CLARK PUBLIC UTILITIES

AND THE

CITY OF LA CENTER

CRITICAL AREAS MANAGEMENT PLAN AGREEMENT

CHAPTER 18.300, LA CENTER MUNICIPAL CODE & CHAPTER 18.300S, LA CENTER SHORELINE MASTER PROGRAM

August 11, 2020

PURPOSE

It is the overall intent of this management plan to provide Clark Public Utilities with a means for the efficient, reliable and effective continuance of current and future activities associated with repair, maintenance and operations while complying with the City of La Center's Critical Areas Ordinance (La Center Municipal Code [LCMC] Chapter 18.300) and the Critical Areas Ordinance codified into the Shoreline Master Program (SMP) (LCMC 18.300S). Clark Public Utilities performs many repairs, upgrades existing facilities, reconductoring electric lines and other maintenance and operational activities of its infrastructure and facilities on a regular basis. Many of these activities involve routine maintenance and repair activities such as tree pruning, vegetation management, chemical usage, mobile refueling and pole replacement. Some of these activities are associated with emergencies such as power outages, service interruptions, and general public safety.

The intent of this management plan is to identify mitigation measures that will be utilized in conjunction with the activities identified in this plan that are conducted within designated critical areas and buffers to satisfy the requirements of a Critical Areas Permit in conformance with Chapter 18.300 of the LCMC and/or a Shoreline Permit in conformance with Chapter 18.300S of the SMP to achieve the stated purposes of this plan.

PLAN PARAMETERS

The following provisions are agreed to in association with this management plan:

- This plan is applicable to all existing and future permitted facilities and activities identified within this plan that are located within areas meeting the definition of a designated critical area within Section 18.300.030 LCMC and Section 18.300S.030, including Fish & Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Geologically Hazardous Areas, Critical Aquifer Recharge Areas and Wetlands, and all exempt activities as identified in Section 18.300.070 LCMC and Section 18.300S.070;

- The approval of this plan meets the requirements associated with a Critical Areas Permit/Shoreline Permit and as such the activities mitigated in compliance with this plan do not require the submission and approval of separate Critical Areas Permits/Shoreline Permits for the duration of this management plan;
- This management plan applies within the city limits of La Center and all areas annexed by the city during the duration of this plan;
- For all activities identified within this plan, no additional mitigation will be required beyond what is identified within this plan;
- No annual reports will be required in conjunction with this management plan;
- Approval of this plan does not require the alteration or relocation of existing infrastructure owned or operated by Clark Public Utilities;
- The provisions contained within this Agreement only applies to Clark Public Utilities employees, it's contractors, and vendors working under the direction of Clark Public Utilities; and
- This plan will be in effect until January, 2025 (5 years from date of approval) unless the mitigation measures agreed to herein are found to pose a significant public health, safety, or reliability issue, then either and/or both party(ies) may open the agreement.

EXEMPT ACTIVITIES

All Clark Public Utilities employees, contractors, and vendors will use reasonable methods to avoid potential adverse impacts to critical areas and will receive training in the approved procedures and standards identified for critical areas permit, shoreline permit, and exempt activities.

The following activities and associated uses shall be exempt from the critical areas provisions of Chapter 18.300 LCMC, and Chapter 18.300S codified into the SMP provided that they are otherwise consistent with the provisions of other local, state, and federal laws and requirements and the provisions identified herein:

Section 18.300.070(1)(b) LCMC & Section 18.300S.070(A)(1) of the SMP – The Director shall have the authority to negotiate memoranda of agreements with utility service providers or public agencies, and said agreements shall specify best management practices to be used in situations of emergency and usual and customary repair, which if rigorously adhered to, may exempt said emergency or repair activity, including routine operation and maintenance from further review under this chapter. Memorandum of agreements shall be authorized by the La Center City Council only after notice and completion of a public hearing on the full terms and merits of the agreement.

Section 18.300.070(1)(c) LCMC & Section 18.300S.070(A)(2) of the SMP – Emergencies. Emergency activities are those activities necessary to prevent an immediate threat to public health, safety, or welfare, or that pose an immediate risk of damage to private property and that require remedial or preventative action in a time frame too short to allow for compliance with the requirements of this chapter. Emergency actions that create an impact to a critical area or its buffer shall use reasonable methods to address the emergency; in addition, they must have the least

possible impact to the critical area or its buffer. The person or agency undertaking such action shall notify the city within one working day following commencement of the emergency activity. Following the emergency appropriate mitigation shall be implemented and permanent activities, installations or impacts are subject to review and compliance with the applicable standards.

Section 18.300.070(1)(e) LCMC & Section 18.300S.070(A)(3) of the SMP – Repair or replacement of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees or drainage systems, including operation and maintenance of existing facilities, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the critical area or buffer and there is no increased risk to life or property as a result of the proposed maintenance or repair.

Section 18.300.070(1)(g) LCMC & Section 18.300S.070(A)(5) of the SMP – Activities within the Improved Public Right-of-Way or Recorded Easement. Replacement, modification, installation, or construction of utility facilities, lines, pipes, mains, equipment, or appurtenances, not including substations, when such facilities are located within the improved portion of the public right-of-way or recorded easement, or a city-authorized private roadway except those private activities that alter a wetland or watercourse, such as culverts or bridges, or result in the transport of sediment or increased stormwater

Section 18.300.070(1)(h) LCMC & Section 18.300S.070(A)(6) of the SMP – Chemical Applications. The application of herbicides, pesticides, organic or mineral-derived fertilizers, or other hazardous substances, if necessary; provided, that their use shall be restricted in accordance with Department of Fish and Wildlife Management recommendations, the city of Portland's pest management program, and the regulations of the Department of Agriculture and the U.S. Environmental Protection Agency.

Section 18.300.070(1)(k) LCMC & Section 18.300S.070(A)(9) of the SMP – Construction and modifications to existing structures that do not increase the footprint of the structure.

Section 18.300.070(1)(l) LCMC & Section 18.300S.070(A)(10) of the SMP - The removal of the following vegetation with hand labor and light equipment, and vegetation removal that is a hazard to electrical power lines with hand-held and walk-beside equipment such as mowers and weed eaters in compliance with the provisions contained in the ANSI A300 (Part 1) guidelines, including, but not limited to:

(i) Invasive nonnative weeds;

(ii) English ivy (*Hedera helix*);

(iii) Himalayan blackberry (*Rubus armeniacus*); and

(iv) Evergreen blackberry (*Rubus laciniatus*)

Section 18.300.070(1(m) LCMC & Section 18.300S.070(A)(11) of the SMP – Emergency or hazard tree removal conducted so that habitat impacts are minimized.

Section 18.300.070(1)(n) LCMC & Section 18.300S.070(A)(12) of the SMP – Public improvement projects located within existing impervious surface areas.

Section 18.300.070(1)(o) LCMC & Section 18.300S.070(A)(13) of the SMP – Public agency and utility exemption

ACTIVITIES ALLOWED WITH MANAGEMENT PLAN

All activities identified within this plan shall be performed to minimize and mitigate impacts to designated critical areas and their buffers in conformance with the development standards contained in Chapter 18.300.110 LCMC & Chapter 18.300S.110 of the SMP by first trying to avoid impacts that degrade the functions and values of critical areas; second, minimize impacts to critical areas; third, provide compensatory mitigation for unavoidable impacts to critical areas by replacing each of the affected functions to the extent feasible, fourth, provide for no net loss to critical areas functions and values; fifth, consistency with the general purposes of this Chapter and that the proposal does not pose a significant threat to the public health, safety, or welfare on or off the development proposal site.

The following activities are allowed within areas defined in Chapter 18.300.090 LCMC & Chapter 18.300S.090 as Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Geologic Hazard Areas, Critical Aquifer Recharge Areas, and Wetlands in compliance with the provisions contained within Chapter 18.300 LCMC & Chapter 18.300S of the SMP, and the mitigation measures identified within this plan. The activities and mitigation measures identified within this plan will be allowed within the City of La Center on private and public property, including all easement and right-of-way areas. All compensatory mitigation (if necessary) shall be on-site, whenever feasible, and sufficient to maintain critical areas functions.

Tree Pruning (Scheduled & Emergency)

Routine tree pruning activities within designated wetland and riparian areas and their associated buffers are not exempt from the provisions contained within the wetland and fish and wildlife habitat sections of the ordinance. Impacts to wetland and riparian areas associated with these activities include the removal of shading canopies which will impact water quality temperature, removal and disturbance of vegetation which may lead to erosion and loss of large woody debris utilized by riparian area species.

Mitigation measures for tree pruning, removal, and replacement within designated wetland and riparian areas and their associated buffers:

- Compliance with the provisions contained in ANSI A300 (Part1) and ANSI A300 (Part 1) special companion publication titled *Best Management Practices: Utility Pruning of Trees* as outlined in the stated purpose of utility/facility pruning as found on page 2 (see attachments 1 and 2)
- Pruning and/or removal of small, immature trees such as cottonwoods, may be removed in cases where they may pose a future threat to utility infrastructure
- Personnel will limit the use of heavy equipment within designated wetland and riparian areas and their associated buffers. Any areas damaged by the use of heavy equipment that may cause soil erosion control impacts will be restored and stabilized

within 1 (one) month to address these impacts through measures such as reseeding using native grasses and other erosion control measures as necessary

Mobile Refueling

Mobile refueling within designated wetland and riparian areas and associated buffers can cause impacts to streams and wetland areas if fuel accidentally enters these areas. Damage to water quality and vegetation may occur.

Mitigation measures for mobile refueling:

- Avoid refueling within designated critical areas if at all possible
- Refuel in a contained area that does not drain into a wetland, water body, or stormwater system
- Assure proper training for operators to include emergency spill avoidance training

ACTIVITY AND MITIGATION TABLE

Ordinance Section	Activity	Description	Exempt Or Nonexempt	Mitigation Measures
18.300.070(1)(c) & 18.300S.070(A)(2)	Emergencies	Activities necessary to prevent immediate threat to public health, safety, welfare, or property damage	Exempt	-Use reasonable methods -Notify the City within one working day -Restoration and mitigation for any impacts to critical areas and buffers
18.300.070(1)(e) & 18.300S.070(A)(3)	Repair or replacement of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees or drainage systems.	Does not increase the impact to or encroach further within the critical area buffer and no increased risk to life or property as a result of	Exempt	None Required
18.300.070(1)(g) & 18.300S.070(A)(5)	Activities within the Improved Public Right-of-Way or Recorded Easement.	Replacement, modification, installation, or construction of utility facilities, lines, pipes, mains, equipment, or appurtenances, not including substations, when such facilities are located within the improved portion of the public right-of-way or recorded easement, or a city-authorized private roadway except those private activities that alter a wetland or watercourse, such as culverts or bridges, or result in the transport of sediment or increased stormwater	Exempt	None Required

Ordinance Section	Activity	Description	Exempt Or Nonexempt	Mitigation Measures
18.300.070(1)(h) & 18.300S.070(A)(6)	Chemical Applications	The application of herbicides, pesticides, organic or mineral-derived fertilizers, or other hazardous substances, if necessary; provided, that their use shall be restricted in accordance with Department of Fish and Wildlife Management recommendations, the city of Portland's pest management program and the regulations of the Department of Agriculture and the U.S. Environmental Protection Agency	Exempt	Chemical application in compliance with City of Portland's Pest Management Program. Applications in accordance with Washington State's applicator license law. Maintenance may occur with human-supported equipment & small walk next to equipment
18.300.070(1)(k) & 18.300S.070(A)(9)	Construction and modification to existing structures	Construction and modifications to existing structures that do not increase the footprint of the structure.	Exempt	None Required
18.300.070(1)(l) & 18.300S.070(A)(10)	Clearing of noxious and invasive weeds	Using hand-held and walk-beside equipment such as mowers and weed eaters	Exempt	Follow ANSI A300 Part 1 Guidelines
18.300.070(1)(m) & 18.300S.070(A)(11)	Emergency or hazard tree removal	Conducted so that habitat impacts are minimized.	Exempt	None Required
18.300.070(1)(n) & 18.300S.070(A)(12)	Public Improvement projects	Located within existing impervious surface areas	Exempt	None Required
18.300.070(1)(o) & 18.300S.070(A)(13)	Public Agency and Utility Exemption	Located within all critical areas	Exempt	None Required

Ordinance Section	Activity	Description	Exempt Or Nonexempt	Mitigation Measures
N/A	Tree Pruning	Scheduled and Emergency	Exempt	Compliance with ANSI A300 (Part 1) and ANSI A300 (Part1) special companion publication. Personnel will limit the use of heavy equipment within designated wetland and riparian areas. Restoration of disturbed areas as soils must be stabilized and restored within 1 month
N/A	Mobile Refueling	Refueling mobile equipment within designated critical areas	Exempt	Avoid refueling within designated critical areas if at all possible. Refuel in a contained area that does not drain into a wetland, water body, or stormwater system. Assure proper training for operators to include emergency spill avoidance training.

ANSI A300 (Part 1)-2008 Pruning (R2014)
reaffirmation and redesignation of
ANSI A300 (Part 1)-2008

American National Standard

for Tree Care Operations —

Tree, Shrub, and Other Woody Plant Management — Standard Practices (Pruning)

TCIA®
VOICE OF TREE CARE

Approved American National Standard
ANSI

ANSI A300 (Part 1)-2008 Pruning (R2014)
reaffirmation and redesignation of ANSI A300 (Part 1)-2008

ANSI®
A300 (Part 1)-2008 Pruning (R2014)
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ANSI A300 (Part1)-2008

for Tree Care Operations — Tree, Shrub, and Other Woody Plant Management — Standard Practices *(Pruning)*

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American National Standard

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Contents

* The term pruning type is replaced with the term pruning method. The purpose of this is to label the processes detailed in section 6 with greater accuracy.

Foreword This foreword is not considered part of American National Standard *A300 (Part 1)-2008 Pruning (R2014)*.

ANSI A300 Standards are divided into multiple parts, each focusing on a specific aspect of woody plant management (e.g. Pruning, Soil Management, Supplemental Support Systems, etc).

These standards are used to develop written specifications for work assignments. They are not intended to be used as specifications in and of themselves. Management objectives may differ considerably and therefore must be specifically defined by the user. Specifications are then written to meet the established objectives and must include measurable criteria.

ANSI A300 standards apply to professionals who provide for, or supervise the management of, trees, shrubs, and other woody landscape plants. Intended users include businesses, government agencies, property owners, property managers, and utilities. The standard does not apply to agriculture, horticultural production, or silviculture, except where explicitly noted otherwise.

This standard has been developed by the Tree Care Industry Association (TCIA), an ANSI-accredited Standards Developing Organization (SDO). TCIA is secretariat of the ANSI A300 standards, and develops standards using procedures accredited by the American National Standards Institute (ANSI).

Consensus for standards writing was developed by the Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Management Operations – Standard Practices, A300 (ASC A300).

Prior to 1991, various industry associations and practitioners developed their own standards and recommendations for tree care practices. Recognizing the need for a standardized, scientific approach, green industry associations, government agencies and tree care companies agreed to develop consensus for an official American National Standard.

The results – ANSI A300 standards – unify and take authoritative precedence over all previously existing tree care industry standards. ANSI requires that approved standards be developed according to accepted principles, and that they be reviewed and, if necessary, revised every five years.

TCIA was accredited as a standards developing organization with ASC A300 as the consensus body on June 28, 1991. ASC A300 meets regularly to write new, and review and revise existing, ANSI A300 standards. The committee includes industry representatives with broad knowledge and technical expertise from residential and commercial tree care, utility, municipal and federal sectors, landscape and nursery industries, and other interested organizations.

Suggestions for improvement of this standard should be forwarded to: ANSI A300 Secretary, c/o Tree Care Industry Association, Inc., 136 Harvey Road - Suite 101, Londonderry, NH 03053.

ANSI A300 (Part 1)-2008 Pruning was approved as an American National Standard by ANSI on May 1, 2008. The standard was reaffirmed as an American National Standard on August 8, 2014. ANSI approval does not require unanimous approval by ASC A300.

The ASC A300 committee had the following members as of August 8, 2014:

Dane Buell, Chair
(SavATree, Inc.)

Bob Rouse, Secretary
(Tree Care Industry Association, Inc.)

Organizations Represented	***Name of Representative***
Alliance for Community Trees	*Carrie Gallagher*
American Nursery and Landscape Association	*Warren Quinn*
	Craig J. Regelbrugge (Alt.)
American Society of Consulting Arborists	*Torrey Young*
	Richard Gessner (Alt.)
American Society of Landscape Architects	*Ron Leighton*
Asplundh Tree Expert Company	*Geoff Kempter*
	David Johnson (Alt.)
Bartlett Tree Expert Company	*Peter Becker*
	Dr. E. Thomas Smiley (Alt.)
Davey Tree Expert Company	*Chris Klinas*
	Dr. Richard Rathjens (Alt.)
International Society of Arboriculture	*Dr. Richard Hauer*
	Sharon Lilly (Alt.)
Professional Grounds Management Society	*Gene Pouly*
	Michael Bova (Alt.)
Professional Land Care Network	*Alice Carter*
	Tom Delaney (Alt.)
Society of Municipal Arborists	*Nolan Rundquist*
	Gordon Mann (Alt.)
Tree Care Industry Association	*Tom Mugridge*
	Steve Mays Jr. (Alt.)
USDA Forest Service	*Ed Macie*
	Dr. Kevin Smith (Alt.)
Utility Arborist Association	*William T. Rees*
	Matthew Simons (Alt.)

Additional organizations and individuals:

Wayne Dubin (Observer)
Myron Laible (Observer)
Tim Johnson (Observer)
Beth Palys (Observer)
Richard Roux (NFPA-780 Liaison)

ASC A300 Mission: To develop consensus performance standards based on current research and sound practice for writing specifications to manage trees, shrubs, and other woody plants.

ASC A300 Vision: ANSI A300 standards will be the foundation for work specifications, training materials, quality protocols, and regulations for the management of trees, shrubs, palms, and other woody plants.

American National Standard for Tree Care Operations –

Tree, Shrub, and Other Woody Plant Management – Standard Practices *(Pruning)*

1 ANSI A300 standards

1.1 Scope

ANSI A300 standards present performance standards for the care and management of trees, shrubs, and other woody plants.

1.2 Purpose

ANSI A300 performance standards are intended for use by federal, state, municipal and private entities including arborists, property owners, property managers, and utilities as standards of practice and as specification writing guidelines.

1.3 Application

ANSI A300 performance standards shall apply to any person or entity engaged in the management of trees, shrubs, or other woody plants.

2 Part 1 – Pruning standards

2.1 Purpose

The purpose of this document is to provide standards of practice and a specification writing guideline for pruning.

2.2 Reasons for pruning

The reasons for tree pruning may include, but are not limited to, reducing risk, managing tree health and structure, improving aesthetics, or achieving other specific objectives. Pruning practices for agricultural, horticultural production, or silvicultural purposes are exempt from this standard unless this standard, or a portion thereof, is expressly referenced in standards for these other related areas.

2.3 Implementation

2.3.1 Specifications for pruning should be written and administered by an arborist.

2.3.1.1 Specifications should include location of tree(s), objectives, methods (types), and extent of pruning (location, percentage, part size, etc).

2.3.2 Pruning specifications shall be adhered to.

2.4 Safety

2.4.1 Pruning shall be implemented by an arborist, familiar with the practices and hazards of pruning and the equipment used in such operations.

2.4.2 This performance standard shall not take precedence over applicable industry safe work practices.

2.4.3 Performance shall comply with applicable Federal and State Occupational Safety and Health standards, ANSI Z133.1, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and other Federal Environmental Protection Agency (EPA) regulations, as well as state and local regulations.

3 Normative references

The following standards contain provisions, which, through reference in the text, constitute provisions of this American National Standard. All standards are subject to revision, and parties to agreements based on this American National Standard shall apply the most recent edition of the standards indicated below.

ANSI Z60.1, Nursery stock
ANSI Z133.1, Arboriculture – Safety requirements
29 CFR 1910, General industry [1)]
29 CFR 1910.268, Telecommunications [1)]
29 CFR 1910.269, Electric power generation, transmission, and distribution [1)]
29 CFR 1910.331 - 335, Electrical safety-related work practices [1)]

4 Definitions

4.1 arboriculture: The art, science, technology, and business of commercial, public, and utility tree care.

1) Available from U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210

4.2 arborist: An individual engaged in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide for or supervise the management of trees and other woody plants.

4.3 arborist trainee: An individual undergoing on-the-job training to obtain the experience and the competence required to provide for or supervise the management of trees and other woody plants. Such trainees shall be under the direct supervision of an arborist.

4.4 branch: A shoot or stem growing from a parent branch or stem (See Fig. 4.4).

4.4.1 codominant branches/codominant leaders: Branches or stems arising from a common junction, having nearly the same size diameter (See Fig. 4.4).

4.4.2 lateral branch: A shoot or stem growing from another branch (See Fig. 4.4).

4.4.3 parent branch or stem: A tree trunk or branch from which other branches or shoots grow (See Fig. 4.4).

4.4.4 scaffold branch: A primary branch that forms part of the main structure of the crown (See Fig. 4.4).

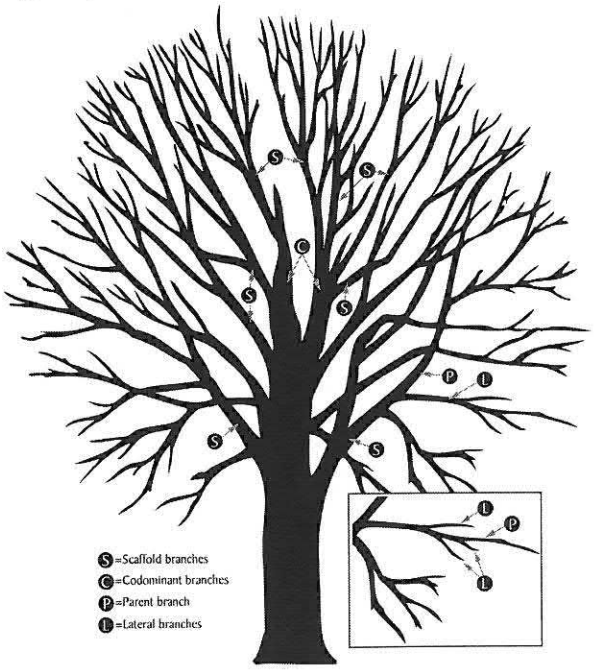

Figure 4.4 Standard branch definitions.

4.5 branch bark ridge: The raised area of bark in the branch crotch that marks where the branch and parent stem meet. (See Figs. 5.3.2 and 5.3.3).

4.6 branch collar: The swollen area at the base of a branch.

4.7 callus: Undifferentiated tissue formed by the cambium around a wound.

4.8 cambium: The dividing layer of cells that forms sapwood (xylem) to the inside and inner bark (phloem) to the outside.

4.9 clean: Selective pruning to remove one or more of the following non-beneficial parts: dead, diseased, and/or broken branches (7.2).

4.10 climbing spurs: Sharp, pointed devices strapped to a climber's lower legs used to assist in climbing trees. (syn.: gaffs, hooks, spurs, spikes, climbers)

4.11 closure: The process in a woody plant by which woundwood grows over a pruning cut or injury.

4.12 crown: Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

4.13 decay: The degradation of woody tissue caused by microorganisms.

4.14 espalier: The combination of pruning, supporting, and training branches to orient a plant in one plane (6.5).

4.15 establishment: The point after planting when a tree's root system has grown sufficiently into the surrounding soil to support growth and anchor the tree.

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

4.17 frond: A leaf structure of a palm.

4.18 heading: The reduction of a shoot, stem, or branch back to a bud or to a lateral branch not large enough to assume the terminal role.

4.19 interfering branches: Crossing, rubbing, or upright branches that have the potential to damage tree structure and/or health.

4.20 internode: The area between lateral branches or buds.

4.21 job briefing: The communication of at least the following subjects for arboricultural operations: work specifications, hazards associated with the job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.

4.22 leader: A dominant, typically upright, stem – usually the main trunk. There can be several leaders in one tree.

4.23 lion's tailing: The removal of an excessive number of inner and/or lower lateral branches from parent branches. Lion's tailing is not an acceptable pruning practice (6.1.7).

4.24 live crown ratio: Crown height relative to overall plant height.

4.25 mechanical pruning: A pruning technique where large-scale power equipment is used to cut back branches (9.3.2).

4.26 method: A procedure or process for achieving an objective.

4.27 peeling: The removal of dead frond bases without damaging living trunk tissue at the point they make contact with the trunk. (syn.: shaving)

4.28 petiole: A stalk of a leaf or frond.

4.29 pollarding: Pruning method in which tree branches are initially headed and then reduced on a regular basis without disturbing the callus knob (6.6).

4.30 pruning: The selective removal of plant parts to meet specific goals and objectives.

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

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

4.33 raise: Pruning to provide vertical clearance (7.3).

4.34 reduce: Pruning to decrease height and/or spread (7.4).

4.35 remote area: As used in the utility pruning section of this standard, an unpopulated area.

4.36 restoration: Pruning to redevelop structure, form, and appearance of topped or damaged trees (6.3).

4.37 rural area: As used in the utility pruning section of this standard, a sparsely populated place away from large cities, suburbs, or towns but distinct from remote areas.

4.38 shall: As used in this standard, denotes a mandatory requirement.

4.39 shoot: Stem or branch and its leaves, especially when young.

4.40 should: As used in this standard, denotes an advisory recommendation.

4.41 specifications: A document stating a detailed, measurable plan or proposal for provision of a product or service.

4.42 sprouts: New shoots originating from epicormic or adventitious buds, not to be confused with suckers. (syn.: watersprouts, epicormic shoots)

4.43 standard, ANSI A300: The performance parameters established by industry consensus as a rule for the measure of extent, quality, quantity, value or weight used to write specifications.

4.44 stem: A woody structure bearing buds, foliage, and giving rise to other stems.

4.45 structural pruning: Pruning to improve branch architecture (6.2).

4.46 stub: Portion of a branch or stem remaining after an internodal cut or branch breakage.

4.47 subordination: Pruning to reduce the size and ensuing growth rate of a branch or leader in relation to other branches or leaders.

4.48 sucker: Shoot arising from the roots.

4.49 thin: pruning to reduce density of live branches (7.5).

4.50 throw line: A small, lightweight line with a weighted end used to position a climber's rope in a tree.

4.51 topping: Reduction of tree size using internodal cuts without regard to tree health or structural integrity. Topping is not an acceptable pruning practice (6.1.7).

4.52 tracing: The removal of loose, damaged tissue from in and around the wound.

4.53 trunk: The main woody part of a tree beginning at and including the trunk flare and extending up into the crown from which scaffold branches grow.

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

4.55 urban/residential areas: Populated areas including public and private property that are normally associated with human activity.

4.56 utility: A public or private entity that delivers a public service, such as electricity or communications.

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

4.58 vista/view prune: Pruning to enhance a specific view without jeopardizing the health of the tree (6.4).

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

4.60 woundwood: Partially differentiated tissue responsible for closing wounds. Woundwood develops from callus associated with wounds.

5 Pruning practices

5.1 Tree inspection

5.1.1 An arborist or arborist trainee shall visually inspect each tree before beginning work.

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

5.1.3 Job briefings shall be performed as outlined in ANSI Z133.1, subclause 3.1.4.

5.2 Tools and equipment

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

5.2.2 Climbing spurs shall not be used when entering and climbing trees for the purpose of pruning.

Exceptions:
- when branches are more than throw-line distance apart and there is no other means of climbing the tree;
- when the outer bark is thick enough to prevent damage to the inner bark and cambium;
- in remote or rural utility rights-of-way.

5.3 Pruning cuts

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

5.3.2 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch without cutting into the branch bark ridge or branch collar or leaving a stub (see Figure 5.3.2).

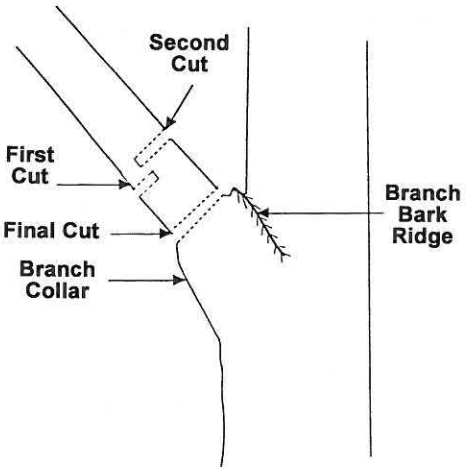

Figure 5.3.2. A cut that removes a branch at its point of origin. (See Annex A – Pruning cut guideline).

5.3.3 A pruning cut that reduces the length of a branch or parent stem shall be made at a slight downward angle relative to the remaining stem and not damage the remaining stem. Smaller cuts shall be preferred (see Fig. 5.3.3).

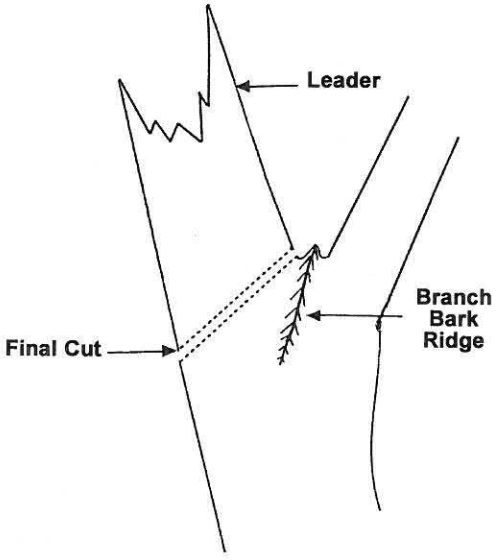

Figure 5.3.3. A cut that reduces the length of a branch or parent stem.

5.3.4 When pruning to a lateral, the remaining lateral branch should be large enough to assume the terminal role.

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

5.3.6 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

5.3.7 Tree branches shall be removed in such a manner so as to avoid damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

5.3.8 A cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent branch (see Figure 5.3.8).

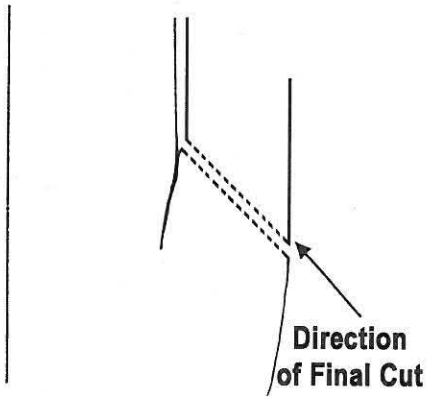

Figure 5.3.8. A cut that removes a branch with a narrow angle of attachment.

5.3.9 Severed branches shall be removed from the crown upon completion of the pruning, at times when the tree would be left unattended, or at the end of the workday.

5.4 Wound treatment

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

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

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

6 Pruning objectives

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

6.1.1 Objectives should include, but are not limited to, one or more of the following:

- Risk reduction
- Manage health
- Clearance
- Structural improvement/correction
- View improvement/creation
- Aesthetic improvement
- Restoration

6.1.2 Established objectives should be specified in writing (See Annex B – *Specification writing guideline*).

6.1.3 To obtain the defined objective, the growth cycles, structure, species, and the extent of pruning to be performed shall be considered.

6.1.4 Not more than 25 percent of the foliage should be removed within an annual growing season. The percentage and distribution of foliage to be removed shall be adjusted according to the plant's species, age, health, and site.

6.1.5 When frequent excessive pruning is necessary for a tree to avoid conflicts with elements such as infrastructure, view, traffic, or utilities, removal or relocation of the tree shall be considered.

6.1.6 Pruning cuts should be made in accordance with section 5.3 *Pruning cuts*.

6.1.7 Topping and lion's tailing shall be considered unacceptable pruning practices for trees.

6.2 Structural: Structural pruning shall consist of selective pruning to improve tree and branch architecture primarily on young- and medium-aged trees.

6.2.1 Size and location of leaders or branches to be subordinated or removed should be specified.

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

6.2.3 Strong, properly spaced scaffold branch structure should be selected and maintained by reducing or removing others.

6.2.4 Temporary branches should be retained or reduced as appropriate.

6.2.5 Interfering, overextended, defective, weak, and poorly attached branches should be removed or reduced.

6.2.6 At planting, pruning should be limited to cleaning (7.2).

6.3 Restoration: Restoration shall consist of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or damaged trees.

6.3.1 Location in tree, size range of parts, and percentage of sprouts to be removed should be specified.

6.4 Vista/view: Vista/view pruning shall consist of the use of one or more pruning methods (types) to enhance a specific line of sight.

6.4.1 Pruning methods (types) shall be specified.

6.4.2 Size range of parts, location in tree, and percentage of foliage to be removed should be specified.

6.5 Espalier

6.5.1 Branches that extend outside the desired plane of growth shall be pruned or tied back.

6.5.2 Ties should be replaced as needed to prevent girdling the branches at the attachment site.

6.6 Pollarding

6.6.1 Consideration shall be given to the ability of the individual tree to respond to pollarding.

6.6.2 Management plans shall be made prior to the start of the pollarding process for routine removal of sprouts.

6.6.3 Heading cuts shall be made at specific locations to start the pollarding process. After the initial cuts are made, no additional heading cuts shall be made.

6.6.4 Sprouts growing from the cut ends of branches (knuckles) should be removed annually during the dormant season.

7 Pruning methods (types)

7.1 One or more of the following methods (types) shall be specified to achieve the objective.

7.2 Clean: Cleaning shall consist of pruning to remove one or more of the following non-beneficial parts: dead, diseased, and/or broken branches.

