, if excessive shade or other conditions make growth difficult.

(Prior code § 10-20)

13.64.090 - Destruction of monuments.

No person shall wilfully ride or drive upon any place within the city cemetery, other than the platted driveways, nor wilfully deface, injure or destroy any monument, tomb, grave or gravestone or any board

or any other object set to mark any grave, nor break, injure or destroy any gate, fence, grass plot, shrub, tree or ornament of any kind within the cemetery

(Prior code § 10-21)

Title 15 - UNIFIED DEVELOPMENT CODE

Chapter 15.02 - GENERAL PROVISIONS

15.02.000 - Title.

This ordinance shall be known as the "Unified Development Code of the City of Laramie, Wyoming," referred to as "this code." *(Ord. No. 1578, § 2(att. A), 3-2-2010)*

15.02.010 - Authority.

This code is enacted pursuant to the provisions of W.S. 15-1-601 et seq. *(Ord. No. 1578, § 2(att. A), 3-2-2010)*

15.02.020 - Purpose.

The purpose of this code shall be to promote the public health, safety, and general welfare of the city of Laramie (referred to as the "city") and the residents thereof. The zoning regulations and districts as herein set forth have been designed to:

- A. Implement the Laramie comprehensive plan;
- B. Ensure efficient development review with clear and understandable procedures and standards;
- C. Encourage the efficient use of the available land supply in the city, including redevelopment of underutilized land in central areas;
- D. Promote a balanced supply of residential, commercial, industrial, institutional, and transportation land uses that is compatible with adjacent land uses and has good access to transportation networks;
- E. Ensure the provision of adequate open space for light, air, and fire safety;
- F. Conserve the value of buildings and land;
- G. Facilitate the adequate provision of transportation, water, sewerage, schools,

- parks, and other public requirements;
- H. Protect the historic resources of Laramie;
- I. Preserve the character and quality of residential neighborhoods;
- J. Preserve the character and quality of downtown Laramie;
- K. Preserve and protect existing trees and vegetation, floodplains, stream corridors, scenic views, water quality, wildlife habitat, gateways, and corridors, and other areas of scenic and environmental significance from adverse impacts of land development;
- L. Ensure greater public safety, convenience, and accessibility through the physical design and location of land-use activities;
- M. Enhance the quality of development through superior building and site design;
- N. Ensure development of an accessible system of recreational facilities, parks, trails, and open space that meets year-round neighborhood and community-wide needs; and
- O. Ensure that service demands of new development will not exceed the capabilities of existing streets, utilities, or other public facilities and services.

(Ord. No. 1578, § 2(att. A), 3-2-2010)

15.04.040 - Board of adjustment.

A. In General. The planning commission shall serve as the board of adjustment. Appointments and terms of members to the board of adjustment shall coincide with the appointments and terms of the planning commission. (Ord. 1522 § 5, Ord. 858 § 1, 1986: Ord. 194 § 9.1 (part), 1964).

B. Meetings. Meetings of the board shall be held at the call of the chairman, and at such other times as the board may determine. The chairman, or in his absence, the acting chairman, may administer oaths and compel the attendance of witnesses. All meetings of the board shall be open to the public except that the board may hold executive sessions as provided in W.S. 1977, 16-4-405. The board shall keep minutes of its proceedings, showing the vote of each member upon each question, or if the member was absent, or failed to vote. The board shall keep records of its deliberations and other

official actions, all of which shall be filed with the department and shall be a public record. (Ord. 858 § 2, 1986: Ord. 194 § 9.1 (part), 1964).

C. Review and Decision Making Authority. The board of adjustment shall have the review and decision-making responsibilities listed in this subsection, to be carried out in accordance with the terms of this code.

1. Decision-Making Authority. The board of adjustment shall have the authority to make the final decision on the following:

a. Variances.

D. Appeals.

1. The board of adjustment shall hear and decide on appeals as follows:

a. Sign permits.

2. Appeals from any order of abatement issued to a property owner, lessee, or occupant pursuant to Section 15.14.100, fences and walls, provided, that no adjustment of the provisions of Section 15.14.100 shall be granted by the board unless it finds:

a. That the abatement of the violation shall constitute an unnecessary removal of or destruction of trees or hedges, or

b. That there exists a reasonable alternative to the abatement which will render the abatement unnecessary and which provides a safe line of sight at the intersection; and

c. Relative to subsection 15.14.100.B. it finds: That the allowable heights therein stated should be adjusted to allow for the effect of a surface slope or other physical characteristic of the lot which would render the application of those provisions of said section unreasonable.

E. Voting Required—Reversals.

1. In exercising the above-mentioned powers such board may, in conformity with the provisions of this code, reverse or affirm wholly or partly, or may modify the order, requirement, decision, or determination, as necessary.

2. The concurring vote of five members of the board

of adjustment shall be necessary to reverse any order, requirement, decision, or determination of any administrative official, or to decide in favor of the applicant on any matter upon which it is required to pass any ordinance or to effect any variation in such ordinance.

(Ord. No. 1578, § 2(att. A), 3-2-2010)

Chapter 15.14 DEVELOPMENT STANDARDS

15.14.010 - Purpose.

A. Purpose. The development and design standards set forth in this chapter shall apply to the physical layout and design of development in Laramie. These provisions address the physical relationship between development and adjacent properties, public streets, neighborhoods, and the natural environment, in order to implement the comprehensive plan vision for a more attractive, efficient, and livable community. The specific purposes of this chapter include:

3. To protect public and private investment through preservation of open spaces, protection of natural resources including existing trees, providing buffers between incompatible uses and along roadways, and encouraging the planting of new trees and vegetation as deemed appropriate;

15.14.020 - Natural resource protection and sustainability.

A. Purpose. The city contains many natural amenities, including stream corridors, river corridors, natural drainages, significant viewsheds, hillsides, tree cover, and open space—all of which contribute to the city's character, quality of life, and property values. The regulations of this section are intended to implement the Laramie comprehensive plan and ensure that the natural character of the city is reflected in patterns of development and redevelopment, and significant natural features are protected and incorporated into open space areas.

3. To protect public and private investment through

preservation of open spaces, protection of natural resources including existing trees, providing buffers between incompatible uses and along roadways, and encouraging the planting of new trees and vegetation as deemed appropriate;

15.14.030 - Alternative energy.

A. Solar Energy.

2. Solar Rights.

d. Restrictions on Solar Rights.

(i) Solar collectors shall be located on the solar user's property so as not to unreasonably or unnecessarily restrict the uses of neighboring property. Unreasonable or unnecessary restriction shall include, but not be limited to, any restriction that would prohibit the uses allowed by city code (but not including planting of trees).

3. Solar Oriented Lots.

a. Purpose. It is the city's intent to encourage the use of both active and passive solar energy systems for heating air and water in homes and businesses, as long as natural topography, soil, or other subsurface conditions or other natural conditions peculiar to the site are preserved. While the use of solar energy systems is optional, the right to solar access is protected. Solar collectors require access to available sunshine during the entire year, including between the hours of nine a.m. and three p.m., Mountain Time on the winter solstice date, when the longest shadows occur. Additionally, a goal of this section is to ensure that design review plan elements do not excessively shade adjacent properties, creating a significant adverse impact upon the solar potential of adjacent property owners. Thus, standards are set forth to evaluate the potential impact of shade caused by buildings, structures, and trees.

15.14.050 Landscaping and screening standards.

D. Landscaping Material Standards.

1. Plants to Conform. Plants shall conform to the measurements specified in the plant schedule submitted with the landscaping plan (see plan requirements in the Laramie Administrative Manual).

2. Size of Required Landscape Materials. Required

landscaping materials shall comply with the following minimum size standards at the time of planting, with caliper measurements taken twelve inches above grade.

a. Minimum height for deciduous trees shall be eight feet.

b. Minimum size for deciduous trees shall be a one and one-half-inch caliper.

c. Minimum size for evergreen trees shall be five feet in height.

d. Minimum size for shrubs shall be one gallon container for low and medium shrubs and five gallon container for tall shrubs.

e. Minimum sizes may be reduced at the discretion of the department where a developer proposes a reasonable alternative planting size and/or more landscaping or plantings than are required. Generally, street frontage landscaping should not be reduced in size in commercial, institutional, or industrial developments.

3. Trees. A mixture of canopy and ornamental trees shall be permitted. Generally, street frontage trees shall be canopy trees unless impractical and other tree types are approved by the department.

E. Residential Front Yard Landscaping.

1. Applicability. The front-yard areas between the building and back of curb within all new developments containing three or fewer dwelling units on lots or parcels less than sixteen thousand square feet in size shall be landscaped pursuant to this subsection. The landscaping shall be located within the entirety of the front yard between the front plane of the building or front fence(s), whichever is greater, and the roadway. For the purposes of calculating landscape area, driveways and sidewalks shall not be included.

2. Landscape Plan. A landscape plan shall be submitted with an application for a building permit and become part of the building permit. The landscape plan shall be approved prior to installation of the landscaping. Any modifications to the approved plan shall be reviewed and approved by the department. The plan shall include a calculation of landscaped areas and a list of proposed plant species. An underground irrigation system is recommended.

3. Installation and Final Inspection. The landscaping shall be completed by the developer, builder or property owner and inspected by the department prior to the issuance of a certificate of occupancy. The planting of the required landscaping may be delayed for up to twelve months past the certificate of occupancy. Failure to install the required landscaping within twelve months of issuance of a certificate of occupancy may result in a citation and fine issued by the city.

4. Gardenscape Option.

a. The required landscaping shall consist of at least seventy-five percent living ground cover. Up to fifty percent of the living ground cover area may be used for flower or garden beds, shrubbery planters or other similar accent features. At least two trees shall be planted in the front yard area. Trees may be a combination of evergreen and/or deciduous. At planting time evergreen trees shall be at least five feet tall. Deciduous trees shall be at least 1.5 inches caliper at breast height. Tree wells of five-foot diameter or less may be excluded from calculating the seventy-five percent living groundcover requirement. It is recommended that tree wells and other exposed planter areas be covered with organic material such as bark or mulch.

b. In order to reduce dust and soil erosion, any remaining area not covered by living groundcover shall be covered by materials such as bark, decorative rock or mulch.

5. Xeriscape Option. As an alternative to the gardenscape option identified above, xeriscape landscaping is permissible and shall be in compliance with the city's xeriscape guidelines. The design may include a mix of decorative rock, mulch, plants, and native grasses. A maximum of fifty percent of the front yard area may be without plants, but shall be covered with materials such as decorative rock, bark, or mulch. Plants species used shall be of appropriate variety to tolerate low watering and high altitude climate.

6. Modifications After Initial Installation. Landscaping may be modified by the property owner after initial installation without approval by the department, provided that the front-yard area remains landscaped, meets the purpose of this chapter and does not violate the provisions of Laramie municipal code Chapter 8.28

F. Site Perimeter Landscaping.

1. Applicability. Site perimeter landscaping shall be provided along the perimeter property line of all multifamily (four or more dwelling units), commercial, institutional and industrial development sites except for approved points of pedestrian or vehicle access, in accordance with table 15.14.050-2 (see Figure 15.14.050-1). Site perimeter landscaping is not parking lot perimeter landscaping, which is provided for in subsection 15.14.050.G.

2. Exceptions.

a. Site perimeter requirements for lots and parcels in the DC district shall be required pursuant to subsection 15.08.030.E.2.c., development standards.

b. Site perimeter requirements may be reduced up to one hundred percent for projects on lots and parcels allowing setbacks less than the required site perimeter yard width through the alternative equivalent compliance requirements of subsection 15.06.060.K. Reductions shall only apply to lots and parcels where the primary building setback is less than the specific required perimeter landscaping width as shown in table 15.14.050.A. Reductions shall only apply to specific required site perimeter areas between the property line and proposed principal building. A zero side setback requirement shall not be construed to allow a reduced rear yard setback.

c. As part of alternative equivalent compliance review, the city may consider landscaping in the adjacent public right-of-way as a substitution for some or all of the required onsite street frontage landscaping, where in the opinion of the department the proposed public right-of-way landscaping meets the intent of this chapter. Any property owner requesting to landscape the public right-of-way as an alternative shall be required to maintain the landscaping into perpetuity unless the landscaped area is accepted for maintenance by the city. In addition to substituting for street frontage landscaping, public right-of-way landscaping may be substituted for other required landscaping if approved by the department. This may include the landscaping of public right-of-way or public lands within the city on a separate unrelated site in some cases where in the opinion of the department the public landscaping proposed will have significantly greater community benefit.

d. Site perimeter requirements for lots and parcels in the TO district shall be required pursuant to subsection 15.08.030.L.2.d., development standards.

3. Specifications for Site Perimeter Landscaping. In any area where site perimeter landscaping is required according to table 15.14.050-2, the planting requirements in table 15.14.050-3 shall apply. The amount of landscaping required in table 15.14.050-3 shall be measured per linear foot of property line or street frontage. Access driveways shall not be subtracted from the linear frontage in calculations of the amount of landscaping required. If there are driveways along the frontage or property line, required landscaping shall be condensed into the remaining site perimeter landscaping area.

15.14.060 Transportation, mobility, and connectivity.

E. Streets and Vehicular Circulation.

5. [Clear Vision Areas at Intersections.] On all corner lots or parcels of land on which a front setback is required, no obstruction that will obscure the view of road users shall be placed within the triangular area formed by the adjoining street right-of-way lines (property lines) and a line connecting them at points twenty-five feet from the intersection of said street right-of-way lines (property lines). Landscaping (excluding trees) and fencing shall be permitted within said triangular area provided the landscaping and fencing does not exceed three feet above the ground level of the adjacent street. Trees may be placed within said triangular area provided that limbs are trimmed to at least eight feet above the ground level of the adjacent street, so as not to significantly obstruct the view of road users approaching the intersection.

15.14.070 - Parks and open space.

A. Purpose. This section is intended to ensure that open space and natural areas throughout the city are provided, considered and protected during and after the development review process in accordance with the city of Laramie comprehensive plan, [Chapter 4](#), Parks and Recreation. Open space serves numerous purposes, including preservation of natural areas and resources, preservation of scenic views, greater resident access to open areas and recreation, public health benefits, and enhancement of the quality of new development.

B. Public Park and Open Space Dedication and Fees In-Lieu.

1. Purpose. This subsection is intended to provide

land or fees in-lieu of land for park and open space demand generated by new residential subdivisions. Particular emphasis should be placed on providing a diversity of parks that serve residents of all ages and abilities and that are accessible from a variety of locations within the community. Where no suitable land is available, based on subsection 15.14.070.B.4., characteristics of land to be dedicated, fees in-lieu of land or the equivalent monetary value may be substituted at the city's discretion, pursuant to subsection 15.14.070.B.8.

2. Applicability. Any person applying for preliminary or final plat for development of any area zoned and to be used for single-family, two-family, or multifamily residential purposes in the city shall be required to dedicate for open space a portion of land per individual unit, or pay a fee in lieu thereof pursuant to subsection 15.14.070.B.8. based on the demand for open space created by the development.

3. Amount of Land to be Dedicated. The amount of land to be dedicated shall be determined based upon a finding by the city council that the land being dedicated is reasonably related to the impacts upon the city's parks and recreation system that will be generated by the residents and users of the subject development.

b. The distribution of this land shall generally be as follows:

(i) Playlots and/or community gardens: 0.3 acres/1,000 residents

(ii) Neighborhood Parks (see Figure 15.14.070-1) and/or community gardens: 1.0 acres/1,000 residents

(iii) Community Parks (see Figure 15.14.070-2): 5.0 acres/1,000 residents

c. The city council shall have discretion to re-allocate acreage among the above categories for the benefit of the community as well as for the creation of a large community park.

d. The city council finds that pursuant to the Laramie comprehensive plan, the following

chart represents the average number of persons per unit by density category:

e. The developer shall submit with each subdivision plat for residential development information concerning the number of units. Should the developer fail to do so, the city council shall assume the highest density allowed in the residential district. Such information may be required by the department at time of filing a design review plan or a rezoning request.

f. An applicant seeking approval for a residential development application may submit an independent calculation of density and proposed parkland dedication. If approved by the city council, the independent calculation shall be used to calculate the required dedication.

4. Characteristics of Land to be Dedicated. Except as otherwise required by the city council at the time of preliminary plat approval, all dedications of land under this section shall meet the following criteria:

a. Locational Criteria. To the maximum extent feasible, where significant natural and scenic resource assets exist on a property, the subdivider, developer, or owner shall give priority to their preservation through public land dedication. In reviewing the proposed location of public land dedication areas, the department shall use all applicable plans, including the Laramie comprehensive plan - maps, and reports to determine whether significant resources exist on a proposed site that should be protected, with priority being given to the following areas (in no particular order):

(i) Flood hazard areas;

(ii) Lakes, rivers, stream/riparian corridors, and drainageways;

(iii) Wildlife habitat and migration corridors;

(iv) Tree or native plant retention areas;

(v) Ridgelines as identified in the Laramie comprehensive plan;

(vi) Conservation easements;

(vii) Trails as depicted in the Laramie comprehensive plan; and

(viii) Wetlands.

b. Number of Parcels. The dedicated park land shall form a single parcel of land, except where the city council determines that two or more parcels would be in the best interest of the public, given the type and distribution of open spaces needed to adequately serve the proposed development. In such cases, the city council may require that such parcels be connected by a dedicated strip of land at least thirty feet in width.

c. Usability. At least fifty percent of the dedicated land required by this code shall be suitable for passive, active, or recreational open space. No part of such fifty percent to be used for passive, active, or recreational open spaces shall be within any designated detention pond, flood plain or floodway of the city.

d. Location Outside of Subdivision. At the discretion of the city council, the dedicated park land may be located outside of the residential development in order to comply with the comprehensive plan, to add property to existing park land, or to combine land dedication efforts with those of other developments.

e. Access. Public access to dedicated park land shall be provided either by adjoining public street frontage or, if required by the department, by a dedicated public easement at least twenty feet wide that connects the dedicated land to a public street or right-of-way, unless the land being dedicated is a sensitive environmental area to which access should be restricted for preservation purposes. Gradients adjacent to existing and proposed streets shall allow for reasonable access to the dedicated land. Public access to greenway/greenbelt dedications only shall be at least twenty feet wide.

f. Areas Not Eligible. Lands within the following areas shall not be accepted for public park or open space dedication:

(i) Private yards;

(ii) Public or private streets or rights of way;

(iii) Open parking areas and driveways for dwellings; and

(iv) Land covered by structures not intended solely for recreational uses.

5. Public Parks and Trails. The location and size of public parks and trails within the city shall be determined by the Laramie comprehensive plan or other appropriate plan. Parks shall have a minimum area and function as described in the Laramie comprehensive plan or other applicable plan.

6. Procedure for Dedication of Land. The dedication of such land shall be reviewed and approved as part of the preliminary and final plat. The developer shall designate on the preliminary and final plat the area or areas of land to be dedicated pursuant to this section. The director of parks and recreation shall be required, by his or her signature, to accept any lands for park or recreation use. The director of parks and recreation may refer the dedication to the city council.

7. Submission of Deed and Survey. Unless otherwise stipulated in a subdivision or development agreement, the conveyance of dedicated land to the city shall be by warranty deed, and the title shall be free and clear of all liens and encumbrances, including real property taxes prorated to the time of conveyance. The owner shall provide the city with title insurance for the property. The deed shall be submitted no later than one year after the approval of the subject final plat, or by the time that fifty percent of the certificates of occupancy for that phase have been issued, whichever is earlier.

