



City of Sandy

Agenda

Parks & Trails Advisory Board Meeting

Meeting Location: City Hall- Council Chambers, 39250 Pioneer Blvd., Sandy, Oregon 97055

Meeting Date: Wednesday, July 10, 2019

Meeting Time: 7:00 PM

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1. ROLL CALL	
2. PUBLIC COMMENT	
3. CONSENT AGENDA	
3.1. Meeting Minutes Parks & Trails Advisory Board - 12 Jun 2019 - Minutes - Pdf	3 - 6
4. CHANGES TO THE AGENDA	
5. NEW BUSINESS	
5.1. Discuss Integrated Pest Management Plans and use of Herbicides in Parks Ashland IPM Doc Clackamas IPM Plan Final (1)	7 - 68
5.2. Hazard tree cutting and removal practices along trails	
6. OLD BUSINESS	
6.1. Roles and Responsibilities and Bylaws Final Drafts - review changes to Bylaws recommended at June 12th meeting and confirm no recommended changes to the Roles and Responsibilities. Next step Council approval. Draft Roles and Responsibilities - Parks Board Parks Board Draft ByLaws	69 - 70
7. STAFF UPDATES	

- 7.1. Oregon Cooperative Procurement Program
- 7.2. RFP Master Plan
- 7.3. National Day Out
- 7.4. Garden Repairs

8. ADJOURN



MINUTES
Parks & Trails Advisory Board Meeting
Wednesday, June 12, 2019 City Hall- Council
Chambers, 39250 Pioneer Blvd., Sandy,
Oregon 97055 7:00 PM

BOARD MEMBERS PRESENT: Kathleen Walker, Board Member, Don Robertson, Board Member, Michael Weinberg, Board Member, Susan Drew, Board Member, and Sarah Richardson, Community Services

BOARD MEMBERS ABSENT:

STAFF PRESENT: Laurie Smallwood, Councilor

MEDIA PRESENT:

1. Roll Call

2. Public Comment

3. Consent Agenda

3.1. Meeting Minutes

Add 5.2 suggestion that Porta Potties to the parks earlier around 6/1

4. Changes to the Agenda

Herbicide application in city parks.

Kathleen Walker reviewed Susan's concerns about spraying near the Community Garden.

Susan Drew discussed what she observed at the Community Garden.

Sarah Richardson, Staff Liaison, reviewed questions about spraying in the parks asked by board members and what has been discussed by Parks Maintenance.

Laurie Smallwood, Council Liaison, will go to the park to see how it looks and says council will take it up.

Kathleen Walker talked about Sandy River Trail and how blackberries were managed and what her friend who works in Natural Resources has shared.

Don Robertson discussed his experienced in Ashland and will forward solution (IPM) adopted in Ashland.

Susan Drew talked about the Community Garden "dead zone" - what was sprayed around the fence?

- Susan Drew would like to know what is used to spray around the park perimeter. When and where being sprayed in parks?
- Sarah Richardson, staff liaison, will follow-up and forward information.

5. New Business

5.1. Review Bylaws

Michael Weinberg compared existing copy to the draft. Two differences.

- Article 6 committees is gone, which is ok.
- Last article amendments - old says board votes on amendments, and new one says council votes on amendments. Ok with changes.

Don Robertson fine with bylaws as drafted, would like to be able to make recommendations on amendments. Don Robertson noted board here to provide council with recommendations.

Discussion about having a Secretary added to officers.

Don Robertson and Michael Weinberg suggested from past experience that staff takes minutes, Secretary would review minutes and give initial approval.

Kathleen Walker - article 3 - likes a variety of areas being represented by board members.

Flyers to recruit new members are out on trails and parks.

Don Robertson mentioned the Bylaws are meant to be guidelines not definitive.

Michael Weinberg Article III -

- change to "the board shall ideally".

Susan Drew - under meetings Article V - seems vague.

Kathleen Walker Article V suggests adding

- "monthly as needed".

Don Robertson noted the addition - allow one member UGB - Kathleen Walker

expressed concern about doing more than one member from the UGB.

Michael Weinberg noted applicants interview process needs to be updated to new policy.

- Add detail to Article III - recommends "interviewed by council or their designate".

5.2. Review Roles and Responsibilities

Susan Drew had question about level of expertise expected.

Susan Drew noted that in the past new members were given a binder with some orientation.

Michael Weinberg - not necessarily binder but orientation.