7.2.1 Location of parts to be removed shall be specified.

7.2.2 Size range of parts to be removed shall be specified.

7.3 Raise: Raising shall consist of pruning to provide vertical clearance.

7.3.1 Clearance distance shall be specified.

7.3.2 Location and size range of parts to be removed should be specified.

7.3.3 Live crown ratio should not be reduced to less than 50 percent.

7.4 Reduce: Reducing shall consist of pruning to decrease height and/or spread.

7.4.1 Consideration shall be given to the ability of a species to tolerate this type of pruning.

7.4.2 Location of parts to be removed or clearance requirements shall be specified.

7.4.3 Size of parts should be specified.

7.5 Thin: Thinning shall consist of selective pruning to reduce density of live branches.

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

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

7.5.3 Location of parts to be removed shall be specified.

7.5.4 Percentage of foliage and size range of parts to be removed shall be specified.

8 Palm pruning

8.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.

8.2 Live healthy fronds should not be removed.

8.3 Live, healthy fronds above horizontal shall not be removed. Exception: Palms encroaching on electric supply lines (see Fig. 8.3a and 8.3b).

Figure 8.3a Frond removal location.

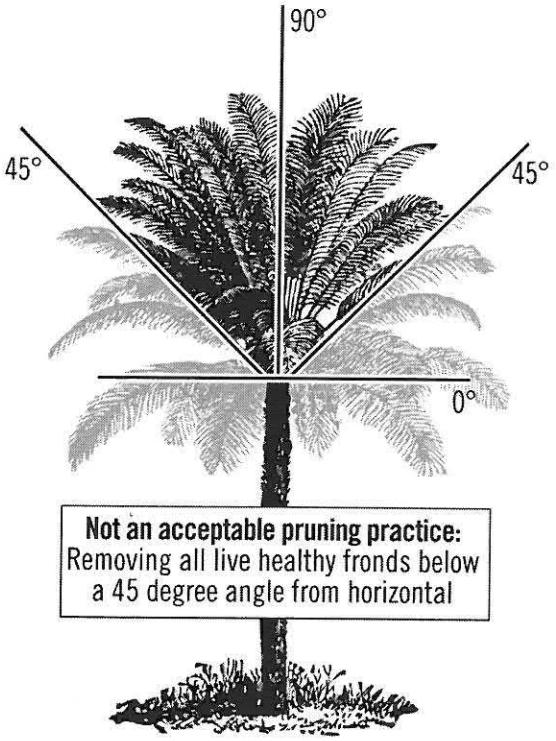

Figure 8.3b An overpruned palm (not an acceptable pruning practice).

8.4 Fronds removed should be severed close to the petiole base without damaging living trunk tissue.

8.5 Palm peeling (shaving) should consist of the removal of only the dead frond bases at the point they make contact with the trunk without damaging living trunk tissue.

9 Utility pruning

9.1 Purpose

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

9.2 General

9.2.1 Only a qualified line-clearance arborist or line-clearance arborist trainee shall be assigned to line clearance work in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268 or 29 CFR 1910.269.

9.2.2 Utility pruning operations are exempt from requirements in subclause 5.1, *Tree Inspection*, for conditions outside the utility pruning scope of work.

9.2.3 Job briefings shall be performed as outlined in ANSI Z133.1, subclause 3.1.4.

9.3 Utility crown reduction pruning

9.3.1 Urban/residential areas

9.3.1.1 Pruning cuts should be made in accordance with subclause 5.3, *Pruning cuts*. The following requirements and recommendations of 9.3.1.1 are repeated from subclause 5.3 *Pruning cuts*.

9.3.1.1.1 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

9.3.1.1.2 A pruning cut that reduces the length of a branch or parent stem shall be made at a slight downward angle relative to the remaining stem and not damage the remaining stem. Smaller cuts shall be preferred (see Fig. 5.3.3).

9.3.1.1.3 The final cut shall result in a flat surface with adjacent bark firmly attached.

9.3.1.1.4 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

9.3.1.1.5 Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

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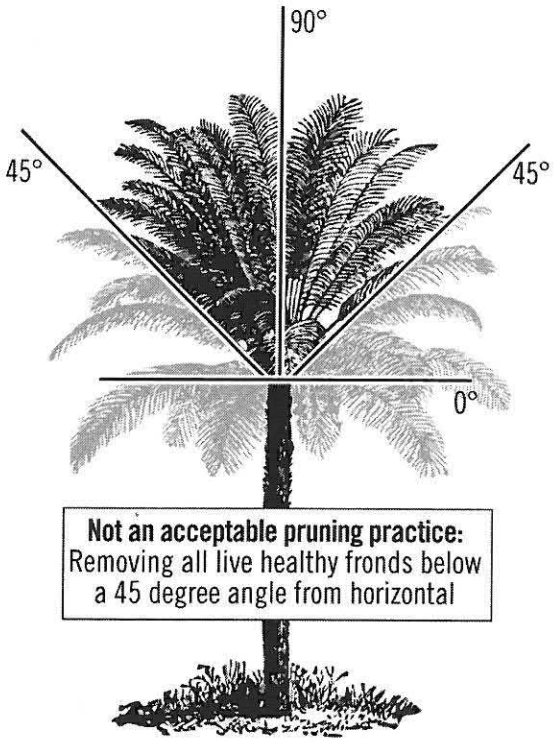

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9.3.1.1.6 A cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent branch (see Figure 5.3.8).

9.3.1.2 A minimum number of pruning cuts should be made to accomplish the purpose of facility/utility pruning. The structure and growth habit of the tree should be considered.

9.3.1.3 Trees directly under and growing into facility/utility spaces should be removed or pruned. Such pruning should be done by removing entire branches or leaders or by removing branches that have laterals growing into (or once pruned, will grow into) the facility/utility space.

9.3.1.4 Trees growing next to, and into or toward, facility/utility spaces should be pruned by reducing branches to laterals (5.3.3) to direct growth away from the utility space or by removing entire branches. Branches that, when cut, will produce sprouts that would grow into facilities and/or utility space should be removed.

9.3.1.5 Branches should be cut to laterals or the parent branch and not at a pre-established clearing limit. If clearance limits are established, pruning cuts should be made at laterals or parent branches outside the specified clearance zone.

9.3.2 Rural/remote locations – mechanical pruning

Cuts should be made close to the main stem, outside of th branch bark ridge and branch collar. Precautions should be taken to avoid stripping or tearing of bark or excessive wounding.

9.4 Emergency service restoration

During a utility-declared emergency, service must be restored as quickly as possible in accordance with ANSI Z133.1, 29 CFR 1910.331 – 335, 29 CFR 1910.268, or 29 CFR 1910.269. At such times, it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

Annex A
Pruning cut guideline

A-1 Three-cut method

Multiple cutting techniques exist for application of a three-cut method. A number of them may be used to implement an acceptable three-cut method.

A-1.1 The technique depicted in *Figure 5.3.2* demonstrates one example of a three-cut method that is common to hand-saw usage. It is not intended to depict all acceptable three-cut method techniques.

Annex B
Specification writing guideline

A300 (Part 1)-2008 *Pruning* standards are performance standards, and shall not be used as job specifications. Job specifications should be clearly detailed and contain measurable criteria.

The words "should" and "shall" are both used when writing standards. The word "shall" is used when writing specifications.

Writing specifications can be simple or complex and can be written in a format that suits your company/the job. The specifications consist of two sections.

I. General: This section contains all aspects of the work to be performed that needs to be document ed, yet does not need to be detailed.

Saying under the General section that "all work shall be completed in compliance with A300 Standards" means the clauses covering safety, inspections, cuts, etc. will be adhered to. There is no need to write each and every clause into every job specification.

Other items that may be covered in the General section could be: work hours and dates, traffic issues, disposal criteria, etc.

The second section under Job Specifications would be:

II. Details: This section provides the clear and measurable criteria; the deliverables to the client. This section, to be written in compliance with A300 standards, shall contain the following information:

1. **Objective – Clause 6**
   These objectives originate from/with the tree owner or manager. The arborist shall clearly state what is going to be done to achieve the objective(s).

   Objectives can be written for the entire job or individual trees. Rarely can one or two words clearly convey an objective so that all parties involved (client, sales, crew, etc.) can visualize the outcome.
2. **Method – Clause 7**
   Here the method(s) to be used to achieve the objective are stated. Again, depending on the type of job, this can be stated for the individual tree or a group of trees.
3. **Location – Clause 7.2.1, 7.3.2, 7.4.2, 7.5.3**
   This is the location in the tree(s) that the work methods are to take place.
4. **Density – Clause 7.3.1, 7.3.3, 7.5.1, 7.5.2, 7.5.4**
   This is the amount or volume of parts that are to be removed and can be stated exactly or in ranges.
5. **Size – Clause 7.2.2, 7.3.2, 7.4.3, 7.5.4**
   This is the size or range of sizes of cut(s) utilized to remove the volume specified.

   NOTE: Items # 4 & 5 are directly related to resource allocation, staffing and dollars.

SAMPLE PRUNING SPECIFICATIONS

#1.

Scope: Large live oak on west side of pool

Objectives: Increase light penetration through east side of tree. Reduce risk potential of 1-inch-diameter branches falling.

Specifications: All broken branches and 1-inch-plus diameter dead branches shall be removed from the crown.

The three lowest 8-inch-plus diameter branches on the east side shall be thinned 25 percent with 1-inch- to 3-inch-diameter cuts.

NOTE: All work shall be completed in compliance with ANSI A300 and Z133.1 Standards.

Annex B
Specification writing guideline

#2. **Scope:** 1 Arizona ash

Objective: Enhance structure/structural development.

Specifications: General:

All pruning shall be completed in compliance with A300 Standards.

Detail:

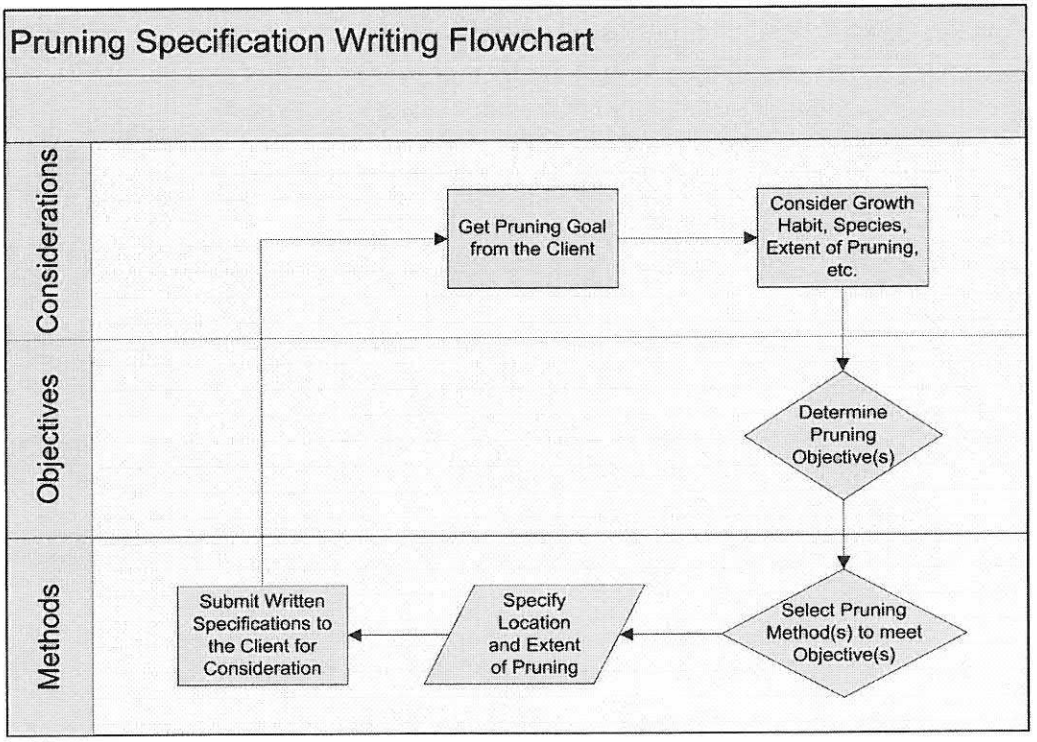
Thin crown 20-25 percent with 1-inch- to 4-inch-diameter cuts. Reduce west codominant leader by approximately 12 feet.

#3. **Scope:** Twenty-three newly installed evergreen elms

Objective: Maximize establishment – reduce nuisance while enhancing natural growth habit.

All work shall be completed in compliance with A300 Standards and the following specifications.

Specifications:
- Retain as much size as possible and 80-90 percent density of foliage.
- Lowest permanent branch will be 6 feet above grade in four to five years.
- Retain all sprout growth originating 18 inches above grade on trunk and 4 inches out from branch attachments throughout crown.
- Remove weakest rubbing branches.
- Remove dead branches.
- Reduce broken branches or branches with dead ends back to live laterals or buds. Heading cuts can be used.
- Maintain 6 inches behind adjacent edge of walks all growth that originates between 1.5 feet (18 inches) and 6 feet (72 inches) above grade. Heading cuts are acceptable.



Annex C
Applicable ANSI A300 interpretations

The following interpretations apply to Part 1 – *Pruning:*

C-1 Interpretation of "should" in ANSI A300 standards

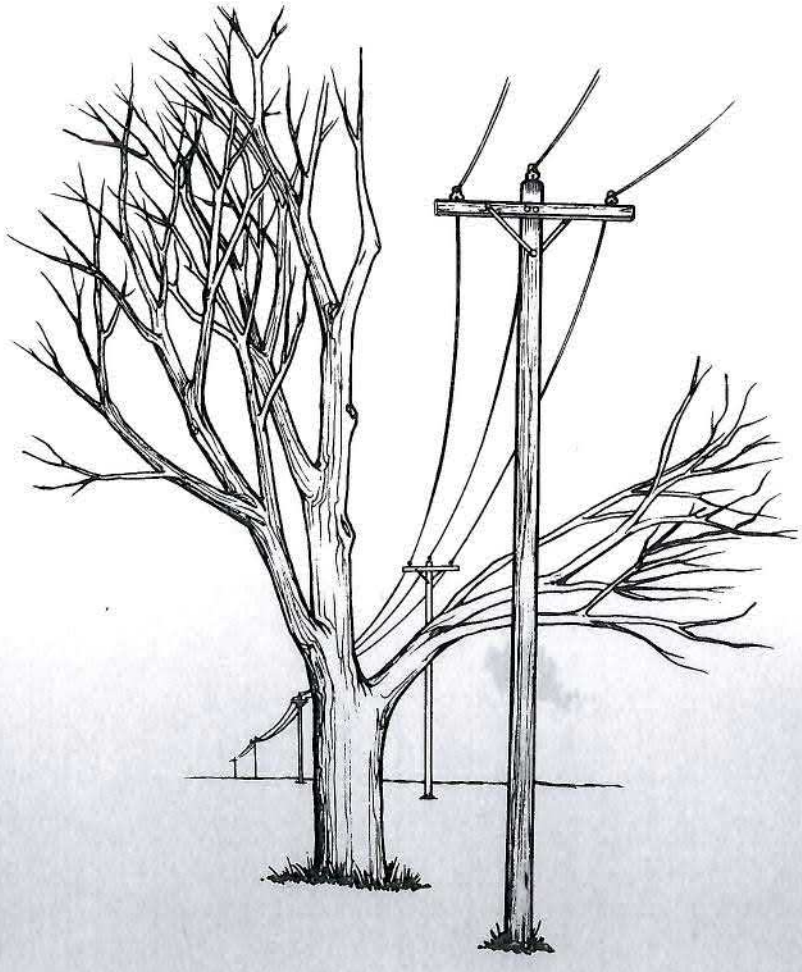
"An advisory recommendation" is the common definition of "should" used in the standards development community and the common definition of "should" used in ANSI standards. An advisory notice is not a mandatory requirement. Advisory recommendations may not be followed when defensible reasons for non-compliance exist.

C-2 Interpretation of "shall" in ANSI A300 standards

"A mandatory requirement" is the common definition of "shall" used in the standards development community and the common definition of "shall" used in ANSI standards. A mandatory requirement is not optional and must be followed for ANSI A300 compliance.

Best Management Practices

Utility Pruning of Trees



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Foreword

Utility tree pruning programs are necessary to ensure the safe and reliable delivery of vital services, such as electricity and other utility services, and to protect roads and highways, sidewalks, street and traffic lighting, signage, buildings, pipelines, and other right-of-way corridors. However, utility arborists must recognize that in most cases, trees and urban forests add value to property and enhance the quality of life in a variety of ways.

This booklet describes current best practices in utility tree pruning based on scientific research and proven methodology as documented in the *American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)* (ANSI A300 Part 1), which contains a specific section on utility pruning. The use of these methods enhances the safe and reliable delivery of utility services while preventing unnecessary injury to trees to the greatest extent possible.

Specifications should be written with the understanding that trees are living, dynamic organisms, each one unique. Practitioners in the field will encounter situations that defy expectations. Furthermore, communities and members of the public value trees for differing reasons. Practitioners of utility arboriculture must be prepared to accommodate a variety of circumstances and adjust as necessary.

For additional details on pruning practices, please refer to ISA's publication, *Best Management Practices: Tree Pruning.*

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Table of Contents

Introduction

Trees must coexist with a variety of human-made structures, both above and below ground. Most commonly they compete for space with overhead power lines, but trees also conflict with communication lines, street lighting, buildings, lines-of-sight, sidewalks, roads, other right-of-way corridors, and underground utilities. By far, the best way to maximize the many benefits provided by trees is to plant them where they will not outgrow their space (Figure 1). However, trees that threaten the integrity of utility or other vital infrastructure must be pruned or removed.

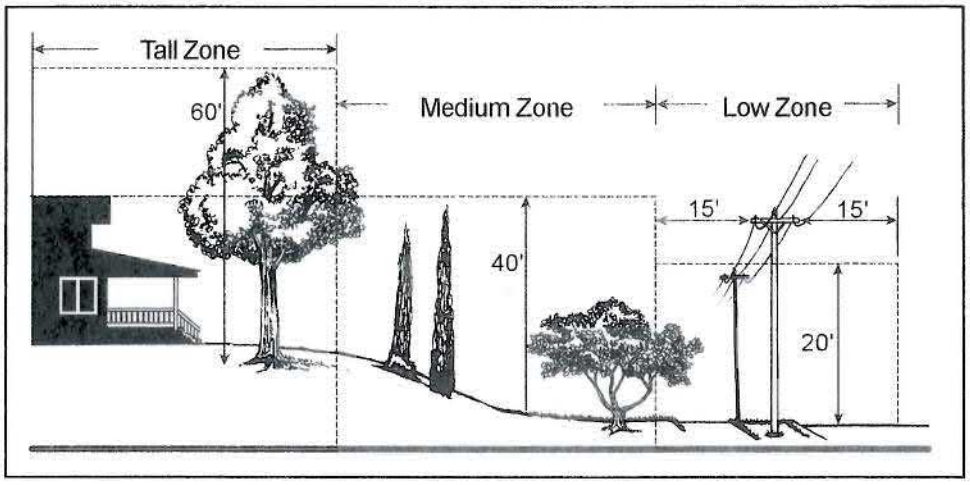

Figure 1. Proper selection and placement of trees minimizes the need for utility pruning.

Trees encroaching on utility facilities may pose significant public safety risks. For example, falling trees and branches have the potential to bring down high-voltage electric lines, increasing the risk of fire or personal injury. Dense vegetation may conceal power lines, endangering children who climb trees, or could otherwise increase the likelihood of accidental contact. Tree growth may also obscure street lighting or lines-of-sight along roadways, increasing the danger of vehicular accidents. Though utility tree pruning programs cannot guarantee public safety, they can reduce the overall risk of accidents.

Each tree is unique in its structure and position in the landscape. When trees affect utility facilities, utility arborists must determine the type and extent of pruning before work begins. In any given circumstance, there may be multiple acceptable approaches to accomplishing the pruning objectives.

Purpose of Utility/Facility Pruning

Trees are among the most common causes of utility service interruption. Utility pruning is undertaken to maintain an acceptable level of safety, prevent the loss of critical services, and ensure the intended use of the facility. If not properly maintained, vegetation may also damage infrastructure and impede access to utility facilities by maintenance and repair personnel.

Utility pruning operations provide access and adequate service along easements and rights-of-way across private and public property. In some areas, government authorities have adopted performance standards such as mandatory minimum clearances between energized conductors and surrounding vegetation. Utility tree pruning programs must be designed to meet these requirements.

Utility pruning operations should remove only those branches necessary to ensure the effective intended use of the utility space. Obtaining excessive clearance is needlessly costly, may unnecessarily injure trees, and often leads to adverse public relations. At the same time, inadequate clearance could result in service interruptions, damaged infrastructure, or safety hazards.

Utility arboriculture specifications generally focus on the part of the tree with the greatest potential to affect the utility or facility space. The remaining portions of the tree are outside the scope of work, unless exceptions are specified. These scope limitations may be due to easement limitations, liability, the large number of individual properties involved, the need to concentrate limited resources on achieving the specified pruning objective, or a combination of these and other factors. Therefore, the scope of work is usually limited to specified areas, which often include only portions of individual trees.

ty Pruning

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Safety

Primary electric utility lines carry voltages that are many times greater than household current. ***Both primary and secondary lines have the potential to kill or severely injure people who make contact with them, either directly or indirectly (Figure 2). Therefore, it is essential that only those who are properly trained in the practices and hazards associated with utility arboriculture engage in clearing vegetation from power lines!*** Members of the public or arborists who are not qualified to work around high-voltage power lines should **NEVER** attempt to clear trees and branches from these facilities.

The Occupational Safety and Health Administration (OSHA) requires employers to provide their employees with the necessary training to work near energized conductors. Employers must document employee progress and certify that this training has taken place. The *American National Standard for Arboricultural Operations – Pruning, Maintaining, Repairing, and Removing Trees, and Cutting Brush – Safety Requirements* (ANSI Z133.1) details safety requirements for arborists, including minimum approach distances to energized conductors for qualified line-clearance workers, as well as other individuals.

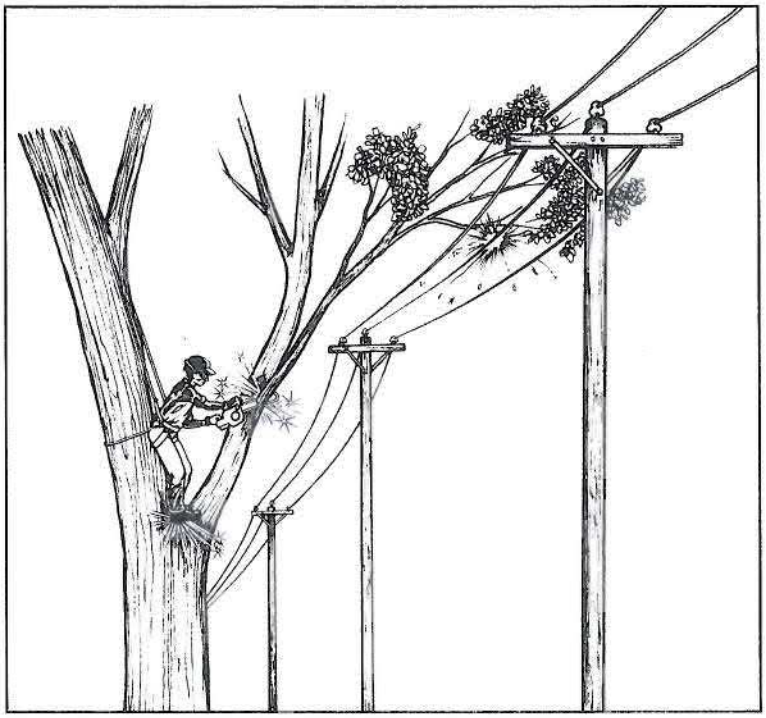

Figure 2. Indirect contact with energized conductors can be as deadly as direct contact.

Tools and Equipment

Utility arboriculture is practiced in a variety of settings, wherever there are facilities that must be protected from encroaching vegetation. Appropriate tools and equipment often vary considerably according to local conditions, requirements, or customs. They could also differ according to urban or rural locations, or various regions of the country. Regardless of how work is accessed or which tools are used, utility tree workers must safely position themselves, their equipment, and their tools to make proper pruning cuts.

Work practices that cause additional injury to the tree, beyond the scope of work, must be minimized. For example, saws and other tools must be the correct size and controlled to avoid unnecessary damage. Large, pruned limbs should be lowered carefully, and ropes should not damage bark.

When using aerial lifts, the type and size of the unit should be appropriate. Correctly matching the lift to the type of work increases efficiency and may enhance the quality of work. For example, specialized lifts can provide access in areas difficult to reach any other way.

Climbers should be careful not to cause unnecessary damage to trees when accessing the work. Climbing spurs should be used only when there is no other safe and practical method for climbing the tree. Exceptions may also be made if the bark is thick enough to prevent damage to underlying tissues, or if the tree is in a remote or rural area. Whenever possible, climbers should be discouraged from using spurs.

Common pruning tools include hand saws, chain saws, pole saws, and pole pruners. Power tools may be powered by gasoline engines or hydraulics. These tools, and the systems that power them, must be properly maintained and used according to manufacturer's recommendations. Workers must be trained in the safe use of all available pruning tools.

Utility Pruning

Utility pruning is often perceived differently from other types of pruning because the objectives are different. However, when pruning trees in urban and suburban environments, the tools and methods used are similar to those used for other pruning purposes. Likewise, utility arborists are expected to adhere to the same professional standards as other arborists.

Pruning Cuts

The quality of pruning cuts has a direct impact on the overall effectiveness of utility pruning. Poorly made cuts may create a future hazard or promote the growth of unwanted sprouts. A proper pruning cut should be made close to the parent branch or limb but without leaving a stub or damaging the branch bark ridge or branch collar (Figure 3). When removing dead branches, cuts should not damage the collar of living tissue, which may often extend some distance from the parent stem (Figure 4). Well-made cuts will begin to close evenly from all sides (Figure 5).

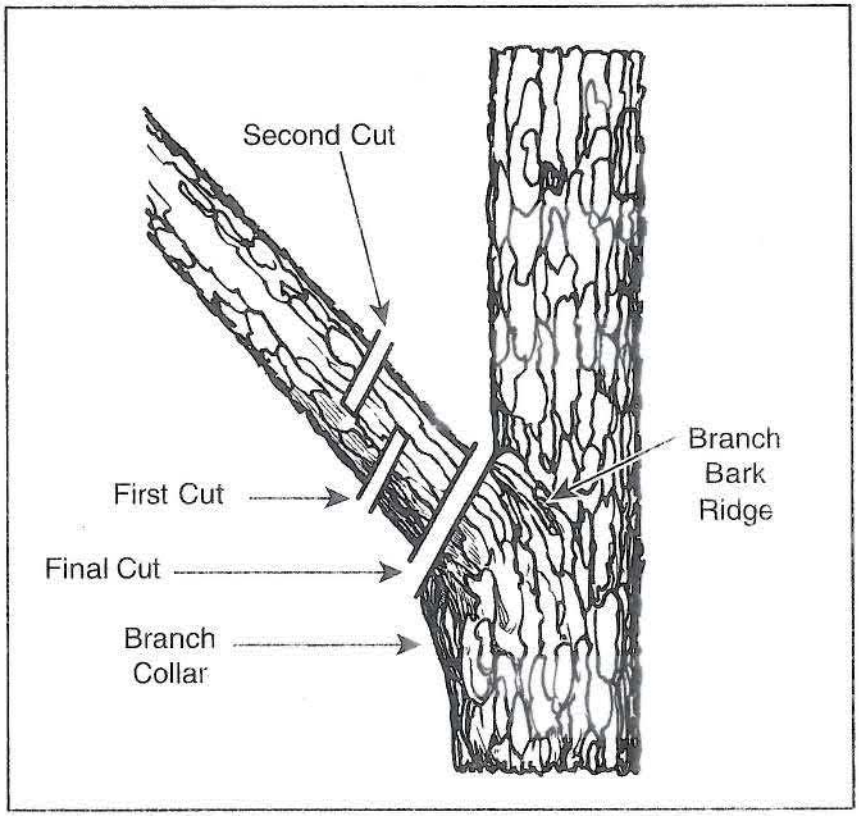

Figure 3. Pruning cuts should not damage the branch bark ridge or branch collar, or leave a stub. Large limbs should be pre-cut to avoid tearing of bark.

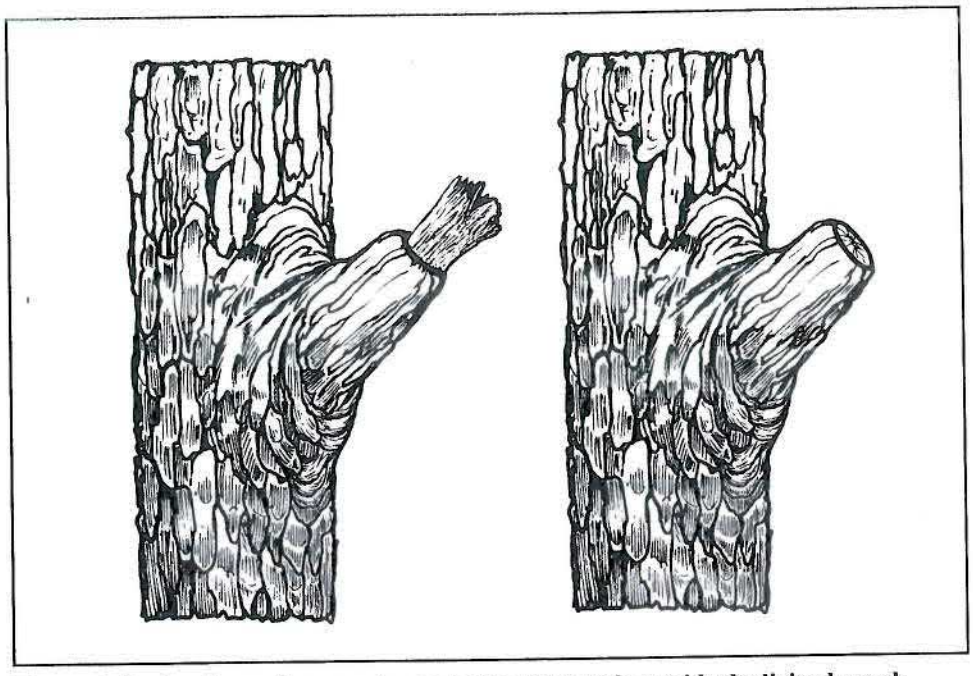

Figure 4. On dead branches, pruning cuts should be made outside the living branch collar, which may extend some distance from the parent stem.

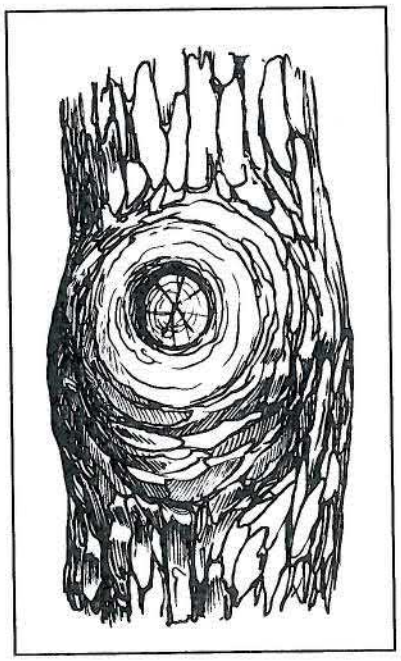

Figure 5. Well-made cuts will close evenly from all sides.

If the branch collar is not clearly defined, the optimal location for the pruning cut must be estimated, like when removing a codominant stem. When removing a codominant stem, make a cut that bisects the angle formed by the branch bark ridge and an imaginary line perpendicular to the removed stem (Figure 6). Pruning wounds that result from the removal of large codominant stems may not close or compartmentalize as well as smaller pruning cuts.

If a branch's angle of attachment is so narrow that a saw cannot be placed between it and the parent stem, the cut should be made from the outside of the branch (Figure 7). Again, it is important not to damage the branch collar. Care should be taken to avoid accidentally cutting into the remaining parent stem.

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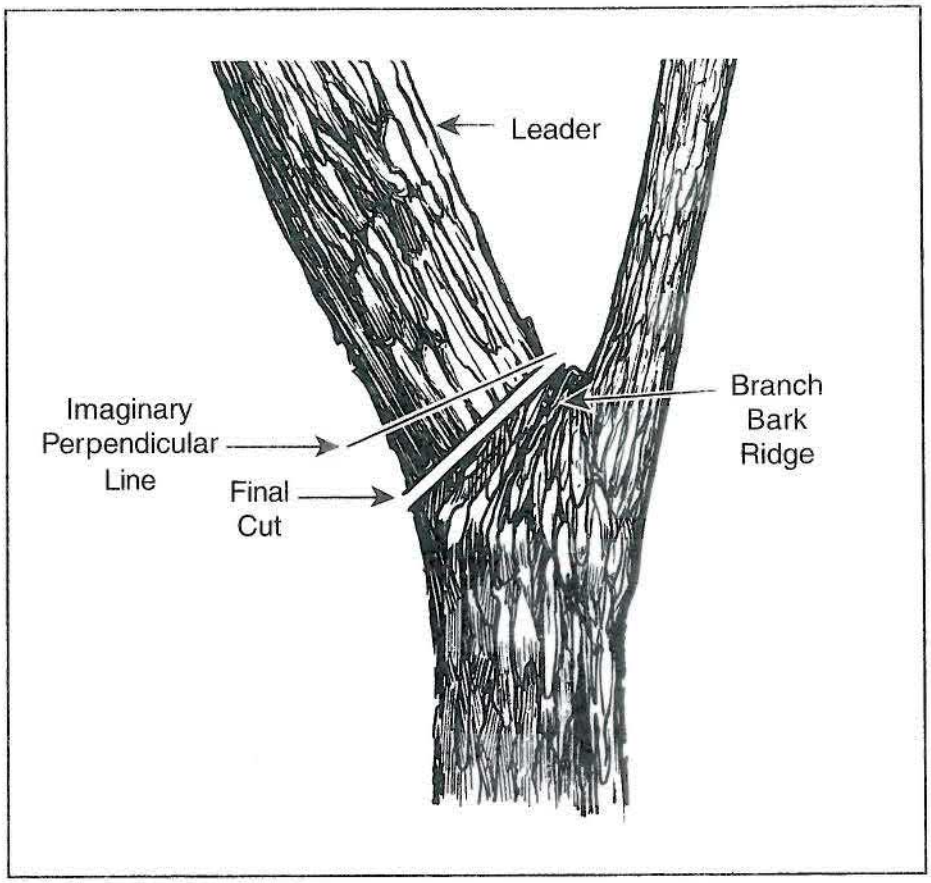

Figure 6. When removing a leader or codominant stem, the cut should bisect the angle between the branch bark ridge and an imaginary line perpendicular to the leader or stem.