8. Payments of Fees In-lieu of Land Dedication.

a. Applicability. The city council declares that development of an area smaller than five acres for public park purposes is impractical. If a development would require, by virtue of subsection 15.14.070.B.3. above, less than five acres to be dedicated as park land, the developer shall be required to pay cash in-lieu of land in an amount determined as set out in this section. In instances where an area of greater than five acres

is required to be dedicated, the city council shall have the right to refuse dedication of land, and instead, require payment of cash in-lieu of land as provided in this section if it determines that such dedication will not have a positive impact upon the park system, will not provide the necessary opportunities for the public, is unsuitable for public use, or other such reason determined by the city council.

b. Payment into Park Dedication Fund. In instances where payment of fee is to be made in lieu of land dedication, the money in lieu of land shall be paid into a fund established by the city. The cash payment shall be in an amount set from time to time by resolution of the city council.

c. Administration of Park Dedication Fund. The park dedication fund will be administered by the city to provide a general benefit to contributing developments, provided that the establishment of all public parks shall be within the discretion of the city council. The money paid by the developer will be expended exclusively to establish park land that generally benefits the proposed development. The money shall be properly expended by the city or returned to the developer within twenty-five years of the date of final plat approval. The city shall account for all money deposited to the fund. All or part of the contribution may be expended for such purposes as acquisition of land, construction of improvements, and purchase of equipment for the relevant park.

C. Trail Linkages.

1. Trail linkages shall be incorporated into the design of all new subdivisions and multifamily and non-residential developments. Trail linkage shall be located and designed so as to provide public access, to connect residences and businesses to open space and the city's trail system, and to promote pedestrian and bicycle movement between residential areas and employment/business areas.

2. All development, at the time of platting, shall be required to demonstrate that the design of the proposed development includes open space and trail linkages pursuant to the Laramie comprehensive

plan, Turner Tract area plan, or other applicable plan.

3. Trails shall be constructed at the time of development in accordance with city standards and specifications adopted by the city engineer.

D. Private Common Open Space.

1. Purpose. Private common open space is private open land area set aside for the exclusive use and enjoyment of a development's residents, employees, or users. Goals and requirements for common open space complement this code's requirements for dedicated parks, and serve similar purposes.

2. Applicability. Private common open space set-aside is an option available to residential developers with projects that have a minimum of twenty-five dwelling units. Should a developer opt to follow these provisions, the city may award up to a fifteen-percent reduction in the required public park and open space dedication or fee in-lieu of subsection 15.14.070.B.

3. Generally. All residential development in the city containing twenty-five or more dwelling units shall have the option to set aside a minimum of twenty percent of the total land area as private common open space.

4. District Specific. This option shall not be available where the standards of the specific zone district establish a different standard for open space dedication, such as the Downtown Commercial district.

5. Standards.

a. Location Criteria. To the maximum extent feasible, where significant natural and scenic resource assets exist on a property, the subdivider, developer, or owner shall give priority to their preservation as private common open space. In reviewing the proposed location of private common open space areas, the department shall use all applicable plans, including the Laramie comprehensive plan - maps, and reports to determine whether significant resources exist on a proposed site that should be protected, with priority being given to the following

areas (which are not listed in a particular order):

- (i) Flood hazard areas;
- (ii) Lakes, rivers, and stream/riparian corridors;
- (iii) Wildlife habitat migration corridors;
- (iv) Tree or native plant preservation areas;
- (v) Trails as identified in the Laramie comprehensive plan;
- (vi) Ridgelines as identified in the Laramie comprehensive plan
- (vii) Wetlands; and
- (viii) Private on-site stormwater detention facilities where the design has been approved by the department.

b. Areas Not Credited. Lands within the following areas shall not be counted towards private common open space set-aside areas:

- (i) Private yards;
- (ii) Public or private streets or rights of way;
- (iii) Open parking areas and driveways for dwellings; and
- (iv) Land covered by structures not intended solely for recreational uses.

6. Use of Common Open Space Areas. Private common open space areas shall not be disturbed, developed, or improved with any structures or buildings, except for the limited purposes allowed below:

- a. Facilities for active recreation (equipment for such uses shall be indicated by type and location on the site and/or subdivision landscape/amenity plan provided by the developer);
- b. Common open space areas may include passive recreational and educational purposes approved by the city, including but not limited to walking, biking, picnicking, fishing, preservation of natural areas and scenic resources, parks, environmental education, and wildlife habitat protection; and
- c. Clearing of underbrush and debris and the

provision of walks, fountains, fences, restrooms and similar features shall be allowed.

7. Design Criteria. Land set aside for private common open space shall meet the following design criteria, as relevant:

- a. Common open space areas shall be located so as to be readily accessible and useable by residents in various positions of the development, unless the lands are sensitive natural resources and access should be restricted. A portion of the open space should provide focal points for the neighborhood.
- b. The lands shall be compact and contiguous unless the land shall be used as a continuation of an existing trail, or specific topographic features require a different configuration. An example of such topographic features would be the provision of a trail or private open area along a riparian corridor.
- c. Where private common open space areas, trails, parks, or other public spaces exist adjacent to the tract to be subdivided or developed, the private common open space shall, to the maximum extent feasible, be located to adjoin, extend, and enlarge the presently existing trail, park, or other open area land.

8. Ownership. All private common open space areas shall be owned jointly or in common by the owners of property within the development.

9. No Fee-In-Lieu. The payment of fees-in-lieu of the set-aside of land for private common open space uses shall be prohibited.

10. Private Open Space Maintenance.

- a. The owner of the private open space land shall be responsible for maintenance.
- b. For the purposes of this subsection, "maintenance" shall include control of noxious weeds, reseeding as needed to prevent erosion, restriction of use as necessary to allow revegetation, irrigation when appropriate, and the establishment and enforcement of reasonable rules for the protection of the open space.

(Ord. No. 1578, § 2(att. A), 3-20-2010)

15.14.170 Tree protection.

A. Purpose. The purpose of this section is to protect the existing tree canopy as well as protect future tree canopies of the city when development or redevelopment occurs. The standards in this subsection are intended to regulate the removal of trees on lots within the city. It is not the intent of this subsection to unduly restrict desirable development and redevelopment that would otherwise be possible without these standards.

15.28.030 - Definitions.

A. Terms. The following terms have the meanings defined as follows:

213. "Lot" means the area enclosed within the boundary of a lot.

215. "Lot area" means the area enclosed within the boundary of a lot. The flagpole or stem portion of a flag lot shall not be considered part of the lot area. Lot area shall be determined exclusive of land that is used for public or private streets, highways, alleys, roads and rights-of-way. (Ord. 1322 § 2 (part), 2000; Ord. 194 § 12.2(18), 1964).

B. Applicability. The standards in this section shall be applied during review of any development or building permit applications on lots within the city of Laramie; provided, however, that development located in rear yards of lots with existing attached or detached single family dwellings shall be exempt from the provisions of this section. Emergency replacement or repair of existing water or wastewater lines necessary to provide continued service shall be exempt from this section.

C. Standards.

1. Preservation of Significant Trees. Significant trees shall be preserved to the maximum extent practicable. For the purposes of this standard, the caliper of a "significant" tree shall be at least twenty-four inches DBH for a deciduous tree and eighteen inches DBH for evergreens.

a. Significant Tree Replacement.

(i) Where significant trees cannot feasibly be preserved, the total caliper inches of the tree(s) that are removed

shall be replaced by the same caliper inches of new trees. The new trees shall either be of the same or similar species, or, if identified by the department for species diversification, shall be from a list of permissible species provided by the department.

(ii) If site limitations affect the ability of the developer to replace the total caliper inches of the removed tree(s), the department may allow the developer to reduce the replacement measurement in an amount that allows for the maximum replacement of caliper inches feasible on the site. This reduction shall not exceed fifty percent of the total caliper inches removed.

b. Where the department reduces the number of trees planted in replacement of significant trees, the developer shall make a contribution to the city tree fund for the remaining caliper inches not replaced. The amount of the in-lieu fee shall be calculated as the cost to replace the remaining total caliper inches not planted with new trees of the same or similar species purchased wholesale at two-inch caliper DBH.

c. The city tree fund shall be used to maintain, replace or provide new trees within the city.

2. Enforcement. The department shall send a letter to all development applicants reminding them of the significant tree replacement requirements.

3. Maintenance. Any new trees used to replace significant trees shall be maintained according to the requirements of subsections 15.14.050.C.5. and 6. in the landscaping and screening section. For purposes of this subsection, the cited Landscaping and Screening maintenance subsection shall be deemed applicable to single-family properties.

15.14.050 - Landscaping and screening standards.

C. General Provisions for Multifamily (Four or more Dwelling Units), Commercial, Institutional and Industrial Uses.

5. Irrigation Systems for Landscaped Areas. All required landscaping and landscape areas shall include a permanently installed irrigation system unless the department determines that the planting and maintenance plan is not

dependent on a permanent system. Applicable irrigation plans shall be submitted with the design review plan as required by subsection 15.06.060.O.

6. Maintenance. The responsibility for the maintenance of landscaping shall lie with the property owner, his/her successor and/or their agents. All landscaping elements shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with these standards. All required landscaped areas shall be kept free of weeds, debris, and litter. In addition, all walls and fences shall be maintained in good condition, and when necessary, be repaired or replaced. Any required landscape material, including any tree, grass or shrubs, that dies shall be replaced by July 1 of each year. All required landscaping shall be cleared of all unplanned vegetation including weeds at least once each year prior to July 1.

4. Removal of a Dead or Dying Tree or Unsafe Tree. Nothing in this section shall be interpreted to require a property owner to keep a dead or dying tree. The status of a tree shall be determined by the department prior to removal. The city may require a property owner to remove a dead or dying tree if it is determined to be a hazard to public safety.

D. Tree Protection During Construction.

1. Owner's Responsibility. During development, the owner or developer shall be responsible for the erection of any and all barriers necessary to protect any existing or installed trees from damage during construction in accordance with the standards of this subsection.

2. Tree Protection Fencing.

a. Where Required. All significant trees and trees intended for use as credit towards the landscaping and tree-protection standards of this code shall be fenced in accordance with this subsection before grading or other land-disturbing activity begins. Fencing shall extend at least one foot in distance from the edge of the tree for each inch of diameter at BREAST Height (DBH) to a maximum of ten feet, but in no case closer than five feet to the trunk. The department shall consider existing site conditions in determining the exact location of any tree protection fencing.

b. Type of Fencing. The developer shall erect a temporary plastic mesh fence or temporary chain link fence a minimum of four feet in height at the drip line around each tree or group of trees to prevent the placement of debris or fill within the drip line of any tree.

c. Inspection. All tree protection measures shall be inspected and approved by the department prior to start of any land disturbing activities. Failure to have tree protection measures prior to the commencement of construction shall be a violation of this code.

d. When Required. The tree protection fencing shall be clearly shown on the design review plan or grading permit. No construction, grading, equipment or material storage, or any other activity shall be allowed within the fenced area except in accordance with the standards in subsection 3. below, encroachments in to root zones. Fencing shall be maintained until the land disturbance activities are complete.

3. Encroachments into Root Zones. Encroachments within the root zones of trees protected in accordance with this subsection shall occur only in rare instances. If such an encroachment is anticipated, the following preventive measures shall be employed prior to the encroachment:

a. Arborist Report. Written verification shall be prepared by an International Society of Arboriculture (ISA) certified arborist of the tree's condition before and after the encroachment, including preventive measures that shall be employed prior to, during, and after the encroachment to insure the viability of the tree.

b. Soil Compaction. Where compaction might occur due to traffic or materials through the protection area, the area shall first be mulched with a minimum four-inch layer of wood chips or a six-inch layer of pine

straw. Equipment or materials storage shall not be allowed within the tree protection zone.

c. Effluent. In no instance shall any effluent associated with construction process, including concrete mixing, pouring, or rinsing processes, drain onto lands protected by tree protection fencing or other control measures.

d. Soil Compaction. All tree protection activities during construction activities shall conform to current ANSI standards or exemptions prepared by a qualified ISA certified arborist.

(Ord. No. 1578, § 2(att. A), 3-20-2010)

15.28.030 - Definitions.

A. Terms. The following terms have the meanings defined as follows:

1. "Abutting" means having a common border with or being separated from such common border by an alley or easement, other than publicly dedicated and approved rights-of-way. (Ord. 1322 § 2 (part), 2000).

64. "Caliper" means a measurement of the size of a tree taken six inches from above ground level for trees up to and including four-inch caliper sizes and twelve inches above ground level for larger trees. (Ord. 1322 § 2 (part), 2000).

117. "Diameter at breast height" (dbh ed.) means the diameter of a tree at 4.5 feet above ground on the uphill side of the tree.

200. "Landscaping" means the finishing and adornment of unpaved yard areas with materials and treatment generally including naturally growing elements such as grasses, trees, shrubs and flowers. This treatment may also include the use of logs, rocks, fountains, water features and contouring of the

earth. (Ord. 1322 § 2 (part), 2000).

202. "Landscaping material, organic." Organic landscaping material means living vegetative materials such as trees, shrubs, vines, turf and flower beds.

318. "Shrub" means a woody plant that usually remains low and produces shoots or stems from the base and is not usually tree-like or single stemmed.

Chapter 15.24 - BUILDINGS AND CONSTRUCTION

15.24.010 - Building codes.

F. Moving Buildings.

5. Permittee's Liability. The permittee shall be liable for damage to any street, alley, or improvement, including damage to trees, landscaping, signs, utility poles and lines, traffic signals and other public or private improvements.

(Ord. No. 1578, § 2(att. A), 3-2-2010; Ord. No. 1596, § 61, 5-3-2011)

(LARAMIE MUNICIPAL CODE) - APPENDIX E - ELECTRIC UTILITY FRANCHISE

ORIGINAL ORDINANCE NO. 1662

ENROLLED ORDINANCE NO. 1449

INTRODUCED BY: Shuster

AN ORDINANCE GRANTING TO CARBON POWER & LIGHT, INC., A WYOMING RURAL ELECTRIC COOPERATIVE, ITS SUCCESSORS AND ASSIGNS, A NONEXCLUSIVE RIGHT AND FRANCHISE TO CONSTRUCT, MAINTAIN AND OPERATE ALONG, ACROSS, ABOVE AND UNDER THE PRESENT AND FUTURE STREETS, ALLEYS, PUBLIC PLACES AND WAYS OF THE CITY OF LARAMIE, WYOMING, AN ELECTRIC LIGHT AND POWER SYSTEM FOR THE PURPOSE OF SUPPLYING ELECTRICITY AND ELECTRIC SERVICE TO THE CITY OF LARAMIE, THE INHABITANTS THEREOF, AND OTHERS; SUBJECT TO THE TERMS AND CONDITIONS CONTAINED IN THIS ORDINANCE.

BE IT ORDAINED BY THE GOVERNING BODY OF THE

CITY OF LARAMIE:

Section 4. Grantee shall have the right and privilege at its sole cost, risk and expense of trimming all trees which overhang the streets in such a manner and to such an extent as will prevent the branches or limbs or other parts of the trees from touching or interfering with its facilities. No trees shall be trimmed or cut back farther than may be necessary to prevent interference and to allow the proper operation and maintenance of Grantee's facilities. In establishing safe clearances from trees, Grantee shall adhere to appropriate electric utility standards.

Grantee's facilities. In establishing safe clearances from trees, Grantee shall adhere to nationally published clearance standards.

(LARAMIE MUNICIPAL CODE) - APPENDIX C - LIGHT AND POWER FRANCHISE

ORIGINAL ORDINANCE NO. 1582

ENROLLED ORDINANCE NO. 1376

INTRODUCED BY: McCracken

AN ORDINANCE GRANTING TO PACIFICORP, AN OREGON CORPORATION, ITS SUCCESSORS AND ASSIGNS, A NONEXCLUSIVE RIGHT AND FRANCHISE TO CONSTRUCT, MAINTAIN AND OPERATE ALONG, ACROSS, ABOVE AND UNDER THE PRESENT AND FUTURE STREETS, ALLEYS, PUBLIC PLACES AND WAYS OF THE CITY OF LARAMIE, WYOMING, AN ELECTRIC LIGHT AND POWER SYSTEM FOR THE PURPOSE OF SUPPLYING ELECTRICITY AND ELECTRIC SERVICE TO THE CITY OF LARAMIE, THE INHABITANTS THEREOF, AND OTHERS; SUBJECT TO THE TERMS AND CONDITIONS CONTAINED IN THIS ORDINANCE; AND REPEALING ENROLLED ORDINANCE NO. 498 WHICH WAS PASSED AND APPROVED SEPTEMBER 7, 1976.

BE IT ORDAINED BY THE GOVERNING BODY OF THE CITY OF LARAMIE:

Section 4. Grantee shall have the right and privilege at its sole cost, risk and expense of trimming all trees which overhang the streets in such a manner and to such an extent as will prevent the branches or limbs or other parts of the trees from touching or interfering with its facilities. No trees shall be trimmed or cut back farther than may be necessary to prevent interference and to allow the proper operation and maintenance of

Appendix B

Community Tree Assessment

Office of State Lands and
Investments

Wyoming State Forestry



October 2007

Community Tree Assessment

Laramie, Wyoming



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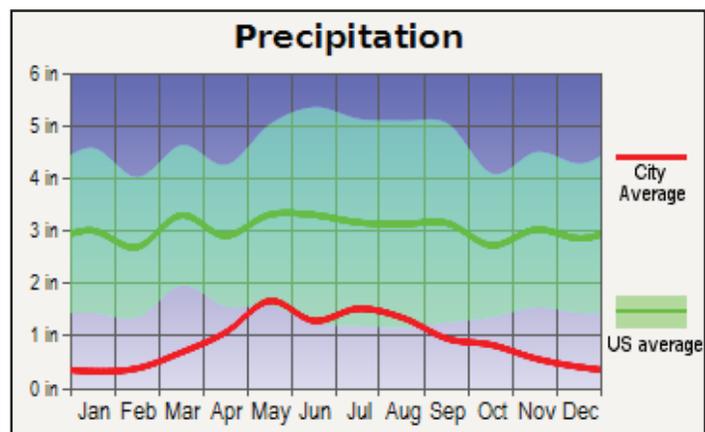
Introduction

Covering an area of approximately 11.1 square miles; Laramie, Wyoming is located in Albany County on a high plain between two mountain ranges: the Laramie Range to the east and to the west the Snowy Range. Laramie's elevation is approximately 7,165 feet above sea level. As a result of the high elevation, winters are long and summers are relatively cool with an average high and low temperature of 80° F and 37° F. Laramie receives only ten to fifteen inches of precipitation annually, placing it in the arid soil moisture regime. The short growing season, cool temperatures, reduced precipitation, and frequent intense wind result in a challenging environment to grow healthy urban trees.