Kathleen Walker - In past staff liaison gave copies of bylaws, master plan, map, parks overview.

- Board requests Staff Liaison puts this together for future new members.

Michael Weinberg - Roles and Responsibilities ok as written.

Don Robertson noted that he doesn't see monitoring finances as board role.

Kathleen Walker noted in the past board mostly provided input for capital investment projects.

Board talks bigger items, purchases, those kind of budget recommendations to put together the CIP list. Grants and opportunities come up so board needs to review CIP list to be in concert with Master Plan and to keep up on new developments. Big Picture where finance is concerned.

Kathleen Walker - also where staffing is being reviewed for parks.

Don Robertson talked about State Bid list - reviewed from last meeting. Great way to acquire things like shelters efficiently. Officially called the Oregon Cooperative Procurement Program.

Kathleen Walker noted Nancy Enabnit and Kathleen Walker would go for Sandy to the Regional quarterly trails meetings. Helpful for identifying grants for trails, neighborhood and government grants. Also see projects presented, or in progress. Network and learn what other organizations are doing.

Board is ok with draft as written.

- 5.3. Process/timeline for developers bringing plans to Parks and Trails Advisory Board for review

Kathleen Walker reviewed what has happened in the past. Parks Master Plan with conceptual parks - these would come before the board for input. If not in the Master Plan board was not involved. Parks staff brought to board for review. Input has been preliminary and general. Planning would come and make presentation so questions can be answered etc. Board ok with developers' representatives coming to present at a meeting with planning present.

- 5.4. Herbicide Use in City Parks - request for information for July Meeting discussion

Board chair asked members to research policy and bring to July meeting for discussion.

- 5.5. RFP Shade Structures at Bornstedt Park and Dog Park

Kathleen Walker asked for more detail to be included in the RFP and suggested it be reviewed by Parks Maintenance and Mike Walker, Public Works Director. Dog Park structure in particular needs more detail. Example will there be slab? Kathleen Walker recommends for apple to apple bids may need more detail. Another recommendation would be to consider a manufacturers kit. RFP may need more specificity. May be too vague to get good bids. Might be more efficient to get on the state list.

6. Old Business

7. STAFF UPDATES

Longest Day Parkway - Parks Board will come to share information about parks and recruit for the board.

- 7.1. General Updates - Laurie Smallwood, Council Liaison talked about the plan for the pool and property and talked about the possibility of forming a Parks and Recreation District and that city staff is working to get council options. General discussion about trends in parks design, pump tracks etc.

8. Adjourn



Integrated Pest Management Policy

Ashland Parks and Recreation Commission

Adopted by the Ashland Parks and Recreation Commission

May 24, 2010

Revised on:

February 28, 2011

June 27, 2011

February 27, 2012

April 22, 2013

April 28, 2014

Integrated Pest Management Policy

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Policy Revision

Per commission approval on February 28, 2011:

The commission unanimously authorized staff to replace synthetic pesticides in all Ashland parks with organic products, using the application standards outlined in the existing Integrated Pest Management Policy, with the exceptions of Oak Knoll Golf Course and poison oak in summer months.

Policy Revision

Per commission approval on June 27, 2011:

The commission granted approval for 1) the Integrated Pest Management Policy to be amended to include the following in the Special Situations Restricted Areas policy section: No spraying in all parks from Memorial Day to Labor Day, with Organic Materials Review Institute (OMRI)-approved herbicides exempt from this provision; and 2) at the next scheduled annual review of the IPM Policy, staff to present a revised policy that incorporated changes consistent with the use of OMRI herbicides.

Policy Revision

Per commission approval on February 27, 2012:

The commission unanimously approved allowing for the use of non-synthetic pesticides, per label instructions, in all parks at staff's discretion with the exception of limitations imposed by other regulatory bodies. They further approved changing signage requirements to allow informational signs to be posted at the time of application only and eliminating date restrictions for applications of non-synthetic pesticides to allow for their use throughout the year per label instructions.

The commission unanimously approved allowing staff to use synthetic pesticides only as a last resort to create a safe playing environment at the infields of North Mountain Park.

Policy Revision

Per commission approval on April 22, 2013:

The commission approved modifying the integrated pest management policy to allow for an exemption request outlined by staff: use of synthetic herbicides on north entryway medians for safety purposes.