A well-placed pruning cut minimizes injury to surrounding tissues and exposes the branch protection zone, an area at the base of branches containing chemicals that resist pathogens. Pruning here ensures the best opportunity for the tree to compartmentalize and close the resulting wound with as little impact as possible on overall tree health. Completed cuts should be flat and even. The bark surrounding the wound should not be loosened or otherwise damaged. It is not necessary to use wound treatments, unless in response to a specific threat against which such treatments are known to be effective.

Pruning operations must not cause unnecessary damage to other parts of the tree, other trees, or surrounding property. Whenever necessary, large limbs should be carefully lowered to the ground. When making large cuts, or when wood splitting or bark tearing is likely, branches should be pre-cut (see Figure 3).

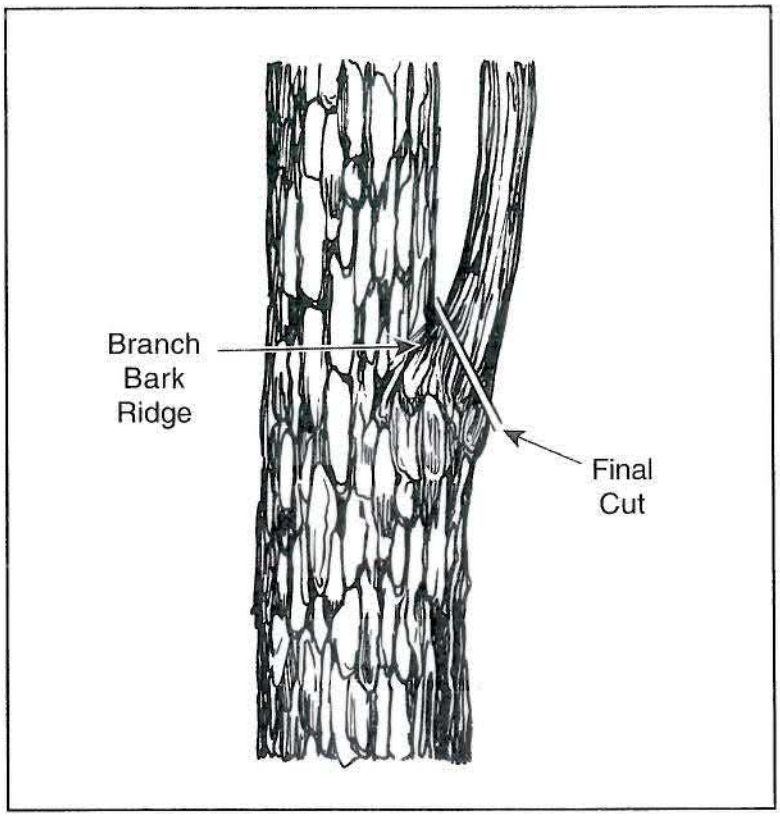

Figure 7. Branches with a narrow angle of attachment should be cut from the outside.

Pruning Method

Decisions about which branches to prune are based on the individual characteristics of each tree (including growth rate, mature size, shape, and other factors), the work specification, the expected length of time before the next pruning, and other factors such as the type of utility facility. If circumstances allow, the intended use of the tree should be considered. In some cases, removing a few branches will suffice, while in others more branches should be pruned. There could be many acceptable approaches. While every effort should be made to minimize injury to trees, however, utility pruning operations must achieve required clearance objectives.

Achieving the required objectives may require considerable change in the appearance of the tree. However, the visual impact of utility pruning will be softened as the tree responds with new growth. In subsequent pruning, utility arborists should remove the largest and most vigorous shoots, leaving smaller, suppressed shoots that pose no threat. Noninterfering branches will continue to grow to their full size, making the cleared utility space a decreasing proportion of the crown over time.

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Minimum Number of Cuts

Arborists should consider the natural structure of the tree, including expected growth patterns and mature size and shape, before work begins. The number of pruning cuts should be minimized to save time and reduce the number of injuries to the tree. The intent is to remove whole branches that are growing toward facilities and otherwise would have to be repeatedly pruned (Figure 8).

Branches that have been severely headed or stubbed in the past may be badly decayed and often accumulate heavy sprout growth. In some situations, large dominant leaders have grown directly toward or into facilities. In either case, it is usually best to remove such branches completely, although the decision to remove large limbs and leaders must be considered carefully. Large wounds may take years, if ever, to close, increasing the risk of decay in the parent stem. When necessary for the overall health and appearance of the tree, interfering branches or leaders may be subordinated, or reduced in length. Subordination may be used to

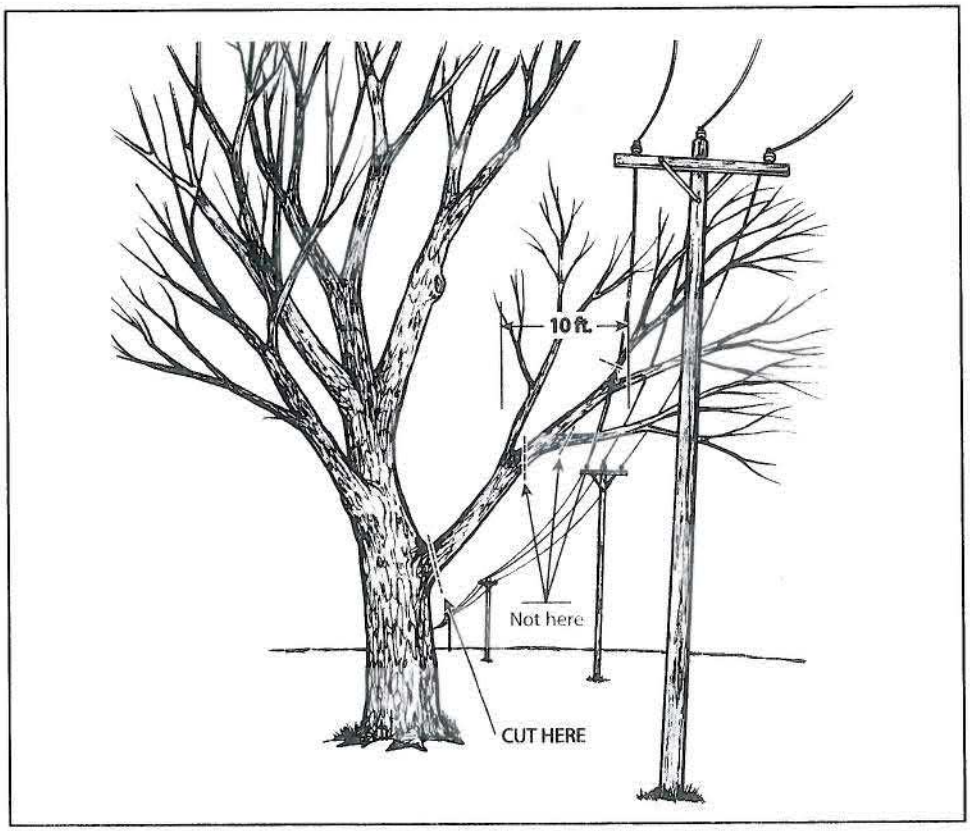

Figure 8. Remove whole branches when practical. When clearance distances are specified (for example, 10 feet), the cut should be made at the next suitable lateral or parent limb beyond the specified distance.

remove a branch over more than one pruning cycle rather than all at once. Subordination may also require cutting to laterals of less than recommended size, but only as a temporary measure.

Directional Pruning

Directional pruning is accomplished by pruning unwanted branches back to lateral branches or parent stems that are growing away from the facility (Figure 9). These lateral branches should be of sufficient size to become dominant, thus discouraging the growth of sprouts. This method is often referred to as *drop-crotching*, or *natural pruning*. Directional pruning is most effective when natural tree characteristics such as size, shape, and expected growth rate are taken into consideration. It also is important to understand the effect of other factors, such as apical dominance, on expected tree response to pruning.

Apical dominance is the suppression of lateral buds (located along the sides of branches) by terminal buds (found at branch tips). When terminal buds are removed, apical dominance is reduced. The tree increasingly sprouts from lateral buds as a result, which is why trees respond with vigorous sprout growth when they are severely headed or rounded over. Directional pruning conserves as many terminal buds as possible, leading to less vigorous sprouting from lateral buds.

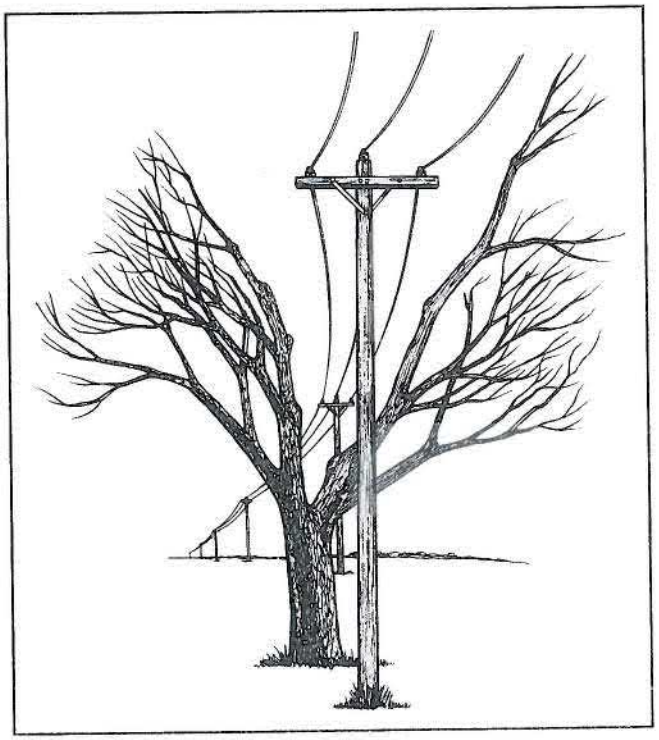

Figure 9. Directional pruning (also known as natural pruning) encourages growth away from conductors.

The effect of directional pruning on the shape of the tree depends on the tree's natural growth habit and where the tree is relative to the facility. Trees growing directly beneath facilities assume a different shape than trees growing beside them (Figure 10). Removal of overhanging limbs may or may not be appropriate, depending on the type of facility, tree species, or other site conditions (Figure 11).

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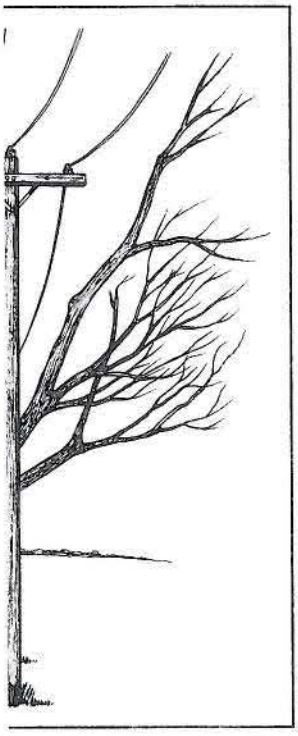

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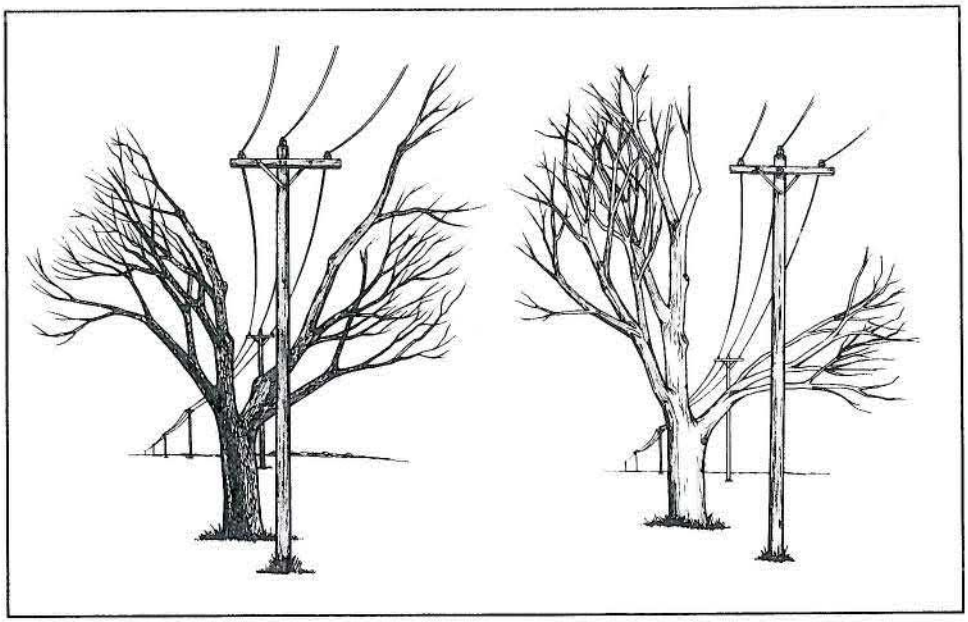

Figure 10. Directional pruning causes trees to assume different shapes depending on the location of utility facilities.

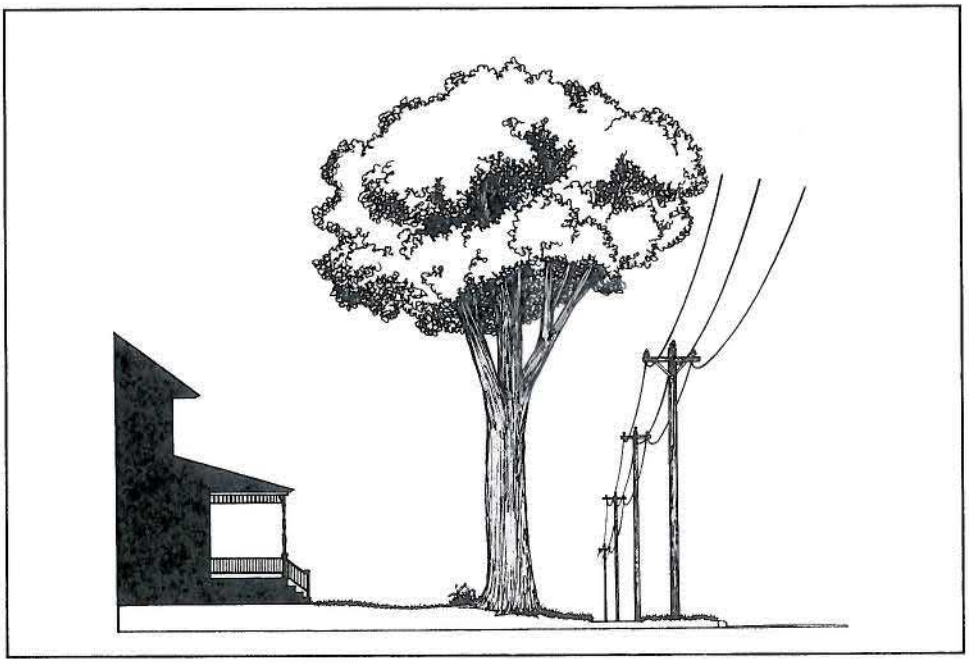

Figure 11. Removal of overhang may or may not be necessary depending on the type of utility facility, tree species, or other factors. Overhang is never acceptable over high-priority facilities such as high-voltage electric transmission lines.

Unfortunately, trees do not always have sufficiently large lateral branches, growing in the right direction, to assume dominance. Large trees with an excurrent, or upright, growth habit that are growing directly beneath a facility often pose this dilemma. If these trees are to be retained, it may be necessary to prune to smaller laterals in order to obtain the required clearance. Whenever practical, such trees should be removed and, if appropriate, replaced with compatible species.

Pre-Established Clearing Limits

Many pruning specifications require a minimum clearance between tree branches and utility facilities. If used, such pre-established clearing limits should allow for variables such as

- tree species characteristics
- expected growth rate
- natural tree structure
- expected reaction to pruning
- wood strength
- overall tree health
- length of time until next scheduled pruning
- type of facility (voltage, construction type, etc.)

Factors such as the presence of other trees, buildings, terrain, and other site features also contribute to the shape or growth patterns of trees and should be taken into account when obtaining clearances.

Utility arborists should be familiar with the characteristics of trees in the areas where they work and should obtain clearances accordingly. For example, more clearance may be necessary on fast-growing or weak-wooded trees. When minimum clearances are required, pruning cuts should be made at the next suitable lateral or parent limb beyond the specified distance whenever practical (see Figure 8).

Rounding Over and Stubbing Cuts

Rounding over, or *topping*, is the now discredited practice of indiscriminately stubbing the entire crown of a tree (Figure 12). In this process, a series of heading cuts are made between lateral branches, rather than at the lateral. This once widespread practice is now considered unacceptable because it severely damages trees and encourages rapid re-growth. Many tree species respond to heading, topping, rounding over, or other severe treatments with a flush of fast-growing sprouts, which can rapidly overtake conductors (Figure 13).

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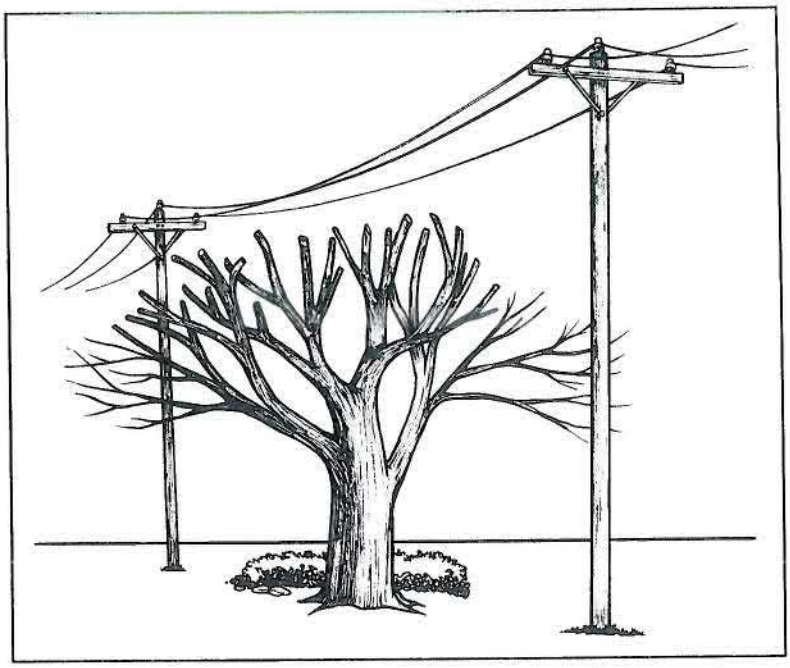

Figure 12. Rounding over, topping, or stubbing severely damages trees and is now a discredited practice.

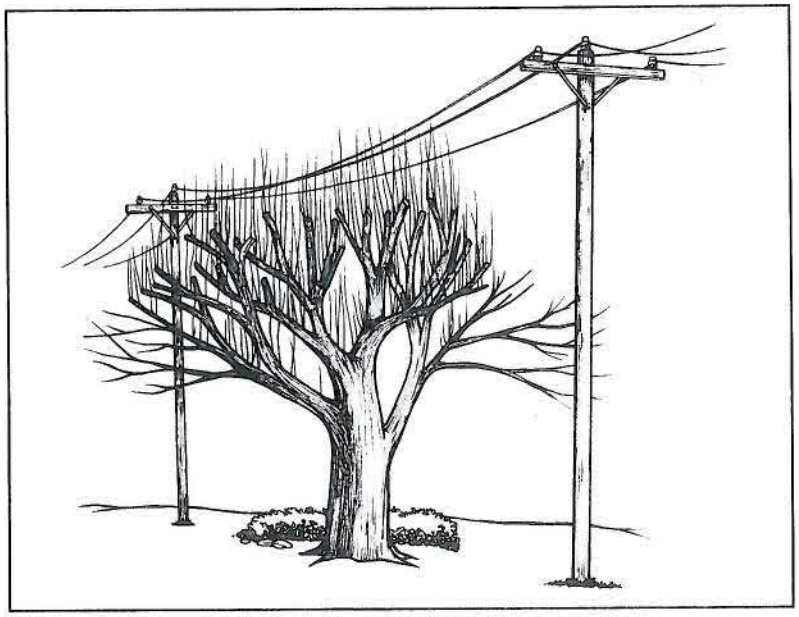

Figure 13. Many trees respond to rounding over with a flush of fast-growing sprouts directly back toward the electric facilities.

Trees sprout heavily following rounding over or severe pruning and produce rapid new growth, often right back into the area in which it is least desirable. In addition, repeated rounding over depletes food stores, weakens trees, and increases susceptibility to insects, diseases, and failure. In contrast, directional pruning cuts to laterals, which removes only what is necessary, protects tree health, and more effectively clears the facility.

Pollarding

Pollarding is an established pruning method that maintains certain species of trees and shrubs at a predetermined size by systematically removing annual growth. Many people mistakenly refer to the indiscriminate rounding over and heading of trees to reduce their size as *pollarding* (Figure 14).

True pollarding is a careful and deliberate process. It is accomplished by making strategically placed heading cuts, after which all new shoots are carefully removed

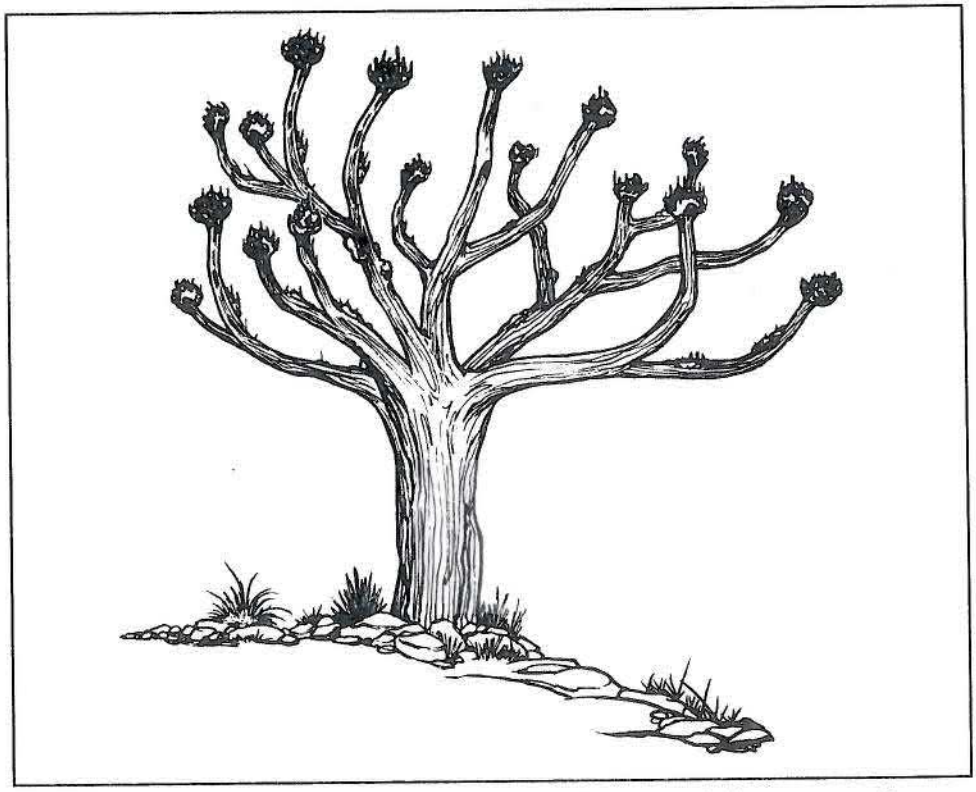

Figure 14. The practice of pollarding requires annual removal of all sprout growth, without damaging the woody knobs that form at the ends of branches. Rounding over or stubbing is *not* the same as pollarding. Pollarding is generally not practical under utility facilities.

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every year, without damaging the woody knobs, or *knuckles*, that develop at the sites of the original cuts. For more information on pollarding, refer to *Best Management Practices: Tree Pruning* (published by ISA).

Though pollarding is effective in controlling the size of certain tree species, the required frequency of pruning and accompanying cost make routine use of this method impractical along utility corridors.

Tree Response to Utility Pruning

Following pruning, the amount of sprout growth is determined by a number of factors, including

- **Species:** Some tree varieties such as sycamore (*Platanus* spp.), cottonwood (*Populus* spp.), certain maples (*Acer* spp.), linden (*Tilia* spp.), and others are known for prolific sprouting following pruning.
- **Pruning method:** Trees cut back to suitable laterals sprout less than trees that are rounded over, headed back, or pruned to laterals too small to assume dominance.
- **Vitality:** Trees in good health, with plenty of stored reserves, are likely to respond with vigorous growth, often in the form of sprouts. Severely stressed trees may also invest their last reserves in heavy sprout growth.
- **Amount removed:** The larger the percentage of crown removed, the stronger the expected growth response from a vigorous tree.

Cycle Pruning

Pruning for clearance is best done on a regular, cyclical basis. Cycle pruning has many demonstrable advantages, including enhanced utility reliability, reduced biological and aesthetic impact on trees and neighborhoods, and stabilized or reduced tree maintenance budgets. To allow for variation in re-growth rates among different species, clearance distances should be recommended for individual species based on expected growth rates.

Cycle length is the amount of time between scheduled pruning operations. The cycle length should be established to ensure that tree growth will not overtake utility facilities prior to the next scheduled pruning. The optimal pruning cycle length is determined by the amount of clearance that can realistically be obtained as well as the expected growth rates of the trees present. Maintenance cycles generally are shorter in areas with long growing seasons or with a high percentage of fast-growing tree species. Likewise, in areas with short growing seasons or many slow-growing tree species, maintenance cycles can be longer.

Cycle lengths may vary even under the same growing conditions. For example, in urban areas, comparatively large clearances may not be achievable due to restricted easements or for aesthetic reasons. In rural areas, or when easements allow, greater clearance distances may permit longer pruning cycles.

The type of utility construction or the priority of the facility might also affect planned cycle length.

Mid-Cycle Pruning

When economically feasible, fast-growing trees that would otherwise shorten cycle length may be controlled with a mid-cycle pruning program. Such treatments target trees that are growing significantly faster than most of the other trees on a scheduled pruning cycle, enabling a longer cycle for the remaining trees.

Tree Growth Regulators

Tree growth regulators (TGRs) are chemical products designed to slow tree growth. They are effective in reducing the rate of shoot growth and in reducing the volume of material that must be pruned and disposed of in the future.

TGRs sometimes are used to extend or maintain pruning cycles, often by targeting fast-growing trees. Their use has the potential to reduce the overall amount of pruning required to maintain utility corridors.

Recovering Overgrown Facilities

Without a cyclical pruning program, trees grow to assume their natural shape and size, often completely hiding the presence of a utility facility. This situation is inherently unsafe and poses an unacceptable threat to utility services. Such trees may require extensive pruning, or even complete removal, before the facility is sufficiently cleared (Figure 15). The results of these operations can significantly alter the appearance of trees and neighborhoods.

The cost of pruning operations in recovery situations has been shown to be significantly higher than that incurred in routine, cyclical maintenance. In addition, the costs of service interruptions, repairing damaged facilities, and associated negative publicity can be significant. Further, liability for injury, fires, and property damage can be significantly larger if it can be demonstrated that an inadequate clearance program was a contributing factor. To avoid the many problems inherent in recovering overgrown facilities, a routine maintenance program with an appropriate cycle length should be implemented.

Palm Pruning

Many palm species grow large enough to affect utility facilities. Even palms not immediately adjacent to facilities may pose a threat because of their height and

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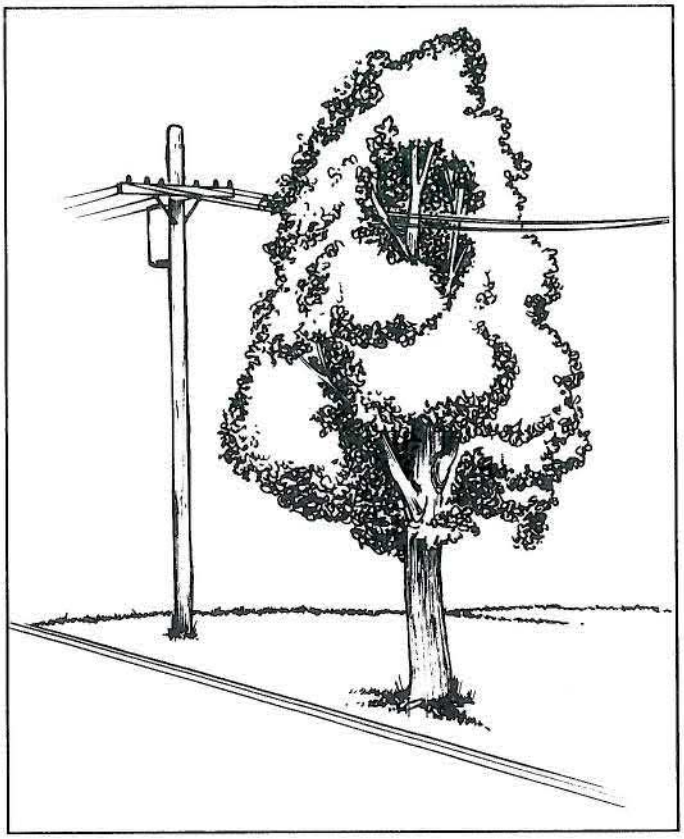

Figure 15. Trees not maintained on cycle will assume their natural form regardless of the presence of utility facilities. Recovery of the facility may require extensive pruning or tree removal.

large fronds, especially during high winds. Flexible palm stems sway, and fronds may break free and travel a considerable distance from the tree (Figure 16).

Members of the palm family (*Palmae* spp.) are physiologically different from other trees encountered in utility arboriculture. All upward growth in palms begins in the bud, or meristem, located at the top of the stalk, just below the point where the fronds originate. If this bud is damaged or removed, then the remaining stem will die. Therefore, palms cannot be reduced in height or directionally pruned like other trees. Side pruning, likewise, is not recommended, because palms quickly replace pruned fronds.

The best solution for palms interfering with utility facilities is removal or relocation. Relocation should be undertaken only if the operation can be cost-effectively accomplished without further impacting the facility.

Pruning vs. Removal

As a general rule in utility vegetation management, trees costing as much or more to prune than to remove should be removed. But there may be cases when pruning is preferred over removal, or vice versa, regardless of cost considerations. For example, local policies may give consideration to property owner preference. Under some circumstances, relocation of young, tall-growing trees may be a practical alternative to removal.

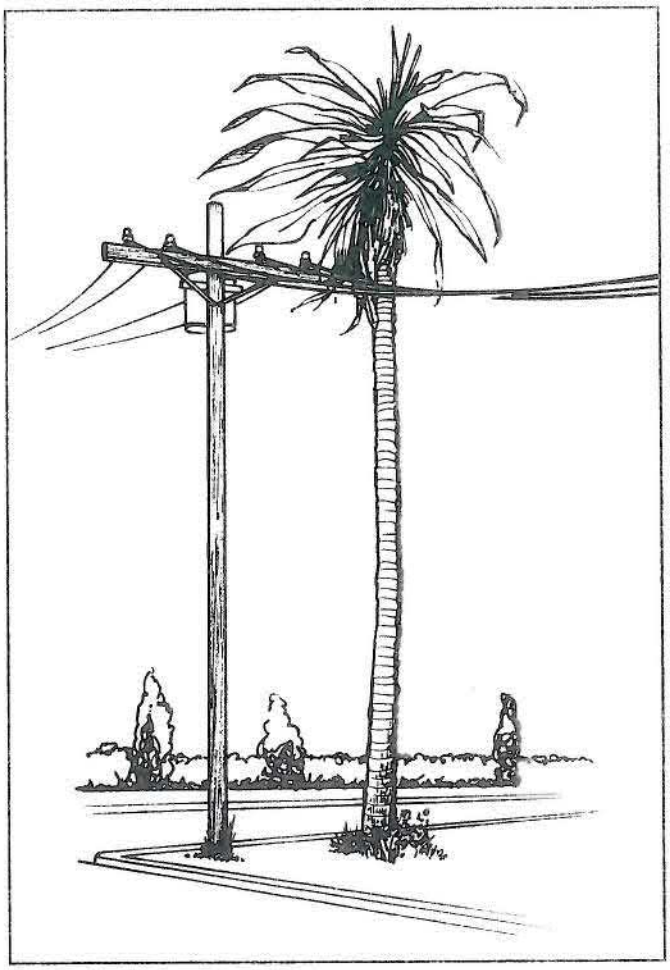

Figure 16. Palms cannot be directionally pruned and pose unique challenges because of their growth habit and large fronds.

Removing trees that otherwise must be repeatedly pruned certainly saves future maintenance dollars, even if the removal cost is considerably higher than pruning. However, when making the decision to allocate resources for removals over pruning, it is important to consider the effect of the decision on overall program objectives.

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Remote/Rural Environments

Utilities operating in remote or rural areas must frequently maintain many miles of wooded utility corridors. In such areas with high tree density, typical arboricultural practices that have been described thus far may prove impractical. For example, climbing spurs, which rarely are used for pruning in urban settings, may be acceptable for utility pruning operations in these locations. Utility arborists should carefully weigh long-term costs versus the potential impact on tree health before specifying the practices described in this section.