Benefits of Trees

Since the settlement of Laramie in 1868, the residents have recognized the benefits of planting trees in an urban environment. From the beautiful fall colors they produce to the protection they provide from harsh winter winds, trees are not often taken for granted. With proper tree species selection, placement and maintenance the trees in Laramie can:

- **Improve Air Quality** – Trees improve air quality by lowering air temperatures, absorbing gases, and by releasing oxygen into the atmosphere.
- **Reduce Stormwater Runoff and Erosion** – Tree leaves intercept rainfall and filter the amount that reaches the ground. Some of the water is absorbed, some is evaporated, and the rest falls to the ground. Tree roots also help to hold the soil in place.
- **Conserve Energy** – Trees placed on the sunny side of a house can reduce air conditioning costs by up to 30 percent. Conifers placed in the windward side of a home can help to block the harsh winter winds.
- **Trees Boost Local Economy** – Studies have shown that planting trees makes good financial sense. On average, for every dollar spent on planting and maintaining trees in Wyoming, the town will see approximately two dollars in returns by encouraging economic development and tourism. In addition, trees increase real estate value by up to 15%.
- **Increased Wildlife Habitat** – Tree canopies are homes to a variety of types of wildlife such as birds and small animals.
- **Trees Reduce Stress** – Trees not only improve our physical health by cleaning the air and moderating temperatures, but they also contribute to our mental well being as well. Trees provide a sense of calm.



Average monthly precipitation for Laramie compared to the U.S. average.

Summary of Past Conditions

It was through the recognition of these benefits that lead the City of Laramie to conduct their first tree inventory in 1993. At this time 100 percent of the public trees in the City of Laramie were inventoried by the Wyoming State Forestry Division. This inventory included street trees but for the sake of this report, the street tree data has been removed. There were sixteen different public areas included in the inventory for a total of 2,110 trees. The estimated value was \$2,238,501. At that time, spruce and cottonwood dominated the population in most parks, averaging 67 percent of all park trees. The trees were generally in fair to good condition however; problems as the result of improper pruning, planting too close together, and old age were noted. Mower damage was mentioned as the most common problem. The overall recommendation was to increase diversity and to take precautionary measures to protect the trees from mower damage.

Assessment Procedures

During the summer of 2007, trees maintained by the City of Laramie Parks and Recreation Department were inventoried and assessed by the Wyoming State Forestry Division. These areas included Greenhill cemetery, five detention ponds, three beautification areas (Spring Creek, downtown, and East Grand Avenue), thirteen parks and two recreation areas (the ice arena, recreation center,). A Trimble geographical positioning system (GPS) was used to record the location of each tree as well as the following attributes: species, placement, Dbh (diameter at breast height), height, condition, if the tree is a hazard, location or management unit, need and general comments. The objectives were to (1) establish a status of Laramie's tree resources (2) make recommendations on long-term program needs and (3) to examine and rate trees for removal. Each of these objectives will be discussed as needed in the sections that follow with all recommendations being summarized in the Recommendations section at the end of the paper. The survey is a reflection of the tree population at a given time. The condition, needs and numbers of trees is constantly changing, making it necessary to update tree information on a regular basis.



A tree recommended for priority 1 pruning due to the large dead limb over the walk.

Management Needs

For this inventory trees were classified based on seven management needs: none, mulch, water, priority one, two, or three prune, or removal. The recommendations for pruning were based on these guidelines:

- **Priority 3 Prune** – Trees that needed to be pruned for form or structure, to promote a leader, to clean up one small dead or broken limb, or to provide clearance.
- **Priority 2 Prune** – Trees that need pruned due to several small dead, broken, or diseased limbs. These are limbs that if they fall as a result of weather conditions, will not cause major property damage or risk injury to a bystander (no more than a couple of inches in diameter).

- **Priority 1 Prune** – Trees that need immediate attention were recommended for priority one prune. These are trees that have large dead or hanging limbs in the canopy that could cause injury or property damage.

Survey Results

Surveying 100% of all trees maintained by the city park and recreation department, a total of 3,504 trees were assessed with 42 different species identified. For a complete list of the public trees in Laramie by species see Appendix A. When a tree clumps into two or more trunks at or near the ground level, each trunk was counted as an individual tree. The exception to this was trees growing with multiple stems (ten or more) averaging two inches in diameter or less such as chokecherry or boxelder.

Species

The most dominant species in Laramie were spruce with 1,259 trees and cottonwood with 1,165 trees. Crab apple and chokecherry were the next two most common species with 272 and 118 trees respectively. The remaining 38 species only totaled 14 percent of the population. Twenty-nine species totaled six percent of the total population, equaling less than one percent each.

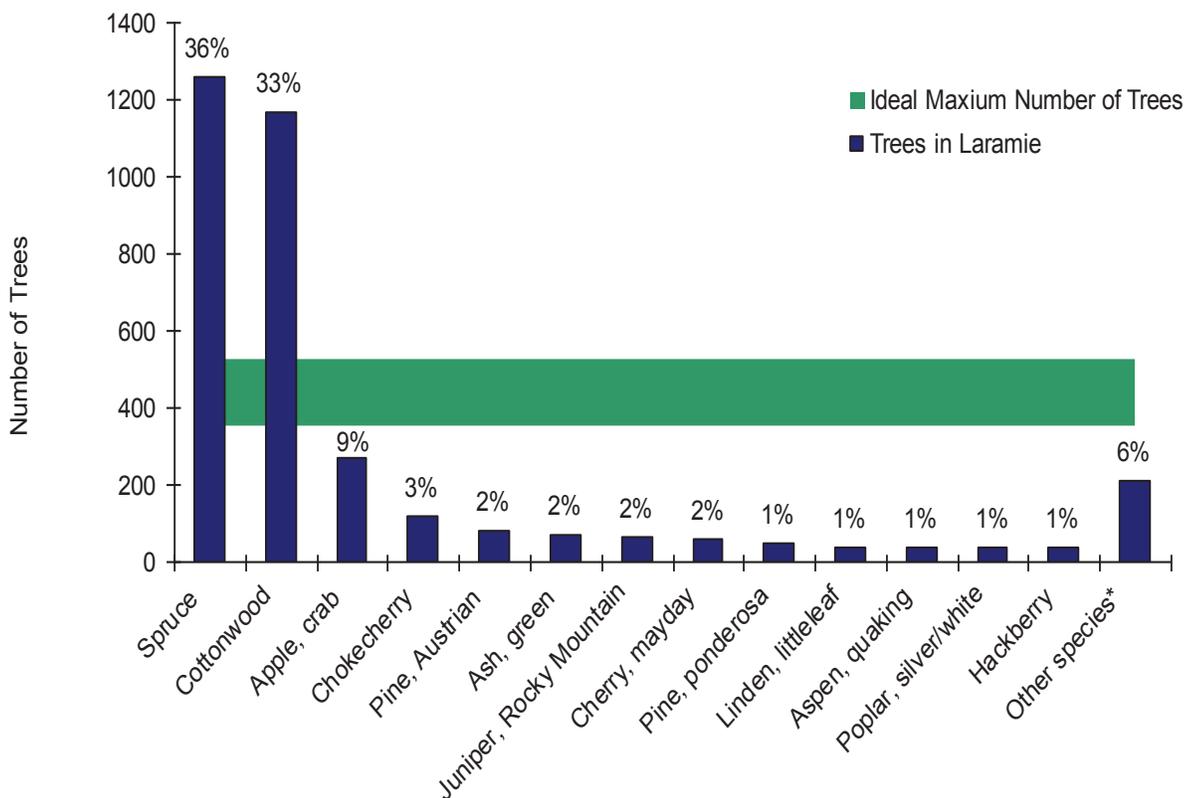


Figure 1. Number of Trees by Species in Laramie, WY compared to the ideal maximum range for a single species that should be found in a community. No species should command more than 10 to 15% of the tree population.

*Other species is the combined total of 29 different species, all of which equal less than one percent of the population.

When a single species represents a large percent of the population, there can be devastating losses as a result of insect or disease infestation. One example of this is in Evanston, WY where hundreds of cottonwood trees were lost over a period of two to three years as a result of Cytospora canker. In general, no single species should command more than 10% of the population to prevent catastrophic losses from an insect or disease outbreak. In Laramie where there is a limited number of species that will thrive, no single tree species should comprise more than 10 to 15 percent of the population. Currently with a total population of 3,504 trees, this means that there should be no more than 350 to 526 trees of a given species. This maximum ideal range is represented in Figure 1. Colorado blue spruce and cottonwood trees both comprised more than 10% of the population, at 36 and 33 percent respectively. The City of Laramie needs to refrain from planting these species for five to ten years in public areas. Future planting efforts should focus on other tree species that can thrive in Laramie’s harsh climate but do not currently represent a large percentage of the population. Green ash, sensation boxelder, Manchurian apricot, white fir, honeylocust, larch and mountain ash are just a few species that can be planted in greater number. For a list of trees that can grow in Laramie, see Appendix B. Choosing to plant hardier trees, which grow slower and may require more care when they are young, will require less water, structural maintenance and preventative care once established.

Size

Figure 2 demonstrates the size class distribution of the public trees. The average diameter of Laramie’s public trees was nine inches Dbh. The City of Laramie Parks and Recreation Department, with assistance from committed groups of individuals such as the Downtown

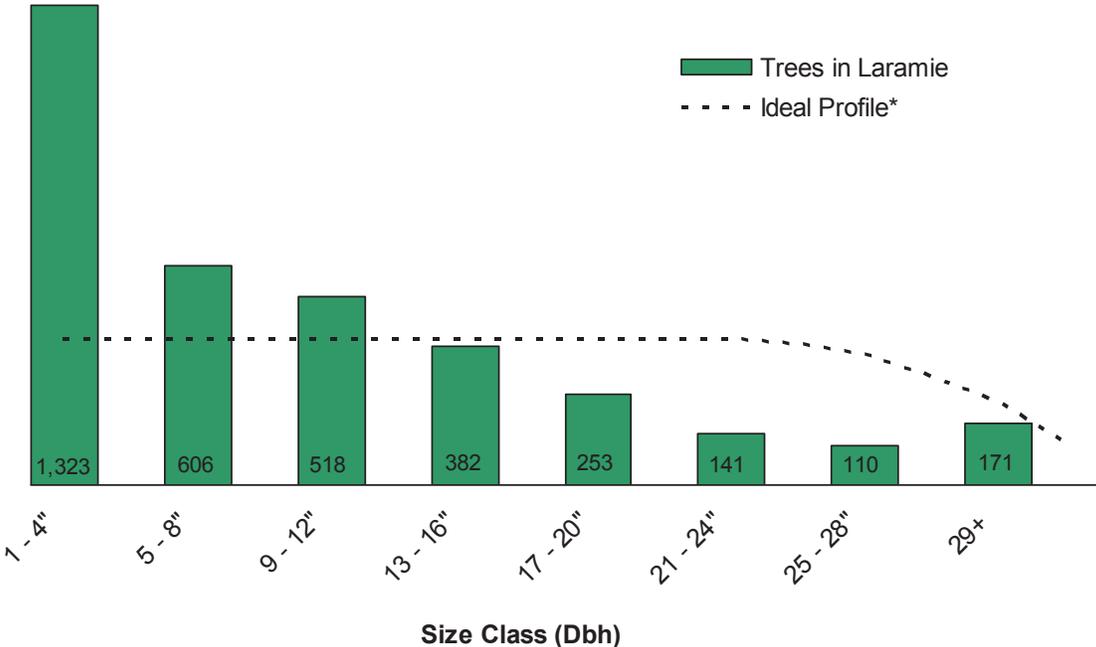


Figure 2. Size class distribution of 3,504 public trees in Laramie compared to an ideal profile. This ideal profile would total 5,790 trees.

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Beautification Committee, has done an outstanding job of planting new trees in Laramie over the last five years. This is evident with the high number of trees that fall within the 1 – 4 inch size class, 23 percent of the total population. However, the focus now needs to be on maintaining the investment that the city has made by ensuring that there are adequate resources to conduct regular pruning and maintenance. With a relatively small maintenance division under Parks and Recreation and a limited number of personnel compared to the amount of work that needs to be done, routine preventative maintenance is not a high priority. However, it is through activities such as mulching, providing the appropriate amount of water, and structural pruning, that the condition of the trees will be maintained and the city’s investment protected. While the energy that was put into the planting efforts needs to be preserved, the City needs to determine how many trees it can care for and plant trees annually based on this number. This will help the City attain the “ideal” size distribution profile, while being able to care for the trees it currently has.

There were 171 trees that were 29 inches or more in diameter. Five different species make up this mature to over-mature size class: spruce, cottonwood, silver poplar, willow, and Douglas-fir. Cottonwood, silver poplar, and willow are all fast growing weak wooded species that are prone to dieback and decay. They should be checked on a regular interval for dead limbs, stubs, cracks in the trunk, mushrooms or conks growing at the surface, or discolored bark. If decay is caught early enough, there is the potential of pruning it out and stopping the spread. Take particular care to check these trees and other mature trees after major storm and wind events to ensure that no damage has occurred.

Condition and Management Recommendation

In 2007, the majority of the trees were in good or fair condition. Of the 2,145 trees rated in good condition, 96 percent required no maintenance or needed only the routine maintenance mentioned above: mulching, water, or priority 3 prune. Although there were fewer trees rated in fair condition, 1,061 total; a higher percentage of these trees need priority 1 and 2 pruning.

Only a small percent of the public trees in Laramie, WY were rated in poor condition. Greenhill Cemetery (34 trees), Washington Park (29 trees), and Kiwanis Park (23 trees) had the highest number of trees rated in poor condition. However, two of the smallest parks, Kiowa and Harbon Park, had the highest percentage of trees in poor condition.

With consideration to all condition classes, the most common recommendation was priority three pruning. As already mentioned, the number of trees the city maintains compared to the work load the Parks and Recreation Department faces, pruning trees in good to fair condition are not a priority. However, establishing a routine pruning program can greatly benefit the community forest by developing trees with a strong structure and desirable form. One of the most important components of this program is training. This type of pruning focuses on removing dead, dying, diseased,

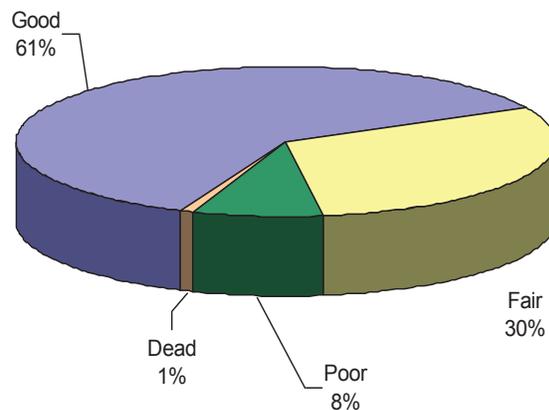


Figure 3. Condition of Trees in Laramie, WY.

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interfering, conflicting, and weak branches with the goal of directing future branch growth and shaping the tree to develop a strong structural form. This type of pruning is essential for trees less than twenty feet tall with all trees receiving their first training three years after planting. This type of pruning does require a commitment of time and resources in order to take a proactive approach as opposed to being reactive. There are many reasons for pruning a young tree. First this type of pruning can be done on the ground, is less expensive and requires less equipment. The structural strength of the tree can be improved by removing branches that will be more prone to breakage as the tree grows and when done properly, the tree receives a smaller wound that takes less time and energy to heal. In addition, because a tree is less likely to suffer breakage, pruning can increase tree health and longevity. Finally, trees that receive the appropriate pruning measures when young will develop fewer hazards and require less future maintenance.

A total of 233 trees were recommended for removal. Almost half of these were in poor condition and not surprisingly, a large number were spruce and cottonwood trees. In many areas around Laramie, the spruce trees were planted in rows with inadequate space allowed for each tree once they reached maturity. These trees are now crowded, drought stressed, and several have been naturally “topped” during storm and high wind events. Other common problems noticed on trees in poor condition included: canker, rot, trunk damage, a high number of scale insects, and dieback. Several of these problems will be discussed in further detail under the section *Common Problems*. Trees recommended for removal provide an excellent opportunity to replant and increase species diversity.

Table 1. The number of trees and average diameter by management need for public trees in Laramie, WY (2007).

Management Need	Number of Trees	Percent of Population	Average Condition	Average Diameter
Mulch	298	8.5	Good	5
Water	718	20.5	Good	8
None	990	28.3	Good	8
Priority 1 Prune	96	2.7	Fair	30
Priority 2 Prune	221	6.3	Fair	17
Priority 3 Prune	948	27.1	Good	9
Removal	233	6.6	Poor	10

Hazard Trees

Each tree was visually inspected for large cracks, areas of decay, dead limbs, mushrooms or conks growing at the surface. When these were found, it was determined whether or not the tree should be marked as a hazard tree. For this inventory a hazard tree is defined as a tree containing a structural defect that could result in the tree or a portion of the tree falling on someone or something of value.

In 2007, there were 55 hazard trees identified on property maintained by the City of Laramie Parks and Recreation Department: 27 trees in Washington Park, 12 in Undine, six downtown, four at the Depot, two each at LaPrelle and Optimist Park, and one each at Greenhill Cemetery and LaBonte Park. Appendix C shows the hazard trees by location. Thirty-seven of the hazard trees were recommended for priority one pruning. All of them were mature to over-mature cottonwood trees with two in good condition and 27 in fair. These trees contained large dead limbs that if pruned out, could remove the hazard and prolong the life of the tree. Eight were

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considered to be in poor condition. Although the hazard can be pruned out, the City needs to determine if considering the condition and size of the tree, it is more cost effective to prune the tree or remove and replant. There were eighteen recommended for removal. These were all listed in poor condition and with the exception of three, were mature to over-mature trees.

Table 2. Hazard Trees by Species and Management Recommendation.

Species	Priority One Prune	Remove	Average Dbh
Cottonwood	37	14	32
Willow	-	2	24
Spruce	-	2	32
Total	37	18	31

It is important to note that while the personnel who conducted the inventory are trained, they are not certified arborists. Identifying a tree as a hazard can be subjective. The trees should be re-evaluated by a certified arborist before action is taken. The City of Laramie is privileged enough to have four certified arborists on staff to conduct these follow-up inspections. All hazard trees should be rated in order of priority and put on a time line established by the Parks and Recreation Department. For example, all hazard trees will be taken care of over a two year period with the highest priorities occurring in year one. Because of the difficulty involved with safely removing large trees, this job requires a certified arborist with experience. In addition to the trees identified as hazards, all of the mature to over-mature trees should be carefully inspected following all major storm events or at least on a semi-annual basis to catch defects as they occur and not after they have caused damage or cost in clean-up.

Concerns

There were several problems that were noticed frequently throughout all of the areas included in the inventory. Some of these problems were due to insects and disease while others were environmental factors. It is important to note that many of the trees are impacted by more than one of these problems and that often, they are interrelated. For example, a tree that is already stressed from drought conditions will be more susceptible to attack by an insect infestation. It is through this interaction of both the environmental stress and the biological stress, that the tree's health is seriously impacted. The best preventative measure that can be taken is to maintain adequate environmental conditions for the tree, ensuring that it has the right amount of water, is protected by mulch, and that regular corrective pruning occurs during the fall or winter months.

Insects and Disease

Some of the insects and diseases that were noticed frequently include: bacterial wetwood, cytospora canker, scale insects on conifers, oyster scale on aspen, and tent caterpillars on chokecherry trees. Fact sheets are included in Appendix D – Common Community Tree Problems Occurring in Laramie, WY.