Policy Revision

Per commission approval on April 28, 2014:

The commission approved, for the 2014 season only, allowing a Parks IPM policy exemption for staff use of non-organic herbicides in two requested areas: the pitching warm-up area and the warning tracks at North Mountain Park.

Integrated Pest Management Policy

ASHLAND PARKS & RECREATION COMMISSION (APRC)

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Introduction to Policy

The Ashland Parks and Recreation Department follows an Integrated Pest Management Policy adopted by the Ashland Parks and Recreation in 2010.

According to Oregon Statutes (ORS 262.1), Chapter 943, an IPM is defined as follows:

“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 populations 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, decision making, management action, and monitoring of results. IPM uses effective, low-risk strategies and practices. Management actions include cultural, physical, mechanical, manual, biological, and pesticidal. Licensed and trained Parks Department professionals often select a combination of methods (pesticide applications being the method of last resort) to manage specific pest populations on a case-by-case basis, with a goal of reducing reliance on pesticides. 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.

Examples of IPM within the Parks Department include:

- Mulching of planting beds to reduce establishment of weeds.
- Utilizing plants with natural resistance to pests.
- Volunteer use for hand weeding, trimming, mulching, and more.
- Design features to include concrete curbs, mow strips, and landscape designs.
- Proper mowing, irrigation, and fertilization of park turf to increase vigor and reduce weed populations.
- Application of selected herbicides to control invasive weeds before seed formation to prevent future weed infestations.
- Release of natural biological controls to control non-natives such as plants and insects.

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- See attached list of pesticide reduction suggestions.

Integrated Pest Management Policy

Ashland Parks and Recreation Department's Integrated Pest Management Policy is based on park planning and design, manual maintenance, ecological controls, and, as a last resort, use of chemical pesticides. The department will work to reduce or eliminate the use of pesticides and will conduct an annual review of pest management activities, which will include written suggestions to the Parks Commission for the further reduction of pesticides and for alternatives to their use.

Pesticide Use

Any pesticide use will be part of an IPM approach. Risk will be minimized by careful product selection and application. When developing and updating the IPM program, Parks staff will rely on current peer-reviewed scientific opinion about potential materials and methods, including science-based information from regulatory agencies, state university departments, university extension scientists, and other experts.

- The choice to use pesticides will be based on human and ecological health and the values to be gained or preserved. Budgetary and human resource factors will also be considered.
- Only the safest, lowest toxicity products available will be used. Pesticides use will comply with all local, state, and federal regulations. No "restricted use" pesticides will be used.
- The area will be posted 48 hours in advance of the application, with signage remaining a minimum of 48 hours following the application, depending on the re-entry time specified on the pesticide label or MSDS sheet.

Oversight and Training

- A minimum of one Parks or Golf employee will be trained and licensed as an Oregon Licensed Pesticide Applicator and will be designated by the department director to be responsible for overseeing and authorizing all pesticide use by Parks and Golf division staff. No pesticides will be used without a Licensed Pesticide Applicator on staff.
- No employee will use or apply any pesticide without prior training.
- No employee will use or apply any pesticide mechanically or by hand without event-specific authorization.
- All Parks and Golf Division employees who apply pesticides will attend an annual review of policies, procedures, and reduction strategies regarding the use and applications of pesticides.

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- All pesticides will be stored in a safe, labeled, secure environment. The Parks Superintendent and Licensed Applicator will have exclusive access to the area.
- Violation of any of these policies or guidelines by Parks or Golf Division staff will be grounds for disciplinary action.

Reporting and Review

The Parks Director will oversee an annual review and will present the results to the commission. The report will include water quality test results and results from any other testing conducted; comparisons from previous years' spreadsheets showing amounts and locations of pesticide applications; and will recommend specific locations, management activities, cost, and targets for reductions or elimination of pesticides.

- The Parks Commission may consider updating the IPM policy during the fiscal year as new peer-reviewed scientific information about pesticides, including inert ingredients, becomes available and as other management choices develop.
- Written record on Form 1A will be filled out after each application (attached).
- MSDS sheets will be made available to the public.
- The elected Ashland Parks and Recreation Commission will serve as the overseeing board for this policy.

GUIDELINES

PESTICIDE SOLUTIONS AND RINSES

Following are elements to consider before beginning an application. These elements will help determine the proper amount of pesticide to mix.

- Weather conditions and predictions. Call National Weather Service at 541-779-5990.
- Acreage / square footage of the job site.
- Calendar: special events, mowing, irrigation, and so on.
- Type and size of the equipment appropriate to do the job.