Mechanical Methods

In many rural locations, large-scale, mechanized operations are used to increase efficiency. Large saws are mounted on high-reaching booms to prune limbs alongside right-of-way corridors. In some areas, saws might even be suspended from helicopters.

When undertaking mechanized pruning operations, it should be understood that the cuts obtained will be of lesser quality than those obtained when cutting by hand. An effort should be made to make cuts outside the branch bark ridge and branch collar and to minimize excessive wounding to the bark and to the parent trunk or limb.

Chemical Side Trimming

Chemical side trimming is a method that applies a specific type of herbicide to selected branches along the side of a right-of-way corridor. The branches eventually die and are naturally shed by the tree. This method has been shown to be an efficient way to control branches that will not threaten facilities when they fall. To avoid future hazards, care must be taken to prevent excessive treatment.

Emergency Service Restoration

Threat from Storms

Extreme weather, such as high winds or ice storms, often causes tree failures, which may severely impact utility facilities. Storms can be local events or can affect entire regions. The level of threat depends on the probability of severe weather occurring in an area, the tree density and species mix, and the amount of maintenance done on trees near utility facilities.

No geographical areas are completely free from the threat of storms, though some areas are more likely to experience severe storms on a regular basis. Utility storm response plans should include provisions for widespread tree failures. Additionally, a cyclical tree pruning program, using appropriate specifications, will help reduce the potential of damage to facilities caused by tree and branch failure during storms.

Deviation from Standards Following Storms

Following severe storms, tree damage is often widespread, and utility services may be interrupted across a large area. At such times, government authorities or utilities may declare an emergency. Emergency service workers, including utility arborists, are likely to be involved in a coordinated effort to restore critical services. Damaged trees have the potential to imperil the safety of both the public and utility workers. To expedite restoration efforts under such urgent circumstances, it may be necessary for workers to deviate from standard pruning practices until the emergency is over and services are restored.

Corrective Pruning

Following a storm emergency, the condition of remaining trees should be assessed. Ideally, this assessment will be performed by utilities, local governments, and other property owners as a coordinated effort. Corrective pruning methods should be employed when practical and should follow clearly defined goals and objectives.

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References/Suggested Reading

American National Standards Institute. 2008. *American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)* (A300, Part 1). Tree Care Industry Association, Manchester, NH.

American National Standards Institute. 2006. *Arboricultural Operations – Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements* (Z133.1). International Society of Arboriculture, Champaign, IL.

Browning, D.M., and H.V. Wiant. 1997. The economic impacts of deferring electric utility tree maintenance. *Journal of Arboriculture* 23:106–112.

Clark, J.R., and N.P. Matheny. 1993. *A Handbook of Hazard Tree Evaluation for Utility Arborists*. International Society of Arboriculture, Champaign, IL.

Eisner, N.J., E.F. Gilman, and J.C. Grabosky. 2002. Branch morphology impacts compartmentalization of pruning wounds. *Journal of Arboriculture* 28:99–105.

Gilman, E.F., and S.J. Lilly. 2008. *Best Management Practices: Tree Pruning*. International Society of Arboriculture, Champaign, IL.

Harris, R.W., J.R. Clark, and N.P. Matheny. 2004. *Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines* (4th ed.). Prentice Hall, Upper Saddle River, NJ.

Institute of Electrical and Electronics Engineers. 2002. *National Electric Safety Code*. IEEE, New York, NY.

Johnstone, R.A. 1988. Economics of utility lateral trimming. *Journal of Arboriculture* 14:74–77.

Lilly, S.J. 2010. *Arborists' Certification Study Guide*. International Society of Arboriculture, Champaign, IL.

O'Callaghan, D.P., and D.L. Ham (Eds.). 2002. *Utility Specialist Certification Study Guide*. International Society of Arboriculture, Champaign, IL.

Occupational Safety and Health Administration. *29 CFR 1910.269, Electric Power Generation, Transmission and Distribution*. U.S. Department of Labor, Washington, DC.

Shigo, A. 1990. *Pruning Trees Near Electric Utility Lines*. Shigo and Trees, Associates, Durham, NH.

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PORTLAND PARKS & RECREATION℠

Healthy Parks, Healthy Portland

Integrated Pest Management Program

Includes updates to 7/9/2019

TABLE OF CONTENTS

General Information

The purpose of this document is to provide Portland Parks and Recreation employees with an overview of integrated pest management principles and specific policy-based direction for implementing those principles.

Mission Statement

The mission of the Parks and Recreation Pest Management Program is to manage pests that are harmful to the health, function or aesthetic value of park landscapes in an efficient, effective, and environmentally responsible manner, while paying careful attention to public and employee safety. To accomplish this, the principles of Integrated Pest Management are utilized. This progressive and sustainable approach uses multi-faceted strategies that minimize economic, health, and environmental risks.

Asset

Portland Parks & Recreation is part of the City of Portland and is the steward of over 11,500 acres of land at more than 250 locations including regional, community and neighborhood parks, natural areas, recreational facilities, special gardens, and trails. These parks contain over 2.2 million square feet of developed shrub beds, 6 botanic gardens including 3 specialty rose gardens containing 20,000 roses, 1,360 acres of turf with 365 athletic fields, five 18-hole golf courses, and over 7,000 acres of natural areas. It also offers a wide array of recreation and enrichment opportunities for people of all ages.

Portland Parks and Recreation is charged with maintaining these diverse park landscapes in a safe, attractive, healthy, and useful condition. Park properties represent a major component of the city's capital assets and PP&R recognizes its responsibility to protect and preserve this economic investment to the best of its abilities. PP&R also recognizes its responsibilities to its employees, park users, and the general public, and seeks to employ the highest professional standards in the performance of its duties. To best manage pests in park lands, PP&R personnel utilize the principles of Integrated Pest Management (IPM).

Integrated Pest Management

On March 2, 1988, Portland City Council passed a resolution that directed Portland Parks and Recreation to "adopt and begin implementation of a grounds maintenance policy embodying the principles of Integrated Pest Management."

Integrated Pest Management is one of the major strategies used by PP&R in the maintenance of park lands. Although there are numerous definitions of IPM, the following is from the U.S. Environmental Protection Agency for its publication, *IPM for Turfgrass and Ornamentals*:

"IPM is the coordinated use of pest and environmental information with available pest control methods to prevent unacceptable levels of pest damage by the most economical means with the least possible hazard to people, property, and the environment. The goal of IPM is to manage pests and the environment so as to balance costs, benefits, public health, and environmental quality. IPM systems use all available technical information on the pest and its interactions with the environment. Because IPM programs apply a holistic approach to pest management decision-making, they take advantage of all appropriate pest management options, including, but not limited to pesticides. Thus IPM is: A system using multiple methods; A decision-making process; A risk reduction system; Information intensive; Cost-effective; Site specific."

And this definition is from the Oregon Statutes (ORS 262.1), Chapter 943:

"Integrated pest management' means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategies in an environmentally and economically sound manner to meet pest management objectives. The elements of integrated pest management include: (a) preventing pest problems; (b) monitoring for the presence of pests and pest damage; (c) establishing the density of pest population, which may be set at zero, that can be tolerated or corrected with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic or aesthetic threshold; (d) treating pest problems to reduce population below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical and pesticidal control methods and that shall consider human health, ecological impact, feasibility and cost effectiveness; and (e) evaluating the effects and efficacy of pest treatments."

The IPM process first determines if a pest needs to be managed, and if so, how best to do it. Key elements are information gathering, well-informed decision making and monitoring of results. The IPM process promotes effective, low-risk management strategies to manage pests.

The controls used in this program include cultural, physical, mechanical, manual, biological and pesticidal methods and materials. Often a combination of methods is used. Methods selected to manage specific pest populations are evaluated by licensed and trained PP&R professionals on a case-by-case basis. The methods employed conform to recognized standards established and endorsed by state and federal regulatory agencies, state educational institutions and organizations such as the Western Integrated Pest Management Center.

A few examples of IPM activities within the PP&R program:

- Utilizing plants with natural resistance to pests.
- Proper mowing and irrigation of park turf to increase vigor and reduce weed populations.
- Mulching of planting beds to reduce establishment of weeds.
- Application of selected herbicides to control invasive weeds and prevent their spread.
- Release of natural biological control insects to control invasive weed infestations.

Key elements of an IPM program are information gathering and informed decision-making. PP&R horticulturists, botanic specialists, park technicians, and tree inspectors are skilled in identifying and evaluating pest problems. When pest problems occur that are novel or beyond the scope of in-house experts, advice is obtained from other qualified sources such as state universities, state departments of agriculture, and university extension service experts. Oregon Public Pesticide Applicators License continuing education classes reinforce employee skills and provide current information concerning laws, safety, pests, and IPM methods.

PP&R employees monitor levels of pests in order to arrive at the best solution for managing a pest problem. When pest management methods are implemented by trained IPM personnel, it results in solutions that are economically and environmentally responsible. This provides the public with safe, healthy, and aesthetically pleasing park areas for many uses.

Pesticide Use

Pesticide is a general term for any substance intended for preventing, destroying, repelling, or mitigating any pest. Park pests consist primarily of unwanted vegetation and invasive weeds, but can also include insects, diseases, rodents, and other organisms. To manage these pests, PP&R personnel select the best methods available. In most cases pesticides are not a necessary tool, but when they are needed as part of an IPM approach, PP&R minimizes risk by careful product selection and application. Pesticides vary greatly in their toxicological characteristics therefore choice of materials is a key element of good IPM decision making. When developing and updating PP&R's IPM program, the best expert scientific opinion is relied upon on to inform staff about potential materials and methods. Assessments from state and federal regulatory agencies, state university departments in Oregon and Washington, university extension scientists, and other experts in the field provide much useful specific information. PP&R turns to these recognized experts for credible science-based information. PP&R also stays current with the latest pertinent studies as part of our process. By basing decisions on these authoritative sources the best solutions can be obtained within an IPM framework. Portland Parks and Recreation has found that as part of a complete IPM approach, judicious use of carefully selected pesticides can be an important tool in ensuring quality landscapes and healthy and diverse natural areas. The demonstrated benefits of these balanced management practices have made PP&R a model of responsible park management throughout the region.

PP&R pesticide applicators are required to comply with all pesticide label directions, federal, state, and local pesticide regulations, applicable safety laws, and PP&R policies. Misuse of pesticides will not be tolerated. DOCUMENTED NONCOMPLIANCE WITH STATE AND FEDERAL LAWS OR RULES SET OUT IN THESE POLICIES IS CAUSE FOR EMPLOYEE DISCIPLINARY ACTION.

Safety

Portland Parks and Recreation's excellent safety record with respect to the use of pesticides has been made possible thorough appropriate training, careful processes for pesticide product approval, and employee adherence to label directives and safety procedures during use.

When pesticides are being applied in park areas by PP&R personnel, notification signs are posted at points of entry to the treated areas. These signs include information about the pesticides being applied as well as contacts for additional information.

When pest management equipment is being used and materials are being applied by PP&R employees, all appropriate personal protective equipment is provided for each worker. Use of such equipment is an important part of safely applying pesticides.

Portland Parks and Recreation works with the Portland Water Bureau to protect the city water supply from all types of contamination and recognize the special circumstances raised by the presence of reservoirs within parks. Procedures regarding the specific details of park maintenance of areas bordering reservoir property are found in the Pesticide Use Around Water Bureau Property Policy.

Laws and Regulations

Several federal and state agencies regulate the use of pesticides. Portland Parks and Recreation conforms to all applicable pesticide laws and regulations. In many instances, PP&R exceeds these legal standards. For example, PP&R allows only Oregon State licensed Pesticide Applicators to apply pesticides of any kind on park land. To obtain a Public Pesticide Applicator's license,

applicators must pass a series of tests administered by the Oregon Department of Agriculture covering pesticide laws, safety, use, IPM, and other subjects. Applicators are legally liable if they apply pesticides contrary to state and federal laws and label directions.

Oregon State Department of Agriculture certified continuing education is provided by PP&R to satisfy state requirements for renewal of employees' applicator licenses. Once licensed, applicators must accumulate forty credit hours of state approved recertification training over a five-year period to maintain their license. PP&R provides sufficient recertification training hours to its employees every year. Class sessions are tailored to provide instruction in diverse aspects of pest management and safety that are relevant to park and natural area IPM.

Applicators are required by law to record specific information when applying pesticides. PP&R has designated forms for this purpose, which are included in this document. Examples of the information recorded are: date of application, time of application, conditions, locations, and formulations and amount applied. Examples of these forms are found in appendices 2 and 3.

Agricultural Worker Protection Standard

The Worker Protection Standard (WPS) are federal regulations designed to protect agricultural workers (people involved in the production of agricultural crops) and agricultural pesticide handlers (agricultural workers mixing, loading, or applying pesticides or tasks involving direct contact with pesticides). These rules apply only to agricultural settings, not park use. However, elements of Portland Parks and Recreation nursery and greenhouse operations may be considered to fall under the scope of these rules. Applications of pesticides in these two areas are governed by the PP&R policy, state and federal law, and the additional rules of the WPS.

These rules require worker training regarding pesticide exposure, protection, and mitigation. They also require specific notification and worker re-entry intervals for pesticide applications in plant production areas. All employees in the nursery and greenhouse operation receive training to satisfy the Worker Protection Standards. All operations carried out in the nursery and greenhouse comply with WPS requirements.

Integrated Pest Management Methodology

Approved Pest Management Strategies

The following summary provides examples of possible management strategies among the many methods available.

Prevention of pest problems through good policy, design, and plant selection are assessed first. Next to be assessed are cultural practices, physical means, mechanical practices, trapping, biological controls, and use of natural and synthetic pesticides. All of these IPM measures are then evaluated and considered together so that the best overall pest problem solutions are chosen and implemented.

PEST PREVENTION

Through policy

Management of pests through adoption of policy can be highly effective and low in cost. Such policies can often eliminate problems before they begin. Some examples are:

- Prioritization of parks for control measures may be considered. Different park areas may have varying standards of acceptable care and appearance. Determining whether a particular park area requires control of pests and the level of that control must take these differences into account. Careful attention to public desires and needs must be part of this prioritization process.
- Establishment of thresholds for action and the tolerance level for different pests in a general or specific form are parts of the IPM process. These thresholds vary according to plant, pest, and site. Determinations of action thresholds are made on a case-by-case basis.

Through design and plant selection

Proper park design and plant selection are significant ways to avoid pest problems. While no landscape can be designed to be free of pest management needs, such considerations need to be part of the planning process. Examples are:

- Use of disease or pest resistant or tolerant plant species or varieties.
- Removal of pest-susceptible plants, or replacement with pest resistant plants or varieties.
- Elimination or modification of problematical areas.
- Matching specific plant needs with site conditions to ensure plant health.
- Maintenance of species diversity and elimination of monocultures in plantings where applicable.
- Establishment of overstory plantings, occluding groundcover plantings, and other design techniques benefiting both the establishment of plants and the reduction of weed problems.

PEST MANAGEMENT

Through cultural practices

Proper cultural practices are essential in establishing healthy landscapes and can often help to maintain their resistance to pest problems. Examples are:

- Providing proper specific growing conditions for optimum plant health and pest resistance.
- Adequate site, soil, and grade preparation before landscape installation.
- Use of disease resistant grafting rootstock or scion wood.
- Proper timing and use of water to eliminate over or under watering.
- Proper timing and use of fertilization to eliminate over and under-fertilization.
- Aeration, over-seeding, and top-dressing to improve turf health and suppress weeds.
- Raking and debris removal to remove pest sources.
- Pruning and plant removal to promote optimum conditions for plant health.
- Removal of diseased, infested, damaged, or dead wood.
- Mulching for weed reduction, water retention, winter protection and root zone improvement.

Through mechanical and physical controls

Mechanical and physical methods are often employed to manage pests. Examples are:

- Mechanical clearing of weeds in rough areas.
- Hand weeding in shrub beds.
- Mowing of rough turf areas for vegetation control.
- Traps such as yellow sticky boards for greenhouse insects and traps for mammalian pests.
- String trimming to control unwanted vegetation.

Through biological controls

Where applicable, biological control of pests is often a desirable method. Minimizing disruption of natural pest controls that may be present is typically most important. Examples are:

- Introducing insect or disease parasitoids, predators, and microbial products to control pests.
- Minimizing the use of disruptive techniques and materials in landscapes that may destroy natural pest control organisms.

Through naturally derived and synthetically derived pesticides

Pesticides are derived from many sources, vary widely in their characteristics and must be examined individually to determine their suitability within the IPM approach. Examples are:

- Placement of pheromone traps.
- Disinfecting materials or equipment to prevent spread of pests.
- Application of naturally and synthetically derived pesticides.

Criteria for Choosing a Pest Management Method

When choosing a pest management method or pesticide material from the approved lists located in Appendix 1, all personnel should consider the following, and any additional factors relevant to the selection.

Nature of the site

- Erosion susceptibility and potential movement of soil through runoff.
- The intended use and function of the landscape.
- The feasibility of the method given the area and scope of the problem.
- The relative importance and public expectation of a site or plantings.
- Site conditions such as soil type, grade, drainage patterns, and presence of surface water.

Possible health and safety effects

- Consider both short and long term toxicological properties and any other related potential health effects of the materials or methods, both to the applicator and the public.
- Equipment operation safety issues for both the operator and the public.
- Worker safety and worker injury issues involved with carrying out the method.

Possible environmental effects

- Consider both acute and chronic toxicity and any other related potential effects of the material or method to non-target organisms including mammals, birds, amphibians, fish, invertebrates, pollinators (see Appendix 7) and other organisms.
- Environmental effects from potential bioaccumulation from materials used.
- Potential impacts to non-target plants, forage, and nesting habitat, from materials or methods.
- Potential impacts to federally listed threatened or endangered species.
- Possible introduction or establishment of invasive plants.
- Nesting birds: For natural area invasive plant removal, the presence of nesting birds in area to be treated. See BES TEES document: https://www.portlandoregon.gov/bes/77851
- Pollinator protection: See Appendix 7, Insecticide use and Pollinator Protection.

Costs

Both short and long term costs as they relate to:

- Costs of the material or method.
- Application and labor costs.
- Length and quality of pest control.
- Feasibility of using a particular method or product.

Characteristics of the product

- Target pests and target sites of the product being used.
- Possible residual effect, decomposition pathways, rates, and breakdown products.
- Volatility and flammability.
- Product formulation and package size.
- Leachability, solubility, and surface and soil bonding characteristics of the product.
- Ease of cleaning equipment after use.
- Positive and negative synergistic effects of pesticide combinations.
- Presence of "inert" constituents of the product formulation and their potential effects.

Other special considerations

- Application equipment availability.
- Method of delivery.
- Current and anticipated weather conditions.
- Previous pesticide applications to the site and the interval between treatments.
- Possible development of pest resistance to a particular management method or material.

Outline of Policies

Licensing and Training

1. LICENSING, CERTIFICATION AND CONTINUING EDUCATION OF PEST MANAGEMENT PERSONNEL- Defines the required State of Oregon licensing requirements and recertification obligations and training for PP&R applicator personnel.

Pest Management Procedures

2. MANAGEMENT METHODS FOR PEST PROBLEMS- Establishes the IPM methodology and approved strategies.

3. PESTICIDES APPROVED FOR USE IN PARKS- Describes the approval process for pesticides. Approved product lists for each unit are located in the appendices.

4. NOTIFICATION OF PESTICIDE USE AT THE SITE- Outlines the on-site notification procedures to be used before, during and after applications.

5. PESTICIDE APPLICATION ON PARK PROPERTY AND STREET RIGHTS OF WAY- Establishes procedures on how to apply pesticides on all park lands.

6. PESTICIDE APPLICATION RECORD KEEPING- Outlines record-keeping standards for parks applications. Recording form samples are located in appendices.

Pesticide Material Management

7. USE OF REMAINING PESTICIDE SOLUTIONS AND RINSES- Outlines how residual pesticides and rinsates are handled.

8. STORAGE OF PESTICIDES- Defines methods and procedures for storage of pesticides.

9. DISPOSAL OF EMPTY PESTICIDE CONTAINERS AND UNUSABLE PESTICIDES- Establishes the fate of surplus or contaminated pesticides and empty containers**.**

Safety Measures and Emergency Response

10. USE OF PROTECTIVE CLOTHING AND EQUIPMENT- Describes appropriate personal protective clothing and equipment for use by PP&R personnel when handling or applying pesticides.

11. EMERGENCY INFORMATION CONCERNING ACCIDENTAL PESTICIDE EXPOSURE- Defines the procedures followed in responding to inquiries from PP&R employees and the public regarding pesticide exposure.

12. PESTICIDE SPILL RESPONSE- A policy dealing with any unintended release of pesticides on or off PP&R properties. Outlines responsibilities, training, reporting, methods, and materials involved.

13. WORKER PROTECTION STANDARD- Outlines the background of the WPS and how it relates to the nursery and greenhouse operations of Parks and Recreation. Establishes training duties and defines those required to receive training.

Special Situations

14. PESTICIDE APPLICATION BY NON-PP&R EMPLOYEES- Establishes the framework for review of all pesticide applications to PP&R property proposed by outside contractors.

15. RAT AND MOUSE MANAGEMENT- Describes approved methods of rodent management by Parks and other personnel**.**

16. TURF BROADLEAF WEED MANAGEMENT- Describes procedures, rationale, and approval process for management of broadleaf weeds in maintained park turf areas.

17. PESTICIDE USE AROUND WATER BUREAU PROPERTY- Explains the joint policy between Parks and Recreation and the Water Bureau to ensure a safe water delivery system.

18. PESTICIDE USE AROUND COMMUNITY GARDENS- Outlines procedures and limitations of pesticide applications adjacent to PP&R Community Garden sites**.**

19. WATERWAYS PEST MANAGEMENT- This policy defines specific practices, methods and materials approved for use alongside, and within aquatic sites. This policy, as well as all of the preceding policies, have been specifically referred to in the National Marine Fisheries Service Federal Endangered Species Listing 4(d) rule.

20. VEGETATION MANAGEMENT IN WOOD CHIPPED CHILD PLAYGROUND AREAS - Defines special pest management practices in chip surfaced playground areas.

21. VENOMOUS INSECT MANAGEMENT - Describes how venomous insects such as wasps, bees and hornets on parkland are addressed.

22. DOG OFF LEASH AREA PEST MANAGEMENT - Specifies how pest management in designated dog off leash areas is carried out.

23. NPDES GENERAL PERMIT COMPLIANCE FOR PESTICIDE USE IN OR NEAR WATERWAYS - Allows for compliance with Oregon's general NPDES permit for use of pesticides in, or near water.

24. MOLE AND GOPHER MANAGEMENT - Details how PP&R personnel manage these pests.

25. NEONICOTINOID INSECTICIDE USE ON PP&P PROPERTY – Details implementation of the COP Neonicotinoid Prohibition ordinance and use of these insecticides on PP&R property.

Policy 1:

Licensing, Certification, and Continuing Education of Pest Management Personnel

PURPOSE

This policy defines the education, training, licensing, and certification requirements for applicators who are applying pesticides, or supervising others applying pesticides.

BACKGROUND

State pesticide applicator licensing assures a level of expertise and familiarity with pest management practices and pesticide materials. PP&R is committed to maintaining a high level of expertise in our workforce. The continuing education requirements of state licensing also help to keep personnel up-to-date on pest management theory and practice. Therefore PP&R requires that all personnel applying pesticides on park land maintain an Oregon state applicators license.

POLICY

All Parks and Recreation personnel applying pesticides on park lands shall be certified as state public pesticide applicators by passing the appropriate State Department of Agriculture examinations. In order to maintain a valid license the applicator currently must acquire a minimum of 40 hours of state accredited supplementary education over a five-year period, with no more than 15 hours accumulated in any given year. To maximize the value and relevance of the recertification training, PP&R will recruit qualified speakers and present its own state-certified classes twice yearly. Recertification class hours from other accredited sources may also be used to supplement PP&R classes.

Ultimate responsibility for maintaining a valid license lies with the applicator. PP&R will keep pesticide applicators informed of approved education to meet continuing certification and licensing requirements. Information regarding state licensing requirements and status may be found at the Oregon Department of Agriculture's website: http://www.oregon.gov/ODA/PEST/

Unless special arrangements and approvals have been made, all PP&R applicators must be permanent status employees. Regardless of licensing status, no seasonally employed staff members shall apply pesticides on park land without special arrangement. This arrangement shall consist of the consent of the Pest Management Coordinator, and specific approval of a City Nature or Zone manager or program coordinator following a request from the supervisor of the seasonal employee.

Policy 2:

Management Methods for Pest Problems

PURPOSE

This policy establishes the principles governing PP&R's approach to pest management for all of its lands.

BACKGROUND

Portland Parks and Recreation utilizes the principles of Integrated Pest Management in managing land under its care. IPM is a coordinated decision making process that uses the most appropriate management strategy on a site specific basis. The IPM process first determines if a pest needs to be managed, and if so, how best to do it. Key elements of an IPM program are information gathering, well-informed decision making and monitoring of results. Through proper decision making, the IPM process promotes effective, low-risk management strategies to manage pests.

The management techniques used in this program include cultural, physical, mechanical, manual, biological and pesticidal. Often a combination of methods is used. The following terms are used as defined.

Threshold is used to describe a level of pest presence above which unacceptable amounts of negative plant health impacts, negative environmental impacts, negative effects on infrastructure and assets, intolerable aesthetic impacts, or undue safety risks are likely to occur. *Action level* is the point at which control measures are necessary to prevent a pest population or its impact from exceeding the threshold.

POLICY

PP&R shall employ integrated pest management principles in managing pest problems. Managers, Supervisors, Superintendents, Botanic Specialists, Horticulturists, Park Technicians, Tree Inspectors and other licensed applicators shall monitor plant health status, landscape conditions, and the presence of unwanted vegetation. They will assess appropriate thresholds, and determine action levels on a site-by-site basis. All licensed applicators shall use the list of "Approved Management Strategies" to determine an effective, feasible, and economically sound pest management method that does not create undue risk to the public or the environment.

If a pesticide is chosen as the best method for pest management, licensed applicators shall choose appropriate materials only from the list of Approved Pesticides specific to their work unit found in Appendix 1. The suitability of the material, nature of the site, potential health and safety effects, potential environmental effects, overall costs, characteristics of the product and any other special considerations related to the situation shall be taken into account in this process. After control measures have been made, the site should be monitored to assess any impact and the efficacy of the measures taken.

Policy 3:

Pesticides Approved for Use by Portland Parks and Recreation Personnel

PURPOSE

This policy establishes oversight procedures over all pesticide materials available for use on park land by PP&R personnel. It defines the process of selection of pesticides that are approved for use on PP&R property.

BACKGROUND

Pesticides vary widely in their characteristics and their legally labeled uses. Not every registered pesticide will be appropriate for use within PP&R's IPM program. Also, certain pesticides may be suitable for a particular purpose or site, but be unsuited for another. Each prospective pesticide must be carefully evaluated for their suitability for a specific program use before they are included on an approved list.

IPM program needs for various pesticides change over time as new pest challenges arise. Also, pesticide material availability changes as products, active ingredients, and label uses are added or removed. The knowledge base about pesticides may change over time and this may influence their suitability for IPM program use. For these reasons, approved lists need to be flexible to allow for additions and deletions.

Parks and Recreation experience and IPM principles have demonstrated that it is more desirable to have a larger, more specialized selection of products that target specific pests, rather than a smaller number of general-purpose pesticides. This increase in selection not only allows for targeted use, it can also aid in limiting the effects of the control to the target pest only. It also may aid in reducing the number of resistant pests that can arise from continued use of a small number of controls. It can also lead to an overall reduction of pesticide usage required.

POLICY

The PP&R IPM program coordinator shall maintain work unit/site based lists of pesticides approved for use by PP&R personnel on park property. The lists shall be reviewed by the coordinator no less than annually to assure adequacy, and assure IPM goals are being met. It can be reviewed more frequently, as when new knowledge is obtained, or when new pests are encountered. Requests by staff to add products to the approved lists is made by submission of a request form to the coordinator. This request will include information regarding the product and its characteristics, expected uses, comparative costs, and how the product will improve the IPM program. The Coordinator will then research the product's characteristics, including toxicological, environmental, and physical properties. All aspects of potential use of the product and possible impacts to park users, park infrastructure and the environment will be examined. If the request is found to have merit to improve the IPM program, the Coordinator will then bring the request and associated relevant regulatory and background information to the pesticide approval committee for review. Proposed additions and deletions from the lists shall be approved by a committee consisting of at least three of the following PP&R staff persons: Westside Lands

Stewardship Manager, Eastside Lands Stewardship Manager, an Operations Supervisor, a Golf Course Superintendent, the Irrigation and Turf Supervisor, a Natural Area Supervisor, the Forestry Operations Manager, the Horticultural Services Supervisor, and the IPM Program Coordinator. The pesticide review committee shall be coordinated by the IPM Program Coordinator.

Once approved, the product will be placed on the approved list and affected staff informed. Deletions of products will be made known to staff as soon as practicable. A pesticide deleted from the general approved list but placed on the “Use Up Do Not Restock List” is approved for use within specified units until current supplies are exhausted or unless otherwise noted. All federal and state laws addressing use of pesticides will be upheld. Deletion of a pesticide due to loss of federal or state registration will be upheld without committee approval as per the schedule set by law.

Once approved, the list "Criteria for Choosing a Pest Management Method” shall be used by applicators when determining the proper pesticide for a given purpose, with further consultation with the IPM Coordinator when necessary. Pesticides shall be chosen after assessing toxicological impacts, environmental impacts, efficacy, feasibility, cost, and all other pertinent aspects of their use within an IPM approach. Only pesticides from the approved lists shall be chosen. Special consideration is to be taken when applications covered under the “Waterways Policy” take place. Pesticides allowed for those purposes are specifically defined within that policy. Special consideration of any potential insecticide use must be made to assure it is compatible with and take into account the principles found in the “Insecticide Use and Pollinator Protection” document in the appendices.

Use of pesticides for unauthorized, unapproved or illegal applications by PP&R staff will be cause for disciplinary action. Parks and Recreation IPM policy expects strict adherence to all pesticide label requirements concerning safe, legal and effective use of pesticides.

Policy 4:

Notification of Pesticide Use at a Site

PURPOSE

This policy establishes procedures for notification of applications for all pesticide materials being applied by PP&R personnel.

BACKGROUND

PP&R understands that park users may want to be informed of treatments. Label requirements for pesticide applications may also mandate that entry to treated areas be avoided for a specific interval. Park users may also wish to find out further information about pest management activities occurring at a park site. To satisfy these needs, all pesticide applications will be accompanied by on-site notification signage.

POLICY

It is the policy of the City of Portland to inform park visitors of pesticide application sites through the use of notification signs. These signs are posted before an application begins. They are placed in clearly visible locations such as conspicuous entrances or trail heads, and/or application site perimeters, with a maximum interval of 200 feet between each sign in open areas. The intent of the signs is to ensure that park users will encounter them before they have had an opportunity to enter a treated area during an application. This notification signage will include basic information about the application and appropriate contact numbers for those desiring more details about the pest problem and the approach being used.

Re-entry specifications will be listed if required by the label. Signs shall be removed after the re-entry specification has been met. For most products, this interval is limited to until the liquid application has dried or until any dust has settled from a dry or granular application.

As a convenience for Community Centers and schools in session, these entities should be notified in writing before an application is made to nearby adjacent properties. School or Community Center personnel can then schedule the activities of their users accordingly. The notification letter or its equivalent shall be delivered to the school or Community Center no less then 24 hours before any applications of pesticides are planned to take place. A form letter for this purpose is provided on appendix 4. In addition to this letter, a follow-up call may be helpful to supply the specific or range of dates and locations of any applications, and to answer any questions raised.

In the special case of application of pesticides to right of way or neighborhood parking strip tree canopies, signs will be placed on these street rights-of-way 24-48 hours prior to the application to allow car owners to relocate their parked vehicles if they desire.

Applications by PP&R staff to Portland Public School owned property must adhere to the PPS notification requirements. PP&R will work in cooperation with PPS to ensure notification that satisfies established PPS policy. Any work unit that intends to apply pesticides to PPS property will coordinate with the PPS Manager of Environmental Health and Safety before any application takes place: Patrick Wolfe, 503-916-3449.

Policy 5:

Pesticide Application on Park Property and Street Rights-of-Way

PURPOSE

This policy establishes procedures for applications for all pesticide materials being applied by PP&R personnel.

BACKGROUND

It is the policy of Portland Parks and Recreation for their employees to apply pesticides in a legal manner and to adhere strictly to all precautionary requirements for their use. This policy outlines procedures for pesticide application in parks and street rights-of-way that are maintained by PP&R employees. All registered pesticides are accompanied by a legal label specific to each product that defines all legal uses. Pesticides must be used according to these label directions.

POLICY

The pesticide must be used only on sites and targets specified in the label. Higher dosages, higher concentrations, or more frequent applications than the label allows for are not permitted. Directions for use, safety, mixing, diluting, storage, and disposal, as well as any restrictions on re-entry must be met.

The following criteria shall be met when applying pesticides. Some of these are addressed more specifically in other policies.

- The label is the law.
- Personal Protective Equipment shall be used wherever indicated by the product label and it must be maintained in a workable and safe condition.
- Spray equipment shall be maintained in a safe and useful condition. Where applicable, spray equipment shall be calibrated regularly.
- Anti-siphoning devices shall be used when filling large spray tanks.
- “Criteria for Choosing a Pest Management Method", as outlined on pages 9-10, shall be considered in making choices.
- Pesticides used shall be chosen from the approved lists as provided for the appropriate work units.
- Pesticides shall be applied only when appropriate weather conditions exist.
- Notification signs shall be posted in areas where pesticides are being applied.
- All applications shall be recorded on approved application record forms.