- Many of the cottonwood and willow trees in Laramie were affected by **bacterial wetwood**. This disease affects the central core of the tree, causing a yellow-brown discoloration of the wood. Where this occurs, the wood is wetter than the surrounding area and high internal gas pressure builds that can cause foul smelling slime to ooze from the tree. This slime is toxic to the cambium and can alter the trees ability to develop

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calluses when wounded. Currently, there is no method of eliminating wetwood. However, the best prevention is to prevent stress to the tree through adequate water and protection of the roots and stem. For more information see Colorado State University Cooperative Extension Fact Sheet: Bacterial Wetwood, no. 2.910 by W.R. Jacobi (1998) in Appendix D.

- There are various species of the *Cytospora* fungus that causes **Cytospora canker**. This canker was commonly found in Laramie on cottonwood trees. The fungus causes yellow or orange-brown to black discolored areas on the bark of the trunk or branches. Other symptoms may include liquid ooze, sunken dead areas of bark, black pinhead-sized pimples, masses of spores, and reddish brown discoloration of the wood and inner bark. The fungus attacks trees in a weak or stressed condition and can lead to death. Similar to wetwood, the best defense is to prevent the tree from becoming stressed or injured. Both drought and over watering are the two most common stresses that lead to *Cytospora* infection. Wounds caused by lawn care equipment are prime targets for the fungus. Properly mulching the tree will help prevent these types of injuries and minimize drought stress. Trees that are also heavily affected by insects are predisposed to the disease. Some resistant tree species and cultivars include: ash (all cultivars), Noreaster cottonwood, Platte cottonwood, elms, hackberry, honeylocust, big and little leaf linden, pines, and most maples. For more information on preventing and removing infected areas from a tree refer to Colorado State University Cooperative Extension Fact Sheet: *Cytospora* Canker, no. 2.937 by W.R. Jacobi (1999) in Appendix D.
- Many of the conifer trees in Laramie, particularly the spruce trees, were heavily infected with scale insects. There are many species of scale insects but ***Chionaspis pinifoliae*** (pine needle scale) attacks most species of pine, spruce, and fir. Protected beneath a covering, scale insects attach to the bark or needles of the tree and feed on the sap. Although no one scale causes extensive damage, when heavily infested or stressed from other factors, scales can lead to decreased vigor, needle drop and dieback, and increased susceptibility to other insects and diseases. There are several natural enemies to pine needle scale like specific species of lady beetles and chalcid wasp. However, these natural enemies are not always successful in keeping a population under control. Other methods include horticultural oils and insecticides applied during the vulnerable crawler stage of the insect. The crawler stage is the brief period in the insect's life where it is mobile and unprotected by a covering. This occurs just after it is hatched. For more information on other types of scale insects that affect conifers and control methods see Colorado State University Cooperative Extension Fact Sheet: Scale Insects Affecting Conifers, no. 5.514 by W.S. Cranshaw (2000) in Appendix D.
- **Poplar bore** was noticed on numerous hybrid cottonwood trees such as lanceleaf cottonwood. This roundheaded borer is the larva of *Saperda calcarata*, a long horned beetle. The larva predominantly



Poplar bore damage on a cottonwood tree at the Recreation Center.

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attacks aspen trees but can also infest cottonwood, poplar, and willow trees. The females emerge from June until August to lay their eggs. They prefer trees that are open grown, in partial to full sun, and over-mature, stressed trees. They lay their eggs in small slits near the middle of the tree. Damage appears as swollen areas on trunks and larger branches. Signs of attack include exit holes where adults emerge, woodpecker activity, a varnish-like stain on the bark below the points of attack, and reddish sap running down the trunk. Although poplar bores tend not to kill larger trees, they do weaken the tree making it more susceptible to damage from wind, other insects, and diseases. If the infestation is large enough, the bores can girdle and kill a smaller tree. Because poplar bores have a long life cycle, they are difficult to control. The best practice is preventative by maintaining the trees in good condition. For other information on chemical controls of poplar bore refer to <http://coopext.colostate.edu/4dmg/Pests/popborer.htm/>.

- **Oystershell scale** is a specific type of scale insect that was noticed on many of the aspen trees in Laramie during the summer of 2007. Oystershell scale attaches to the twigs and branches of the tree and feeds on the sap. Like pine needle scale, only when the population is large enough will they kill the tree. The full-grown female scale is about 1/8th inch long, brown or gray, slightly banded, and is shaded like an oyster shell. The eggs over winter underneath the old scale covering of the mother. Because they are so well protected, oystershell scale can be difficult to control. Depending on the size of the infestation, one control method is to remove over wintering scales by scrubbing them off



An aspen tree infected with both oystershell scale and canker.

of small trees and shrubs. Like the pine needle scale, if insecticides or horticultural oils are applied during the vulnerable crawler stage, they can be affective. This usually occurs from late May until early June, but can vary greatly depending on location. The egg hatch may last a couple of weeks so regular inspections are necessary. For more information see Colorado State University Cooperative Extension Fact Sheet: Oystershell Scale, no. 5.513 by W.S. Cranshaw (2003) in Appendix D.

- Several chokecherry trees were heavily infested with **tent caterpillars**, particularly in LaPrelle and Undine Park. There are several species of caterpillars that produce very visible silken tents. Most of the caterpillars use the tents for shelter during the day, leaving at night to feed on the foliage. Although visually unappealing, they general do not cause significant injury to a tree unless the tree is already stressed from other factors. Tent caterpillars can be controlled with natural enemies, such as birds, predacious bugs, hunting wasps, parasitic wasps, and tachinid flies. With all of these natural controls, heavy infestations rarely last more then one season, but there are also microbial insecticides and contact insecticides available. More information is available on tent caterpillars in Appendix D. - Colorado State University Cooperative Extension Fact Sheet: Tent-Making Caterpillars, no. 5.583 by W.S. Cranshaw (1997).

- There was only one spruce tree located in Depot Park that was infested with spruce beetles, *Dendroctonus rufipenni*. This tree was removed just after being included in the

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inventory. Spruce beetle is noted not because it is a common problem within the town limits, but because bark beetles have infected the surrounding forests with devastating affects. There are many types of bark beetles causing this mortality throughout the Intermountain West and they are all native to the area. For numerous reasons, they have reached epidemic populations and attack not only stressed trees but also large healthy trees. These beetles are small, about the size of a grain of rice, brown and hard to see. The first sign that a spruce tree has been attacked is boring dust on the tree or around the base. If the tree is not stressed by drought, pitch tubes may appear around the entrance holes. Once the beetles have bored through the tree's protective bark, females create egg galleries in the underlying phloem tissue and deposit their eggs. The beetles and the larvae feed off of this living tissue and cut off the trees ability to transport water. Unlike other types of bark beetles, spruce beetles can have up to two life cycles and the trees often do not show the characteristic red-brown needles until one or two years after the attack has occurred. The best preventative measuring from protecting Laramie's large population of spruce trees is to ensure that the trees get adequate water. If the spruce beetle population reaches epidemic levels within the city limits, it could have a devastating effect on the community forest. There are several valuable sites that provide more information on bark beetles including:

- ◆ Wyoming State Forestry website – under Forest Health
<http://slf-web.state.wy.us/forestry/health2.aspx>
- ◆ The USFS Insect and Disease Leaflet (number 127) available on-line at
<http://www.barkbeetles.org/spruce/SBFIDL127.htm>

As already mentioned, when a community forest has a large percentage of only one or two species, there can be devastating affects from an insect or disease outbreak. Many of the problems noticed in Laramie do not typically cause tree mortality. However, Cytospora canker and spruce beetles have both been identified in Laramie and have the ability to cause tree mortality. With a starting 69 percent of the community forest being spruce and cottonwood trees, these are problems that must be taken seriously.

Environmental Factors resulting in Common Problems

Other than the common biological problems, there were a number of other factors that resulted in problems with the community trees in Laramie. Drought is one of the common environmental disorders affecting community trees, especially in a dry climate like Laramie. Water was recommended for twenty percent of the trees inventoried. Although drought can affect all species of trees; of the 718 trees in Laramie needing more water, 486 were spruce trees. There are three reasons for this high number of spruce trees. First, as already discussed spruce trees



Spruce beetle and boring dust.
http://cals.arizona.edu/extension/fh/bark_beetle.html

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comprise a large percentage of the population. Second, many of the areas included in this inventory have a sprinkler or drip system installed to make sure that the trees receive adequate water during the summer months. At some point during the fall, this system is turned off. Unlike deciduous trees that become dormant in the fall, conifers still conduct photosynthesis throughout the winter. When the sprinklers are turned off, they may not be getting sufficient water. The third reason that many of the spruce trees are in need of additional water is competition. In many areas the spruce trees were planted too close together.

Damage from drought conditions and winter drying can not be reversed. However, one way to lessen the impact is to get in the practice of watering conifer trees when the air and soil temperatures reach 45 degrees or above for a sustained period of time. Colorado State University recommends deeply watering the soil from the surface to a depth of 12 to 18 inches once a month for all trees in the summer and once every two months in the winter for conifers. Another beneficial practice is to mulch all trees.

One problem that was already briefly mentioned is that several spruce trees have been naturally topped during past storm events. This seems to have occurred in areas where the spruce trees were planted close together in rows. One theory is that in such a competitive environment, the trees have focused their resources into height growth. As a result, the trees have relatively small diameters for the height of the tree and are more easily broken as a result of heavy snow loads or high winds. One possible solution would be to remove some the crowded spruce trees to help encourage diameter growth. This would also help alleviate water competition. However,



Problems with these trees include insufficient water and broken tops during storm events

caution should be taken in choosing which trees to remove. These trees have adapted to there location and are dependant on the neighboring trees for wind protection. With this in mind, and because spruce trees are shallow rooted species, without proper consideration for wind direction, removing trees could result in other trees being blown down during the next wind event. If the Parks and Recreation Department chooses to remove some of the spruce trees, pay careful attention to the direction the high winds come from and how removing a tree will affect the surrounding spruce.

Another common problem noticed during the inventory was damage to the base of the tree by lawn care equipment. The best way to prevent this type of injury is to apply mulch around the tree. The area should extend three to six feet out from the base of the tree and be two to four inches deep after settling. Keep the mulch an inch or two from the base of the tree to prevent bark decay. While mulch can be applied at any time of the year, it is best to avoid early spring application.

Mulch was recommended for 298 trees. Although the City of Laramie Parks and Recreation Department does an excellent job of applying mulch to newly planted trees; on average the trees recommended for mulch were smaller trees ranging from one to nine inches in diameter. Mulch can also benefit trees that are already established. In fact, there are so many benefits to mulching it is hard to over emphasis the value, particularly in a dry climate. The benefits of mulch include:

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- Conserve soil moisture with a 10 to 25 percent reduction in loss from evaporation
 - Protect trunk from mowers and weed whackers
 - Impede weed growth
 - Reduce soil erosion
 - Protect roots from traffic
 - Cut down soil compaction
 - Improve soil fertility and structure
 - Moderate soil temperatures
- (www.umass.edu/urbantree/factsheets/9mulchingtrees.html;
<http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/trees-new/text/muching.html>)

Tree Value

The value of each tree was determined based on the species, Dbh, and condition. Based on the Council of Tree and Landscape Appraisers formula and the Colorado State Forest Service tree values, each species was assigned a specific value and species factor and the following equation was used to determine tree value:

$$\text{Tree Value Formula} = \text{Species Value} * (.785 * (\text{Dbh}^2)) * \text{Species Factor} * \text{Condition Factor}$$

The formula breaks the trees down into six condition classes: excellent, good, fair, poor, very poor, and dead. For the Laramie Tree inventory only four condition classes were used. As a result, when trees were rated in good condition with no management need recommended, the excellent condition class factor was used in the tree value equation (1.0). For the trees rated in good condition but included a management need, the good condition class factor was used to calculate tree value (0.8).

The trees that were included in this inventory were valued at a total of \$11,673,554. This is a valuable resource for the City of Laramie. However, with just the slightest improvements, the projected value of these trees shows a minimum five percent increase. This was determined by raising the condition value of trees in need of priority three pruning, water, or mulch rated in fair condition (0.6) to a condition value of a good tree still in need of some care (0.8); and those in poor condition (0.4) to fair condition (0.6). Table 3 shows the value of the trees by condition class and the projected value.

Table 3. Current Value of Public Trees Compared to a Projected Value

Condition Class	Current Value	Projected Value
Good	\$6,874,320	\$8,916,559
Fair	\$4,094,852	\$2,772,846
Poor	\$704,383	\$564,600
Total	\$11,673,554	\$12,254,005

As indicated by the equation, tree value is directly related to size. As a tree grows the benefits provided to the environment increase. This includes rainfall interception, absorption of greenhouse gases, carbon dioxide sequestration, and lower air temperatures during the summer. The value of these trees is a paradox. Even though the mature trees have the most value, over mature trees have the potential to cause the most damage during storm events and can be the most expensive to maintain. The Parks and Recreation Department will need to evaluate the cost of maintaining these trees versus the estimated value and projected number of years that they will remain an asset.

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Table 4 lists the top four most valuable trees in Laramie and Figure 4 shows their location in Greenhill Cemetery. This method of evaluating tree value tries to remove the subjective element of evaluating a tree and keep it purely quantitative. Although this method is appropriate for looking at overall values to guarantee that adequate monetary resources are allocated for care and maintenance; the emotional attachment by the community can not be overlooked.

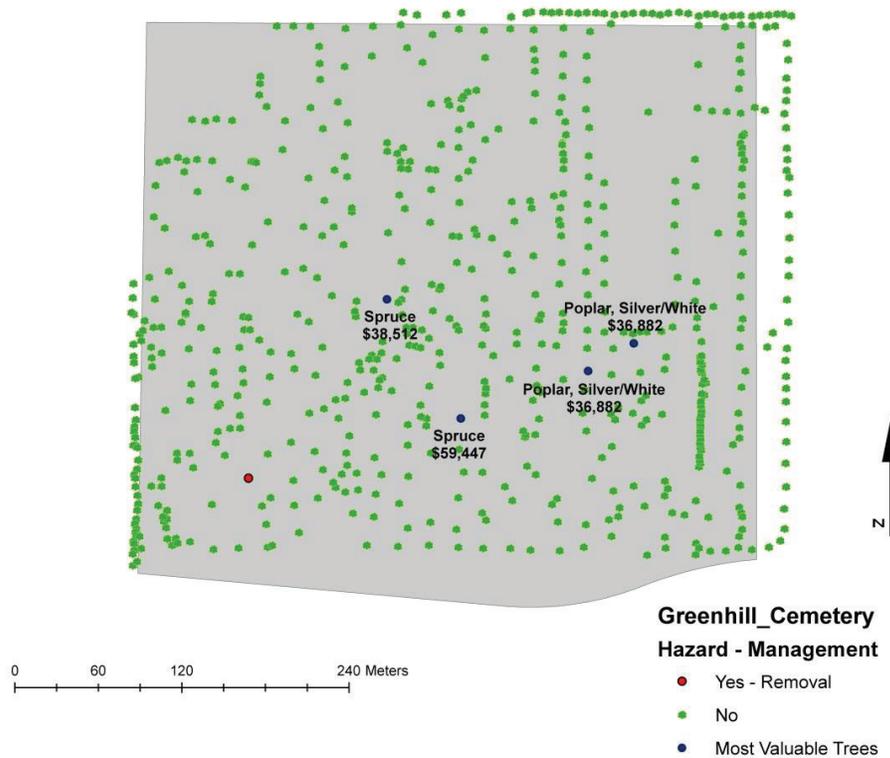


Figure 4. The Four Most Valuable* Trees in Laramie are Located in Greenhill Cemetery.

*Tree Value is based solely on species, size, and condition.

Table 4. The four most valuable trees in Laramie.

Species	Dbh	Condition	Management	Location	Value
Spruce	41	Good	None	Cemetery	\$59,447
Spruce	33	Good	None	Cemetery	\$38,512
Poplar, Silver/White	41	Good	None	Cemetery	\$36,882
Poplar, Silver/White	41	Good	None	Cemetery	\$36,882

Changes in the Community Forest

Figure 5 shows the percent change in species diversity, number of trees and average Dbh by location from the 1993 inventory to the 2007 inventory for the locations that were included in both. The Parks and Recreation Department has made great strides to increase diversity in some locations. The downtown area has the most dramatic improvement, with a 450% increase from the two species represented in 1993 to eleven species in 2007. Depot and Washington Park also

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showed a remarkable increase in diversity with additions like mountain ash, bur oak, and hawthorn. Despite this, overall species diversity has not improved. In 1993, 67 percent of all public and street trees were spruce and cottonwood. Not including street trees, in 2007 a shocking 69 percent of all public trees were spruce and cottonwood. This reinforces the recommendation that the City refrains from planting additional cottonwood and spruce trees.



Additions like bur oak to Washington Park have helped increased diversity.

The fourteen locations included in the comparison data showed a 22 percent increase in the number of trees from 1993 to 2007. This reflects the dramatic planting efforts that have occurred over the last five years. The two areas that showed the greatest increase were the downtown area and the detention ponds. As a result of the additional trees to these areas, there was a corresponding decrease in the average Dbh. In general, the parks that showed little to no change in the number of trees showed the greatest change in average Dbh. For example, LaBonte Park went from 316 trees to 314 trees but had an increase in average diameter from 5 inches to 11 inches.

Involvement and Funding

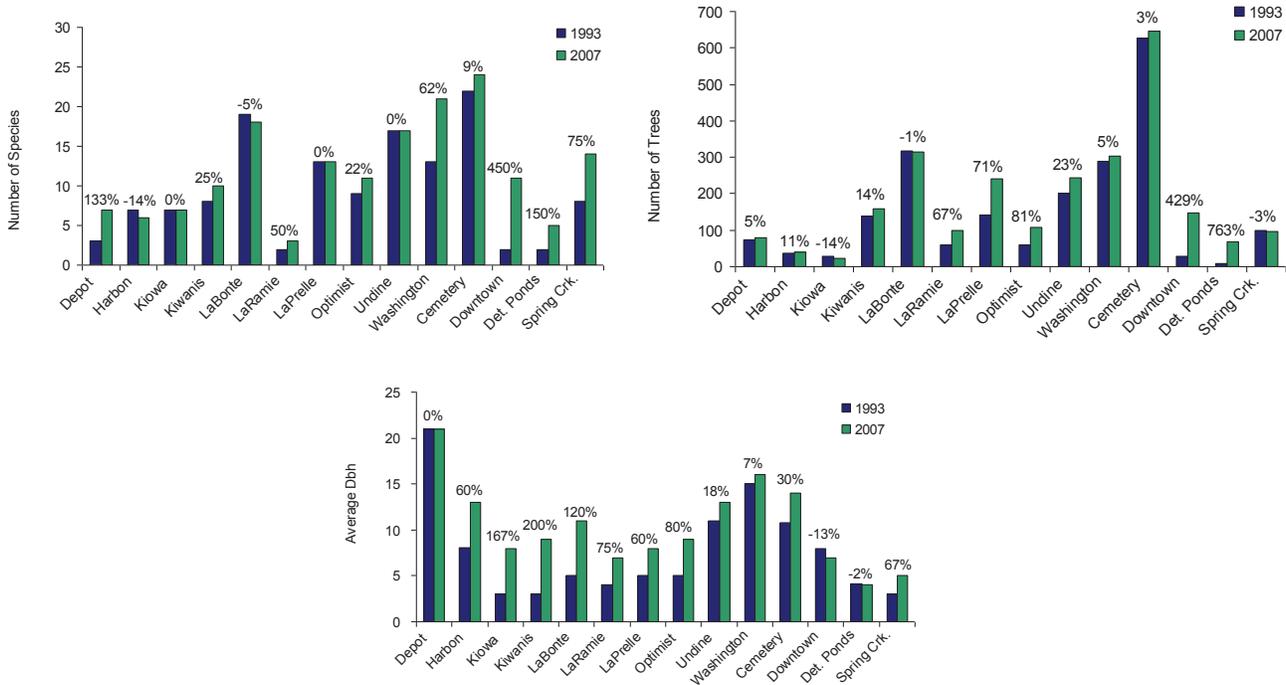


Figure 5. Percent Change by Location.