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

- Mix only enough pesticide solution to do the job that day.
- First add measured amount of water to tank, then put in correct amount of herbicide according to label specifications.
- Use up all pesticide, applying until the tank is empty or no more solution is coming through the nozzle.
- If pesticide mix remains, completely label the tank or sprayer with 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 the next time, 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 pertain to the rinsate mix.

Rinse the sprayer if the following conditions apply:

- It is necessary to use a pesticide incompatible with that previously used.
- It is the end of a spraying cycle.

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.

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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.

PESTICIDE SAFETY

- The area will be posted 48 hours in advance of the application, with signage remaining a minimum of 48 hours following the application, depending on the re-entry time specified on the pesticide label or MSDS sheet.
- Containers will be triple-rinsed, then punctured to make sure they are not reused.
- Any spills will be cleaned up immediately and reported to a supervisor for proper handling of material.
- Personal protective equipment (PPE) will be worn according to label on product and MSDS sheets (e.g., rubber gloves, goggles, long-sleeved shirts).
- Employee will change clothes before interacting with non-work associates such as family and friends.

PESTICIDE REDUCTION OPTIONS

Volunteers – to be used for:

- Weeding
- Mulching
- Trimming

Mulch – reduce weed growth and labor costs; minimal budget impact

Labor – staff and volunteer crew to manually trim edges. Potential large budget impact if staff and volunteers manually edge and use less spray

Annuals to Perennials – better ground cover, minimal labor, minimal budget impact

Burners – burn weeds using Parks labor; possible safety issues

Ground Covers – labor to establish weeding; higher initial costs but less expensive once established

Hardscape – curbs, walks would require high initial investment but this would serve as long-term solution to problem spots; initial high budget impact

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Landscape Design – less formal, non- native; lower initial cost but higher costs to maintain until plants are established

Park Branding – As part of the pesticide reduction process, a park logo will be designed to inform the public about pesticide-free areas. Communication will occur through the City of Ashland Web site and classes will be offered to share information and ideas with the public.

Equipment Use Where Possible – higher cost to purchase; efficient use of labor; able to treat large areas

Lawn Height – help shade weeds

Irrigation Changes – initial cost of labor and materials; long-term solution; more maintenance required for smaller heads

Goats – problem with containment in terms of what is eaten (both desired and non-desired species consumed)

Forestry Areas – 99% spray free since 1992; manually controlled

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SPECIAL SITUATIONS

RESTRICTED AREAS

- No applying pesticides within or 50 feet from a playground, community garden, wetland, stream, or picnic tables.
- No spraying in all parks from Memorial Day to Labor Day.
- No general treatment of broadleaf weeds in turf areas in parks.
- No treatments inside Dog Park area. If applications are needed, the area will be closed to dogs and users until re-entry is permitted (as outlined in chemical use guidelines). Advance notice shall be given to the users about the closure of the Dog Park.
- Any other park area designated as pesticide free.
- Spraying for hornets and wasps in all areas (for visitor safety) exempted.
- If an emergency situation arises and pesticides are needed, the Parks Commission can grant an exception to the policy.

GOLF COURSE

- The golf course will occasionally require use of higher toxicity products to keep the quality of the greens and tees playable. If toxicity is higher than table salt (LD 50 = 2,500), the course will be posted at the clubhouse and at the first green or tee that is treated.
- The Golf Division will follow the same guidelines established for the Parks Division.
- MSDS sheets will be posted in golf course club house.
- Greens #4, 6, 7 and tee boxes #4, 5, 7 will be exempted from the 50-foot setback from water.

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PESTICIDE APPLICATIONS BY NON-PARKS AND RECREATION EMPLOYEES

In special circumstances, when a certain area needs to be addressed in a specific fashion, pesticide applications by non-Parks Department staff will be approved:

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 Parks Department property.

- The licensing variance must be specifically approved by the Parks Department's Licensed Applicators.
- The work must occur under the direction of a contractor-supplied, fully licensed supervisor.
- Before approval, there must be evidence that all trained and licensed applicators have sufficient previous pesticide application experience and a safety record to satisfy the Parks Department's approval process. Acceptable application experience may vary, but will be of sufficient assurance to Parks Department 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 Parks Department lands shall also be regularly reviewed by Parks Department. This review shall include an examination of past work and safety performance.