The law does allow an applicator to:

- Apply a pesticide at any dosage, concentration, or frequency less than that listed on the labeling,
- Apply a pesticide on any target pest not listed on the labeling if the application is to a crop, animal, or site that is listed on the label,
- Use any equipment or method of application not prohibited by the labeling,
- Mix a pesticide or pesticides with a fertilizer if the mixture is not prohibited by the labeling,
- Mix two or more pesticides, if all the dosages are at or below the recommended rates and such combinations are not contraindicated on the label.

Utilizing Pesticides on park property or Street Rights-of-Way

1. A park employee identifies or is informed of a pest problem.

2. Determine if actions need to take place. Thresholds and action levels are determined by a licensed applicator or supervisor for the specific pest problem in question.

3. Management strategies are determined by a licensed applicator. Special situations may require expertise from outside PP&R such as university diagnostic laboratories.

If pesticides are to be used:

4. Choose the pesticide using the "Criteria for Choosing a Pest Management Method, and "Approved List of Pesticides" for the appropriate work unit.

5. Check application equipment for safety and mechanical problems, calibrate if necessary.

6. Check weather conditions. Applications should be done when calm wind conditions exist to minimize drift. Adjustments should be made for spray droplet size and pressure if when conditions warrant. No application should take place where there is unacceptable drift.

7. Post notification signs before use to inform the public of the application. For specific rules, see the Notification Policy.

8. List re-entry specifications on the signs if required by the label.

9. Apply material according to the label and in accordance with state and federal regulations.

10. Record applications of pesticides on the approved forms. See appendices.

11. Remove signs after the label designated re-entry requirements have been met. This is usually when the liquid pesticide has dried, unless indicated otherwise on the label.

12. Evaluate the results of management measures.

Policy 6:

Pesticide Application Record Keeping

PURPOSE

This policy establishes recording and reporting procedures for all pesticide applications taking place on park land by PP&R personnel, or any other agency, bureau, company or individual whether they are acting as a contractor or acting in a voluntary manner.

BACKGROUND

PP&R finds that detailed record keeping is an essential part of IPM implementation, and is vital in communicating, reporting, and analysis of pest management activities. State law requires that written records be kept for pesticide applications. The law requires that licensed applicators record the details of pesticide applications and keep these records for three years. These records must be stored in a central location and be available for review.

POLICY

It is the policy of Portland Parks and Recreation to record and retain records of all pesticide applications performed on park land. Appropriate forms for this use will be provided by PP&R. Each application event will require an application form to be completed. Copies of completed application records should be sent to the Pest Management Program Coordinator on a monthly basis. A master file of these records shall be kept at a central location and maintained by the Coordinator. Each operating unit shall keep a record file related to pesticide applications by their own personnel. These records shall be retained for no less than three years.

Information regarding application of pesticides to park lands by non-PP&R personnel shall also be recorded including all information fields required by the ODA. Copies of these records must be provided to the Coordinator.

The following information must be included on the recording forms for each pesticide application by a PP&R employee: Date of application, name of applicator, state license number, work unit, application start and end time, temperature, wind conditions, equipment used, park or site, specific area treated, target pest, total area treated if applicable, names and EPA numbers of all products applied, total amount of dilute pesticide applied, coverage rate where applicable, mix ratio or percentage of dilute mixture, and aquatic buffer designation where applicable.

Applications on different dates or at different locations must have their own application record. They cannot be combined on one record.

(See the appendices for examples of record keeping forms.)

Policy 7:

USE OF REMAINING PESTICIDE SOLUTIONS AND RINSES

PURPOSE

This policy establishes procedures for the use and disposal of any pesticide remains generated by PP&R applicators. It outlines methods for use of remaining pesticide solution**s** and rinses in a legal and safe manner.

BACKGROUND

Applicable laws require that all pesticide solutions and rinses be applied to target areas according to label directions. These solutions and rinses may also be disposed of at an authorized pesticide disposal site. It is the goal of PP&R to conduct our pesticide operations so that disposal of remaining material is not necessary.

POLICY

Pesticide solutions and rinses should be applied according to the label directions, and to legal target sites so there are no pesticides remaining. This shall be accomplished by accurately gauging the amount of pesticide needed for the job. PP&R promotes the use of advance planning to minimize the number of times it is necessary to switch pesticides in spray equipment. In order to reduce the amount of excess rinsate, it is the policy of PP&R to rinse equipment only at the end of the spray cycle, or when changing to pesticides that are incompatible with those in the tank. It is a legal requirement to fully and legally label all tanks and sprayers containing leftover pesticides at the end of each day.

PROCEDURES

Following are some considerations to make before beginning an application to assure the proper amount of pesticide is mixed.

Advance considerations

- Weather conditions and predictions.
- Acreage/square footage of the job site.
- Calendar: special events, mowing, irrigation, etc.
- Type and size of the equipment appropriate to do the job.

When applying the pesticide use the following procedures to reduce and safely store the rinse solution. These are secondary to label information and State and Federal regulation.

- Mix only enough pesticide solution to do the job that day.
- Use up all pesticide, applying until the tank is empty, or no more solution is coming through the nozzle.

- If pesticide mix remains, affix to the tank or sprayer all legal labels for the products used. Also mark the current concentration for each product, the date, and the name of the applicator.
- When resuming spray applications at a future date, either use the leftover material, or add dilution water and circulate the mix thoroughly before adding new concentrate.
- If spray tank rinsate is created, store the rinsate as make-up water for the next day. The next day's pesticide should be compatible or the same. The same labeling requirements described above pertain to the rinsate mix as well.

Rinsing and/or cleaning of the sprayer may be necessary if the following conditions apply:

- It is necessary to use a pesticide incompatible with that previously used.
- Before the long term storage of the equipment.

Use the following rinse process:

1. Read the pesticide label. The following should not conflict with label information or State or Federal regulations. Contact your supervisor if you see a conflict or have questions.

2. Wear protective clothing, as listed on the label when handling pesticides, pesticide containers, or pesticide equipment.

3. Fill the spray equipment approximately 1/4 full with clean water. Shake or agitate so that all inside surfaces are washed. If possible use the spray hose to rinse the inside surface of the tank. These procedures should coincide with all labels.

4. Spray the rinse water out of the spray equipment onto an approved target area. Rinse water should be run through all hoses, booms, etc. Filters should be cleaned. Because of the dilute nature of the pesticide in the rinse water, a coarse spray can be used and is recommended to save time. Do not "pond" or saturate the soil.

5. If the tank is to be stored, repeat step 3 and 4 above until the tank is clean.

Policy 8:

STORAGE OF PESTICIDES

PURPOSE

This policy defines the method and procedure for storage of pesticide materials for all PP&R locations and personnel.

BACKGROUND

Attention to the proper storage is vital to assure public and employee safety, as well as to protect the investment in their purchase. Several agencies are involved in regulating aspects of pesticide storage. No single agency has comprehensive authority. Agencies involved include State of Oregon Department of Agriculture, Oregon Department of Environmental Quality, U. S. Environmental Protection Agency, Oregon State Fire Marshall, and the Portland Fire Bureau. Pesticides will be stored and transported in a manner that reduces the risk of spills, exposure, theft, degradation, contamination, or loss.

POLICY

Pesticides or pesticide containers shall be kept in secure and safe locations in accordance with existing laws. They shall be kept in a secure location and, if possible, in a temperature controlled, well-ventilated area. Areas used for storage shall be labeled and designated for use by work unit supervisors.

Pesticides shall be safeguarded from environmental damage such as extreme temperature, photo-decomposition or moisture. All pesticides in storage shall be inspected regularly and, if necessary, rotated on the shelf to assure that the oldest dated items are used first.

Central warehousing of pesticides shall take place at the Mt. Tabor Yard facility. In the fall of each year, satellite pesticide storage areas for individual zones and work units shall clean storage areas of unwanted products and dispose of them properly contact IPM coordinator if unsure of proper procedures.

Pesticides being transported shall be appropriately and safely secured in the vehicle. Only licensed applicators shall transport pesticides. Appropriate spill response supplies must be immediately available.

Pesticides shall not be transported in passenger cabs of vehicles where alternatives exist, such as truck beds, truck boxes or vehicle trunks.

Policy 9:

RECYCLING OF EMPTY PESTICIDE CONTAINERS AND DISPOSAL OF UNUSABLE PESTICIDES

PURPOSE

This policy defines the method and procedures for the recycle of pesticide containers and disposal of unusable pesticides or those pesticides whose registrations have been totally or partially suspended.

BACKGROUND

Portland Parks and Recreation considers proper disposal of unusable pesticides and pesticide containers of the utmost importance to the safety of employees, the public, and the environment. Several governmental agencies regulate pesticide disposal. No one agency has comprehensive authority. Agencies involved include the Oregon State Department of Agriculture, Department of Environmental Quality, Environmental Protection Agency, and Occupational Safety and Health Administration. PP&R will comply with all relevant laws governing the proper disposal of these materials.

POLICY

PP&R shall dispose of pesticides and empty pesticide containers in accordance with all State and Federal regulations and label recommendations. Disposal of pesticide containers and unusable pesticides not in accordance with this policy will be cause for disciplinary action.

PROCEDURES

Read the pesticide label. The following steps should not conflict with label information or state and federal regulations. Contact your supervisor if you determine a conflict or have other questions. Always wear protective clothing when handling pesticides or pesticide containers, as directed on the label.

For non-rigid containers including bags, sacks, and boxes

1. Pesticide material must be emptied into application equipment to the extent made possible by physical agitation of the container.
2. Visually verify that residues have been removed.
3. Multiple-rinse non-rigid containers such as paper lined with plastic or foil.
4. Place in a plastic bag and mark as to contents.

Recycling of rigid containers such as plastic, glass, or metal

1. Pesticide material must be emptied into application equipment to the extent possible by pouring, then visually verifying that the residues have been removed.

2. The container must be rinsed with clean water until clean; the rinse water being poured into the spray equipment. Empty the pesticide and all rinsates into the sprayer before the full amount of diluting water is added to the spray equipment.

3. Remove lid and booklet label.

4.Bring to MT. Tabor yard for recycling pickup

Disposal of Unusable Pesticides

Unusable pesticides are ones that: 1) are damaged through vaporization, freezing, infiltration of moisture to containers or photo decomposition; 2) have exceeded their shelf life; or 3) have visually changed their composition or structure in some manner.

1. The Pest Management Program Coordinator should be informed of plans to dispose of pesticides and of results of the disposition.

2. The Coordinator will contact the ODA, the manufacturer or dealer and/or a licensed consultant and find out if the product is still usable.

3. If the pesticide has less activity due to long storage, moisture, or freeze damage, follow the recommendations of the dealer, manufacturer, or licensed consultant and use procedures in this policy as they apply. One option could be to apply the material realizing that full control is not achievable using the damaged pesticide.

4. If this option cannot be followed legally, follow recommendations of the dealer or manufacturer or licensed consultant. It is not legal to transfer damaged or altered pesticides to another party for use. It may be necessary to arrange for disposal of the pesticide in a manner recommended by DEQ.

5. The Pest Management Coordinator is responsible for arranging disposing of pesticides. A record of these disposals should be kept on file for three years.

Disposal of Pesticides with Completely or Partially Canceled Registrations (or those which have been removed from approved use by PP&R.)

1. The coordinator shall keep up-to-date on the pesticide regulatory news and respond to pending actions appropriately to minimize or eliminate stocks of unusable pesticides.

2. If unusable pesticides remain in stock, PP&R will follow recommendations of the regulatory agencies, manufacturer or dealer in finding a legal user for the pesticide. If the pesticide is unopened and/or still retains its integrity it may be possible to transfer the pesticide to a legally registered bureau, agency, or group to use.

3. It may be necessary to dispose of the pesticide in a manner recommended by Oregon DEQ.

Policy 10:

USE OF PROTECTIVE CLOTHING AND EQUIPMENT

PURPOSE

This policy outlines the requirements for the use of protective clothing and equipment by PP&R personnel when undertaking pest management activities.

BACKGROUND

Use of pest management tools, equipment, and materials may require the use of personal protective equipment (PPE). Use of such equipment is necessary to provide an adequate measure of safety for the applicator. This protective equipment may be clearly defined as in legal pesticide label directions or directives in equipment manuals. When such directives exist they must be adhered to. Use of appropriate protective equipment may not be so clearly defined for all pest management methods, and in such cases it is the responsibility of the applicator and the supervisor to determine and employ adequate safety equipment.

POLICY

Personnel engaged in the use of pest management tools, equipment, or materials shall follow all clothing and equipment requirements required to ensure their safety. When using pesticides, the label directives for use of PPE must be adhered to. Use of related power and mechanical equipment must be accompanied by appropriate PPE as determined by equipment manuals or supervisor's directives.

Required personal protective equipment appropriate to satisfy specific pesticide label requirements shall be provided by PP&R to employees for their use. These label mandated PPE may include, but are not limited to: respiratory protection, eye protection, coveralls, rain gear, mixing aprons, chemically resistant boots, and gloves. Time will be made available during the work shift to wash up before lunch and at the end of the work shift. The applicator is responsible for cleaning, storing, and maintaining PPE and equipment in a safe and useful manner. Applicators may also provide their own additional PPE if desired, but only if such equipment and its use has been previously approved by their supervisor.

If applicators apply organophosphate and carbamate insecticides in amounts and frequencies determined by health professionals to require cholinesterase blood tests, PP&R will provide for these tests. This testing monitors the potential depletion of the enzyme cholinesterase in the blood, an indicator of exposure to these materials. PP&R use of these classes of pesticides have been eliminated from general use with only as small set of products left for specific uses if needed. Thresholds requiring testing have not been exceeded in many years.

Policy 11:

EMERGENCY INFORMATION CONCERNING ACCIDENTAL PESTICIDE EXPOSURE

PURPOSE

This policy establishes procedures for the proper response to employee and citizen inquiries regarding accidental exposure to any pesticide material used by PP&R staff. It defines PP&R's response to inquiries concerning adverse health effects as a possible result of accidental exposure to pesticides.

BACKGROUND

PP&R's handling of public inquiries should be prompt, professional, and well supported. While PP&R can answer general questions, PP&R does not have medical professionals on staff to address specific medical questions relevant to accidental exposure. This expertise is readily available in the health care community. Therefore, concerns of this nature will be referred to qualified medical personnel for resolution

POLICY

PP&R will inform applicators of proper procedures to be taken in case of pesticide exposure. Anyone inquiring about pesticide exposure will be referred to his or her own personal physician, the Oregon Poison Center (OPC), or the Pesticide and Analytical Response Center (PARC). A list of these authorities and their phone numbers are listed in the appendices.

Material Safety Data Sheet information about all hazardous substances in the workplace is available to all personnel for their own use. This information includes symptoms of exposure, and procedures for handling overexposure to individual pesticides. If symptoms of illness occur during or shortly after applying pesticides, the OPC should be contacted or the individual should receive medical attention immediately

Non-emergency questions received by PP&R shall be referred to the Pest Management Program Coordinator. The Coordinator will provide information to the questioner or refer them to qualified individuals or sources for further information.

PROCEDURES

- Use planning to avoid emergencies and to expedite aid should an accident occur.
- Be informed of the symptoms of exposure and the decontamination steps necessary in case of accidental exposure.
- Use all safety procedures and protective gear as recommended on the label.
- Have a copy of the appropriate label available when applying or transporting pesticides (concentrated and dilute.)

In case of a medical emergency related to suspected pesticide exposure

- Handle any emergency situation as per First Aid instructions, or label and MSDS.
- Call for emergency backup if necessary.
- Refer to Oregon Poison Center. **1-800-222-1222**
- Take a label for reference for medical personnel if it is necessary to leave the site.
- Inform your supervisor as soon as possible.
- Inform the Pest Management Program Coordinator as soon as possible.

In response to a non-emergency inquiry

- Respond to questions to the best of your ability.
- Refer detailed or technical questions to the Pest Management Program Coordinator.
- Inform your supervisor.

Policy 12:

PESTICIDE SPILL RESPONSE

PURPOSE

This policy outlines the objectives, training requirements and procedures Portland Parks and Recreation personnel should follow in response to an emergency release of pesticides. This applies to all PP&R staff involved in applications of pesticides, handling of pesticides, or acting in a communications response role during a spill incident.

BACKGROUND

Several state and federal regulations apply to an emergency release of hazardous materials. The Department of Transportation (DOT) and the Public Utilities Commission (PUC) regulate the transport of hazardous waste resulting from a spill and the release of chemicals if it occurs when they are being transported. The Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (DEQ) protect the environment through regulation concerning prevention of and response to the contamination of water, land, and air resulting from an emergency release of a hazardous material. They are also concerned with proper disposal of waste generated from a spill. The Coast Guard has jurisdiction over the Willamette and Columbia Rivers, and if a spill should enter either of them or a tributary they should be contacted. The Occupational Safety and Health Administration (OSHA) is concerned with the proper training and protection of workers handling hazardous materials. These regulations are incorporated into the procedures outlined here. Through its Pesticide Spill Response policy, PP&R strives to take a leadership role as a steward of public land and of the environment.

POLICY

The primary method by which Portland Parks and Recreation reduces pesticide spills is through prevention. Through planning, preparation, adherence to good work practices, and increased awareness of the potential results of a spill, the possibility of a spill occurring is minimized.

Should an emergency release of a pesticide occur, Parks and Recreation personnel will respond in accordance with all governmental regulations, including those of DOT, EPA, DEQ, OSHA, and this policy. In performing emergency activities following a spill, protection of both employees and the public, is of great concern, as is protection of property and the environment.

Anyone liable for a spill shall immediately clean up the spill or release. The cleanup must use the best available methods to achieve the lowest practicable level of contamination.

OSHA, which is concerned with worker protection, has two regulations governing spills. One, Hazard Communication, applies to incidental spills that present a low potential of hazard to the worker, the public and the environment. Included are small spills of dilute pesticides, spills of material with granular formulations, and lower toxicity materials. The other regulation, Emergency Response, applies to incidents with a high degree of hazard such as large spills of dilute material, pesticides with higher toxicity, and concentrates in a confined space.

An incidental spill becomes an Emergency Response when:

1. The release or spill significantly impacts another agency's functions;
2. The incidental spill precipitates evacuation or curtailing of work;
3. The event causes a negative impact on neighboring facilities or the community;
4. The spill involves a coordinated effort by local first responders.

Only licensed pesticide applicators can transport or apply pesticides. They will receive training and equipment that will allow them to respond to incidental spills. Spills that require an Emergency Response will be handled by a local jurisdictional HAZMAT team.

DEQ enforces several regulations pertaining to spill reporting and clean up, and hazardous waste storage and disposal. If a serious emergency occurs and the local fire department has been called in, or if there has been a spill that extends outside Parks facilities or could reach surface water, the National Response Center and the Oregon Emergency Response System (OERS) must be called. If the amount of pesticide spilled exceeds one pound in any 24 hour period the release must be reported to OERS. If it exceeds the amount listed in the Code of Federal Regulations List of Hazardous Substances and Reportable Quantities, the spill must be reported to the National Response Center.

The spill need not be reported immediately if it occurs on a surface impervious to the hazardous material and is fully contained, and if it is completely cleaned up without further incident, including repairing the cause of the spill. The Pest Management Coordinator will determine whether these agencies should be contacted.

Particular attention should be paid to ensure that a pesticide does not pollute the water supply. A primary aim in following the procedures outlined here is to recover and reuse as much of the spilled pesticide as possible. Any absorbent or other contaminated material from which the spilled pesticide cannot be recovered is hazardous waste and must be labeled, stored and disposed of properly.

Spill Prevention

PP&R personnel will employ a variety of practices to reduce the potential of a pesticide spill. These will include the following:

Purchasing

When procuring chemicals, a factor in determining which chemical formulation to purchase will be the ease with which it can be cleaned up in the event of a spill. Types of packaging and formulations that may help to prevent a spill from occurring will be factors as well. Characteristics of the pesticide, such as toxicity and reactivity that may affect the seriousness of a spill, will also be considered.

Preparation

Planning, training of personnel, and acquisition and maintenance of equipment and supplies will be done to reduce the risk of a spill occurring, and to minimize damage should one occur. For example, regular preventative maintenance will be done on sprayers, replacing hoses and valves before they wear out.

Work Practices

PP&R personnel will use practices to minimize the potential for a spill to occur, and to ease clean up should one occur. For example, pesticides should be placed in a leak-proof container while being transported.

PROCEDURES

Should a release of a pesticide occur, the following guidelines should be followed. Do not clean up the spill if you are not properly trained, if you don't have proper protective equipment or if doing so would endanger your health or safety.

I Assess the Situation

A. If the **release is out of control:**

1. Tell bystanders to remain at a safe distance.

2. Call 911. Ask for fire, describe the situation as a hazardous materials spill. If there are injured people, ask for an ambulance. If chemical injury is involved, be certain that a copy of the label accompanies the victim.

3. Assist injured people. Remove contaminated clothing immediately.

4. Determine whether there is an imminently hazardous situation that you can take steps to correct. (For example it may be appropriate to move the truck away from a waterway or heat source.)

5. Call the Integrated Pest Management Program Coordinator, 503-823-1991, request any needed resources or assistance. Notify your supervisor.

6. If the spill is on a roadway, set up DOT reflectors upwind of spilled materials and divert traffic if possible.

7. Remain on site and update the IPM Coordinator every 15 minutes.

B. If the **release is controllable** and there are no injuries, tell bystanders to remain at a safe distance and initiate control and clean up procedures outlined in **II**.

II Control the Spill

1. Put on protective equipment.

2. Do not allow the material to enter a drain. Survey the area to see if there is a need to place a dam to protect a sewer drain or other waterway. If the pesticide does enter a drain, reduce the flow as much as possible, and call DEQ's Northwest Regional Office 503-229-4263, immediately.

3. Stop the flow of the chemical.

If the spill is from a leaky container, position the container to prevent additional spillage.

If the spill is from a leaky valve, isolate the valve and depressurize the tank.

If the spill is from a broken hose shut off valve or pump it may help to loop the hose back into the tank.

If there is a rupture, use duct tape or any other material (such as rags or a patch) to stop the flow of a chemical.

4. Contain the spill using absorbent material. Call the the Integrated Pest Management Program Coordinator to request additional supplies, resources, and assistance if needed.

5. Change or add to your protective equipment as necessary. Put contaminated protective equipment in a plastic bag to transport to your work unit for cleaning. Follow proper decontamination procedures for protective equipment.

III Clean Up the Spill

1. For dry material, sweep up the pesticide.

2. For a liquid spill, remove material using a wet vacuum where possible. Other useful materials include absorbent dikes, pillows, and towels.

3. For concentrate spills on pavement, after picking up as much as possible, contain the area and wash the pavement with a small amount of water. Absorb or vacuum this diluted pesticide and reclaim it.

4. If the soil has been contaminated, contact the Integrated Pest Management Program Coordinator. The Pest Management Coordinator, your supervisor, and you will determine to what degree cleanup should proceed using park staff. You may be asked to remove the contaminated soil. If so, scoop up enough soil to completely remove the pesticide. Place unusable material in a container labeled "Hazardous Waste". Up to 220 pounds, about half a barrel, of hazardous waste resulting from a spill can be transported by the applicator or transporter to their unit base. The Pest Management Coordinator may sample the soil on site to determine if it has been sufficiently cleaned up.

5. Have the Spill Incident Report ready so that your supervisor and the Pest Management Program Coordinator can evaluate the situation.

IV Reclaim the Pesticides

1. Reclaim the chemical on site if possible. Sift dried material to remove debris and return it to its proper packaging. Reclaim liquid material that has been absorbed through rinsing the absorbent material. Use the rinsate on a target site, or properly label and store it for future application.

2. Any pesticide recovered but not reclaimed on site will be processed at the work unit base. The absorbent material will be dried and reused.

3. Hazardous waste must be stored in a labeled container at the work unit headquarters. It will be transported to a waste management facility for disposal, arranged for by the Pest Management Coordinator.

V Document the Incident

1. Complete a Pesticide Spill Incident Report.

2. File one copy of the report with the Pest Management Program Coordinator, one copy with your unit headquarters, and keep one copy for your personal records.

VI Restock the Spill Kit

The Pest Management Program Coordinator will go to all problem spill sites, supplying materials requested by the crew. He/she will assist in cleanup, if it has not yet been completed, ensure that the site has been cleaned up completely, help recover the pesticide and arrange for disposal. He/she will document the scene, talk to homeowners and emergency response crews, and photograph the site.

Pesticide Spill Kit Response Equipment

The following items must be immediately available to all persons applying or transporting pesticides:

1. A binder that includes:

- Chemical labels for materials being transported
- MSDS for chemicals being transported clipped to front of binder
- Shipping papers when necessary
- Pesticide Spill Response Procedures and Incident Report
- A DOT Emergency Response Guidebook
- Emergency phone numbers

2. A cellular phone, if there is the potential of a spill occurring that would require assistance.

3. Personal protective equipment appropriate for handling the pesticides being applied or transported in the event of a spill.

4. An eyewash either on the truck or on site and immediately available in the case of an emergency.

5. Tools and supplies to make repairs to the application equipment and to stop leaks.

6. A means of picking up spilled material. Depending on the formulation this may include absorbent material, broom and dustpan, or shovel.

7. Plastic recovery bags and ties for the material and for contaminated personal protective equipment.

8. A jug of water and detergent.

Following is a list of equipment and supplies that may be necessary to carry depending on the type of pesticide and its volume:

An extra protective suit

Extra gloves

An extra set of clothing

Waterless soap

Absorbent dikes, pillows and towels

Squeegee

Whisk broom

Dust pan

Hard bristle brush to loosen material

Duct tape for temporary repair

Patching material

Quill and hose

2 freestanding signs warning of danger

Warning tape

DOT reflectors or flares

Strainers

Bucket

Flat and pointed shovels

It is the responsibility of the applicator or transporter to ensure that he/she is carrying the items necessary should there be a spill.

PESTICIDE SPILL INCIDENT REPORT

Name_____Date_____Phone number_____
Location of incident_____
Timerelease occurred_____Temperature_____Weather_____
Chemical(s)_____Dilute____Concentrate____
Approximate amount released_____
What caused the release?_____
Are there any injuries or chemical exposures? Y/N_____Has 911 been called? Y/N_____
Are there any emergency response personnel on the scene? Y/N_____
Who? Fire____Police____Ambulance____HAZMAT____
Is the pesticide near a drain or other waterway? Y/N___Is the drain protected? Y/N_____
Surface spilled on (soil, asphalt etc.)_____
Are there any special problems?_____
_____
_____
_____
Other applicators/transporters on site?_____
Approximate amount recovered_____

Witnesses
Name_____Address_____Phone_____
Name_____Address_____Phone_____
Name_____Address_____Phone_____

Injuries or exposures
Name_____Address_____Phone_____
Name_____Address_____Phone_____
Name_____Address_____Phone_____

Has an accident report been filled out? Y/N____Type_____
Other_____
_____
Name of person filing this report_____Date_____

Policy 13:

WORKER PROTECTION STANDARD

PURPOSE

This policy covers appropriate standards for Federal Agricultural Worker Protection Standard compliance for the nursery and greenhouse facilities and their associated personnel within PP&R only, and does not apply to pesticide applications outside of these areas.

BACKGROUND

The Worker Protection Standard (WPS) is a regulation issued by the US Environmental Protection Agency. It covers pesticide application and notification issues for agricultural and commercial nursery and greenhouse operations. Training, protection, and mitigation standards have been adopted to reduce the risk of pesticide related illness and injury in workers. As they are currently operated, the nursery and greenhouse operations of the PP&R may fall under the scope of these standards. PP&R employs seasonal workers as well as licensed pesticide applicators. All of these workers may work in and around the greenhouse and nursery areas where pesticides may be applied. In the scope of this policy, the WPS term "Employer" refers to PP&R, the term "Handlers" refers to state licensed pesticide applicators, and "Workers" refer to seasonal maintenance workers without an applicator license.

POLICY

The WPS require that steps are taken to reduce the potential risk of pesticide-related illness and injury to handlers and workers with possible exposure to pesticides. It is therefore essential that all WPS requirements be satisfied for all City Nature-Horticultural Services employees involved with entry into nursery and greenhouse areas where pesticides may be applied.

This is accomplished by the following:

Training

- Pesticide safety training.
- Display of WPS safety poster.
- Access to labeling information.
- Access to application records.

Practices

- Proper pesticide applications.
- Exclusion of workers from areas being treated.
- Adherence to the WPS Restricted-entry Interval (REI).

- Notification of treatments.
- Provision and use of Personal Protective Equipment (PPE).

Mitigation

- Provision of decontamination sites for handlers and workers.
- Emergency medical and transportation assistance availability.

Training and Resources

All City Nature-Horticultural Services employees that work in or around a nursery or greenhouse area where pesticides are applied must receive the following:

- Employees without pesticide applicator licenses will receive approved WPS training within the time prescribed by WPS regulations. They will be afforded all the WPS worker protections.
- Employees with pesticide applicator licenses need not receive the entire special WPS training. However they should be familiarized with all special WPS requirements and be aware of locations of all the elements required to satisfy the standards. They must also to be afforded all the WPS handler protections.
- The Pest Management Program Coordinator will maintain complete WPS records and keep them up to date. The Coordinator will also conduct WPS training for City Nature-Horticultural Services personnel.
- Resource material regarding the WPS standards shall be maintained by the Pest Management Program Coordinator. This material will be available for reference at the City Nature-Horticultural Services Unit.

Policy 14:

PESTICIDE APPLICATIONS BY NON-PARKS AND RECREATION EMPLOYEES

PURPOSE

This policy establishes oversight procedures over all pesticide applications taking place on park land carried out by non-PP&R personnel, such as other city bureaus, private companies or individuals. Anticipated applications by these entities must undergo a special approval process to satisfy certain licensing and other requirements before the work can take place. This oversight is essential to ensure that all pest management activities occurring on park land adhere to established IPM based goals and principles and address environmental and safety concerns.

BACKGROUND

Without proper oversight, pest management activities undertaken by non-PP&R personnel may lead to regulatory, environmental or safety problems. Park infrastructure, landscapes, and the public may be put at risk, or IPM principles may not be adequately adhered to. The approval process within this policy is not intended to be a hindrance to appropriate and timely work. These procedures are intended to ensure that the best practices are used and problems avoided.

POLICY

Contractors, other city bureaus, partner organizations, state and county agencies desiring to apply pesticides to park property shall submit a completed *Application for Pesticide Use on Park Land* form to the IPM Program Coordinator for evaluation before any pesticide application takes place. This form can be found in Program appendix 5 or at:
https://www.portlandoregon.gov/parks/article/644082
or it can be obtained by contacting the coordinator at 503-823-1991. Required information details license numbers, materials, methods, equipment, purpose, notification, reporting, and more.

After receiving the completed form, the coordinator shall review the proposal, contact any affected PP&R staff, and approve or deny the request based on PP&R IPM program principles.

Details of the required licensing and bureau oversight for various categories follow.

Employees from other city bureaus with an adopted IPM program:
Full time employees of other city bureaus possessing valid state pesticide applicator licenses will be considered for approval to apply pesticides to PP&R property. The applicators license in the state-defined category appropriate for the particular application is required.

Employees of commercial pesticide operator companies:
Employees of commercial pesticide operator companies possessing valid state pesticide applicator licenses will be considered for approval to apply pesticides to PP&R property. The applicator license in the state-defined category appropriate for the particular application is required. A “Trainee License” is not sufficient licensing for park applications except for specially approved projects involving the removal of invasive plants as part of natural lands restoration

management. Furthermore, use of "Trainee" licensed applicators for these special projects will be approved only when all of the following conditions are met:

• The licensing variance must be specifically approved by PP&R IPM Coordinator.
• The work must occur under the direction of a contractor-supplied, fully licensed supervisor.
• There must be direct on-site supervision from a fully licensed city bureau representative for the duration of the application, e.g. PP&R or Bureau of Environmental Services staff.
• Before approval, there must be evidence that all trainee licensed applicators have sufficient previous pesticide application experience and a safety record to satisfy the PP&R approval process. Acceptable application experience may vary, but will be of sufficient assurance to PP&R of employee competence and knowledge of safe work practices. Three to five months is a likely minimum experience interval for approval. Inexperienced trainee licensed applicators will not be allowed to apply pesticides to park land.

Contractors must satisfy all of the standard applicable city contractual language pertaining to pesticide applications. These subjects may include safety precautions, liability issues, and other responsibilities. These issues are dealt with in the contract language agreed to before the project commences by both city representatives and the contractor.

The performance record of contracting businesses applying pesticides to PP&R lands shall also be regularly reviewed by PP&R and any other city bureaus involved. This review shall include an examination of past work and safety performance. All involved bureaus will disclose pertinent information regarding any performance or safety issues raised from prior projects.

Employees of partner organizations:
Full time employees of partner organizations possessing valid state pesticide applicator licenses will be considered for approval to apply pesticides to PP&R property. The applicator license in the state-defined category appropriate for the particular site is required and trainee license designations are not sufficient. There must also be direct on-site supervision from a fully licensed city bureau representative for the duration of the application, e.g. PP&R staff.

Employees of state agencies:
PP&R understands that there may be situations where state agencies need to apply pesticides to city property as part of their mandate to perform early detection and control of invasive species. PP&R is supportive of early detection and rapid response to serious invasive species threats, and communications from the state regarding their need for pesticide use for these purposes on park land will be responded to by the coordinator in a timely manner.

Employees of the county vector and nuisance control agency:
PP&R understands that there may be situations where the county vector and nuisance control agency has the need to apply pesticides to city property as part of their mandate to further public health goals. Communications from this agency stating their need for pesticide use for these purposes on park land will be responded to by the coordinator in a timely manner. Licensed public health endorsed applicators will be considered for approval to apply pesticides to PP&R property. PP&R and the county will work together to arrive at mutual agreements for activities that address public health goals and good environmental stewardship.

Policy 15:

Rodent and Other Vertebrate Pest Management.

PURPOSE

This policy establishes management procedures for rodents such as Norway rats, roof rats and house mice. Management of these pests differs greatly from typical landscape pest management and brings with it a specific set of issues that must be addressed.