A commitment from the residents is essential to maintain a healthy, beautiful community forest in Laramie. There are many ways to build this relationship through education and opportunities for involvement. Already established is a day each fall where volunteers are requested to help plant or mulch trees. This has been successfully run and participated in for at least the last three years. These types of activities help the residents establish ownership and increase their desire to

APPENDIX B

see public trees thrive. Be creative when considering other ways to encourage community involvement such as:

- ◆ Offer free trees to volunteers who help with community tree planting projects, including instructions for proper planting and care. Or continue to offer private homeowners a bareroot tree or containerized tree at modest cost each spring. This is a great way to encourage species diversity and could be coupled with information about the trees and a tree planting class.
- ◆ School planting programs where local businesses and utility companies share the cost of purchasing trees, while the Parks and Recreation Department provide the knowledge and direction to help the students plant trees around their facility. Getting the students involved with the planting and general tree care will give them ownership. When students are involved with tree planting projects it is important that there is an adult with each group that is adequately trained on proper tree planting methods. In addition, in order to develop good stewards of the community, couple the planting with education classes about the benefits of trees in the urban environment.
- ◆ Keep the public well informed about the condition and status of the community forest through regular tree care classes, newspaper articles, door hangers in neighborhoods where tree work is going to be conducted, and information on the benefits of community trees. The City of Laramie has already shown tremendous dedication to the community forest but through education, the value that the trees provide to the public will become recognized.

The City of Laramie has been fortunate to receive grant money from the State of Wyoming, the Laramie Rivers Conservation District and other sources to conduct tree plantings. There are several other possible sources of funding that can be pursued. Some sources are listed below.

- ◆ Frito Lay Free Tree Opportunity - Last fall, Frito Lay gave 25,000 seedlings to nonprofit organizations such as schools, clubs, and communities. This year they are giving away 50,000 more. (<http://www.arborday.org/makingamericagreener/>)
- ◆ American Forests - Funding for quality tree-planting projects through the Global ReLeaf Forests ecosystem restoration program. This organization is particularly interested in partnering with private and public sector organizations and agencies to plant trees and improve the environment in projects that would otherwise not be feasible. (<http://www.americanforests.org/global%5Freleaf/grants/>)
- ◆ Lowe*s Outdoor Classroom – The grants can be used to build a new outdoor classroom or to enhance a current outdoor classroom at the school. (<http://www.lowes.com/lowes/lkn?action=pg&p=AboutLowes/outdoor/index.html>)
- ◆ Lowe's Charitable and Educational Foundation - The Lowe’s Charitable and Educational Foundation (LCEF) has a long history of contributing to grassroots community projects. (<http://www.lowes.com/lowes/lkn?action=frameSet&url=apps.bridgetree.com/funding/default.asp>)

Other funding opportunities may be found at the United States Department of Agriculture - A Guide to Grants, Fellowships, and Scholarships in International Forestry and Natural Resources website available at <http://www.fs.fed.us/people/gf/gf00.htm>.

Appendix C

*Community Tree Assessment -
Trees in the Public Right of Way*

Community Tree Assessment:

Trees within the Public Right of Way

Laramie, Wyoming

**Office of State Lands
and Investments**

**Wyoming State
Forestry Division**



July 2008

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Introduction

In the summer of 2007, the Wyoming State Forestry Division began a 100 percent inventory of all public trees within the city boundaries of Laramie, WY. The objectives of this inventory were to (1) establish a status of Laramie's tree resources (2) make recommendations on long-term program needs and (3) to examine and rate trees for removal. By the fall of 2007 all public spaces maintained by the City of Laramie Parks and Recreation Department were inventoried. These areas included Greenhill cemetery, five detention ponds, three beautification areas (Spring Creek, downtown, and East Grand Avenue), thirteen parks and two recreation areas (the ice arena, recreation center). That portion of the project was completed in October, 2007 with a report submitted to the Laramie Parks, Tree and Recreation Board and the Laramie City Council.



In addition to these areas, all trees and clearly defined planting spaces within the public right of way (PRW) were inventoried. This portion of the inventory was completed in July of 2008. The following report is a summary of the trees and planting spaces found within the PRW and an overall look at the community forest in Laramie, WY. It is important to note that a tree inventory is a reflection of the tree population at a given time. The condition, needs and numbers of trees is constantly changing, making it necessary to update tree information on a regular basis.

In addition to these areas, all trees and clearly defined planting spaces within the public right of way (PRW) were inventoried. This portion of the inventory was completed in July of 2008. The following report is a summary of the trees and planting spaces found within the PRW and an overall look at the community forest in Laramie, WY. It is important to note that a tree inventory is a reflection of the tree population at a given time. The condition, needs and numbers of trees is constantly changing, making it necessary to update tree information on a regular basis.

Summary of Past Conditions

Since the settlement of Laramie in 1868, the residents have recognized the benefits of planting trees in an urban environment. From the beautiful fall colors they produce to the protection they provide from harsh winter winds, trees are not often taken for granted. With proper tree species selection, placement and maintenance the trees in Laramie can improve air quality, reduce stormwater runoff and erosion, conserve energy, boost the local economy, increase wildlife habitat, and reduce stress.

It was through the recognition of these benefits that led the City of Laramie to conduct their first tree inventory in 1993. At this time 100 percent of the public trees in the City of Laramie were inventoried by the Wyoming State Forestry Division. There were 3,844 trees and 2,824 planting spaces included in the PRW portion of the inventory with a value of over \$5,800,000. Mature cottonwood trees dominated the population. The trees were generally in fair condition. However, poor placement was noted as a common problem. The overall recommendation was to implement a local tree ordinance and for public education.

Following the inventory, the City of Laramie did establish a local tree ordinance. This ordinance states that all trees and shrubs growing on the public right of way "shall be kept, maintained and trimmed by the owner or occupant of the adjacent property so as to not obstruct traffic, interfere with visibility or pedestrians, or cause any unsafe condition". There will be an eight foot clearance below all tree branches and stumps shall not project above the surface of the ground. All hazardous trees, shrubs, and woody

vegetation will be the responsibility of the property owner to remove. Contact the City of Laramie for a complete copy of the Comprehensive Tree Ordinance.

Assessment Procedures

During the summers of 2007 and 2008, trees within the PRW in Laramie, WY were inventoried and assessed by the Wyoming State Forestry Division. A tree was counted in the inventory if any portion of the trunk appeared to be within the boundary of the PRW. A map of the PRW was loaded into a Trimble global positioning system (GPS) and used to determine if a questionable tree was within the boundary. The Trimble GPS was also used to record the location of each tree as well as the following attributes: species, placement, Dbh (diameter at breast height), height, condition, if the tree was a hazard, location or management unit, need and general comments. When a tree clumped into two or more trunks at or near the ground level, each trunk was counted as an individual tree. The exception to this was trees growing with multiple stems (ten or more) averaging two inches in diameter or less such as chokecherry or boxelder.

For this inventory trees were classified based on seven management needs: none, mulch, water, priority one, two, or three prune, or removal. The recommendations for pruning were based on these guidelines:

- **Priority 3 Prune** – Trees that needed to be pruned for form or structure, to promote a leader, to clean up one small dead or broken limb, or to provide clearance.
- **Priority 2 Prune** – Trees that need pruned due to several small dead, broken, or diseased limbs. These are limbs that if they fall as a result of weather conditions, will not cause major property damage or risk injury to a bystander (no more than a couple of inches in diameter).
- **Priority 1 Prune** – Trees that need immediate attention were recommended for priority one prune. These are trees that have large dead or hanging limbs in the canopy and could cause injury or property damage.

In addition to trees in the PRW, planting spaces were also recorded for neighborhoods designed with planting strips. These are the areas in town with a strip of grass between the sidewalk and street. In some of these areas, tree size (small, medium, or large) was recommended based on the largest tree that could adequately fit in that location. Recommended trees by size class are listed in Appendix B. Ultimately, the appropriate tree for a given location is based on the surroundings, planting density, growth characteristic of the selected tree, and city clearance regulations.

Survey Results

Surveying 100% of all trees within the public right of way, a total of 5,205 trees were assessed with 51 different species identified. See Appendix A for a complete list of the PRW trees by species.

Species

The most dominant species found within the public right of way was cottonwood with 1,932 trees (see Appendix B). Quaking aspen was the next most common species with 726 trees. The reason for the relatively high number of aspen trees was that they were often planted or allowed to root sucker in clumps with ten or more trees growing in a crowded location. The other common species included: crab apple (483 trees), chokecherry (366), and spruce (241). Thirty-eight species totaled nine percent of the total population, equaling less than one percent each.

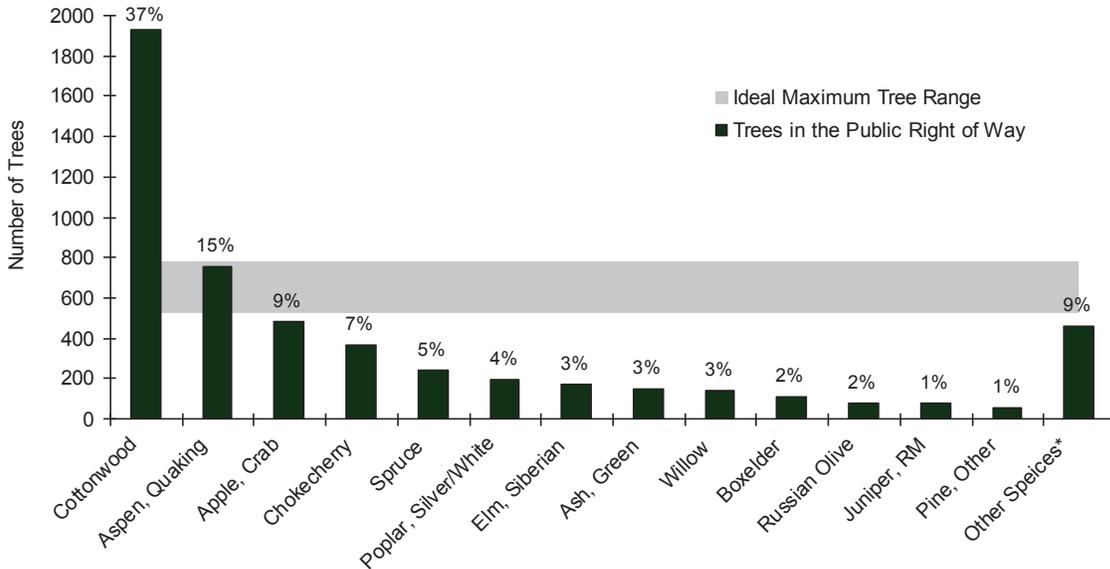


Figure 1. Number of trees within the public right of way by species compared to the ideal maximum range for a single species that should be found in a community. No species should command more than 10 to 15% of the tree population.
 *Other species is the combined total of 38 different species, all of which equal less than one percent of the population.



The seedpods of a honeylocust tree.

In both the city maintained areas and the public right of ways, there was a high percentage of cottonwood trees present. In a location such as Laramie, no single species should command more than 10% to 15% of the population to prevent catastrophic losses from an insect or disease outbreak. Currently with a total population of 5,205 trees, this means that there should be no more than 520 to 781 trees of a given species within the PRW. This maximum ideal range is represented in Figure 1.

Surprisingly, there was greater diversity in the PRW trees than the trees in the city maintained areas. Not only was there a higher number of different species represented but also better distribution of species across the population. Some of the tree species more commonly found in the PRW included apple, quaking aspen, birch, boxelder, honeylocust, silver maple, mountain ash, plum, silver maple, poplar, and walnut.

Size

The average diameter of the trees in the PRW was 13 inches diameter at breast height (Dbh), or 4.5 feet above ground. A large number of trees fell within the 1 to 4 inch size class, 1,945 trees. The majority were quaking aspen, crab apple, and chokecherry. As already mentioned the quaking aspen tended to be planted in groups. This high density planting impedes diameter growth.

Figure 2 demonstrates the size class distribution of trees in the PRW compared to those maintained by the city. The size class distribution of both of these populations was relatively similar up to 21 inches in diameter. The Parks and Recreation Department has done an excellent job of managing mature to over-mature trees, removing them when needed. In contrast, with the trees in the PRW there was a higher percentage of mature to over-mature trees (see Table 1). Figure 2 also shows what an “ideal” size class distribution should look like for a community forest. There should be a relatively equal distribution of trees in all size classes, gradually decreasing in the mature to over-mature size class.

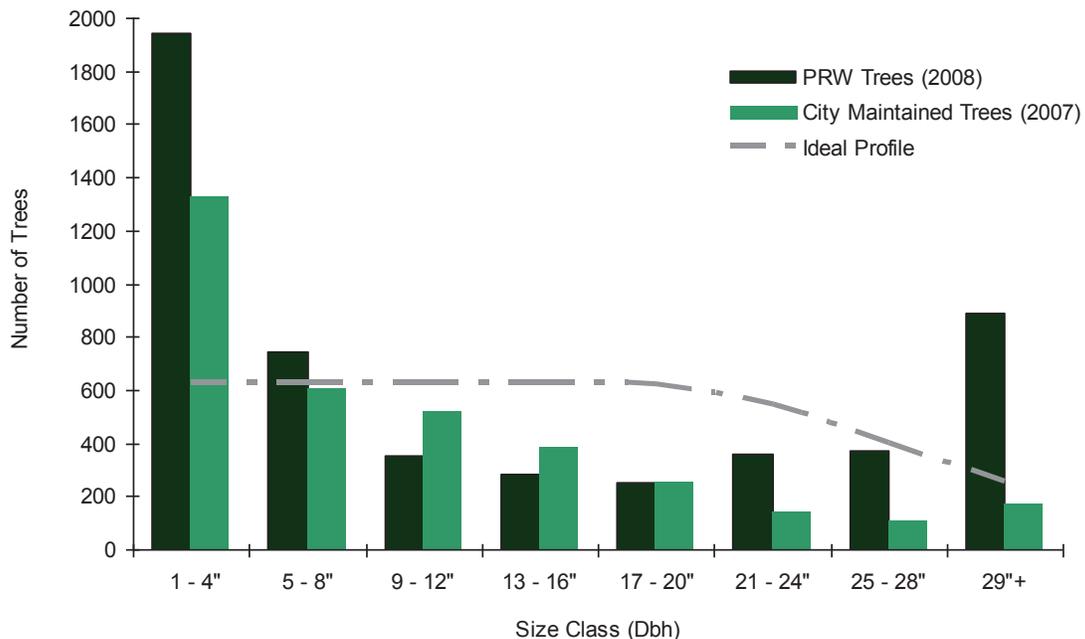


Figure 2. Size class distribution of 5,205 trees within the public right of way and 3,504 trees maintained by the City of Laramie, WY compared to an ideal profile.

There were 889 trees that were 29 inches or more in diameter. Four different species make up this mature to over-mature size class: cottonwood (711 trees), silver poplar (75 trees), willow (74 trees) and Siberian elm (12 trees). These species are all fast growing weak wooded species that are prone to dieback and decay. They should be checked on a regular interval for dead limbs, stubs, cracks in the trunk, mushrooms or conks growing at the surface, or discolored bark. If decay is caught early enough, there is the potential of pruning it out and stopping the spread. Take particular care to check these trees and other mature trees after major storm and wind events to ensure that no damage has occurred.

Table 1. Size Class Distribution of 5,205 Public Right of Way Trees Compared to 3,504 City Maintained Trees.

Size Class	Percentage of the PRW Tree Population	Percentage of the City Tree Population
1 - 4"	37%	38%
5 - 8"	14%	17%
9 - 12"	7%	15%
13 - 16"	5%	11%
17 - 20"	5%	7%
21 - 24"	7%	4%
25 - 28"	7%	3%
29"+	17%	5%
Total	100%	100%

Condition and Management Recommendation

In 2008, eighty-four percent of the trees in the public right of way were in good or fair condition. The majority of the trees in good and fair condition required no or routine maintenance. However, as a result of improper placement there were a larger percentage of trees in good to fair condition recommended for removal compared to those found in the areas maintained by the city. This same problem was noted in the original 1993 tree inventory.

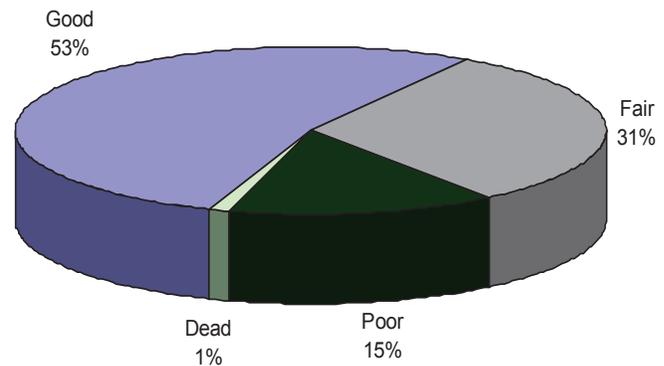


Figure 3. Condition of Trees within the Public Right of Way.

Fifteen percent of the trees (768) were in poor condition. For 407 of these trees, too much pruning would be required to eliminate the hazard. Consequently, removal was recommended. This damage tended to be numerous large dead limbs, trunk damage, or decay.

With consideration to all condition classes, the most common recommendation was priority three pruning. Educating the residents about the benefits and methods of proper pruning will help to establish a healthy community forest. More information on pruning can be found at Colorado State Forest Service: (<http://csfs.colostate.edu/allabouttrees.htm#prune>).

A total of 735 trees were recommended for removal. More than half of these were in poor condition and not surprisingly a large number were cottonwood trees. These trees varied greatly in Dbh from 3 inches up to 41". The other species that was most commonly recommended for removal was quaking aspen. Common problems with both the cottonwood and aspen trees included improper placement, canker, rot, and die back. Trees recommended for removal provide an excellent opportunity to replant and increase species diversity.

Table 2. The number of trees and average diameter by management need for PRW trees in Laramie, WY (2008).

Management Need	Number of Trees	Percent of Population	Average Condition	Average Diameter
Mulch	272	5.2	Good	2
Water	288	5.5	Fair	6
None	1,329	25.5	Good	8
Priority 1 Prune	517	9.9	Fair	27
Priority 2 Prune	556	10.7	Fair	25
Priority 3 Prune	1,508	29.0	Good	11
Removal	735	14.1	Poor	13

Hazard Trees

Each tree was visually inspected for large cracks, areas of decay, dead limbs, mushrooms or conks growing at the surface. When these were found, it was determined whether or not the tree should be marked as a hazard tree. For this inventory a hazard tree is defined as a tree containing a structural defect that could result in the tree or a portion of the tree falling on someone or something of value.