Employees of the county vector and nuisance control agency:

The Parks Department 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 Licensed Applicator in a timely manner. Licensed public health endorsed applicators will be considered for approval to apply pesticides to Parks Department property. The Parks Department and the county will work together to arrive at mutual agreements for activities that address public health goals and good environmental stewardship.

Integrated Pest Management Policy

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**Ashland Parks and Recreation Commission
Regular meeting of February 28, 2011**

By motion, the commission authorized staff to replace synthetic pesticides in all Ashland parks with organic products, using the application standards outlined in the existing Integrated Pest Management Policy, with the exceptions of Oak Knoll Golf Course and poison oak in summer months.

**Ashland Parks and Recreation Commission
Regular meeting of February 27, 2012**

By motion, the commission approved a revision to the Parks Commission's IPM policy to allow for the use on non-synthetic (organic) pesticides, per label instructions, in all parks at staff's discretion with the exception of limitations imposed by other regulatory bodies. They further approved changing signage requirements to allow informational signs to be posted at the time of application only and to eliminate date restrictions for applications of non-synthetic (organic) pesticides to allow for their use throughout the year per label instructions.

By motion, the commission authorized staff to utilize synthetic pesticides *only as a last resort* to create a safe playing environment at the infields of North Mountain Park.

City of Ashland
PARKS and RECREATION DEPARTMENT
340 S. Pioneer Street Ashland, OR 97520

Pesticide Application Record (PAR)
(to be kept for 3 years)

Applicator: _____ Date of Application: _____

Time of Application: _____ Hour(s) Spent Applying Pesticides (X.XX): _____

Name of Park or Property: ENTER ONE CODE per Application Record: _____

Area Treated: CIRCLE ONE OR MORE below and/or fill in the blank:

TW- treewells FL-fencelines CR-Cracks BL-bleachers SH-Shrub beds
P-Ponds DU-Dugouts BF-Baseball fields R-Roses W-Wasps/Hornets
A-Annuals P-Paths/Trails TC-Tennis Courts SB-Sloped Banks

Other: _____

Chemical: ENTER ONE CODE FROM the APPROVED PESTICIDE LIST: _____

Other: _____

Mixing Ratio: Liquids: _____ Tablespoons per gallon OR _____ ounces per gallon
Granular: _____ per _____ square feet of coverage

Supplier: _____ EPA Registration No. _____

Target Species (**be specific**) ENTER CODE(S) FROM SPECIES LIST and/or fill in blank.

CODE(S):: _____

Other: _____

Equipment Used: CIRCLE ONE (below) or fill in the blank:

BP-Backpack SQ-Squeeze Bottle HA-Handheld Other: _____

Weather Conditions: temperature: _____ wind conditions: _____

precipitation: _____ comments: _____

Total amount of product applied (Tbsp. or ounces): _____

Comments: _____

Parks\All Parks Users\Forms\Employee Stuff\Pesticide Application Record



Clackamas County Integrated Pest Management Plan

Final Draft



October 2012

Clackamas County Integrated Pest Management Plan

Final Draft



Prepared by Peter Guillozet in collaboration with the Clackamas
County Ad Hoc IPM Team

Revised October 15, 2012

Clackamas County Ad Hoc IPM Team

Clackamas County Business and Community Services

Tonia Burns, Natural Resources Coordinator

Jeff Lesh, Natural Resources Technician

Clackamas County Facilities Management

Cyndi Klaetsch, Facilities Services Coordinator

Clackamas County Office of Sustainability

Shannon Martin, Sustainability Analyst

Clackamas County Department of Transportation and Development

Devin Patterson, Engineering Technician

Jennifer Snyder, Environmental Compliance Specialist

Clackamas County Water Environment Services

John Nagy, Surface Water Technician

Gail Shaloum, Environmental Policy Specialist

Andrew Swanson, Water Quality Analyst

Clackamas County Soil and Water Conservation District

Samuel Leininger, Weedwise Program Manager

Jeff Lesh, WeedWise Program Technician

Participating Clackamas County Departments and Districts

Business and Community Services

Facilities Management

Office of Sustainability

Department of Transportation and Development –Engineering

Water Environment Services

Soil and Water Conservation District

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APPENDIX 5	Invasive Species Best Management Practices Calendar
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APPENDIX 7	Sample Pesticide Application Record
APPENDIX 8	Clackamas County Emergency and Informational Contacts
APPENDIX 9	Priority Chemicals of Concern Resources

1. Background and Purpose

The goal of Integrated Pest Management (IPM) is to prevent or mitigate damage from undesirable plant, fungal, vertebrate or invertebrate pests. It is both a philosophy and a practical approach to pest management that seeks to identify practices that are “environmentally sound, socially acceptable and economically feasible” (Hoover et al. 2011, p. 1).