BACKGROUND

The presence of rats and mice in park structures and landscapes is considered a health and safety problem. These rodents can vector diseases to humans, damage park infrastructure and create other intolerable conditions.

Policy

Rat and mouse control within structures such as community centers should be carried out by a qualified, licensed, structural pest management contractor that utilizes sound IPM principles. Where there is a need for rat and mouse control in areas adjacent to park structures or their landscapes, PP&R shall use contract services of approved City of Portland vender's. Further control methods may be conducted only by specially licensed PP&R personnel.

Rodent IPM is best addressed through reduction in available food and harborage, however there may be situations where other measures are necessary. Use of rodenticides for rodents must occur within an IPM framework and employ materials and methods established and approved by the program coordinator. Rodenticides and other vertebrate pesticides may have potential for secondary toxicity to non-target organisms and may pose a potential threat to park users with access to baited areas. Therefore, if rodenticides are used by PP&R it will occur only through means such as locked bait boxes and not through general or rodent burrow distribution. If PP&R employees wish to utilize rodenticides, they must maintain a valid Oregon Public Health pesticide license certification endorsement.

Policy 16:

TURF BROADLEAF WEED MANAGEMENT

PURPOSE

This policy defines the management of weeds in the managed turf areas in Portland Parks and the use of any selective turf herbicides by any applicator.

BACKGROUND

For turf to function in the manner it was intended, appropriate maintenance standards may require management of weeds within these sites. While the subject of overall turf health is a topic too complex to cover in detail within this policy, the management of weeds is designated turf sites shall be regulated by this policy.

The establishment and maintenance of quality turf requires a proper site, good root zone conditions, optimum fertility levels, adequate irrigation, correct mowing practices, and other factors. PP&R relies primarily on attention to these siting and cultural factors in maintaining turf and minimizing the density of weeds. Adherence to good cultural practices aids in development of healthy stands of turf which resist establishment of weeds. PP&R has found that in most general park turf areas, tolerance of weed presence is possible, and precludes the need for further intervention, such as applying selective herbicides. However, these materials can be effective tools to reduce or eliminate populations of weeds in turf as part of an overall program of turf health maintenance in special areas where higher quality of turf is required.

Examples of turf health practices currently employed by PP&R:

- Proper siting
- Site and soil preparation
- Drainage improvements
- Pruning of adjacent plants for increased sunlight penetration
- Proper selection of grass seed varieties
- Core aeration
- Overseeding
- Mulch mowing to leave clippings on site
- Mowing at the proper height and frequency
- Proper irrigation practices
- Proper fertilization
- Application of selective broadleaf herbicides

POLICY

Turf plays various important functions in our parks. When an area has been determined to be maintained as turf, it is the policy of PP&R to do so primarily through the implementation of proper planning, cultural, and mechanical practices. These practices are generally adequate to keep the population of turf broadleaf weeds at acceptable levels. At certain sites these practices alone may not be adequate to keep broadleaf weeds at acceptable levels. An acceptable level of turf quality and tolerance of weed infestation varies with the site. The threshold at which controls may be necessary shall be determined on a case-by-case basis taking into consideration such factors as location, public expectation, the manner of activities taking place on the turf, the history of previous control attempts, and stresses placed upon the site. Before applications of broadleaf herbicides take place at a general park or athletic field turf site, a Turf Broadleaf Herbicide Application Approval Request form must be submitted by the requestor to the appropriate manager or supervisor listed in the procedures section of this policy. The supervisor will then consult with the IPM coordinator to assess the proposed application for program compliance. All related turf maintenance issues must be considered by the supervisor and coordinator during this approval process. The management effort must consider and employ all applicable cultural and mechanical methods as components of a plan to return the turf to an acceptable level of quality. Goals of these methods may include reducing soil compaction, improving soil structure, seeding, increasing drainage capacity, and encouraging healthy and vigorous turf growth through proper fertilization.

Once an application is approved, only turf labeled herbicides on the approved list for a given unit may be utilized.

PROCEDURES

For proper IPM, it is essential that there be proper coordination between all the components of turf health management. To ensure this coordination, all applicators must first obtain authorization from the appropriate supervisor listed below before broadleaf herbicides are used. The supervisor will assure compliance with the IPM program by consulting with the IPM Coordinator as part of the approval process. The coordinator will also consult with the Turf Manager as part of the process. In addition, the Service Zone Manager must be notified of all planned turf broadleaf applications before they occur.

Zones and Services Zone applicators: Zones and Services Zone Manager
City Nature-Horticultural Services applicators: City Nature Zone Manager
Delta Sports Complex applicators: Supervisor
City Nature applicators: City Nature Zone Manager
Golf course applicators: Course Superintendent
Portland International Raceway: Facilities and Maintenance Supervisor

Special Considerations

By its nature, the use of broadleaf herbicides in turf requires their application to sites that have varied and direct public uses, often involving children and pets. These applications must be carefully planned to allow for careful adherence to the pesticide label directives, and to minimize any potential impacts on these users.

Time of Day

Applications should be made during the best time of day to avoid public use, high temperatures, and wind. For most situations this requires applications to be made as early in the day as possible. Applicators should consider off schedule timing, such as shifting work hours to begin several hours early so that spraying can be completed before conditions and park use makes applications problematical. Applications may also need to take place over several days to avoid spraying too late in the day. Minimizing public inconvenience and public concern should be of paramount importance and should supersede other considerations.

Scheduling Conflicts

Any proposed applications should take into account the expected use of the area for that date and time, such as nearby school activities, recreation activities, athletic field scheduling, and all other anticipated uses. Applicators must contact these schools and departments when scheduling treatments.

Signage

Notification signage is of utmost importance in turf applications. The nature of a typical turf site is open and with easy public access. This may necessitate the placement of many notification signs around the perimeter. As stated in the Pest Management Program *Notification of Pesticide Use at a Site* policy, signage should be adequate to inform any park user approaching the area. Applications of herbicides to our park turf sites are uncommon and may not be anticipated by park users. They should receive adequate notice that an application is taking place before they reach the site. Signs must remain in place and the public must be kept out of treated areas until the sprayed surfaces are completely dry. This may take a considerable amount of time but this effort must be made by the applicators to inform and keep people and their pets out of these treated areas until these reentry requirements have been met.

Seasonal Timing

Wherever possible, applications should be timed to coincide with the ideal time for turf weed control. This is typically during the spring and fall months, where weed growth is active and conditions leading to turf stress, such as dry and hot weather, are not present.

Drift

Minimizing drift is critical in turf broadleaf weed applications. Use of boom sprayers instead of backpack sprayers may increase the potential for drift. Great care should be taken to minimize any possible drift. Applications should cease if any drift inducing condition becomes apparent. Use of appropriate pressure, correct nozzles and other techniques should be employed to minimize creation of small spray particles that may drift.

Targeted applications

Where warranted, spot spraying for turf weeds should be employed. While there are sites that will require an overall broadcast application, there are sites where only certain areas will require treatment. Applications should be focused on the target weed as much as practicable.

Policy 17:

PESTICIDE USE AROUND WATER BUREAU PROPERTY AND OPEN RESERVOIRS

PURPOSE

This policy establishes procedures for use of any pesticide materials being applied by PP&R personnel adjacent to, or upon Water Bureau Property.

BACKGROUND

This policy was written in conjunction with Water Bureau personnel. It is the intent of PP&R to cooperate with the Water Bureau to ensure a safe drinking water supply. This policy is written to help explain and more fully establish procedures for the "Joint Water Bureau - Parks and Recreation Pesticide Use Policy."

POLICY

It is the policy of PP&R to use all measures to protect the city water supply from contamination through pesticides. PP&R employees will provide any information needed by the Water Bureau to test the water for the presence of pesticides. Park employees will follow all the regulations and policies set out in the "Joint Water Bureau -Parks and Recreation Pesticide Use Policy". Some of the regulations in the policy deal with the following:

- No pesticide applications will be made in the "No Pesticide Use Zone" as listed in the spray maps of Washington and Mount Tabor Parks.
- Applications of pesticides will not be made if there is unacceptable drift.
- The Water Bureau will be notified if there is a spill or accident that causes unplanned release of pesticides into the environment in Mount Tabor or Washington Parks. Refer to the Parks and Recreation Spill Policy for appropriate response actions.
- Spray Program plans will be sent to the Water Bureau Water Quality Department for known pesticide applications made to areas in the Pesticide Use Notification Zone or the Special Precautions Zone. These plans will describe the pesticides expected to be used, the locations of use, and the frequencies of application.
- Any emergency or unplanned pesticide application needs to have prior approval from the Water Bureau Water Quality Department. These notifications must be made at least 48 hours before the planned application.

Policy 18:

PESTICIDE APPLICATIONS AROUND COMMUNITY GARDENS

PURPOSE

This policy defines acceptable and unacceptable use of pesticides within and near park areas designated as community gardens.

BACKGROUND

Pest management in or near park areas designated as community gardens necessitates special considerations. Community Gardens program participants have varying levels of knowledge about pest management methods, and have differing views about the use of pest management materials. Community Gardens plots are in close proximity to one another and may change ownership from year to year. Plots also produce edible crops that necessitate special constraints in managing pests. For these reasons a special policy defines acceptable use of pesticides within and near Community Gardens.

POLICY

- The Community Gardens program has established internal guidelines regarding pesticide use by participants of the program. One of these guidelines states that no herbicides can be used on Community Garden sites. This specifically refers to garden plots, pathways, fence lines, and any areas within the garden boundary. Spraying perimeters of the gardens from outside the fence is not permitted
- Park employees are asked to keep low pressure, spot directed applications of all pesticides at least 25 feet from the outside perimeter of Community Garden sites. Applications of herbicides to turf by boom sprayer equipment shall be kept at least 50 feet from Community Garden plots. Special circumstances requiring the applications of pesticides inside these limits will be made only through mutual agreement of Community Garden staff.
- Mechanical and cultural means, such as cutting, hoeing and mulching, can be used to remove or control weeds in the Community Garden sites and perimeters.
- Any pesticide applications, public or private, that may affect the gardens will be of concern to the Community Gardens Director, staff, and participants of the program.

Policy 19:

WATERWAYS PEST MANAGEMENT

GENERAL GOALS AND PHILOSOPHY

(Note: Since the adoption of this policy as part of PP&R's inclusion into the ESA 4(d) for endangered salmonids in the region, the bureau has added additional IPM oversight and decision making processes for waterway pest management. Please contact the IPM coordinator when planning any work covered by the scope of this policy.)

Portland Parks and Recreation recognizes the special importance of the rivers, streams, ponds, water quality facilities and wetlands that fall under our stewardship. The sensitive nature of such habitats, their plant and animal communities, and their direct link with other waterways require that we establish specific policies to ensure their health. This addition to the PP&R Pest Management Program outlines this special treatment. It establishes clear guidelines and limitations regarding maintenance methods and materials for both these waterways and the park lands adjacent to them.

As in the rest of the Pest Management Program, Integrated Pest Management principles will be employed in all landscape management decision making. Management of unwanted vegetation, diseases, and pests will follow the IPM decision making rationale.

- Proper planning and management decisions begin the IPM process.
- Cultural methods of vegetation and pest management are preferred and will next be employed.
- Mechanical means of vegetation and pest management are next in line of preference, and will be utilized where feasible.
- Biological methods of vegetation and pest management are to be considered before chemical means, where they are feasible.
- Botanical and synthetic pesticides will be used only when no other feasible methods exist.

MANAGEMENT PRACTICES, MATERIALS AND LIMITATIONS FOR PARKS WATERWAYS AND BUFFERS

Definitions

The *buffer zone* referred to in this policy is defined as a corridor of land that is 25 feet in width on the sides of a stream or other body of water. Measurement of this buffer zone begins at the edge of the water line at the time of application. Anticipated seasonal or weather related changes affecting water level will be included in the decision making process when dealing with buffer zones. The *high water line* as defined in this policy refers to the highest possible water level that would be expected in a given body of water during a 5-year period.

Application Equipment Used

Pesticide delivery for all listed areas in this policy will be carried out by hand with directed, low volume, single wand sprayers, wiping, daubing and painting equipment, injections systems, or drop spreaders. Typically this is done by backpack sprayers, but may also include sprayers with larger fill tanks as long as the same kind of hand application methods are used. These methods of delivery result in low volume applications and low pressure spraying. This minimizes the formation of fine mists that might be carried off target. These practices ensure that applied materials will reach targeted plants or targeted soil surfaces.

Pesticide Drift

When applications of pesticides are being made within the buffer zone, great care will be exercised in the process. Managing drift is of particular importance when surface waters are nearby. Equipment used in the application shall employ all necessary methods to limit drift. Nozzle size, pressure regulation, droplet size, and height of spray wand, are all techniques that can be modified to reduce unwanted drift of pesticides.

Spray applications will not be allowed in the buffer area when:

Wind speed is above 5 mph

Wind direction or activity would carry pesticides toward, or deposit them upon open water

Pesticides Available

To more clearly regulate any possible aquatic impacts, the pesticides available for use in buffers and aquatic sites will be reduced in scope from the general park list. Only the pesticides specifically listed within this policy may be used within buffer zones or waterways. Choice of pesticides utilized take into account any possible effects on aquatic life as well as tendencies to move in the environment.

Materials allowed in certain circumstances (see matrix) in buffer zones:

Post emergent herbicides:

Glyphosate products: Roundup Pro, Rodeo

Triclopyr products: Vastlan, Brush and Vine, or other amine formulations only

Surfactant (i.e. LI 700)

Materials allowed in certain circumstances in aquatic sites, aquatic labeled only:

Glyphosate (Rodeo)

Approved surfactant (R-11 or equivalent-contact IPM coordinator for best aquatic choices)

Aquashade (acid blue 9, acid yellow 23)

Materials available for tree injections in buffer zones:

In the event a pest or disease threatens the health of important and valuable trees within a buffer zone, there may be a need to treat them. Instances of this occurring are rare. However, in these special cases, the use of injectable pesticides may be employed when necessary, with the following limitations. The pesticide applied must be delivered by methods that inject or otherwise distribute the material entirely within interior tree tissues. Pesticides will not be injected into the soil surrounding the tree. Tree surfaces will not be sprayed or treated with pesticides. The insecticides and fungicides used in these injection systems shall be approved by the PP&R Pesticide Approval Committee. The intent and limit of this exception to the approved buffer zone pesticide list is to allow only the insecticides or fungicides necessary to combat direct threats to the health of valuable trees.

Materials for all other areas:

PP&R general Pest Management Policy approved pesticides may be used outside the waterway and buffer zones, where not otherwise prohibited by this policy.

Record Keeping Requirements

All regular application record keeping requirements will be adhered to for all pesticide applications. This includes date and the time intervals of the application, temperature and wind conditions, location of application, materials used, concentrations used, amount applied, coverage rate, equipment used, applicator information and license number.

Additionally, record keeping requirements will be amended for applications within the buffer zone or for aquatic situations. Standard application record forms will have space added to denote these special treatments. These special treatments will then be separately tracked and monitored by the Pest Management Program Coordinator. An annual report will be made summarizing all applications to these special areas. This report will be made available to agencies such as National Marine Fisheries Service and Bureau of Environmental Services.

Personnel Requirements

All those applying pesticides to PP&R lands must be Oregon Department of Agriculture licensed applicators. Application of pesticides to aquatic sites will only be done by licensed personnel who have received an additional aquatics license certification.

Changes to the Policy

A need may arise for modifications or additions to the PP&R Waterways Policy. There are several methods available to accomplish this.

Formal review process

A review process will be conducted one year from the initial adoption of this policy. This review process will involve PP&R and National Marine Fisheries Service representatives. Subsequent reviews will take place every two years. Adjustments and changes to the policy can be made during this process.

Emergency/Short term process

There may be situations where PP&R cannot wait for the formal review process to take place. An example is the unlikely, but possible introduction of a new and destructive pest that needs to be treated within in a short time frame. In such a case, PP&R representatives will develop an IPM strategy to deal with the threat. If this strategy involves the need for any pesticide applications within buffer zones or waterways that are not already outlined in the current policy, PP&R will contact NMFS representatives for approval before implementing the plan.

A similar need for short time frame changes would occur when a new product might appear on the market that is demonstrably safer and more efficacious. It would therefore make sense to add this new material to the list of approved Waterways Policy pesticides. PP&R representatives will contact NMFS representatives for approval before addition of new pesticides to the buffer zone/waterways approved list.

PP&R Buffer Zone Landscape Classification and Practices

Classification of Buffer Zone Landscapes Near Waterways, Lakes and Ponds

Park landscapes near waterways, lakes and ponds are divided into four classifications (A,B,C,D) that describe their current features, as well as define the differing objectives and maintenance rationales of their care.

A. Highly Managed Areas

Examples: Cathedral, Waterfront.

Features of Highly Managed Areas:

Ornamental landscape

Public access and activity

High public use

Mowing of turf, sometimes to edge of waterway

May have facilities adjacent to water

May have highly modified stream banks

Often limited plantings in buffer

Objectives for Highly Managed Areas:

Healthy plants and turf

Maintain ability to handle high use

Minimize need for chemical intervention

Control invasive plants

Safe access

No bare soil areas

Low tolerance for weeds

May have high expectation for aesthetics in general

B. Intermediate Managed Areas

Examples: Gabriel Park, Johnson Creek, Arboretum Sellwood Riverfront Pond.

Features of Intermediate Areas:

Stream banks have some buffering with predominately native plants

Some impacts from use and park development apparent

Managed landscapes may be nearby

Stream bank erosion may be occurring due to use

Objectives for Intermediate Areas:

Maintain healthy plant buffers

Minimize need for chemical intervention

Control invasive plants where feasible

Minimize impact on buffer

No bare soil areas

Tolerance for natural appearance and weeds

C. Impacted Natural Areas

Examples: Powell Butte, Macleay, Tideman Johnson, Foley Balmer, Woods, Taylor Woods, Johnson Lake, Force lake, Whitaker Ponds, Mays Lake, Powell Butte Pond, Errol Heights Pond.

Features of Impacted Areas:

Very limited impact to these areas.

Stream banks have buffering with predominately native plants

Limited impacts from use and park development apparent

Managed landscapes are not nearby

Objectives for Impacted Areas:

Maintain healthy plant buffers

Minimize need for chemical intervention

Lower tolerance of invasive plants, non- natives

Minimize any impacts on buffer

No bare soil areas

D. Intact Natural Areas

Examples: Miller Creek

Features of Intact Natural Areas:

Very limited visitor impact

Native plant communities exist

No nearby developed park areas

Objectives for Intact Natural Areas:

Maintain healthy plant buffers

No tolerance of invasive plants, non-natives

Minimize any impacts from activities

Management Practices for Buffer Zones of Waterways, Lakes and Ponds

The following matrix gives specific guidelines for use of pesticides and fertilizers in the buffer zones of waterways that have varying levels of management Use of pesticides and fertilizers also vary depending on whether they are being used for routine maintenance or for restoration and construction projects.

Chemical used	Activity	D Areas	C Areas	B Areas	A Areas
Pre-emergent herbicide use possible?	Routine Maintenance	No	No	No	Only in shrub beds above high water line
	During Construction/ Restoration	No	No	No	Only in shrub beds above high water line
Glyphosate use possible?	Routine Maintenance	*Spot spray for target list weeds only**	Spot spray and broadcast spray	Spot spray and broadcast spray	Spot spray and broadcast spray
	During Construction/ Restoration	*Spot spray and broadcast spray for non-natives**	Spot spray and broadcast spray	Spot spray and broadcast spray	Spot spray and broadcast spray
Triclopyr use possible?	Routine Maintenance	No	Cut and treat stems.	Cut and treat stems.	Cut and treat stems. Spot spray
	During Construction/ Restoration	No	*Spot spray to establish monocots** Cut and treat stems. *Spot spray/ broadcast to establish monocots**	Spot spray Cut and treat stems. *Broadcast spray**	Cut and treat stems. *Broadcast spray**
Fertilizer Used					
Slow release fertilizer use possible?	Routine Maintenance	No	No	No	Directed applications to shrub beds if no flooding possible
	During Construction/ Restoration	Directed applications if no flooding possible	Directed applications if no flooding possible	Directed applications if no flooding possible	Directed applications if no flooding possible

** requires approval of City Nature Zone Manager*

Use of Mulches

Mulches and other ground coverings are often employed during the installation and restoration of landscapes as well as their ongoing maintenance. They are utilized for a variety of reasons. Mulches suppress weeds, help to retain moisture around plants, reduce possible erosion, and provide visual enhancement.

Use of landscape mulches in buffer areas should take into account any possible impacts to the buffer as well as nearby waterways. These impacts may include:

- Inadvertent introduction of non-native weeds to the site.
- Leaching of substances such as tannins from the mulch into nearby waterways.
- Migration of mulch material into waterways.
- Nutrient leaching into waterways.

Choices of mulches should take these concerns into account. Routine maintenance in A, B, and C class area buffers should minimize the use of mulches. Class D area buffers should use mulches only as a part of restoration activity. Mulching in areas that are below typical high water lines is discouraged in any buffer areas. Seeding of cover crops for erosion control is allowed in buffer zones. Use of cover crops in class D areas should never introduce any persistent non-native plant species.

Management Practices Within Bodies of Water, Biofilters and Wetlands

The following describes specific practices that may be used within the actual bodies of water.

Within Streams

In the rare need for control of noxious weeds and invasive non-native plants within a stream itself, mechanical and biological means will be utilized where possible. When these methods are not feasible, emergent weeds only may be controlled with Rodeo and an approved surfactant if needed. Although rare, control of noxious and invasive weeds such as Japanese knotweed, yellow iris, and purple loosestrife may be needed to maintain a healthy environment. These treatments will take place at mid-summer. Frequency of these treatments shall not exceed once a year even in the worst of infestations. Applicable permits from appropriate outside agencies will be obtained before this kind of treatment takes place. Submerged weeds will not be controlled by chemical means in streams and rivers or other moving waters.

Within Pond and Lake Areas

Within the pond or lake itself, herbicides will be used only for the control of noxious weeds and non-natives that threaten the health of the habitat. A list of these potential target weed species shall be developed by the City Nature Zone Managers, or be qualified as circumstances warrant. When chemical methods are necessary within the pond itself, only Rodeo (glyphosate) and an approved aquatically labeled surfactant shall be employed.

In the event an emergency situation arises where habitat is endangered by non-native invasive submerged weeds in ponds and lakes, City Nature Zone Managers and the IPM program

Coordinator may approve the use of an appropriate herbicide for control as a last resort. This will only be allowed where there is no direct outflow of the treated water to fish bearing streams or waterways. The herbicide utilized shall be of very low toxicity to aquatic organisms, and be applied in such a way that there are no appreciable negative effects on the health of the aquatic environment.

Within Wetland Areas

Examples: Oaks Bottom, small wetlands at numerous sites.

Within the wetland itself, herbicides will be used only for the control of noxious weeds, and non-natives that threaten the health of the habitat. A list of these potential target weed species shall be developed by the City Nature Zone Managers, or be qualified as circumstances warrant. When chemical methods are necessary within the wetland itself, only Rodeo (glyphosate) and an approved aquatic surfactant (such as R-11) shall be employed.

Within Biofilters and Pollution Reduction Facilities (PRFs)

Examples: Delta Sports Complex, Gabriel.

Biofilters and PRFs intercept storm water run-off of surfaces before it reaches the waste water system or other drainages. Pre-emergent herbicides will be allowed where necessary only in shrub beds above the high water line. For post emergent applications, PRF buffers will be treated as a class B streamside buffer.

Within Bioswales

Bioswales are planted areas consisting primarily of grasses that act as a filter for run off water moving towards a body of water or drainage system. If bioswales lie within the buffer area of any of the above listed waterways, they will have the same maintenance restrictions upon them as any other buffer zone. If the bioswale has an outlet to any surface water, its treatment will follow the same restrictions as a B class streamside buffer. If there is no outlet to surface water, the buffer may receive the same treatment as general park lands.

Special Exception Areas

Special exception areas not covered under the preceding descriptions are: Waterfront Park seawall area, Westmoreland Casting Pond, Laurelhurst Pond, and the four municipal golf courses.

Waterfront Park Seawall Area

This area, being very different than other water frontage areas, will have special options available to it. The distance and nature of the river interface is such that the buffer as defined elsewhere in the policy is not applicable to this area. Fertigation delivery systems are used in this area. Plant nutrients are monitored and sampled to maintain an optimum level for turf vigor and to reduce waste. Broadleaf weed control may be used within the IPM guidelines for maintaining turf health in this zone.

Westmoreland Casting Pond

Algae control in this body of water shall be allowed when necessary to maintain its usability for public events.

Outflow of water from the casting pond shall not exceed 100 gallons per minute. Any accumulated pond sludge will be removed mechanically or drained only to the sewer system during pond cleaning or draining. Use of Aquashade dye is also allowed to prevent algal bloom.

Laurelhurst Pond (drains to sewer system), Golf Course Ponds (no direct outflow to streams)

Algae control in these bodies of water will be allowed when necessary to maintain usability. Use of Aquashade dye is also allowed to prevent algal bloom.

Golf Course Streams, Lakes and Their Buffers

The nature of the current layout of the golf courses places golf greens and other finely manicured areas near to waterways in some limited instances. In these specific areas, the buffers are variable in width, and may be smaller than 25 feet. In limited areas, buffers may be reduced to as little as 10 feet due to proximity of golf greens to waterways. Special golf course buffer widths shall never be less than 10 feet. Locations of these variances will be mapped and recorded. These variance areas are few in number and amount to a very small percentage of overall water frontage. In new construction and design of golf courses, placement of greens to allow establishment of standard width buffers is encouraged where feasible. Incorporation of intercepting buffers will also be encouraged where feasible. These intercepting buffers can be situated so that any possible runoff flowing towards open water is diverted into planted drainage systems and biofilters.

Golf Course Waterways Testing
Waters adjacent to treated areas within the golf courses shall be tested on a regular basis for both fertilizer and pesticide levels. Frequency of the testing will depend upon the scheduling of applications, but shall occur no less than twice per year. This testing shall follow applications, irrigation or rain events, and/or be timed to best to detect any potential leaching or run-off problems. The Bureau of Environmental Services will recommend an adequate regimen of testing that is sufficient to monitor levels of potential concern. PP&R and BES will work in conjunction in this testing process.

Routine Golf Buffer Maintenance Practices
There will be no fertilizer application to turf in buffer. Only directed, slow release fertilizer may be applied to shrub beds in buffer areas.

There will be no application of broadleaf herbicides to turf in buffer. Use of pre-emergent herbicides is acceptable in shrub beds above high water line. Use of glyphosate and triclopyr will follow the same limits as “C” areas in the matrix.

Golf Buffer Construction/Establishment Practices
Pre-emergents are allowed only in shrub beds above high water line. Use of glyphosate and triclopyr will follow the same limits as “C” areas in the matrix. Only slow release fertilizer using a directed application method can be used.

Policy 20:

VEGETATION MANAGEMENT IN WOOD CHIPPED CHILD PLAYGROUND AREAS

PURPOSE

This policy defines acceptable practices for managing vegetation in specially designated child play areas in developed parks. Consisting of play structures underlayed by deep wood chip surfaces, these playground areas function in special roles that heighten sensitivity to our pest management practices and materials. This policy addresses approved vegetation management methods and materials in these specific areas.

BACKGROUND

In all of our IPM activities, PP&R seeks to minimize any potential impacts to our park users while still providing responsible, effective, and efficient care for our facilities. Chipped playground areas in particular focus attention on our activities and require a special set of best management practices to benefit both PP&R and park users.

POLICY

All PP&R personnel are required to adhere to this policy when they are undertaking weed management activities in chipped playground areas and their immediate borders or margins.

The deep chip layers that serve as a safety cushion for falls also act as an effective weed control mulch and reduce the need for other active weed control measures. Herbicides will not be used to control vegetation in chipped play areas or their margins. Weed control in these play areas will be accomplished primarily through the use of the wood chip mulch itself. To function as both a safe surface for play and as an effective weed barrier, this chip layer should be kept at the established minimum depth for playgrounds. If the mulch layer is not adequate for weed control it should be amended as soon as is practicable. Mulch layers that have broken down over time and provide a medium for good weed growth should be replaced or amended with fresh chips.

Manual weeding is usually adequate to keep weeds from establishing within the chipped areas. Effort shall be made to respond quickly to weed presence so that this kind of control will be feasible and efficacious.

Use of powered weed control equipment, such as line trimmers and tillers, may be used in chipped areas to control weeds, but careful attention to the dangers they present must be taken. This kind of equipment should not be used when nearby park users may be put at risk.

Playground/turf interface borders will be maintained by hand or mechanical means. Establishment of a structured border is preferred and encouraged for installation where possible as it provides a lower maintenance interface between play areas and turf. These structures also reduce weed and turf infiltration.

The only pests that will be regularly controlled in wood chipped play areas are weeds and other unwanted vegetation. The need to control other pests, such as insects or diseases, is not expected. One exception would be the presence of venomous stinging insects such as yellow jackets in the play area. In these circumstances the use of a targeted insecticide to eliminate the immediate safety hazard may be required. All other applicable PP&R Pest Management Program policies and approved pesticide lists apply in this case.

Policy 21:

Venomous Insect Management

PURPOSE

This policy defines acceptable practices for managing venomous insects such as hornets, wasps, yellow jackets, and honeybees in PP&R park landscapes and grounds. While these insects will not always cause problems, their presence in some locations can create immediate and serious public and staff safety issues. Most importantly, individuals with bee and wasp venom allergies may be presented with life threatening situations if they are stung. To properly address these safety concerns, park employees may be faced with the need to apply insecticides within a short time frame. These control activities and use of insecticide require adherence to the special rules outlined in this policy.

BACKGROUND

Wasps, hornets and yellow jackets may quickly establish nests above and below ground in both natural areas and in developed parks. European honeybees form above ground nests, and may also form swarms when seeking new nest sites. Not every wasp or bee nest creates a problem for our users or staff. Public threat is dependent on insect species, nest location, time of year and other factors.
Yellow jackets and some wasp species can be particularly aggressive towards people, especially near their nests. Other wasps, such as paper wasps are less aggressive and are more benign depending on location of their nest. Honeybee swarms generally do not create a large stinging potential as bee behavior is altered during this time. Nest location is also important when determining threat. Nests located near walkways, buildings, playgrounds or similar sites are more problematic than those located in remote areas. Nests in areas where vegetation management or restoration planting is being carried out can also create problems. Wasp behavior may also vary with the time of year. Yellow jackets in particular will exhibit increased defensive behavior as the season progresses. Normally, yellow jacket and paper wasp colonies only live one season. Honeybee nests usually persist from year to year.

POLICY

Evaluation

When wasp or bee nests are discovered on PP&R property, staff should evaluate the safety threat they pose. If the nest is considered to create a safety hazard for park users or staff, demarcation and control measures should take place. Nests that create an immediate hazard, such as those near playgrounds, community centers, walkways, trails and work sites, should be addressed as soon as possible. Other criteria that may constitute a hazard are nests that have been disturbed and nests sites with aggressive individuals. Nests occurring within inhabited structures such as community centers create an immediate safety hazard and control of these should be immediately referred to a qualified professional contractor.

Demarcating nests or swarms
Where possible, nests or swarms that present an immediate public hazard should be demarcated by either signage, cones, taping, flagging or by other means so that the area of danger can be avoided by park users. This demarcation should stay in place until the nest is eliminated or the swarm is removed.

Honeybee swarms and nests
When discovered, honeybee swarms should be marked as described above until the bees have been collected. Qualified bee removal businesses should be contacted to collect the swarm. Honeybee swarms should not be sprayed with insecticides. Unless location of the nest presents a hazard, honeybee nests should be tolerated where possible. If removal is required, qualified contractors should physically remove nests when feasible. Spraying of honeybee nests should be a last resort.

Spraying wasp and hornet nests
Aerosol jet stream products labeled for use on wasp and hornet nests can be effective against both yellow jackets and paper wasps, but they must be used with extreme caution. Wasps will attack when they sense an application to their nests, and even freeze-type products are not guaranteed to stop every individual. For this reason extreme caution must be used when nest applications are taking place. The following practices should be adhered to:

- Nests should be sprayed at night or before dawn, when all members of the hive are present and most docile. Daytime spraying is not recommended except in certain emergency cases where the public is not placed at risk from resultant increased hive activity.
- Nests should not be disturbed before treatment. Disturbed nests should not be approached.
- Nest location should be demarcated as described above. Demarcation must be left up until the nest has been eradicated.
- Nests that are situated high in trees, or in otherwise difficult to access locations should be treated by professional contractors, or by qualified staff in the Urban Forestry unit. Do not attempt to control a nest if you cannot easily do so.
- Nests in structures, building voids etc., should be treated by professional contractors only.
- Approved PP&R staff may use wasp and hornet jet sprays available at Park Stores. Approved sprays will contain synthetic pyrethroids as their active ingredient. Products with other active ingredients are not approved for use by PP&R staff.
- Pesticide application notification signage must be placed as per the PP&R *Notification Policy*.
- All applications shall be documented as per the PP&R IPM Program *Record Keeping Policy*.

Approved applicators
In general, park staff with valid ODA pesticide applicator licenses with an insecticide category endorsement should be the designated employees carrying out applications. However, there may be instances where these employees are not available and a nest presents an immediate health and safety threat to the public or staff. In these instances, available personnel with ODA pesticide applicator licenses of any category are approved to use jet spray wasp and hornet products to treat nests. In rare emergency safety situations where no licensed personnel are able to respond in a timely fashion, other personnel may be approved to carry out an application, but only if they have had prior supervisor approval, prior training in the safe use of these sprays, and instruction in the

proper management of wasps and bees. Staff members with known wasp or bee allergies will not carry out any wasp or bee control.