There were 434 hazard trees identified within the public right of ways. Appendix B shows the hazard trees by location. The majority of hazard trees were mature to over-mature cottonwood trees. For over half of the hazard trees, pruning could eliminate the hazard and prolong the life of the tree. Although the recommended maintenance for all hazard trees should be a high priority, those located over busy streets need immediate action. Where hazard trees exist the homeowner should be notified including information about the City Tree Ordinance, the resident's responsibility, a deadline for eliminating the hazard, and appeal action that can be taken.



Large cracks that run up the tree significantly weakened the structure.

Table 3. Hazard trees by species and management recommendation.

Species	Priority One Prune	Remove	Average Dbh
Cottonwood	235	139	29
Willow	11	22	29
Poplar, Silver/White	11	2	30
Elm, Siberian	4	6	27
Boxelder	-	1	15
Ash, White	-	1	21
Ash, Green	1	-	9
Total	262	171	29

There is a significant increase in the percentage of hazard trees found in the public right of way, eight percent of the population, compared to the two percent in the city maintained areas. Education can help residents identify the dangers and know the liability of a hazard tree. In addition the residents should be aware of the importance of checking all mature to over-mature trees following major storm events.



Large dead limbs can often be pruned out to remove the hazard.



Concerns

With the exception of the higher number of trees with poor placement, all other common problems and concerns with the PRW trees were similar to what was found in the city maintained areas. These problems include insect, disease, and environmental factors and were already covered in the initial report given to the City of Laramie in the fall of 2007. Below is a brief review.



Gall with exit hole from poplar twig gall fly.

Insects and Disease

Bacterial Wetwood:

Host:	Cottonwood and willow
Signs and Symptoms:	Yellow-brown discolored bark, wet oozing slime with a foul odor.
Prevention:	Adequate water, root and stem protection.
Reference:	Colorado State University Cooperative Extension Fact Sheet: Bacterial Wetwood, no. 2.910 by W.R. Jacobi (1998) in Appendix D.

Cytospora canker:

Host:	Cottonwood
Signs and Symptoms:	Yellow or orange-brown to black discolored areas on the bark of the trunk or branches, liquid ooze, sunken dead areas of bark, pinhead sized pimples, masses of spores, reddish brown discoloration of inner bark and wood.
Prevention:	Adequate water, root and stem protection, plant resistance species.
Reference:	Colorado State University Cooperative Extension Fact Sheet: Cytospora Canker, no. 2.937 by W.R. Jacobi (1999).

Scale insects:

Host:	Spruce, pine, fir, and aspen
Identification:	A small insect protected beneath a hard covering. These insects attach to the bark or needles of the tree and feed on the sap. Scales can lead to decreased vigor, needle drop, dieback, and increased susceptibility to other insects and diseases.
Prevention:	Natural enemies include lady beetles and chalcid wasps. Insecticides or horticultural oils can be applied during the vulnerable crawler stage in the late spring to early summer.
Reference:	Colorado State University Cooperative Extension Fact Sheet: Oystershell Scale, no. 5.513 by W.S. Cranshaw (2003) and Colorado State University Cooperative Extension Fact Sheet: Oystershell Scale, no. 5.513 by W.S. Cranshaw (2003).

Poplar borer:

Host:	Hybrid cottonwood, aspen, poplar, and willow
Identification:	The larva of <i>Saperda calcarata</i> , a long horned beetle. The females lay their eggs in small slits near the middle of the tree from June to August. Signs of attack include exit holes where adults emerge, woodpecker activity, a varnished-like stain, reddish sap. They prefer open grown, stressed trees.
Prevention:	The best maintenance is to maintain the trees in good condition. Chemical controls are available.
Reference:	http://coopext.colostate.edu/4dmg/Pests/popborer.htm/ .

Tent caterpillars:

Host: Chokecherry

Identification: There are several species of caterpillars that produce very visible silken tents where they congregate during the day for shelter or to feed.

Prevention: Natural enemies include birds, predacious bugs, hunting wasps, parasitic wasps, and tachinid flies. There are also microbial and contact insecticides.

Reference: Colorado State University Cooperative Extension Fact Sheet: Tent-Making Caterpillars, no. 5.583 by W.S. Cranshaw (1997).

Poplar Twiggall Fly:

Host: Aspen

Identification: Galls develop on the twigs of aspen by the feeding of the poplar twiggall fly. The galls continue to grow and swell even after the fly has emerged. This creates a permanent disfigurement but does not seem to threaten tree health.

Prevention: Problems with twiggall flies are most severe in succulent aspen. Do not over water or fertilize. Natural enemies include chickadees and other birds, as well as a parasitic wasp. There is also a systemic insecticide.

Reference: Colorado State University Cooperative Extension Fact Sheet: Poplar Twiggall Fly, no. 5.579 by W.S. Cranshaw (2005).

Bark beetles:

Host: Pine and spruce trees

Identification: These native beetles are small, about the size of a grain of rice, and brown to black. Look for boring dust on or around the tree and pitch tubes. The beetles kill the tree by creating egg galleries in the underlying phloem tissue and deposit their eggs. The beetles and the larvae feed off of the phloem and cut off the trees ability to transport water.

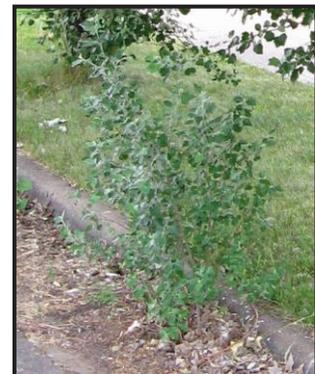
Prevention: The best maintenance is to maintain the trees in good condition. Chemical controls are available.

Reference: Wyoming State Forestry website – under Forest Health:
<http://slf-web.state.wy.us/forestry/health2.aspx>
 The USFS Insect and Disease Leaflet (number 127) available on-line at:
<http://www.barkbeetles.org/spruce/SBFIDL127.htm>

As already mentioned, when a community forest has a large percentage of one or two species, there can be devastating affects from an insect or disease outbreak.

Environmental and Placement Factors resulting in Common Problems

A community environment can be stressful for trees, particularly those growing in the PRW. As a result there were a greater number of problems for these trees compared to the trees maintained by the city. A large part of this was due to poor placement for both volunteer and planted trees. Below is a list of the observations made during the inventory. Taken one at a time, many of these problems do not typically cause tree mortality.



Volunteer aspen tree with poor placement.

Nevertheless, when a tree is stressed it is more susceptible to attack from insects and disease.

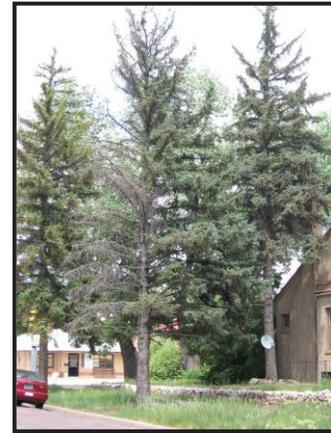
Drought: Compared to the twenty percent of the city maintained trees that required water, only five percent of the PRW trees were noticeably drought stressed. The majority of the drought stressed city trees were spruce trees and there was a significantly lower percentage of spruce trees in the public right of way, only five percent of the population. Still, many of the spruce trees did show signs of stress or decline.

Damage from drought conditions and winter drying can not be reversed. For conifer trees, one way to lessen the impact is to get in the practice of watering conifer trees when the air and soil temperatures reach 45 degrees or above for a sustained period of time. Another beneficial practice is to mulch all trees. Mulch can conserve soil moisture with a 10 to 25 percent reduction in loss from evaporation. Finally, when selecting new planting spaces and trees, residents should consider placement carefully, not only the space above ground but also the trees ability for adequate root development.

Lawn equipment damage: Another common problem noticed during the inventory was damage to the base of the tree by lawn care equipment. These wounds leave the tree susceptible to damage from insects and disease. The best way to prevent this type of injury is to apply mulch around the tree. Mulch was recommended for 272 trees and can benefit trees of all sizes. The area should extend three to six feet out from the base of the tree and be two to four inches deep after settling. Keep the mulch a few inches from the base of the tree to prevent bark decay.

Human impacts: Many of the trees were impacted by the residents for various reasons. Everything from tree houses, signs, ropes, soccer ball nets, and efforts to both encourage and discourage the presence of birds or squirrels in the yard have resulted in damage to trees. Often this damage is minimal but like many other factors has the ability to weaken a tree.

Severed roots: Cottonwoods are shallow rooted trees and raised sidewalks and severed roots were a common problem in the areas of town with large over mature trees. These large primary roots help to anchor the tree which is especially important in windy climates such as Laramie. Trees that have severed roots or a raised walk should be closely observed, particularly if they show any signs of root and trunk decay or begin to lean.



Spruce in decline.

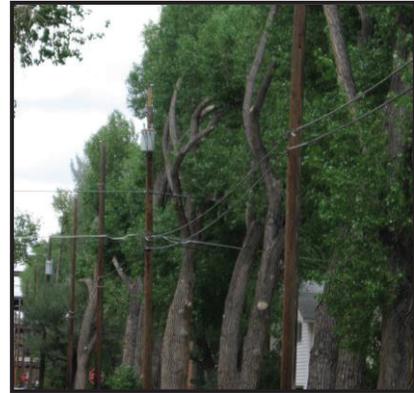


Ohio buckeye with mouse traps and needles placed on the tree to discourage squirrels.



Tree with severed roots and leaning.

Improper placement: Not every location is appropriate for every type of tree. Large trees growing under power lines were a common problem. At right is a picture of how the trees can be pruned away from the wires.



Cottonwood trees pruned away from power lines.

Another common placement problem was trees improperly sized for the planting space. Conifers are not recommended for planting in public right of ways. When planted the conifer is small and seems to fit well into the space. However, as the tree matures they can pose a number of problems. First, because they retain their branches low to the ground, they can often outgrow the lawn section of the public right of way. Pruning to provide clearance causes unnecessary damage to the tree making it more susceptible to insect and disease. Second, conifers obstruct the vision of drivers, making it difficult to see pedestrians entering the street from the other side of the tree. Finally, conifers retain their needles in the winter. As a result, when they are planted on the south side of the street they shade the street surface and icy conditions can occur.



Restricted view of intersection due to spruce tree.

Girdling roots: On many of the mature cottonwoods, girdling roots were noticed around the base of the tree. These roots can cut off or restrict the movement of water and nutrients in the tree. With time, there will be reduced growth and dieback on the affected side of the tree. Girdling roots can be removed but only by further injuring the tree. The best option is proper planting, followed by inspecting the tree at a young age to correct the problem before it becomes too serious. Again education about proper planting will help reduce the occurrence of this problem.

It is important to note that many of the trees were impacted by more than one of these problems and that often they were interrelated. It is through this interaction that the tree's health is seriously impacted. The best preventative measure that can be taken is to maintain adequate environmental conditions for the tree, ensuring that it has the right amount of water, is protected by mulch, and that regular corrective pruning occurs during the fall or winter months.

Tree Value

The value of each tree was determined based on the species, Dbh, and condition. With the Council of Tree and Landscape Appraisers formula and the Colorado State Forest Service tree values, each species was assigned a specific value and species factor and the following equation was used to determine tree value:

$$\text{Tree Value Formula} = \text{Species Value} * (.785 * (\text{Dbh}^2)) * \text{Species Factor} * \text{Condition Factor}$$

The formula breaks the trees down into six condition classes: excellent, good, fair, poor, very poor, and dead. For the Laramie Tree inventory only four condition classes were used. As a result, when trees were rated in good condition with no management need recommended, the excellent condition class factor was used in the tree value equation

(1.0). For the trees rated in good condition but needing management, the good condition class factor was used to calculate tree value (0.8).

The PRW trees were valued just over \$24,847,000. This is a valuable resource for the City of Laramie. As evident in Table 4, there were a higher number of trees in good condition but they had a lower value than the trees in fair condition. On average the trees in good condition had a lower Dbh. As indicated by the equation, tree value is directly related to size. As a tree grows the benefits provided to the environment increase. This includes rainfall interception, absorption of greenhouse gases, carbon dioxide sequestration, and lower air temperatures during the summer.

Table 4. Current Value of Public Trees.

Condition Class	Current Value	Number of Trees	Average Dbh
Good	\$9,430,442	2,769	8
Fair	\$11,399,999	1,615	19
Poor	\$4,016,857	768	20
Total	\$24,847,298	5,205	13

Planting Spaces

Planting spaces were only recorded when there was a clearly defined public right of way. There were 3,488 planting spaces in Laramie (see Appendix B). Stocking density varied greatly around Laramie from the newly developed areas of town to the “tree area” with a canopy of mature cottonwoods. There were several long planting strips in Laramie without trees; for example along 30th St. by the golf course and south of town along Skyline Drive. If these areas are owned by the City, they should be considered for beautification efforts in order to increase both stocking density and species diversity. All areas could greatly benefit from additional tree plantings and overall the population could increase by 33 percent.

Encourage the residents to plant more trees through educational material about planting the right tree in the right place, proper tree planting methods, and appropriate species for Laramie. In addition, use the Park and Recreation Arbor Day tree sale to increase species diversity by offering plants other than cottonwoods.

Changes in the Community Forest

Table 5 shows the difference in species diversity, number of trees, average Dbh, total value, and planting spaces from the 1993 inventory and the 2008 inventory. There has been a significant increase in the number of species and the number of trees represented in the PRW population. There is also a very drastic difference in the total tree value. At present there is greater knowledge on the benefits of community trees than in 1993. These additional values are incorporated into the ISA Rocky Mountain Chapter Species Factor Values formula. Finally, due to Laramie’s growth over the last 15 years, there were 664 additional planting spaces counted.

Table 5. Comparison of the PRW trees and spaces inventoried in 1993 to the 2008 inventory.

	Number of Species	Number of Trees	Ave. Dbh	Total Value	Planting Spaces
1993	34	3,844	11	\$5,876,000	2,824
2008	51	5,205	13	\$24,847,000	3,488

Laramie's Community Forest

Combined there were 8,709 community trees in Laramie, WY and 55 different species. Table 6 lists the top fourteen species which totaled 92 percent of the population. Overall the community forest was young, with an average Dbh of 11 inches and in good to fair condition. Eighty-seven percent of the hazard trees were over mature cottonwoods. Table 6 also show the grand total for the community forest as a whole, including all species. The average value of a tree in Laramie was \$4,193 and the total value was approximately \$36,520,000. This is a tremendous resource for Laramie, WY and should be preserved through the cooperative efforts of the City and the residents.

Table 6. Summary of community trees in both the PRW and areas maintained by the City of Laramie (2008).

Species	Number of Trees	Percent of Population	Average Dbh	Condition	Number of Hazards	Average Value	Total Value
Cottonwood	3,097	35.6	19	2	425	\$7,206	\$22,316,409
Spruce	1,500	17.2	10	1	2	\$4,784	\$7,176,404
Aspen, Quaking	796	9.1	3	1	-	\$305	\$242,537
Apple, Crab	755	8.7	4	1	-	\$964	\$728,075
Chokecherry	484	5.6	3	1	-	\$353	\$170,949
Poplar, Silver	231	2.7	22	2	13	\$9,390	\$2,169,080
Ash, Green	217	2.5	5	2	1	\$1,075	\$233,260
Elm, Siberian	173	2.0	10	2	10	\$2,430	\$420,459
Willow	154	1.8	26	2	35	\$9,572	\$1,474,058
Juniper, RM	138	1.6	4	1	-	\$777	\$107,287
Boxelder	130	1.5	8	2	1	\$1,396	\$181,520
Pine, Austrian	124	1.4	6	1	-	\$1,738	\$215,480
Russian Olive	103	1.2	9	2	-	\$2,206	\$227,264
Pine, Ponderosa	94	1.1	9	2	-	\$2,940	\$276,401
Grand Total	8,709	100.0	11	2	488	\$4,193	\$36,520,852

Recommendations

Recommendations specific to the city maintained areas were made in the initial report given to the City in the fall of 2007. Throughout this paper there have been recommendations specific to the PRW trees. Below is a summary of all recommendations.

- ◆ The first priority is to notify the homeowners where hazard trees exist. This notification should include information regarding the City Tree Ordinance, their responsibility, a deadline for eliminating the hazard, and appeal action that can be taken.



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- ◆ A commitment from the residents is essential to maintain a healthy, beautiful community forest in Laramie. Use creative methods to encourage proper tree care and increase education through newspaper articles, door hangers, short courses, opportunities for involvement, brochures, and school programs. Educate the public on:
 - The Laramie Tree Ordinance
 - How to check for hazard trees
 - The value of species diversity and recommended tree species
 - How to choose the right tree for the right space
 - Proper planting techniques
 - Tree pruning methods
 - Common insects, disease and environmental problems
 - Winter water and the benefits of mulch
 - ◆ Increasing species diversity is an absolute essential. The City of Laramie can help to increase diversity by doing its part to not over plant any given species.
 - ◆ There are several planting strips in Laramie without trees. These are excellent locations to increase both stocking density and species diversity.
 - ◆ Keep the database as up to date as possible and conduct another tree inventory in ten years.

Appendix A – Summary Table of Trees within the Public Right of Way

Average size indicates diameter at 4½ feet above the ground. Average condition indicates the following visual observations: Good - no visual problems, Fair - average tree needs if one or two minor problems, and Poor - tree declining in vigor, visual problems noted.

Trees within the Public Right of Way in Laramie, Wyoming (July, 2008).