Use of traps

When yellow jackets are a continuing serious problem at a site from year to year, use of commercial traps to target emerging queens in the spring can be considered. Trapping queens during the 30- to 45-day emergence period has the potential to provide an overall reduction in the yellow jacket population for the season, The more traps put out in spring on an area-wide basis, the greater the likelihood of reducing the number of nests later in the summer. Usually one trap per acre is adequate in spring for depletion trapping of queens. Use of traps to reduce yellow jacket numbers later in the season is considered ineffective.

Policy 22:

DESIGNATED DOG OFF LEASH AREA PEST MANAGEMENT

PURPOSE

This policy defines acceptable practices for managing pests in the designated *Dog Off Leash Areas* (DOLAs) in Portland's parks. Park users are invited to bring their dogs to recreate in these sites and with less direct control than in other park areas, therefore pest management in these areas needs to reflect this special use. Pest management decisions, methods, and material use should be carried out in a way that maintains public and dog safety and allows for responsible stewardship of park property.

BACKGROUND

There are many off leash sites in Portland parks. Some are fenced, all-day areas. A larger number are unfenced, with seasonal hours compatible with traditional park use patterns and adjacent uses. All sites are signed, and boundary markers are in place at the unfenced sites. For the purposes of this policy, DOLA sites consist of:

1. An officially designated fenced dog off leash area, including the fence line.
2. An officially designated unfenced dog off leash area within the boundary markers.

By their nature, and from the impact of concentrated dog activity, DOLAs can create pest management problems such as increased weeds in turf and the need to control weeds along boundary fence lines. Other pest issues that arise in DOLAs are the presence of noxious, poisonous, allergenic, or otherwise incompatible weeds, and venomous insects and their nests. Proper management of these pests needs to be clearly defined to minimize any potential risks to dogs and their owners and to minimize interference with DOLA use by the public.

POLICY

Expected pest management issues arising in the DOLAs consist of:

- Weeds along fence lines, in tree circles, in shrub beds, around park structures, and in turf.
- Management of allergenic or poisonous weeds such as poison oak.
- Venomous insect management.

DOLAs may need to be closed temporarily so that necessary maintenance work does not impact pets and their owners. To the extent possible, temporary signage will be located outside DOLA boundaries or fencing to alert users in advance of such closures. Pesticide applications will be further accompanied by notification signage and mandated reentry intervals as defined in IPM policy #4.

Herbicide use in fenced DOLAs
When it is necessary to apply herbicides within fenced DOLAs, great care should be used to time and locate the application to minimize interference with public use. Ideally herbicide use should

be as infrequent as possible, and would take place when dogs are not present. When herbicides are to be used inside fenced DOLAs or along the interior or immediate exterior of their fence lines, the DOLA should be closed and dogs excluded. Closure should be maintained until the reentry requirements as mandated on the product label have been satisfied. This interval typically requires that people and pets be kept out of the area until the sprayed surface has dried. Normal application notification signage as mandated in Policy #4 should be used. To the extent possible, additional temporary signage will be located outside DOLA fencing to alert users in advance of closures.

Herbicide use in unfenced DOLAs
When it is necessary to apply herbicides within unfenced DOLAs, great care should be used to time and locate the application to minimize interference with public use. Ideally herbicide use should be as infrequent as possible, and would take place when dogs are not present. Standard notification as mandated in Policy #4 must be employed. Label directives for reentry must be adhered to, and dogs and people must be excluded from application areas until the interval has been satisfied. Since unleashed dogs are difficult to exclude from large areas, this may necessitate applications that are small in scope to allow for this level of oversight. To the extent possible, additional temporary signage will be located outside DOLA boundaries to alert users in advance of closures.

Turf broadleaf control
No turf will be sprayed for broadleaf weed control in currently active DOLAs. In unusual circumstances DOLAs taken out of service may receive selective herbicides as part of an overall turf renovation program but only within the oversight of the PP&R Turf Weed Policy and the specific approval process it requires.

Use of preemergent herbicides
To be an effective barrier to weed seed germination, preemergent herbicide sites need to be left undisturbed after they are applied. Since the activity of dogs in a DOLA disturbs soil surfaces and reduces or eliminates the effectiveness of a preemergent application, their use in areas of concentrated disturbance sites, such as fenced DOLAs, is often not effective. However there may be need for preemergent use in less intensively impacted areas.

Insecticide use
As is the case at most park properties, general insecticide use is not expected in DOLAs. However there may be emergency situations created by the presence of venomous insects such as yellow jackets, wasps, bees and their nests. These insects can create serious safety issues for people and their pets. Control of these insects and any use of insecticides must take place as described in the Venomous Insect Management Policy. Nest demarcation guidelines and the response process as described in that policy are of heightened importance in DOLAs since dogs not in control by their owners may be at increased risk from an active nest site.

Mechanical equipment
All aspects of park user safety and dog safety should be considered when determining a particular weed control method for a given site. Mechanized weed control equipment such as string trimmers can create hazards such as flying rocks and debris. Off leash dogs may be at risk when they approach the work area. Care should be exercised when using this equipment.

PP&R Dog Off Leash Program:
http://www.portlandonline.com/parks/index.cfm?c=38287

Policy 23:

NPDES GENERAL PERMIT COMPLIANCE FOR PESTICIDE USE IN OR NEAR WATERWAYS

PURPOSE

Adherence to this policy ensures compliance with the requirements of Oregon's general National Pollutant Discharge Elimination System (NPDES) waste discharge permit as it relates to pesticide use and their residues in surface water. This permit, issued by Oregon Department of Environmental Quality pursuant to ORS 468B.050 and the Federal Clean Water Act, applies to an application of any registered pesticide to surface water, or an application within 3 feet of the water's edge, or use of any registered pesticide in or near water that leads to a post application residue in water. Specific compliance requirements under this permit are based on the nature of the pest control activities, including pesticide use and scope. This policy and its compliance requirements are in addition to, and do not supplant PP&R's IPM program *Waterways Policy* and its requirements. Further, this NPDES permitting policy refers only to weed and algae control. Control of pests such as mosquitoes or nuisance animals, and aerial pesticide use, is not covered by this policy.

BACKGROUND

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Certain legal decisions have determined that aquatic pesticide applications can be considered point sources of pollution to water. Therefore, use of pesticides in these sites requires permitting under NPDES. In Oregon, this permitting is administered by the state Department of Environmental Quality (DEQ). DEQ issued an NPDES general permit on October 31, 2011. This permit provides the way to comply with the requirements of state and federal law. The state permit applies to all operators that conduct pesticide applications that reach waters of the state or their margins. Operators include entities such as Portland Parks and Recreation and other city bureaus. Waters of the state include lakes, ponds, springs, rivers, streams, creeks, and marshes, whether natural or artificial. All park bodies of water with hydrologic connection, whether direct or through groundwater, can be considered as within the scope of this permit.

Application of pesticides by any entity to park waterways, to emergent plants in waterways, or applications within 3 feet of the water's edge must be preapproved through the process defined in this policy.

There are varying levels of requirements under the state permit that are dependent on the treatment area and extent of the application. The permit sets a threshold that, when exceeded, requires pesticide users to submit an application to the state for registration and pay fees among other requirements. For weed and algae control in water, these large scale exceedance thresholds are set at 20 acres of surface treatment area or 20 linear miles of treatment area at water's edge. These thresholds refer to the annual treatment area under the responsibility of a single landowner, (such as park land cared for by PP&R) and combine any applications performed by any agency

on that land. Therefore PP&R and other agencies and contractors applying pesticides on park land must be included in any calculations assessing threshold. Treatments that do not exceed these thresholds result in more limited requirements, and do not need individual permit applications to the state. The complete state permit is located at:
http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes2300a/2300aPermit.pdf
The permit is a source for definitions of terms, and other important information. All applicants must read the permit and understand the requirements of the permitted party before they submit their application for approval.

POLICY

To satisfy compliance with Oregon NPDES permit requirements, all entities or persons desiring to perform applications of pesticides to control weeds or algae in state waters and/or their margins on PP&R property must receive prior approval through the oversight of the PP&R Integrated Pest Management program. This approval process shall consist of the following:

Submission of a completed approval form (see Appendix 8) detailing the application parameters. The completed form must be submitted to the PP&R IPM coordinator for review no less than 30 days before the anticipated work start date. The PP&R IPM coordinator will assess the request for compliance with both state NPDES requirements as well as PP&R IPM policies, including its Waterways Policy. The coordinator will inform the applicant of the application's approval status within 15 days of the work start date. In the unlikely event that the scope of the anticipated pesticide application triggers need for a special permit application to DEQ, the applicant will be notified and advised of the additional steps needed.

The applicant will be responsible for all ongoing permit requirements for the application as described below. Any required written documentation will be copied and submitted to the coordinator once project work has been completed.

Once approved, those applying pesticides must:

1. Read and maintain a copy of the state permit.

2. Ensure that the pesticide use or discharge does not cause or contribute to the violation of water quality standards. If the operator becomes aware of a violation, corrective action must be taken. This can be accomplished by revising pest management measures and ensuring that the following are eliminated and are not repeated:

(a.) Spills, leaks, or unpermitted discharges
(b) Discharges that cause or contribute to water quality standard violations
(c) Failures to follow pest management measures
(d) Pest management measures insufficient to meet discharge limitations in the state permit
(e) Reportable adverse incidents (see definition below).

Upon becoming aware of any leak, spill, or adverse incident, the operator must take immediate corrective action.

3. Ensure the optimal amount of pesticide consistent with the label be used to reduce the potential for development of pest resistance and to minimize the frequency of applications necessary to control the target pest.

4. Carry out regular maintenance activities to reduce leaks, spills, and other unintended discharges during use and mixing and loading must take place.

5. Maintain pesticide application equipment in proper operating condition by calibrating, cleaning and repairing as necessary to ensure effective and accurate applications.

6. Assess weather conditions in the treatment area to ensure the application is consistent with all application pesticide application requirements.

7. Use pest management measures as an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices as follows:

a. Use current, comprehensive information on the life cycles of pests and their interaction with the environment to manage pests with the least possible hazard to the environment, property and people, while keeping under consideration the most economical means to achieve the pest control.

b. Monitor and identify pests. Consider that not all insects, weeds, and other living organisms require control.

c. Consider action thresholds before taking any pest control action. Pest Management Measures first sets an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. Detecting a single pest does not always mean control is needed.

d. Consider alternative pest management options, such as,

i. Preventative measures to prevent pests from becoming a problem.
ii. When monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, evaluate and use the appropriate control method(s) by considering cultural mechanical or physical methods and biological control methods, or other pest control methods.

Adverse Incident – means an unusual or unexpected incident that you have observed upon inspection or of which you otherwise become aware, in which**:**
(1) A person or non-target organism has likely been exposed to a pesticide residue, (e.g. direct contact or through drinking water) and
(2) The non-target organism suffered a toxic or adverse effect.
The phrase “toxic or adverse effect” includes effects that occur within waters of the state on non-target plants, fish or wildlife that are unusual or unexpected (e.g., non-target organisms are those not described on the pesticide product label or otherwise not expected to be present) as a result of exposure to a pesticide residue, and may include:
- Distressed or dead juvenile and small fishes
- Washed up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

The phrase, “toxic or adverse effects,” also includes any adverse effects to humans (e.g., skin rashes), or animals that occur either from direct contact with or as a secondary effect (e.g., sickness from consumption of plants or animals containing pesticides) from a discharge to waters of the state and that are temporally and spatially related to exposure to a pesticide residue (e.g. vomiting, lethargy).

Policy 24:

MOLE AND GOPHER MANAGEMENT

PURPOSE

This policy establishes management procedures for burrowing rodents such as moles and gophers. Management of these pests differs greatly from typical landscape pest management and brings with it a specific set of issues that must be addressed to ensure park visitor and employee safety.
BACKGROUND

Moles and gophers can create turf and landscape problems due to their tunneling and mounding activities. While tunneling and mounding can be tolerated in many park areas, in some sites the aesthetic damage from these activities cannot be tolerated. This soil disturbance can also present trip hazards for park users, particularly in turf areas. Mounds can also create problems for mowers.

POLICY

Mechanical control of burrowing rodents such as moles and gophers is allowed with an Ornamentals and Turf category endorsement of the Oregon Public Pesticide Applicators license currently held by our staff licensees. Where a demonstrated need exists, and supervisors have directed that control actions should take place, then gophers and moles may be mechanically trapped in tunnels by these licensed PP&R personnel. To ensure that park visitors are not put at risk by trap placement, the following rules must be adhered to for all trap uses.

1. Trap type must be of the scissor, loop, hoop and cinch types. Spike, spear or harpoon traps are not approved.
2. Once placed, traps shall be covered by a wood barrier or hard plastic cover, such as an irrigation valve box cover, which then must have a weighted device placed on the board or cover such as a sandbag or concrete block. A safety sign warning the public must also be attached to a barricade and placed over the wood barrier or cover. Signage shall also be placed in the area directly surrounding the trapping location to inform the public of the current trapping methods being conducted.
3. The applicator must log the park, approximate location, date, and time the trap has been placed along with photo documentation of the trap location with landmarks in the background. Documentation shall be submitted to their supervisor.
4. Once a trap has been placed the applicator must check the trap within 24 hours to determine if a mole has been caught or the trap is still active. The signage on top of the trap must be checked in the morning and the afternoon to confirm no tampering has occurred to sign or trap.
5. No traps shall be placed within 100ft of playgrounds, open sports courts, or skate parks.
6. No trapping shall occur over the weekends or holidays.
7. Setting levers must be used to compress scissor type trap springs.
8. Only Public Pesticide Applicator licensees in permanent full-time status may carry out trapping.

PP&R IPM Program approved commercial mole repellents containing castor oil are also available for trial use. These granular products may provide some efficacy in certain turf situations, although the expected level of their effectiveness has not been established. Consult the approved product list for park units in the appendices for more product details. No other mole controlling chemicals or baits are approved for use.

Policy 25:

NEONICOTINOID INSECTICIDE USE ON PP&R PROPERTY

PURPOSE

This policy defines the protocols for use of any neonicotinoid class insecticides on PP&R property. While insecticide use within PP&R's IPM program is already very limited in scope, the characteristics of this particular class of insecticides necessitate special consideration and a need for specific policy guidelines. Additionally, as of April 1, 2015, City of Portland's Ordinance 187078 specifically bans the use of neonicotinoid insecticides on city property and eliminates the purchase of plants treated with these insecticides, with allowable exceptions only as prescribed in Exhibit A of the ordinance. Therefore, all use of neonicotinoid insecticides on PP&R property shall take place only within strict compliance with the provisions of this policy and Ordinance 187078 to ensure conservation and protection of pollinators and wise stewardship of park lands. Additionally, special considerations as detailed in part 2 of this policy shall be taken when purchasing commercial nursery stock, trees and other plants for installation on PP&R property.

BACKGROUND

Neonicotinoids are a class of insecticides with a similar chemistry and mode of action. Commercially available products contain the following active ingredients: clothianidin, dinotefuran, imidacloprid and thiamethoxam. The characteristics of these insecticides vary, but all exhibit traits such as relatively long persistence in the environment, a systemic action when applied to plants, and effectiveness at low rates of use. While they tend to be less toxic to mammals, fish and other wildlife compared to some older insecticide chemistries, neonicotinoids are still highly toxic to most insects, including bees and other insect pollinators. And similar to some other insecticides, neonicotinoids can be applied to act systemically, i.e. within plants. The insecticide moves through the plant vascular system and into plant parts such as stems and leaves in varying amounts. It is also possible that the insecticide can be found in the nectar and pollen of treated flowering plants. Neonicotinoid expression in this nectar and pollen are cause for great concern since pollinators feeding on these treated plants can be exposed to the insecticide. Not only is acute toxicity to these pollinators of concern, but potential sub-lethal effects are troubling as well. Even small doses of neonicotinoids can affect important insect behaviors and compromise their ability to survive and reproduce. Honeybees, bumblebees, and other pollinators play a vital function in both agricultural and natural systems. It is estimated that bumble bees, honey bees, mason bees, and other insects are responsible for pollinating 30% of the world's food supply. Without a presence of a healthy pollinator community, food production and natural ecosystem functioning is harmed. Pollinator conservation is an important element in the PP&R IPM program. The details of this policy define a conservative, protective approach to ensure PP&R actions are not detrimental to the health and successful stewardship of bees and other pollinators.

POLICY

1. As of April 1, 2015, all use of neonicotinoid class insecticides on city property by city staff or contractors shall not take place unless it strictly adheres to the allowable exceptions as defined by City of Portland Ordinance 187078 and its Exhibit A. PP&R

pesticide applicators shall assume all neonicotinoid class insecticide use is disallowed unless they have been given specific instruction by the IPM Coordinator that the use is part of the special exemptions as defined in Appendix A. In addition, no contractor use of this class of insecticide is allowed for any city property including landscapes, buildings or other sites.

Link to Ordinance 187078 and Exhibit A:
http://www.portlandonline.com/auditor/index.cfm?a=527264&c=36767

2. As of April 1, 2015, PP&R will eliminate all uses of neonicotinoid insecticides when growing plant materials in city greenhouse and nursery operations. Additionally, purchase of neonicotinoid treated plant materials for use on Portland Parks and Recreation property is restricted as defined by Appendix A and its required phase out plan.

REFERENCES and RESOURCES

1. American Phytopathological Society. Compendiums: Flowering Potted Plant Diseases, Ornamental Foliage Plant Diseases, Rhododendron and Azaleas Diseases, Rose Diseases. APS Press, 1983-1995.

2. Dreistadt, S.H., J.K. Clark, and M.L. Flint. Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide. 2004. University of California Press. 2nd edition. Oakland, CA.

3. Bragg, Dave, et al. Pacific Northwest Insect Control Handbook, revised annually. Extension Services of Oregon State University, Washington State University, and University of Idaho.

4. Johnson, W. T., Lyon, H. H., Insects That Feed on Trees and Shrubs. Cornell University Press, 1988.

5. Pscheidt, Jay W. et al. Pacific Northwest Plant Disease Control Handbook, revised annually. Extension Services of Oregon State University, Washington State University, and University of Idaho.

6. McDonald. Sally A., Applying Pesticides Correctly. North Carolina State University, US Department of Agriculture, and US Environmental Protection Agency.

7. Pirone, Pascal P., Diseases and Pests of Ornamental Plants. John Wiley & Sons, 1978.

9. Sinclair, W. A., Lyon, H. H., and Johnson, W. T. Diseases of Trees and Shrubs, 1987. Cornell University Press.

10. Williams Ray D. et al, Pacific Northwest Weed Management Handbook, revised annually, Extension Services of Oregon State University, Washington State University, and University of Idaho.

11. Bobbitt, Van M. et al. Pacific Northwest Landscape Integrated Pest Management Manual. Washington State University, 1999.

12. Byther, Ralph S. et al. Landscape Plant Problems Washington State University, 2000.

13. Fisher, G., J. DeAngelis, C. Baird, R. Stoltz, L. Sandvol, A. Antonelli, E. Beers, and D. Mayer (eds.). Pacific Northwest Insect Management Handbook. Cooperative Extension Services of Washington, Oregon, and Idaho. Revised annually.

14. Sinclair, W.A., H.H. Lyon, and W.T. Johnson. Diseases of Trees and Shrubs. 2005. Cornell University Press. 2nd edition. Ithaca, NY. ISBN: 0-8014-1517-9.

15. Costello, L.R., E.J. Perry, N.P. Matheny, J.M. Henry, and P.M. Geisel. Abiotic Disorders of Landscape Plants: A Diagnostic Guide. 2003. Regents of the University of California, Division of Agriculture and Natural Resources. Publication 3420.

16. L. Burrill, S. Dewey, D. Cudney, B. Nelson, R. Lee, and R. Parker. Weeds of the West. 1996. Whitson, T. (Editor). Washington State University Cooperative Extension. WYWSWS001.

17. Disease Compendia of American Phytopathological Society

Compendium of Apple and Pear Diseases. 1990. Jones, A.L. and H.S. Aldwinckle (eds.). APS Press. St. Paul, MN.

Compendium of Conifer Diseases. 1997. Hansen, E.M. (ed.) and K.L. Lewis. APS Press. St. Paul, MN.

Compendium of Flowering Potted Plant Diseases. 1994. Daughtrey, M.L., R.L. Wick, and J.L. Peterson. APS Press. St. Paul, MN.

Compendium of Rhododendron and Azalea Diseases. 1986. Coyier, C.L. and M.K. Roane (eds.). APS Press, St. Paul, MN.

Compendium of Rose Diseases and Pests, 2nd Edition. 2007. Horst, R.K. APS Press. St. Paul, MN.

Internet Links

Pesticide Information

California Department of Pesticide Regulation
http://www.cdpr.ca.gov

CDMS Label and MSDS site
http://www.cdms.net/manuf/manuf.asp

EPA Pesticides Program
http://www.epa.gov/pesticides/

EPA Pesticide registration documents
http://www.epa.gov/pesticides/reregistration/status.htm

EPA Inerts Program
http://www.epa.gov/opprd001/inerts/

EXTOXNET, an Internet based pesticide informational site maintained by O.S.U.
http://ace.orst.edu/info/extoxnet/

National Pesticide Information Center
http://npic.orst.edu/index.html

Oregon Dept. of Agriculture Pesticides Division
http://www.oregon.gov/ODA/PEST/

Integrated Pest Management Information

Integrated Plant Protection Center (IPPC) Oregon State University:
http://ippc.orst.edu/dir/

IPM & Related Sites in Oregon and Pacific Northwest
http://ippc.orst.edu/oregonIPM.html

IPPC- PNW Handbooks, weather data, IPM links
http://pnwpest.org/

National Integrated Pest Management Network
http://www.reeusda.gov/nipmn/

OSU Pacific Northwest Nursery IPM website
http://oregonstate.edu/Dept/nurspest/index.htm

PP&R IPM Program website
http://www.parks.ci.portland.or.us/IPM/ipm.htm

Washington State Pest Management Resource Service
http://wsprs.wsu

DISCLAIMER
The use of pesticide trade names in this document does not constitute an endorsement by the City of Portland. Descriptions of pesticide use and management practices are provided in this program for PP&R employee use, and are not intended as public recommendations.

Policy 26:

AVIAN MANAGEMENT

PURPOSE

This policy establishes oversight procedures for bird protection and control at all PP&R locations, or on land owned and/or maintained by the City for which this IPM is used as best management practice by another city bureau.

BACKGROUND

There are over 200 bird species that spend all—or part—of their lives in Portland. Some are resident non-migratory species that spend their whole life in the same neighborhood and never migrate. Others are migratory, spending winters in Central and South America, but may breed here. Some only pass through this area on their migratory routes to feed and rest. In addition to native bird species, there are some non-native bird species in Portland, which may at times be considered pest or nuisance species.

During the fall and winter, crows form communal night roosts in various locations throughout the City. These roosts can range in size from a few dozen to more than 10,000 birds. The crows congregate in large numbers at dusk, to spend the night in close proximity to one another in trees. This behavior provides them with protection from predators, warmth and facilitates information sharing about food sources. This behavior continues as a nightly occurrence for several months, with the population increasing as cold weather continues. The winter overnight roost normally begins to dissipate in March. For many people this behavior is viewed as a fascinating wildlife observation opportunity. Others may view it as a nuisance due to noise and droppings.

There have been incidents of sudden mass crow die-offs in Portland in 2014 and 2018 due to improper use of an avicide by unknown individuals. Avicides are any substance (normally, a chemical) which can be used to kill birds. It was determined that Avitrol (an avicide) was used in the crow poisoning, Avitrol is a restricted use pesticide only available for purchase by state licensed pesticide applicators. Application of avicides by any bureau is inconsistent with both federal law and City policies.

All native birds found in Portland, including crows are federally protected under the Migratory Bird Treaty Act (MBTA). Unless permitted under certain regulations or permits, no one can harm these native migratory birds, their nests, eggs or young.

Portland City Council has also taken several actions to proactively protect and conserve Portland's birds. In 2003 Council signed an urban migratory bird treaty with the U.S. Fish and Wildlife Service and regional partners. Resolution 37034 was passed in 2013 encouraging bird safe design and practices in city plans, projects and policies. Mandatory bird safe design elements in the city's green building policy in 2015. Most recently, bird-safe building design requirements were added to the newly adopted Central City 2035 Plan.

POLICY

Under no circumstances does Portland Parks & Recreation allow or condone the use of avicides to harm or kill birds of any status; pest, nonnative, native, and particularly migratory. The use of avicides are not an approved pest management strategy in Portland Parks and Recreation's Integrated Pest Management Program. Other city bureaus that utilize this Integrated Pest management Program as best management practice to any other land owned or maintained by the City, shall not use avicides. Avicides, specifically Avitrol are toxic to all vertebrate species, not just birds. Its action on the motor nervous system usually

causes behaviors characteristic of an epileptic seizure or convulsion. These chemicals can cause nontarget harm via direct exposure to bait or secondary poisoning from exposure to dead or dying birds or animals. They can present a significant risk to non-target birds, other wildlife, pets and people including acute oral and dermal toxicity for both birds and mammals. Parks supports non-lethal mitigation measure such as hazing, exclusion and sidewalk cleaning for situations where human-wildlife conflicts occur.

To avoid impacts to nesting birds when scheduling mowing and clearing, invasive and native vegetation removal, and herbicide applications, Parks staff will consult Bureau of Environmental Services document "Protecting Nesting Birds: Best Management Practices for Vegetation and Construction Projects, version 3.0, May 2017".

Appendix 1

Approved Pesticide Lists

Following are lists of pesticides that are approved for use in specific work units in parks. A good IPM approach allows for the choice of ideal materials for specific needs. IPM also anticipates the need to managing pest resistance with rotations of products with differing modes of action rather than relying on a "one material fits all" approach. Despite the lengthy appearance of these approved lists, most of these pesticides are not used in a typical year, or are used in a very minor way.

It is also important to understand that pesticide applications are used after many other IPM strategies have first been either employed, or considered. The vast majority of PP&R pest management practices never involve the use of pesticides. Similarly, the vast majority of park acreage never receives any kind of pesticide application. Other IPM strategies PP&R employs include prevention of pests through policy, design and selection, and management of pests through cultural practices, physical means, and mechanical methods.

All pesticides available for use within parks must first be placed upon an approved list after undergoing a review process that carefully examines the individual characteristics of the product and whether it would be an appropriate addition within our program. Issues of efficacy, public health and safety, potential environmental impacts, overall plant health requirements, land management needs, and other concerns are taken into account during this process. Applicators within a specific work unit must then make their choices of materials from their own approved list. Individual work units have different responsibilities and pest management requirements for the lands under their care. The individually tailored approved lists reflect these differences. Occasionally, subsets of work units may receive approval for certain materials that are not on their general approved list. For example, trial uses of products may be focused on a single golf course for demonstration purposes.

All applicators in each work unit are limited to the pesticides appearing on their specific approved list. Pesticides not appearing on their particular list are not available for their use. Careful attention should be paid to the further limitations of pesticides available for use within waterway buffer zones and aquatic sites as outlined and defined in the Waterways Pest Management Policy.

Additions to the approved lists must follow the process as described in the "Pesticides Approved for Use in Parks" Policy.

The following lists of approved pesticide materials are specific to each work unit. PP&R applicators must choose only from currently listed products. Only state licensed applicators may apply pesticides in Portland Parks. Use of pesticides must occur under adherence to the PP&R Integrated Pest Management Program policies and oversight. Pesticides use must adhere to all product label directions.

Format:
Product trade name (active ingredient) Description of purpose and use within IPM program.

PARK SERVICE ZONES APPROVED LIST

Areas of pest management: General community, neighborhood, regional, and urban parks.

HERBICIDES
Primary choices:
Gallery 75 DF (isoxaben) Used on shrub beds, tree circles, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented.
Vastlan, Lilly Miller Brush and Vine (triclopyr amine) Selective products for woody, difficult to control perennials. Used in spray and cut-stem applications, also for invasives and habitat restoration. **Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster**
(glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
Surflan AS (oryzalin) Used in shrub beds, tree circles, fence lines and other park areas for weed control. A primary liquid form preemergent product.
XL 2G (benefin+oryzalin) Combination product for wider spectrum weed control. Useful in sites where liquid products are more difficult to apply. This is a primary granular preemergent product.
Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in rotation with oryzalin to broaden the spectrum of weeds controlled an.
SedgeHammer (Halosulfuron-methyl) used for control of nutsedge in shrub beds and horsetail in pump station areas.

Specialty uses:
DeMoss, Garden Safe Moss and Algae Killer, others (fatty acids) Moss control desiccant. For structures and non-vegetated surfaces. Not typically used, but possible sporadic use.
Scythe (pelargonic fatty acid) Minor use desiccant used for top-kill of early-stage, easily killed weeds.

INSECTICIDES
Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest treatments posing health and safety threats to park users.
Azatin XL (azadirachtin) Neem tree extract used for control through growth regulating and anti-feeding effects. Specialty use product. Typically not used in park zones, but retained for unusual circumstances. **Bacillus thuringiensis** Primarily for lepidopterous insects, although subspecies can be used for other targets. Typically not used in park zones, but retained for unusual circumstances.

PARK SERVICE ZONES APPROVED LIST (cont.)

Beneficial nematodes Predatory nematodes for insect control treatments for susceptible targets where needed. Typically not used in park zones, but retained for unusual circumstances.
M-Pede, Safer Insecticidal Soap, others (soaps) General soft body insect control. Typically not used in park zones, but retained for unusual circumstances. Note pollinator protection guidelines.
Sunspray, others (horticultural oils) General insect control both for dormant and growing season use. Typically not used in park zones, but retained for unusual circumstances. Note pollinator protection guidelines.

MISCELLANEOUS
Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
Contrac Blox (bromadialone) Rodent bait for use only under the parameters of Policy 15. Used by Public Health category licensed applicators only. Used only when placed in locked, tamper resistant bait boxes. Used only as part of an approved IPM approach for rat control in specific, non-interior locations. **Deer-Off** (putrescent egg and capsaicin) Deer foliage repellent.
No Foam (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks.
Sluggo, Escargo (iron phosphate) Slug and snail bait for specialty areas susceptible to unacceptable damage, such as certain perennials, annuals. Not typically used, but retained on list for use if plant loss is unacceptable.
Tanglefoot (barrier product) Physical sticky barrier for crawling insect pests. Not typically used, but retained on list for use if loss is unacceptable.
Terro Ant Bait stations, others (borax) Borax bait stations for problems ant nests.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to temporarily mark area of application.
Wasp/yellow jacket traps (pheromone trap) Yellowjacket trap for certain areas. Not typically used, but retained on list for use if safety issues are created by wasp and yellow jacket presence.

SPECIAL APPROVAL: Requires manager/coordinator/policy approval prior to use.
Aquashade (acid blue 9, acid yellow 23) Blue colorant used to suppress algae growth in certain ponds in developed parks. Used only within approved framework for noxious invasive weeds and algae as part of weed management strategy specific to site as outlined in Waterways Policy.
Horsepower(MCPA,triclopyr,dicamba) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf. **Sonar AS** (fluridone) For control of noxious invasive weeds that threaten the health of an aquatic system as part of approved overall IPM management plan specific to site; potential sites and uses outlined in Waterways Policy. Minor to zero use material retained on list for specific situations.
Spotlight (fluroxypyr) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf.

SPECIALTY ROSE GARDEN APPROVED LIST

Areas of pest management relating to this list: Three specialty rose gardens: International Rose Test Gardens, Peninsula Rose Gardens, Ladd's Addition Rose Blocks. This list does not apply to general parks in service zones. (Specialty Rose Garden sites are also approved for use of Service Zone listed pesticides.)

Integrated pest management activities in rose gardens on park land are highly dependent on factors such as garden location, intent and use of the planting, rose varietal choice, site conditions, and public expectations. Tolerance of disease and insect presence, and intensity of pest control activities and inputs will vary with these factors. PP&R IPM inputs at rose garden sites, including the use of pesticides, will reflect these factors and take place only under a carefully considered and planned approach.

FUNGICIDES

Banner Maxx II, Fertilome Liquid Systemic Fungicide (propiconazole) For disease control in rotation with other materials on specialty rose gardens.
Bayleton (triadimefon) For disease control in rotation with other materials on specialty rose gardens. **Carbamate 75 WDG** (ferbam) For disease control in rotation with other materials on specialty rose gardens.
Clearys 3336 (thiophanate) For disease control in rotation with other materials on specialty rose gardens.
Compass (trifloxystrobin) For disease control in rotation with other materials on specialty rose gardens. **Daconil** (chlorothalonil) For control of diseases in rotation with other materials primarily on golf greens, specialty rose gardens, and special situations.
Norbac 84c (Agrobacterium radiobacter) Beneficial bacteria for prevention of crown gall disease. **Pageant** (pyraclostobin, boscalid) For disease control in rotation for specialty rose gardens.
Zyban WP (thiophanate methyl+zinc and maneb) For disease control in rotation with other materials on specialty rose gardens.
Subdue Maxx (metalaxyl) For disease control in rotation with other materials on specialty rose gardens. Primarily for use on Downey Mildew.
Systhane (myclobutanil) For control of certain diseases, initial use for Rhod. powdery mildew control. Not typically used.
Heritage (Azoxystrobin) For disease control in rotation with other materials on specialty rose gardens.

INSECTICIDES and MITICIDES

Acelepryn (chlorantraniliprole) Specialty use product for unacceptable insect damage in high value plantings. Also trial use for rose midge management.
Azatin XL (azadirachtin) Neem tree extract used for control through growth regulating and anti-feeding effects. Specialty use product. Note pollinator protection guidelines.
DeltaGard G (Deltamethrin) Pyrethroid for rose midge management trial use.
Demand G (Lambda-cyhalothrin) for rose midge management trial use.
Distance (pyriproxyfen) Insect growth regulator for rose midge management trial use.
Floramite (bifenazate) Miticide for use as part of a carefully implemented plan to keep mite levels at a non-injurious level in specialty rose gardens. Note pollinator protection guidelines.
Hexygon (hexythiozox) Miticide for use as part of a carefully implemented plan to keep mite levels at a non-injurious level in specialty rose gardens. Note pollinator protection guidelines.
Merit, Mallet etc. (imidacloprid) Product used for soil stage rose midge control. Highly restricted uses only, to protect pollinators. See Neonicotinoid policy and City Council Ordinance 187078 and consult with IPM coordinator for acceptable uses. Note pollinator protection guidelines.

SPECIALTY ROSE GARDEN APPROVED LIST

INSECTICIDES and MITICIDES cont.
Note pollinator protection guidelines.
Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest
treatments posing health and safety threats to park users.
Bacillus thuringiensis Primarily for lepidopterous insects, although subspecies can be used for other targets. Insect control not usually done in general parks.
Beneficial nematodes Predatory nematodes for insect control treatments for susceptible targets where needed. Insect control not usually done in general parks.
M-Pede, Safer Insecticidal Soap, others (soaps) General soft body insect control. Not typically used in general parks. Minor use material.
Sunspray, others (horticultural oils) General insect control both for dormant and growing season use. Not typically used in general parks. Minor use material.
Acelepryn G (Chlorantraniliprole) Granular systemic product for the control of rose midge.
Altus (Flupyradifurone) Foliar systemic product for the control of rose midge. Only for use during high midge damage.

HERBICIDES
Primary choices:
Gallery 75 DF (isoxaben) Used on shrub beds, tree circles, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented.
Lilly Miller Brush and Vine, (triclopyr) Selective products for woody and other difficult to control broadleaf weeds. For spray and cut-stem applications.
Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster (glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
Surflan AS, WDG (oryzalin) Used in nursery, shrub beds, tree circles, fence lines and other park areas for weed control. A primary liquid form preemergent product.
Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented
XL 2G (benefin+oryzalin) Combination product for wider spectrum weed control. Useful in sites where liquid products are more difficult to apply. This is a primary granular preemergent product.
SedgeHammer (Halosulfuron-methyl) used for control of nutsedge in shrub beds areas only.

MISCELANEOUS
Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
Aquashade (acid blue 9, acid yellow 23) Blue colorant used to suppress algae growth in certain ponds in developed parks and golf courses.
Contrac Blox (bromadialone) Rodent bait for use only under the parameters of Policy 15. Used by Public Health category licensed applicators only. Used only when placed in locked, tamper resistant bait boxes. Used only as part of an approved IPM approach for rat control in specific, non-interior locations.
Deer-Off (putrescent egg and capsaicin) Deer foliage repellent.
No Foam (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks.
Sluggo, **Escargo** (iron phosphate) For specialty areas susceptible to unacceptable damage, such as in some annual flower beds. Not typically used, but retained on list for use if loss is unacceptable.
Tanglefoot (barrier product) Physical sticky barrier for crawling insect pests.
Terro Ant Bait stations, others (borax) Borax bait stations for problems ant nests.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to temporarily mark area of application.
Wasp/yellow jacket traps (pheromone trap) Yellowjacket trap for certain areas. Not typically used, but retained on list for use if safety issues are created by wasp and yellow jacket presence.

SPECIALTY ROSE GARDEN APPROVED LIST cont.

Specialty uses: Requires manager/coordinator/policy approval prior to use.
Arsenal (imazapyr Used only for non-landscaped, non-park, intergovernmental contract sites for total vegetation control.
DeMoss, Garden Safe Moss and Algae Killer, others (fatty acids Moss control desiccant. For structures and non-vegetated surfaces. Not typically used, but possible targeted use.
Scythe (pelargonic fatty acid Minor use desiccant used for top-kill of early-stage, easily killed weeds.

HORTICULTURAL SERVICES APPROVED LIST

Areas of pest management: greenhouse management, nursery management, interagency agreement landscape management.

HERBICIDES
Gallery 75 DF (isoxaben) Used on shrub beds, tree circles, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented.
Vastlan, Lily Miller Brush & Vine (triclopyr) Selective products for woody and other difficult to control broadleaf weeds. For spray and cut-stem applications.
Ranger Pro, Roundup Pro Concentrate, RU Pro, Rodeo, Aquaneat, Aquamaster (glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
Surflan AS (oryzalin) Used in nursery, shrub beds, tree circles, fence lines and other park areas for weed control. A primary liquid form preemergent product.
Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented
XL 2G (benefin+oryzalin) Combination product for wider spectrum weed control. Useful in sites where liquid products are more difficult to apply. This is a primary granular preemergent product.
SedgeHammer (Halosulfuron-methyl) Used for control of nutsedge in shrub beds and horsetail in pump station areas.

Specialty uses:
Arsenal (imazapyr) Used only for non-landscaped, non-park, intergovernmental contract sites for total vegetation control.
DeMoss, Garden Safe Moss and Algae Killer, others (fatty acids) Moss control desiccant. For structures and non-vegetated surfaces. Not typically used, but possible targeted use.
Scythe (pelargonic fatty acid) Minor use desiccant used for top-kill of early-stage, easily killed weeds.

HORTICULTURAL SERVICES APPROVED LIST cont.

INSECTICIDES and MITICIDES
Note pollinator protection guidelines.
Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest treatments posing health and safety threats to park users.
Azatin XL (azadirachtin) Neem tree extract used for insect growth regulating and anti-feeding effects. Typically not used, but retained for unusual, short term use where long term plant health is affected. **Bacillus thuringiensis** Primarily for lepidopterous insects, although subspecies can be used for other
targets. Insect control not usually done in general parks.
Beneficial nematodes Predatory nematodes for insect control treatments for susceptible targets where
needed. Insect control not usually done in general parks.
M-Pede, Safer Insecticidal Soap, others (soaps) General soft body insect control. Not typically used in general parks. Minor use material.
Sunspray, others (horticultural oils) General insect control both for dormant and growing season use. Not typically used in general parks. Minor use material

MISCELLANEOUS
Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
Contrac Blox (bromadialone) Rodent bait for use only under the parameters of Policy 15. Used by Public Health category licensed applicators only. Used only when placed in locked, tamper resistant bait boxes. Used only as part of an approved IPM approach for rat control in specific, non-interior locations.
Deer-Off (putrescent egg and capsaicin) Deer foliage repellent.
Green Clean (sodium carbonate peroxyhydrate) Algae control on surfaces in greenhouse and nursery. No **Foam** (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks.
PT 2000 (quaternary ammonium chloride salts) Disinfectant for use in greenhouse and propagation. **Slug baits, various** (metaldehyde) For nursery areas susceptible to unacceptable damage. Not typically used, but retained on list for use if loss is unacceptable or for invasive species.
Sluggo, Escargo (iron phosphate) For specialty areas susceptible to unacceptable damage, such as in some annual flower beds. Not typically used, but retained on list for use if loss is unacceptable.
Terro Ant Bait stations, others (borax) Borax bait stations for problems ant nests.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to mark area of application.
Wasp/yellow jacket traps (pheromone trap) Yellowjacket trap for certain areas. Not typically used, but retained on list for use if safety issues are created by wasp and yellow jacket presence.

SPECIAL APPROVAL:
Requires manager/coordinator/policy approval prior to use.
Arsenal (imazapyr) Herbicide for evaluation purposes at Portland International Raceway and other non-landscaped, non-park areas only as per labeled site directives.
Horsepower (MCPA,triclopyr,dicamba) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf.
Spotlight (fluroxypyr) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf.

URBAN FORESTRY APPROVED LIST

Areas of pest management: trees on streets, parks, other city property, and UF nursery operations.

HERBICIDES

(Urban Forestry herbicide use mainly confined to nursery sites.)
Vastlan, Garlon 3A, Lilly Miller Brush and Vine (triclopyr amine) Selective products for woody, difficult to control perennials, also for invasives and habitat restoration.
Garlon 4 Ultra (triclopyr ester) For basal and cut-stem applications during tree removal for view corridor establishment and maintenance.
Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster (glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
Scythe (pelargonic fatty acid) Minor use desiccant used for top-kill of early-stage, easily killed weeds.
Surflan AS (oryzalin) Used in nursery, shrub beds, tree circles, fence lines and other park areas for weed control. A primary liquid form preemergent product.

FUNGICIDES

Alamo (propiconazole) Trunk injection product for certain high value elms.
Arbotect (thiabendazole) Trunk injection product for certain high value elms.
Daconil (chlorothalonil) Disease control on high value trees in special situations. Typically not used, but retained for unusual, short term use where long term plant health is affected.

INSECTICIDES and MITICIDES

(Street trees do not routinely receive scheduled insecticide or miticide treatments. Note pollinator protection guidelines.)
Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest treatments posing health and safety threats to park users.
Azatin XL (azadirachtin) Neem tree extract used for insect growth regulating and anti-feeding effects. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Bacillus thuringiensis Primarily for lepidopterous insects, although subspecies can be used for other targets. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Beneficial nematodes Predatory nematodes for susceptible targets where needed. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Floramite (bifenazate) Miticide as part of a carefully implemented plan to keep mites at non-injurious levels. Typically not used, but retained for unusual, short term use where long **t**erm plant health is affected.
M-Pede, Safer Insecticidal Soap, others (soaps) General soft body insect control. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Sunspray, others (horticultural oils) General insect control both for dormant and growing season use. Not typically used in general parks. Typically not used, but retained for unusual, short term use where long term plant health is affected.

MISCELLANEOUS

Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
No Foam (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to temporarily mark area of application.

NATURAL AREAS APPROVED LIST

Areas of pest management: natural area parks, e.g. Forest Park, and natural areas of "hybrid" parks; e.g. portions of Gabriel Park. Also includes Hoyt Arboretum; see subset list below.

HERBICIDES

Vastlan (triclopyr) Selective products for woody, difficult to control perennials. Used both in spray and cut-stem applications, also for invasives and habitat restoration. **Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster** (glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds. **Surflan AS** (oryzalin) Used in some shrub beds, tree circles, and potentially in restoration.

Milestone, Milestone VM (aminopyralid) Invasive broadleaf weed and woody plant control for natural areas.

Milestone VM+, Capstone (aminopyralid, triclopyr amine) Invasive broadleaf weed, woody plant, cut stump control for natural areas.

Poast (Sethoxydim) Selective, post emergence herbicide for control of annual and perennial grass weeds. available for use by approval only.

FUNGICIDES

Fertilome Liquid Systemic Fungicide (propiconazole) For control of diseases in rotation with other materials in special situations in high value plants or specialty plantings. Not typically used.

HERBICIDES

XL 2G (benefin+oryzalin) Combination product for wider spectrum weed control. Useful in sites where liquid products are more difficult to apply. This is a primary granular preemergent product.

Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented

INSECTICIDES

Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest treatments posing health and safety threats to park or natural area users.

MISCELLANEOUS

Agridex, Competitor, SylTac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.

Deer-Off (putrescent egg and capsaicin) Deer foliage repellent.

No Foam (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks. Turf Trax, Signal, others (marker colorant) Used to temporarily mark area of application.

Terro Ant Bait stations, others (borax) Borax bait stations for problems ant nests.

Wasp/yellow jacket traps (pheromone trap) Yellowjacket trap for certain areas. Not typically used.

NATURAL AREAS APPROVED LIST cont.

Hoyt Arboretum Only: (Hoyt Arboretum is approved for the list below in addition to the regular City Nature-Natural Areas approved list.)

INSECTICIDES
Note pollinator protection guidelines.
Azatin XL (azadirachtin) Neem tree extract used for insect growth regulating and anti-feeding effects. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Bacillus thuringiensis Primarily for lepidopterous insects, although subspecies can be used for other targets. Typically not used, but retained for unusual, short term use where long term plant health is affected. Beneficial nematodes Predatory nematodes for susceptible targets where needed. Typically not used, but retained for unusual, short term use where long term plant health is affected.
M-Pede, Safer Insecticidal Soap, others (soaps) General soft body insect control. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Sunspray, others (horticultural oils) General insect control both for dormant and growing season use. Typically not used, but retained for unusual, short term use where long term plant health is affected.
Terro Pantry Moth traps (pheromones) For use in herbarium collection areas.

ATHLETIC FIELD SERVICES APPROVED LIST

Areas of pest management: Athletic fields such as softball, baseball, football and soccer fields.

HERBICIDES
Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster (glyphosate) Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented
Scythe (pelargonic fatty acid) Minor use contact herbicide used for top-kill of easily controlled weeds.
SedgeHammer (Halosulfuron-methyl) Used for control of nutsedge in shrub beds and horsetail in pump station areas.

SPECIAL APPROVAL: Requires manager/coordinator/policy approval prior to use.
Acelepryn (chlorantraniliprole) Specialty use product for unacceptable insect damage in high value specialty turf. Specialty use product for stadium turf, very limited need. Note pollinator protection guidelines.
Azatin XL (azadirachtin) Neem tree extract used for control through insect growth regulating and anti-feeding effects. Specialty use product for stadium turf. Note pollinator protection guidelines.
Horsepower(MCPA,triclopyr,dicamba) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf.
Spotlight (fluroxypyr) Selective weed control in turf. Used for turf renovation as part of overall IPM approach. Turf broadleaf herbicide use must be pre-approved per Turf Broadleaf Weed policy. Used very rarely, primarily for athletic field surface renovation. Not for general use on park turf.

ATHLETIC FIELD SERVICES APPROVED LIST cont.

MISCELLANEOUS
Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
Armorex (garlic, sesame oil, white pepper) Goose repellent for stadium turf. Trial use.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to temporarily mark area of application.

GOLF COURSES APPROVED LIST

Areas of pest management: PP&R municipal golf courses.

FUNGICIDES
All golf course fungicide use is focused on greens, not fairways or rough. All fungicide products are used to target various green diseases, and are used in rotation to reduce resistance issues. Fungicide materials for Golf Courses are listed by active ingredient with an example of an approved product. Equivalent products must be similar to example product in ingredient strength and the same or lower in signal words.
propiconazole - Banner Maxx II or equivalent
triadimefon - Bayleton, Andersons VII
thiophanate methyl - Clearys 3336,Fungo Flo, Sc.Systemic, Systec1998 or equivalent
trifloxystrobin - Compass or equivalent
chlorothalonil - Daconil or equivalent
mancozeb - Dithane, Fore or equivalent
polyoxin D zinc salt - Endorse or equivalent
azoxystrobin - Heritage or equivalent
pyraclostrobin + boscolid - Honor (or equivalent combination product only)
pyraclostrobin - Insignia or equivalent
fludioxonil - Medallion or equivalent
PCNB - Penstar Flo, Proscape+PCNB, FFII, TeeTime or equivalent
flutolanil - Prostar
thiophanate methyl+iprodione - Andersons Fluid Fungicide, Andersons VIII or equivalent
triadimefon+metalaxyl - Andersons Fluid Fung. II or equivalent
chloroneb - Andersons V, Tersan or equivalent
metalaxyl - Subdue Maxx or equivalent
chloroneb+thiophanate methyl - Andersons IX or equivalent
iprodione - Andersons X, Chipco 26019 or equivalent
cyazofamid - Segway or equivalent
triticonazole - Trinity or equivalent
mineral oil- Civitas or equivalent

INSECTICIDES
Aerosol Wasp Sprays (pyrethroids only) Directed jet sprays used for individual wasp and hornet nest treatments posing health and safety threats to park users.
Azatin XL (azadirachtin) Neem tree extract product used for control through growth regulating and anti-feeding effects. Specialty use product for unacceptable insect damage in turf.
Maxforce Fine Granule Insect Bait (hyramethylnon) For spot use on golf green ant control only.
Terro Ant Bait stations, others (borax) Borax bait stations for problems ant nests.

GOLF COURSES APPROVED LIST cont.

HERBICIDES
Primary choices:
Vastlan, Lilly Miller Brush and Vine, (triclopyr amine) Selective products for woody and other difficult to control broadleaf weeds. For spray and cut-stem applications.
Ranger Pro, Roundup Pro Concentrate, RU ProDry, Rodeo, Aquaneat, Aquamaster (glyphosate Primary vegetation control product used with other methods in shrub beds, tree circles, bare ground, and on invasive weeds.
14-0-14 Fertilizer with Dimension (Dithiopyr) Control of crabgrass and other annual grasses and broadleaf weeds in established lawns and ornamental turfs, including golf course fairways, roughs, and tee boxes.
Scythe (pelargonic fatty acid) Minor use contact herbicide used for top-kill of easily controlled weeds. Surflan AS, WDG (oryzalin) Used in shrub beds, tree circles, fence lines and other areas for preemergent weed control.
XL 2G (benefin+oryzalin) Combination product for wider spectrum weed control. Useful in sites where liquid products are more difficult to apply. This is a primary granular preemergent product.
Snapshot 2.5 (trifluralin & isoxaben) Used on shrub beds, and other areas. Can be used in combination or rotation with oryzalin to broaden the spectrum of weeds prevented.
SedgeHammer (Halosulfuron-methyl) Used for control of nutsedge in shrub beds only

MISCELLANEOUS
Agridex, Competitor, Syl-Tac, Phase, LI 700, others (spray adjuvant-not a pesticide) Surfactants used to enhance spray coverage and increase efficacy.
Deer-Off (putrescent egg and capsaicin) Deer foliage repellent.
Dragonfire CPP (sesame oil) For nematode control.
No Foam (anti-foaming agent) Silicon based, reduces foaming, used in large agitated spray tanks.
Primo Maxx (trinexapac-ethyl) Trial use turf growth regulator at Heron Lakes.
Sluggo, Escargo (iron phosphate) For specialty areas susceptible to unacceptable damage, such as in some annual flower beds. Not typically used, but retained on list for use if loss is unacceptable.
Turf Enhancer 2SC, Trimmit 2SC, Teetime w/TGR (paclobutrazol) Growth regulator for control of Poa annua on bentgrass greens.
Turf Trax, Signal, others (marker colorant) Used in spray solutions to temporarily mark area of application.

SPECIAL USE PRODUCTS: Requires Golf Manager/Coordinator/policy approval prior to use.
Acelepryn (chlorantraniliprole) Specialty use product for unacceptable insect damage in turf.
Aquashade (acid blue 9, acid yellow 23) Blue colorant used to suppress algae growth in certain ponds in developed parks and golf courses. Use only as allowed in Waterways Policy.
Confront (triclopyr+clopyralid) Broadleaf weed control in fairways as per Turf Weed Control policy. **Horsepower**(MCPA,triclopyr,dicamba) Broadleaf weed control in fairways as per Turf Weed Control policy.
Sapphire (penoxsulam) Primarily for English lawn daisy control as per Turf Weed Control policy.
Spotlight (fluroxypyr) Broadleaf weed control in fairways as per Turf Weed Control policy

USE UP AND DO NOT RESTOCK (UUDNR) LIST

The listed materials are to be used until remaining stocks are gone and are not to be restocked.

Material	Unit approved for

02/20/2019

white copy: Submit to central records

yellow copy: Work Unit records

pink copy: Applicator's records

Pesticide Application Record

Portland Parks and Recreation
6437 SE Division Portland OR 97206

IPM Coordinator: Nichole Linehan (503)823-1991
Nichole.Linehan@portlandoregon.gov

APPLICATOR NAME(S):

LICENSE NUMBER:

WORK UNIT:

Date, time, conditions	Location of application	Complete pesticide name, EPA reg. Number (circle or enter)	Mix ratio: example #oz. product / 1gal water
Date: (mm/dd/yy)	**Park or site:**	Ranger Pro 524-517	
Time in:	**Specific area(s) treated:**	Surflan AS 70506-44	
Time out:		Vastlan 62719-687	
Temp:		Roundup Pro Concentrate 524-529	
Wind: ☐ 0 mph ☐ 0-1 mph ☐ 1-5 mph ☐ 5-10 mph ☐ _____ mph		Gallery 75 DF 62719-145	
		Lilly Miller Brush and Vine 802-594-73342	
		Snapshot 2.5 TG 62719-175	
	Target pest: General weeds ☐ Invasive weeds in natural areas ☐ Specific weeds: _____ _____ Insect(s)_____ Disease(s)_____ Other_____		
Equipment used: Backpack ☐ Powered type ☐ Drop spreader ☐ Hand Spray bottle ☐ Spray Truck ☐ High pressure ☐ Boom Sprayer ☐ Other ☐ Describe:_____	Total area treated (# acres, or # sq. ft.):	Liquid products: <u>total amount of dilute</u> pesticide applied: Granular products: Total number of lbs. applied: Coverage rate for granular products: (e.g. 4 lbs. /1000 sq.ft.)	Is this an application to an aquatic site or buffer zone? YES ☐ Amount of mix applied to Waterways Policy defined buffer (25') or water body: NPDES: Is this application in or within 3' of water? YES ☐ Area or linear feet treated:
Spot ☐ Broadcast ☐ Cut stump ☐ Other ☐	Comments:		

Pesticide supplier is Mt. Tabor Stores unless noted here:_____

Carrier is water unless noted here:_____

Pesticide Application Record

Portland Parks and Recreation
6437 SE Division Portland OR 97206

IPM Coordinator: Nichole Linehan (503)823-1991
Nichole.Linehan@portlandoregon.gov

APPLICATOR NAME(S):								WORK UNIT: URBAN FORESTRY

Date, time, conditions	Location of application	Complete pesticide name, EPA reg. Number (circle or enter)		Mix ratio: example #oz. product / 1gal water
Date: (mm/dd/yy)	**Park or site:**	Ranger Pro 524-517		
Time in:	**Specific area(s) treated:**	Vastlan 62719-687		
Time out:	Elm tree root flare ☐	Roundup Pro Concentrate 524-529		
Temp:		Arbortect 20-s 100-892		2oz/1gal -12oz per 5" of trunk diameter
Wind: ☐ 0 mph ☐ 0-1 mph ☐ 1-5 mph ☐ 5-10 mph ☐ _____ mph	**Target pest:** Dutch Elm Disease ☐ General weeds ☐ Insect(s)_____ Disease(s)_____ Other_____			
Equipment used: Backpack ☐ Powered type ☐ Hand Spray bottle ☐ Tank Injection ☐ Other ☐ Describe:_____		Liquid products: total amount of dilute pesticide applied:	Granular products: Total number of lbs. applied:	Is this an application to an aquatic site or buffer zone? YES ☐ Amount of mix applied to Waterways Policy defined buffer (25') or water body:
	Diameter of tree and total number of trees:		Coverage rate for granular products: (e.g. 4 lbs. /1000 sq.ft.)	NPDES: Is this application in or within 3' of water? YES ☐ Area or linear feet treated:
Spot ☐ Broadcast ☐ Cut stump ☐ Other ☐	Comments:			White copy must be submitted to central records within 30 days of the date of application.

Pesticide supplier is Mt. Tabor Stores unless noted here:_____

Carrier is water unless noted here:_____

updated 02/06/2019

white copy: Submit to central records

yellow copy: Work Unit records

pink copy: Applicator's records

PORTLAND PARKS & RECREATION℠

Healthy Parks, Healthy Portland

To:_____

Date:_____

Of:_____
(name of organization)

From :_____
Portland Parks and Recreation
6437 SE Division
Portland, OR 97206

Hello,

To keep public landscapes in your area useful and enjoyable, Portland Parks & Recreation will be applying approved herbicides products to control weeds in park land adjacent to your property. The materials to be used have been carefully selected on the basis of low toxicity and environmental impact and will be applied by a trained, licensed, state certified applicator.

You will receive a phone call prior to applications being made in your vicinity to make you aware of specific dates and locations. Please look for our notification signs to tell you that an application is taking place, or will be taking place soon. Please restrict activities in the area of application until the applied materials have dried and the signs have been removed.

If you wish more information, please call:

(name)_____ (phone)_____

or Nichole Linehan, Integrated Pest Management Coordinator, 503-823-1991.

Mt. Tabor Yard
6437 S.E. Division St.
Portland, OR 97206
Tel: (503) 823-1600

Administration
1120 SW 5th Avenue, Suite 1302
Portland, OR 97204
Tel: 503-823-PLAY (7529) | Fax: 503-823-6007

PORTLANDPARKS.ORG
Nick Fish, Commissioner
Adena Long, Director

Sustaining a healthy park and recreation system to make Portland a great place to live, work, and play.

PORTLAND PARKS & RECREATION℠
Healthy Parks, Healthy Portland

APPLICATION FOR PESTICIDE USE ON PP&R PROPERTY

business or organization	commercial operator license number:
address	applicator(s) names(s) and license number(s):
city state zip	
phone fax	
contact individual(s)	

name/address of park or site:	specific area treated (attach map):	area treated (sq.ft etc.):	date(s) of application:

Purpose of application:

Method of treatment: include pesticide formulations, dilutions, and type of equipment used:

Treatment notification procedures: describe signage, fencing, or other public notification plans:

Does any part of application take place within an aquatic site, or within 25 feet of a body of water? if so, describe:

NOTE: PESTICIDE APPLICATION RECORDS MUST BE SUBMITTED TO PP&R WITHIN 48 HOURS AFTER AN APPLICATION

Submit to:
Portland Parks & Recreation
Attention: Nichole Linehan
6437 SE Division, Portland, OR 97206
nichole.linehan@portlandoregon.gov
503-823-1991
PORTLANDPARKS.ORG

APPENDIX 5

This application is: APPROVED ☐ DENIED ☐
with the following stipulations/explanation:_____

_____
_____
_____
_____
_____
_____
_____
_____ by: _____

Appendix 6

PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland

Turf Broadleaf Weed Herbicide Application Approval Request

Requester name: _____Work Unit: _____Park or site name: _____
Specific area to be treated:

Management
State reason for application. Include all applicable turf IPM methods that have and will be used on site:

Weeds to be controlled:

Estimated percentage of weed coverage in turf:

Herbicide(s) to be used: _____ Application rate: _____

Timing of application
Expected date(s) of application: _____
Expected time interval needed for application: _____ hours
Expected start of application at: _____:__ Complete application at _____:__
Expected post application time interval until re-entry is allowed: _____ hours.

Site and scheduling considerations
List nearby schools, community centers, dog OLAs, playgrounds and other considerations:

State any potential conflicts with this scheduling:

Notification
List all contact persons needed for notification, such as community center, schools etc.:

Describe planned notification signage for site:

Describe on– site notification personnel and locations planned for application:

Drift
What herbicide drift precautions will be taken?:

Approved by Senior Turf Manager: _____

Approved by Supervisor for Work Unit (see Policy) _____

Date: _____

Appendix 7

Insecticide Use and Pollinator Protection

Pollinators, including bees and other insects, play a vital function in both agricultural and natural systems. Their conservation is an important element in the PP&R IPM program. Use of any insecticide in the landscape has the potential to impact pollinators in both direct and indirect ways, therefore great care must be taken when considering the use of any insecticide. In most cases, insects do not threaten the long term health or viability of park turf, trees and shrubs and do not require active management. This appendix provides a process to begin to determine if an insect pest should be managed, and if so, what method or material is the most responsible choice. Do not embark on any insect management activity without following this process. Any significant insect management activity should be a collaborative and informed process with involvement from park supervisory personnel and the IPM coordinator.

Insect management decision making elements:

A. Assess insect impact and significance

The significance of problematic insect impacts must be determined before active management is considered. PP&R's primary IPM approach to insect management is to tolerate the presence of the insect where possible. The vast majority of insect infestations do not threaten the long term health or viability of park trees and shrubs. Many are simple nuisance infestations, or cause only marginal harm. Others may present only short term impacts or are merely unsightly. These kinds of insect problems do not threaten the intended function of the green asset to a significant degree. Examples include transient aphid infestations on trees such as Betula, Tilia, and Liriodendron, or leafhoppers on shrubs. The proper IPM approach for these pests is tolerance of the pest, or replacement of the plant with a non-susceptible plant when possible. Therefore in these instances, insecticide use is not warranted.

Insecticide use can be considered for pests that present significant risks to the long term viability or essential function of important plant assets. They can also be considered for use in the case of insects that threaten the health and safety of park users. These instances are expected to be rare although PP&R response may need to be rapid and effective. One example is for Rose midge insect management in rose gardens which, if left unchecked, can decimate floral displays. Another is in the response to the potential introduction of certain highly destructive invasive insects, such as the Emerald ash borer, Japanese beetle, and Asian longhorn beetle. And the presence of venomous insects in frequented public areas may require intervention (see Policy 21). Although these serious pests may warrant use of insecticides, the manner in which these insecticides are chosen and employed must adhere to the careful pollinator stewardship practices detailed within this policy.

B. Evaluate all IPM methods and materials

If insect control interventions are determined to be required, insecticides may still not be the best choice. All IPM approaches must first be evaluated for suitability. These include:

1. Planning/Design: Where feasible, eliminate the problematic plants and replace them with naturally resistant plants. If a plant is unsuitable for the conditions at a particular

site, it may increase its susceptibility to a specific insect problem. The best long term IPM approach is to employ plants suited to the existing growing conditions.

2. Cultural: Cultural practices that either improve the growing conditions or are protective of the planting can be important elements in the management of some kinds of insects.
3. Physical: Various physical approaches such as the use of barriers are generally minimal in impact to non-targets and may offer adequate control of certain pests.
4. Biological: For certain insect pests, a reliance on biological controls may be possible. Where feasible, this can offer the ideal long term solution to pest problems. Special attention to good stewardship of naturally occurring insect predators should be made. There are also instances where commercially reared insect predators can be released to combat a specific pest.
5. Natural and synthetically derived insecticides: Insecticides can be part of an IPM approach but careful attention must be made in choice and use. In general, the least ecologically disruptive and lowest risk materials should be favored but the full complexity of IPM assessment rationale must be considered before choice and use. These considerations include but are not limited to:

    a. Potential safety and health risks of the product as it will be applied, both in the short and long term.
    b. Potential environmental risks, including risks to non-target organisms including bees and pollinators.
    c. Potential disruption of the landscape, garden, natural area, and urban forest ecosystems including impacts on natural insect predators.
    d. Individual insecticide characteristics such as toxicity, persistence, bioavailability, break down products, volatility, inert ingredients, and environmental movement.
    e. Differing application methods, such as injections, sprays, and drenches.
    f. Efficacy of the insecticide, and the need for repeated treatments.
    g. Feasibility of use to address a specific pest.

All of the above considerations require substantial understanding of pesticide characteristics and their potential interactions. Consult with the IPM coordinator to ensure all appropriate information has been included in the management plan.

Appendix 8
Application to apply weed and algae controlling pesticides to waterways and their margins on Portland Parks and Recreation property

Submission date: Applicant name: _____

Governmental body: P&RR ____ Other: _____

Work Unit: _____Email: _____Phone: _____

Park to be treated: _____ Date(s) of expected treatment(s): _____

Description of treatment area: _____

_____

_____

Application to water: Total surface area of water body to be treated: _____

Application to waterway margins (emergent and marginal weeds): Total linear miles of treatment: _____

_____

Pesticide materials (including adjuvants) to be applied: _____

_____

Pesticide concentration applied: _____Expected application frequency: _____

Target weed(s): _____

Reasons for application: _____

_____

IPM considerations- Outline IPM measures considered for this project, using the DEQ NPDES permit, page 12, section 4 as a template. These include considerations for: reducing impacts to non-targets, action threshold establishment, alternative pest management options, applicable preventative measures taken, etc.:

_____

_____

_____

_____

Reviewed by: _____ Date: _____ Approved/denied/more information needed:

_____

_____

_____ _____ _____

Appendix 8

Follow up requirements for NPDES permit areas (in addition to regular Pesticide Application Record keeping)

Work Unit:_____Park treated_____

Date(s) actually treated:_____

Description of treatment area if different from original description_____

_____

_____

Application to water: Total surface area of water body treated:_____

Application to waterway margins (emergent and marginal weeds): Total linear miles of treated__

_____

Pesticide materials (including adjuvants) applied if different from original description_____

_____

Pesticide concentration as applied_____Actual application frequency._____

Target weed(s) if different from original description_____

Did you note any adverse incidents as described on page three of the NPDES General Permit? Adverse effects may include: Distressed or dead juvenile and small fishes: Washed up or floating fish; Fish swimming abnormally or erratically; Fish lying lethargically at water surface or in shallow water; Fish that are listless or nonresponsive to disturbance; Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants; Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.) Any adverse effects to humans (e.g., skin rashes), or animals that occur either from direct contact with or as a secondary effect (e.g., sickness from consumption of plants or animals containing pesticides)

_____

_____

_____

_____

_____

Applicators must retain this completed form for a minimum of 3 years. Submit a copy of this completed form to the IPM Coordinator, 416/Nichole Linehan, by the end of the calendar year.

Appendix 9

CONTACT PHONE NUMBERS

Emergency Phone Numbers

Fire, Ambulance, HAZMAT	911
For Medical Emergencies & Immediate Health Concerns:	
Oregon Poison Center- 24 hours Daily- Portland Area	503-494-8968
Outside Portland Area	1-800-222-1222
DEQ Northwest Regional Office	503-229-4263
Horticultural Services Communication Center	503-823-1636
Oregon Emergency Response System	1-800-452-0311
National Response Center	1-800-424-8802
CHEMTREK: an industry emergency spill information service	1-800-424-9300
PP&R Program Coordinator number: (emergencies only)	503-823-8906

Informational Phone Numbers

PP&R Pest Management Program Coordinator 503-823-1991

Inquiries regarding this program and its policies can be directed to this number, or e-mailed to Nichole.linehan@portlandoregon.gov

NPIC - National Pesticide Information Center 1-800-858-7378

Provides general information on pesticide products, including safety, health, environmental effects, clean up and disposal.
6:30 am - 4:30 PM PDT 7 days a week excluding holidays

Oregon Department of Agriculture 503-986-4635

Provides information on pesticide products and registration, conducts pesticide use investigations, and applicator licensing and certification.
Weekdays 8:00 AM - 5:00 PM.

To Report Pesticide Exposures:

Pesticide Analytical and Response Center (PARC) 503-731-4025

Provides confidential investigations, consults with health care providers and provides clean up and exposure prevention information.
Weekdays 8:00 AM - 5:00 PM.