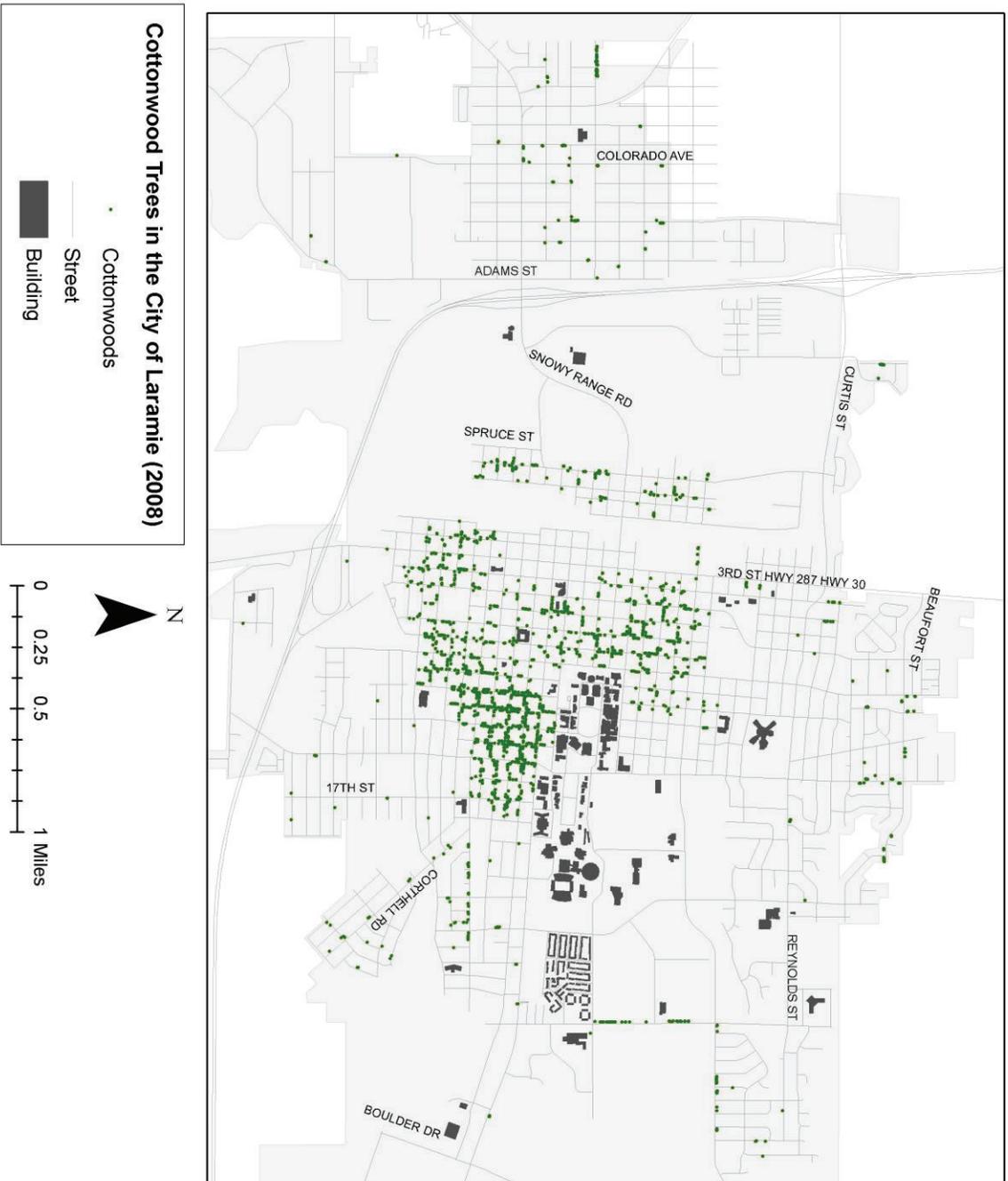
Species	Number of Trees	Percentage of Total	Ave. Dbh (in.)	Ave. height (ft.)	Ave. Condition	Ave. Value	Total Value
Cottonwood	1932	37.1	23	49	Fair	\$9,071	\$17,525,518
Aspen, Quaking	756	14.5	3	17	Good	\$303	\$229,301
Apple, Crab	483	9.2	5	14	Good	\$1,222	\$590,427
Chokecherry	366	7.0	2	12	Good	\$289	\$105,667
Spruce	241	4.6	11	35	Good	\$6,020	\$1,450,733
Poplar, Silver/White	194	3.7	23	48	Good to Fair	\$9,610	\$1,864,389
Elm, Siberian	170	3.3	9	26	Good to Fair	\$2,343	\$398,284
Ash, Green	145	2.8	6	26	Good	\$1,442	\$209,142
Willow	143	2.7	26	37	Poor	\$9,921	\$1,418,640
Boxelder	109	2.1	8	25	Good	\$1,404	\$153,067
Russian Olive	80	1.5	9	23	Good to Fair	\$2,436	\$194,892
Juniper, RM	74	1.4	3	11	Good	\$602	\$44,535
Pine, Other	52	1.0	3	12	Good to Fair	\$380	\$19,759
Honeylocust, Common	47	< 1	5	21	Good	\$1,096	\$51,529
Pine, Ponderosa	46	< 1	11	29	Good	\$4,178	\$192,185
Pine, Austrian	44	< 1	10	25	Good	\$3,799	\$167,178
Birch	31	< 1	6	25	Good	\$776	\$24,063
Plum	29	< 1	1	6	Good	\$63	\$1,823
Pine, Bristlecone	27	< 1	3	11	Good	\$429	\$11,576
Apple, Other	25	< 1	3	10	Good	\$362	\$9,052
Maple, Silver	23	< 1	6	19	Good to Fair	\$548	\$12,595
Other	22	< 1	4	24	Good	\$713	\$15,693
Hawthorn	21	< 1	2	9	Good	\$175	\$3,685
Mountain-ash	20	< 1	2	11	Good	\$155	\$3,100
Pine, Pinyon	16	< 1	5	17	Good	\$743	\$11,892
Linden, Littleleaf	13	< 1	2	13	Good	\$178	\$2,319
Pine, Limber	13	< 1	10	29	Good	\$2,981	\$38,756
Pine, Mugo	12	< 1	2	10	Good	\$138	\$1,651

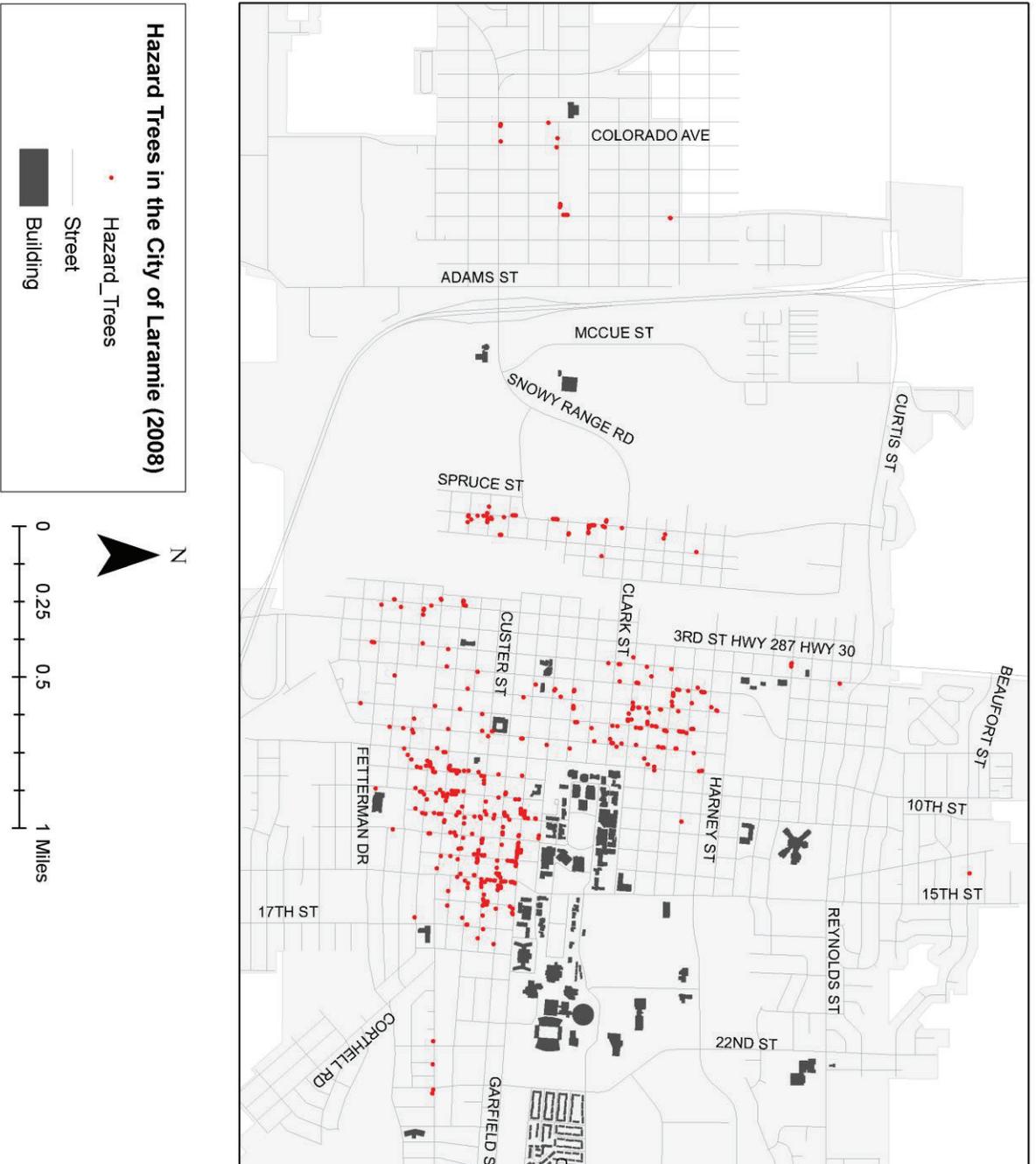
Appendix A – Summary Table of Trees within the Public Right of Way

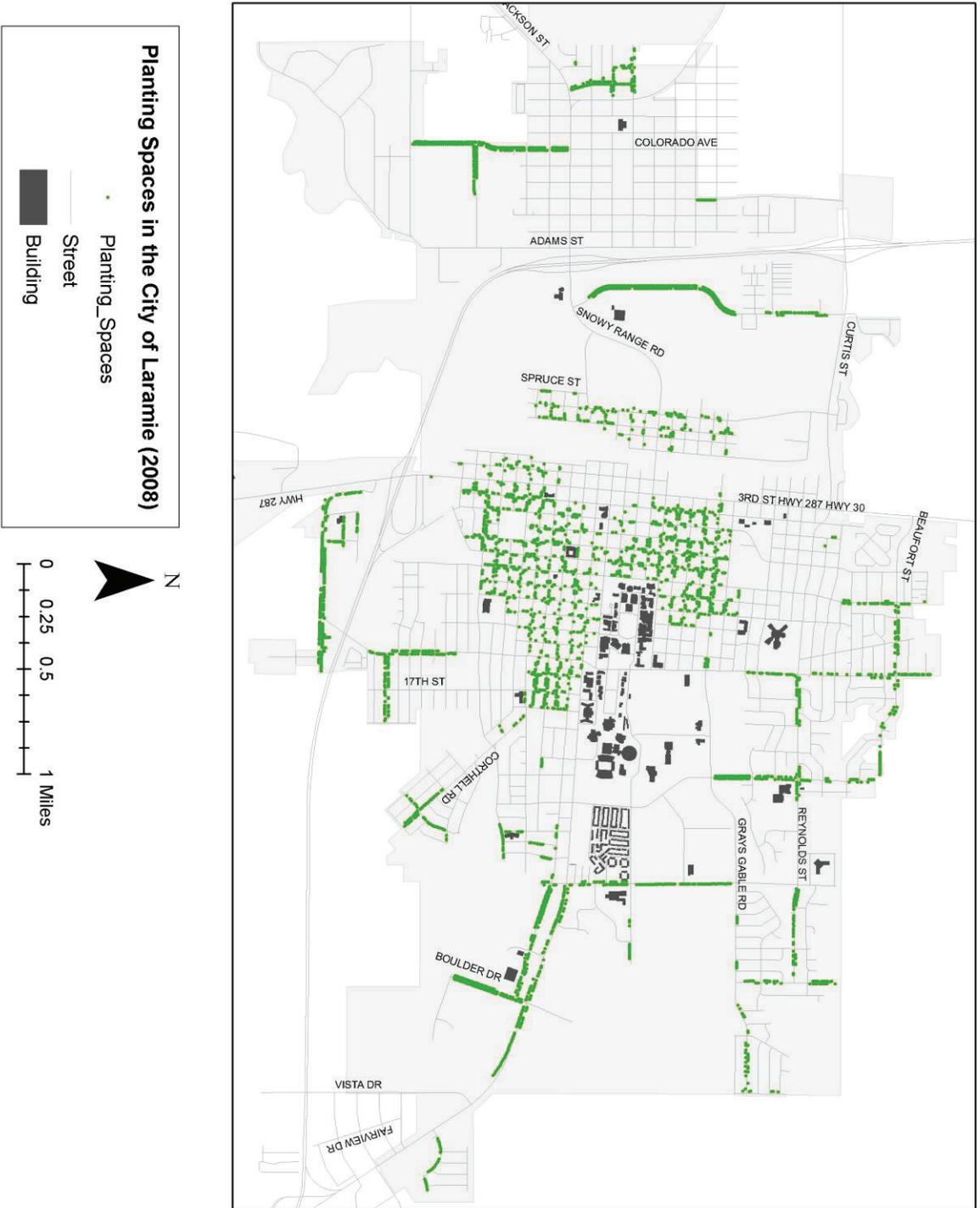
Trees within the Public Right of Way in Laramie, Wyoming (July, 2008).

Species	Number of Trees	Percentage of Total	Ave. Dbh (in.)	Ave. height (ft.)	Ave. Condition	Ave. Value	Total Value
Maple, Norway	11	< 1	3	14	Good	\$330	\$3,629
Maple, Other	8	< 1	2	9	Good to Fair	\$117	\$934
Oak, Bur	7	< 1	1	9	Good	\$35	\$245
Oak, Other	7	< 1	2	10	Good	\$110	\$771
Locust	6	< 1	5	13	Fair	\$536	\$3,215
Larch	5	< 1	3	16	Good to Fair	\$527	\$2,635
Douglas-Fir	4	< 1	4	15	Good to Fair	\$531	\$2,124
Poplar, Hybrid	3	< 1	14	27	Fair	\$7,572	\$22,717
Buckeye, Ohio	2	< 1	4	13	Fair to Poor	\$220	\$440
Elm, Other	2	< 1	14	25	Fair	\$3,581	\$7,161
Fir, Other	2	< 1	8	23	Good	\$2,490	\$4,981
Walnut, Other	2	< 1	16	30	Poor	\$4,309	\$8,618
Apricot, Manchurian	2	< 1	3	10	Good	\$436	\$872
Ash, Other	1	< 1	3	20	Good	\$244	\$244
Ash, White	1	< 1	21	50	Poor	\$5,040	\$5,040
Aspen, Big Tooth	1	< 1	37	55	Fair	\$20,956	\$20,956
Buckhorn	1	< 1	3	10	Good	\$206	\$206
Cedar	1	< 1	1	4	Good	\$29	\$29
Hackberry, Common	1	< 1	17	45	Good	\$7,840	\$7,840
Pine, Lodgepole	1	< 1	5	15	Poor	\$350	\$350
Pine, Scotch	1	< 1	7	50	Good	\$1,714	\$1,714
Poplar, Lombardy	1	< 1	9	45	Good	\$1,094	\$1,094
Spruce, Alberta	1	< 1	1	1	Good	\$33	\$33
Grand Total	5205	100	13	32	Good to Fair	\$4,774	\$24,847,298









Appendix C: Possible Trees for Laramie, WY.

Common Name	Latin Name	Description
Small Trees		
Apple, Common	<i>Malus pumila</i>	Most cultivated apples are hybrids of <i>M. pumila</i> and are distinguished primarily by their fruit characteristics.
Apricot, Manchurian	<i>Prunus armeniaca</i> <i>var. mandshurica</i>	Small fast-growing tree. Rounded, spreading form, winterhardy, and drought resistant. Attractive white flowers, golden orange fall color and edible fruit.
Cherry, Flowering	<i>Prunus spp</i>	There are many varieties of flowering cherry that produce beautiful spring colors and attract birds.
Chokecherry, Amur	<i>Prunus maackii</i>	A small to medium upright tree with white flowers. The distinctive bark provides year-round accent to any landscape.
Crabapple, Flowering	<i>Malus</i> hybrids	Ornamental crabapples are a group of small flowering trees used for landscape plantings.
Crabapple, Siberian	<i>Malus baccata</i>	Siberian crabapple is the hardiest species of the <i>Malus</i> genus and produces white flowers.
Hawthorn, Toba	<i>Crataegus x</i> <i>Mordenensis 'Toba'</i>	Broadly rounded, low-branched tree with wide-spreading. Attractive white flowers and red fruit, thorny stems.
Hawthorn, Russian	<i>Crataegus ambigua</i>	A small ornamental tree that will grow 15 to 20 feet in height. Resists cedar apple rust and has low to very low water needs.
Hawthorn, Thornless Cockspur	<i>Crataegus crus-galli</i>	An excellent small tree with a widespreading plant form. Foliage is dark green and very glossy.
Hawthorn, Downy	<i>Crataegus mollis</i>	Planted as an ornamental because of the large white flowers in the spring and crimson fruit in the fall. Fall color is yellow.
Ironwood (American Hop-hornbeam)	<i>Ostrya virginiana</i>	Also known as American Hop-hornbeam. A small, slow growing tree. Leaves resemble elm but it is in the Birch family.
Lilac, Japanese Tree	<i>Syringa reticulata</i>	A very large shrub or small tree with stiff, spreading branches. Large showy flowers. Attractive winter fruit display.
Maple, Amur	<i>Acer ginnala</i>	A tall shrub or small tree native to northern Asia. Outstanding bright reddish fall colors.
Maple, Bigtooth	<i>Acer</i> <i>grandidentatum</i>	Also known as western sugar maple. It is desirable for its beautiful red fall color and good drought tolerance.
Maple, Tatarian	<i>Acer tataricum</i>	A very tall shrub to small tree, slightly larger in stature than Amur maple. Duller foliage and yellowish fall color.
Mayday Tree	<i>Prunus padus</i>	One of the first trees to leaf out and bloom in spring. Has low to moderate water needs and is drought resistant.
Mountain-ash, Oakleaf	<i>Sorbus x hybridia</i>	Slow growing, compact and upright with grayish-green, oak-like foliage. Resistant to fireblight.
Pear, Ussurian (Harbin)	<i>Pyrus ussuriensis</i>	The hardiest of all pears, introduced from northeastern Asia. White flowers and semi-glossy foliage.
Plum, Princess Kay	<i>Prunus</i> <i>nigra 'Princess Kay'</i>	Fast growing small- to medium-sized flowering tree. Spectacular red fall color and winter form.
Plum, Stanley	<i>Prunus domestica</i> <i>'Stanley'</i>	The Stanley is by far the most popular plum variety. Late blooming, extremely cold hardy and reliable.
Serviceberry (tree form varieties)	<i>Amelanchier spp.</i>	Serviceberry species are excellent large shrubs or small trees that are well adapted to this area. Beautiful white flowers.
Medium and Large Trees		
Ash, Green	<i>Fraxinus</i> <i>pennsylvanica</i>	A popular medium sized tree that tends to have good form and be resistant to disease.
Ash, White	<i>Fraxinus americana</i>	An excellent landscape tree in sites where it is adapted. Fall color develops early and ranges from yellow to redpurple.
Aspen, Quaking	<i>Populus tremuloides</i>	Aspen trees grow fairly straight and become clear of lower limbs over time. Rapidly recolonizes disturbed sites. Does better when planted in groups or clusters.

Appendix C: Possible Trees for Laramie, WY.

Common Name	Latin Name	Description
Medium and Large Trees		
Birch, Paper	<i>Betula papyrifera</i>	Paper Birch is noted for its thin, white papery bark which is very noticeable and attractive. Nice yellow color in the fall. Needs winter watering
Birch, Western Water	<i>Betula occidentalis</i>	This smaller tree of many stems prefers wet stream beds. It has smooth reddish-brown bark with horizontal lenticles.
Boxelder, Sensation	<i>Acer negundo</i> 'Sensation'	A relatively fast-growing, short-lived, medium to tall tree of irregular form. Stronger wood, red fall color.
Buckeye, Ohio	<i>Aesculus glabra</i>	It has a dense oval to round form, branching quite low. The leaves are palmately compound with large globose fruits.
Cottonwood, Highland	<i>Populus acuminata</i> <i>x sarg.</i>	An upright oval tree with good disease resistance. Good for smaller spaces compared to other larger varieties.
Cottonwood, Lanceleaf	<i>Populus x acuminata</i>	These tree has tear drop shaped. It is native along streams and produces numerous root suckers.
Cottonwood, Narrowleaf	<i>Populus angustifolia</i>	The narrowest leaf of the cottonwoods with a somewhat narrow crown. Needs abundant water and has weak wood and/or branch structure.
Cottonwood	<i>Populus deltoides</i>	Native throughout the west in moist soils along streams and wetlands. Branches have a tendency to break during storms.
Elm, American	<i>Ulmus americana</i>	A large, fast growing tree with a broad vase shape. Leaves are medium green, turning yellow in the fall.
Elm, Hybrid	<i>Ulmus x spp.</i>	A disease resistant variety of elm that resembles American elm. It is tolerant of most urban conditions.
Elm, Japanese	<i>Ulmus davidiana</i> <i>var. japonica</i>	Has a form more similar to the American Elm than most other species. Resistant to Dutch Elm Disease.
Hackberry, Common	<i>Celtis occidentalis</i>	A good replacement tree for the American Elm because of its similar form. The bark is gray and has a warty texture.
Honeylocust, Common	<i>Gleditsia triacanthos</i>	A fast-growing medium-sized tree adapted to a wide variety of soils. Seedlings are very susceptible to winter dieback.
Horsechestnut	<i>Aesculus hippocastanum</i>	Horsechestnut is very adaptable to a wide range of favorable or harsh environmental conditions.
Linden, American (Basswood)	<i>Tilia americana</i>	An excellent landscape tree for large scale sites. Desirable for its large stature, shade and aromatic flowers.
Linden, Littleleaf	<i>Tilia cordata</i>	Desirable specimen tree in the landscape. The flowers are highly fragrant. Widely used as a street tree and for landscaping.
Maple, Autumn Blaze	<i>Acer x freemanii</i>	A hybrid between Silver and Red Maple. Combines the aesthetic qualities of Red with the tolerance of Silver.
Maple, Norway	<i>Acer platanoides</i>	An attractive landscape tree that is tolerant of urban conditions. Has a dense, round to broad oval crown.
Oak, Bur	<i>Quercus macrocarpa</i>	Bur Oak is a large, rugged tree. It is extremely adaptable to a wide range of environmental conditions.
Oak, Gambel	<i>Quercus gambellii</i>	A shrub or small tree growing 6 to 30 feet tall. The Gambel oak is used by deer and elk as browse.
Oak, Northern Red	<i>Quercus rubra</i>	A handsome large tree. Leaves are dark green and develop excellent fall colors. One of the faster growing oaks.
Walnut, Black	<i>Juglans nigra</i>	Considered the most valuable timber tree. The tree is borderline hardy and seedlings may experience some winter dieback.
Conifers		
Douglas-Fir, Rocky Mountain	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	A large forest tree native to the Rocky Mountains. Very important tree in the lumber industry.
Fir, White (Concolor)	<i>Abies concolor</i>	An attractive conifer and outstanding landscape plant. It has a formal pyramidal shape. Excellent as accent plant in landscape.

Appendix C: Possible Trees for Laramie, WY.

Common Name	Latin Name	Description
Conifers		
Juniper, Rocky Mountain	<i>Juniperus scopulorum</i>	A small to medium tree, typically with a dense pyramidal crown. Can be used effectively for screens or hedges.
Larch, European	<i>Larix decidua</i>	A large growing species with graceful pendulous branchlets. Makes an excellent landscape tree where space permits.
Pine, Austrian	<i>Pinus nigra</i>	Crown develops a picturesque spreading crown with age. Adapts to urban conditions better than most pines.
Pine, Limber	<i>Pinus flexilis</i>	A small to medium pine with an uneven crown. Often multi-stemmed. less susceptible to salt and winter burn injury than others.
Pine, Lodgepole	<i>Pinus contorta</i> var. <i>latifolia</i>	This tree is a major timber species for dimension lumber. In dense stands it forms clean, gradually tapering shafts
Pine, Mugo	<i>Pinus mugo</i>	A small to large sized shrubby evergreen which varies in form and size. Dark green color year-round and resists winter burn.
Pine, Pinyon	<i>Pinus edulis</i>	A bushy, resinous tree with a short trunk. Prefers full sun and is very drought resistant.
Pine, Ponderosa	<i>Pinus ponderosa</i>	In the landscape, Ponderosa Pine has a broad pyramidal form when young, developing a rounded crown with age.
Pine, Scotch	<i>Pinus sylvestris</i>	A medium to large tree, pyramidal when young, becoming more rounded and open with age. Orange brown peeling bark.
Spruce, Black Hills	<i>Picea glauca</i> var. <i>Densata</i>	A large tree, very dense and pyramidal when young. Not as drought tolerant as Colorado Spruce.
Spruce, Colorado (Blue)	<i>Picea pungens</i>	Colorado Spruce is a stiffly pyramidal evergreen conifer. Foliage occurs in a wide range of colors from green to silver blue.
Spruce, Englemann	<i>Picea Englemannii</i>	A major component of high-elevation forests. Mature trees have a narrow, pyramid form and short, compact branches.
Spruce, Norway	<i>Picea abies</i>	The fastest growing of the spruces. It has a pyramidal form, developing long, pendulous branchlets with age.

Appendix D

*City of Laramie Informational Bulletin #8
Recommended Trees & Shrubs*



Recommended Trees & Shrubs for Laramie, Wyoming

January 2015

PLEASE NOTE: Informational Bulletins should not be used as substitutes for actual codes and regulations. Code and regulation information can be obtained by calling the Code Admin. Division at 307-721-5271. Contact city arborist at 307-721-5338 for questions on trees and shrubs. (+) More varieties, (X) = Xeric (dryland), ht X wd = Mature Tree Height (ft.) X Crown (branches & leaves) Width (ft.)

Broadleaf – Deciduous Trees

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>		
Acer ginnala	Amur maple	(X)	15 x 15
Acer grandidentatum	Bigtooth maple		20 x 10
Acer platanoides	Norway maple		45 x 40
Acer tataricum	Tatarian maple	(X)	15 x 15
Acer negundo	Sensation boxelder		40 x 40
Alnus tenuifolia	Thinleaf alder		20 x 15
Aesculus glabra	Ohio buckeye		25 x 25
Betula occidentalis	Western river birch		25 x 25
Betula pendula	Cutleaf weeping birch		30 x 20
Celtis occidentalis	Hackberry		50 x 30
Crataegus ambigua	Russian hawthorn	(X)	15 x 15
Crataegus crus-galli inermis	Thornless cockspur hawthorn		25x25
Crataegus x mordenensis 'Toba'	Toba hawthorn		12 x 12
Fraxinus mandshurica 'Mancana'	Mancana ash	(X)	40 x 25
Fraxinus penn. lan. 'Patmore'	Patmore seedless ash (+)		50 x 35
Gleditsia triacanthos inermis	Honeylocust (+)	(X)	35 x 25
Gymnocladus dioica	Kentucky Coffeetree	(X)	50 x 30
Malus 'Adams'	Adams crabapple	(X)	22 x 20
Malus 'Centzam'	Centurian crabapple	(X)	20 x 15
Malus 'Indian Summer'	Indian Summer crab.	(X)	18 x 20
Malus 'Jarmin' (fruitless)	Marilee crabapple	(X)	20 x 10
Malus 'Radiant'	Radiant crabapple	(X)	20 x 15
Malus 'Spring Snow' (fruitless)	Spring Snow crab.	(X)	25 x 20
Malus 'Thunderchild'	Thunderchild crab.	(X)	20 x 15
Ostrya virginiana	American hophornbeam	(X)	30x25
Populus acuminata	Lanceleaf cottonwood		65 x 40
Populus alba	Silver or white poplar		65 x 45
Populus angustifolia	Narrowleaf Cottonwood		50 x 30
Populus tremuloides	Quaking aspen		35 x 20
Prunus maackii	Amur chokecherry	(X)	25 x 20
Prunus nigra 'Princess Kay'	Princess Kay plum	(X)	15 x 10
Prunus padus	Mayday tree		25 x 20
Prunus virginiana 'Can. Red'	Canada red chokecherry		25 x 20
Pyrus ussuriensis 'Mountain Frost'	Ussurian pear 'Mtn. Frost'		25 x 25
Pyrus ussuriensis 'MorDak'	Ussurian pear 'Prairie Gem'		25 x 25
Quercus macrocarpa	Bur oak	(X)	65 x 40
Quercus gambelii	Gambel's oak	(X)	20 x 20
Quercus undulata	Wavyleaf oak	(X)	15 x 15
Salix amygdaloides	Peach leaf willow		35 x 30
Sorbus x hybrida	Oakleaf mountainash		30 x 20
Syringa reticulata 'Ivory Silk'	Japanese tree lilac	(X)	25 x 20
Tilia americana	American linden (+)		50 x 25
Tilia cordata	Littleleaf linden (+)		40 x 30
Ulmus americana 'Princeton'	Princeton elm		50 x 30
U. japonica x wilsoniana 'Morton'	Accolade elm		60 x 40
Ulmus 'Morton Glossy' Triumph	Triumph elm		55 x 45
Ulmus 'Patriot'	Patriot elm		50 x 40
Ulmus 'New Horizon'	New Horizon elm		55 x 40

Conifer Trees – All evergreen except for Larch

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>		
Juniperus scopulorum	Upright juniper (+)	(X)	30 x 20
Larix decidua	European larch		60 x 30
Picea glauca	Black Hills spruce		30 x 15
Picea pungens	Colorado blue spruce (+)		60 x 25
Pinus aristata	Bristlecone pine	(X)	20 x 15
Pinus edulis	Piñon pine	(X)	15 x 15
Pinus flexilis	Limber pine	(X)	30 x 15
Pinus nigra	Austrian pine		55 x 30
Pinus ponderosa	Ponderosa pine		60 x 30

Shrub Varieties – Evergreen and Deciduous

<u>Botanic Shrub Name</u>	<u>Common Shrub Name</u>		
Arctostaphylos uva-ursi	Kinnikinnick	(X)	.5 x 6
Artemisia tridentata	Tall Western sage	(X)	4 x 4
Berberis thunbergii 'Bagatelle'	Bagatelle barberry (+)	(X)	2 x 2
Caragana aborescens	Siberian peashrub (+)	(X)	15 x 6
Cercocarpus ledifolius	Curl Leaf mtn. mahogany		6 x 6
Cercocarpus montanus	Mountain mahogany	(X)	4 x 4
Chrysothamnus nauseosus	Tall rabbitbrush	(X)	4 x 4
Cornus Sericea 'Bailey'	Redtwig dogwood		7x10
Cotoneaster acutifolius	Peking cotoneaster	(X)	6 x 6
Fallugia paradoxa	Apache plume	(X)	4 x 4
Holodiscus dumosus	Mountain/Rock spirea	(X)	4 x 4
Jamesia americana	Waxflower	(X)	3 x 4
Juniperus horizontalis	Creeping/Prostrate juniper		1 x 6
Juniperus sabina	Juniper (+)	(X)	varies
Pinus mugo	Mugo pine (+)		varies
Potentilla fruticosa	Potentilla (+)	(X)	3 x 3
Prunus besseyi	Western sandcherry	(X)	2 x 5
Prunus X cistena	Cistena plum		6 x 6
Prunus glandulosa 'Rosea'	Pink flowering almond		5 x 4
Prunus tomentosa	Nanking cherry		6 x 6
Prunus triloba	Double flowering plum		10 x 10
Prunus virginiana 'Can. Red'	Canada red chokecherry		15 x 10
Purshia tridentata	Antelope bitterbrush	(X)	5 x 5
Rhus glabra cismontana	Rocky Mountain sumac	(X)	5 x 5
Rhus trilobata	Three-leaf sumac	(X)	6 x 6
Ribes alpinum	Alpine currant	(X)	4 x 4
Ribes odoratum	Yellow flowering currant	(X)	6 x 6
Rosa foetida 'Persiana'	Persian yellow rose	(X)	6 x 5
Rosa harrisoni	Harrison yellow rose	(X)	4 x 4
Rubus deliciosus	Thimbleberry	(X)	4 x 6
Sheperdia canadaensis	Canada buffalobery	(X)	8 x 6
Spiraea bumalda 'Froebelii'	Froebel spirea		3 x 3
Spiraea thunbergii	Bridalweath spirea		3 x 3
Syringa x chinensis 'Saugeana'	Saugeana Chinese lilac		8 x 8
Syringa vulgaris	Common lilac (+)	(X)	8 x 8
Viburnum lantana	Wayfaring viburnum (+)	(X)	10 x 8
Viburnum lentago	Nannyberry	(X)	14 x 6

Recommended Street Trees for Laramie, Wyoming

Trees to be planted in the public right-of-ways (property lying between property lines on either side of streets and alleys, in the area between the public sidewalk and street), must be selected from this list. These trees are adapted to our climate and can be maintained as single-trunked trees. Trees to be planted beneath or within 20 feet of overhead lines must be selected from the Small tree list. Shrubs less than 2½ feet tall at maturity.

Large Trees (40+ Feet Tall) - Plant at least 3 feet from curb or sidewalk and ½ the tree crown width from a building.

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>	<u>Botanic Tree Name</u>	<u>Common Tree Name</u>
Acer platanoides	Norway maple	Tilia americana	American linden
Acer negundo	Sensation boxelder	Tilia cordata	Greenspire linden
Celtis occidentalis	Hackberry	Ulmus americana 'Princeton'	Princeton elm
Fraxinus mandshurica 'Mancana'	Mancana ash	U. japonica x wilsoniana 'Morton'	Accolade elm
Fraxinus pennsylvanica	Green ash	Ulmus 'Morton Glossy'	Triumph elm
Gymnocladus dioica	Kentucky coffeetree	Ulmus 'Patriot'	Patriot elm
Quercus macrocarpa	Bur oak	Ulmus 'New Horizon'	New Horizon elm

Medium Trees (Greater than 20 Ft. & less than 40 Ft. Tall) – Plant at least 2½ feet from curb or sidewalk and ½ the tree crown width from building.

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>	<u>Botanic Tree Name</u>	<u>Common Tree Name</u>
Aesculus glabra	Ohio buckeye	Populus tremuloides	Quaking aspen (single trunk)
Betula occidentalis	Western river birch	Prunus maackii	Amur chokecherry
Betula pendula	Cutleaf weeping birch	Prunus padus	Mayday tree
Crataegus crus-galli inermis	Thornless cockspur hawthorn	Prunus virginiana 'Can. Red'	Canada red chokecherry
Gleditsia triacanthos inermis	Skyline honeylocust	Pyrus ussuriensis 'Mountain Frost'	Ussurian pear 'Mtn. Frost'
Malus 'Adams'	Adams crabapple	Pyrus ussuriensis 'MorDak'	Ussurian pear 'Prairie Gem'
Malus 'Spring Snow' (fruitless)	Spring Snow crabapple	Sorbus x hybrida	Oakleaf mountainash
Ostrya virginiana	American hophornbeam	Syringa reticulata 'Ivory Silk'	Japanese tree lilac

Small Trees (up to 20 Ft. Tall) Maintain as one trunk on the Right-of-way – Plant at least 2½ feet from curb or sidewalk & ½ crown width from building.

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>	<u>Botanic Tree Name</u>	<u>Common Tree Name</u>
Acer ginnala	Amur maple	Malus 'Indian Summer'	Indian Summer crabapple
Acer grandidentatum	Bigtooth maple	Malus 'Jarmin' (fruitless)	Marilee crabapple
Acer tataricum	Tatarian maple	Malus 'Radiant'	Radiant crabapple
Alnus tenuifolia	Thinleaf alder	Malus 'Thunderchild'	Thunderchild crabapple
Crataegus ambigua	Russian hawthorn	Prunus nigra 'Princess Kay'	Princess Kay plum
Crataegus x mordenensis 'Toba'	Toba hawthorn	Quercus gambelii	Gambel's oak
Malus 'Centzam'	Centurian crabapple	Quercus undulata	Wavyleaf oak

Call 811 for underground utility locating three business days before you dig a hole to plant trees or shrubs.

Laramie Municipal Code: 15.14.060 E. 5. Provide clear visibility for motorists and pedestrians at street intersection corners. 12.16.040 Maintenance of street trees.

Species NOT Recommended as Street Trees

The following trees are not recommended as street trees because of brittle wood, susceptibility to insects and disease, poorly adapted to our climate or soils, fruit fall, or having a tree form that will obstruct motorist and pedestrian visibility:

<u>Botanic Tree Name</u>	<u>Common Tree Name</u>
Abies, Juniperus, Larix, Picea, Pinus	Coniferous trees (fir, juniper, larch, spruce, and pine)
Acer saccharinum	Silver Maple
Populus species	Poplars and cottonwoods
Salix species	Willows
Ulmus pumila	Siberian elm
Any trees producing fruit (not persistent) that falls on the streets and sidewalks causing a mess.	



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Appendix E

ISA Basic Tree Risk Assessment Form

ISA Basic Tree Risk Assessment Form

Client _____ Date _____ Time _____
 Address/Tree location _____ Tree no. _____ Sheet _____ of _____
 Tree species _____ dbh _____ Height _____ Crown spread dia. _____
 Assessor(s) _____ Time frame _____ Tools used _____

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1 – rare 2 – occasional 3 – frequent 4 – constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1							
2							
3							
4							

Site Factors

History of failures _____ **Topography** Flat Slope _____ % **Aspect** _____
Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe _____
Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots _____ % Describe _____
Prevailing wind direction _____ **Common weather** Strong winds Ice Snow Heavy rain Describe _____

Tree Health and Species Profile

Vigor Low Normal High **Foliage** None (seasonal) None (dead) Normal _____ % Chlorotic _____ % Necrotic _____ %
Pests _____ **Abiotic** _____
Species failure profile Branches Trunk Roots Describe _____

Load Factors

Wind exposure Protected Partial Full Wind funneling _____ **Relative crown size** Small Medium Large
Crown density Sparse Normal Dense **Interior branches** Few Normal Dense **Vines/Mistletoe/Moss** _____
Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR _____ % Cracks _____ Lightning damage
 Dead twigs/branches _____ % overall Max. dia. _____ Codominant _____ Included bark
 Broken/Hangers Number _____ Max. dia. _____ Weak attachments _____ Cavity/Nest hole _____ % circ.
 Over-extended branches Previous branch failures _____ Similar branches present
Pruning history
 Crown cleaned Thinned Raised Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Reduced Topped Lion-tailed Conks Heartwood decay _____
 Flush cuts Other _____ Response growth _____

Main concern(s) _____

Load on defect N/A Minor Moderate Significant _____

Likelihood of failure Improbable Possible Probable Imminent _____

— Trunk —

Dead/Missing bark Abnormal bark texture/color
 Codominant stems Included bark Cracks
 Sapwood damage/decay Cankers/Galls/Burls Sap ooze
 Lightning damage Heartwood decay Conks/Mushrooms
 Cavity/Nest hole _____ % circ. Depth _____ Poor taper
 Lean _____ ° Corrected? _____

Response growth _____

Main concern(s) _____

Load on defect N/A Minor Moderate Significant

Likelihood of failure Improbable Possible Probable Imminent

— Roots and Root Collar —

Collar buried/Not visible Depth _____ Stem girdling
 Dead Decay Conks/Mushrooms
 Ooze Cavity _____ % circ.
 Cracks Cut/Damaged roots Distance from trunk _____
 Root plate lifting Soil weakness

Response growth _____

Main concern(s) _____

Load on defect N/A Minor Moderate Significant

Likelihood of failure Improbable Possible Probable Imminent