Human, economic and environmental health all depend on clean water free from harmful levels of fertilizers, pesticides and other pollutants. Such contaminants can enter ground water resources or travel long distances in storm water runoff to receiving streams and wetlands. They originate on public and private lands in both rural and urban areas and have been detected over many years in surface and storm waters in the Clackamas River Basin (Carpenter et al. 2008). Clackamas County intends to lead by example in its efforts to protect public health, wildlife habitat, and salmon bearing waters by ensuring judicious use of potential contaminants. This will include restricting certain types of inputs where appropriate and developing practices that sustain the integrity of natural systems while promoting efficient operations and maintenance of public infrastructure.

In 2011, Clackamas County agencies convened the Natural Resource Management /Landscaping Committee, a diverse group of natural resources, planning and operations and maintenance personnel, to develop a framework for management practices that reduce the use of toxics per Action 7.6 of the Action Plan for a Sustainable Clackamas County (2008) with the goal of demonstrating a reduction of toxics in county practices. The Natural Resource Management/Landscaping Committee became the Clackamas County Ad Hoc IPM Team (Clackamas County IPM Team) and, in January, 2012, retained an independent consultant and began development of the Clackamas County IPM Plan.

The county program relies on standard IPM elements already in use by many public agencies in Oregon and throughout the Pacific Northwest. Some of the practices also fit within Integrated Vegetation Management (IVM) and are currently used by both roadside and parks managers in Clackamas County and the Portland metropolitan area. The Clackamas County IPM Plan does not seek to impose new rules and regulations but rather to assist Clackamas County IPM implementers in 1) using integrated pest management approaches to achieve environmentally responsible outcomes, 2) and in taking all reasonable precautions to protect environmental and human health. The Clackamas County IPM Plan applies to Clackamas County employees and contractors (IPM implementers), but it makes policies and practices transparent and accessible to the public and is expected to serve as a resource for private landowners and other land managers. It is expected that other regional entities will adopt the Clackamas County IPM plan or similar language with the aim of establishing consistent practices across the region.

The Clackamas County IPM Plan is intended to be a useful and responsive tool that maintains relevance through periodic review and revision by those who use it. It aims to be

both concise and comprehensive, addressing all major aspects of pest management relevant to county agencies and providing links to more detailed information.

2. Regulatory Permits and Guidance Documents

The Oregon Department of Environmental Quality administers the U. S. EPA's National Pollution Discharge Elimination System (NPDES) in Oregon. Under that program DEQ issues Municipal Separate Storm Sewer System (MS4) permits regulating systems of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) that discharge to waters of the State. The March 2012 MS4 permit requires Clackamas County Service District No. 1, the Surface Water Management Agency (SWMACC) of Clackamas County, the Cities of Rivergrove and Happy Valley and the portions of Clackamas County within the Portland Metro Area's Urban Growth Boundary to:

- Provide public education on the proper use and disposal of pesticides [schedule A(4)(d)(iii)].
- Provide training to City and County employees on the proper use and disposal of pesticides [schedule A(4)(d)(vii)].
- Implement a management program to control and minimize the use and application of pesticides on City, SWMACC, CCSD#1, and County-owned property [schedule A(4)(g)(ii)].
- Monitor for the presence of pesticides in surface water and/or stormwater [schedule B's table B-1].
- Develop and implement an IPM Plan by December 31, 2012 [schedule D(8)(z) & (dd)].

Approved in 2011, the Oregon Pesticide General Permit (2300-A) regulates pesticide applications that may result in discharges of pesticides into Waters of the State. The permit provides permit coverage for pesticide applications in or within three feet of water to control pests such as insects, weeds and algae, and nuisance animals.

In addition to the above regulatory requirements several other documents guide Clackamas County operations including:

- Storm Water Management Plans required under the NPDES permit (2012)
- Clackamas County Transportation Best Management Practices for Routine Road Maintenance (2010)
 - Based on *ODOT's Routine Road Maintenance – Water Quality and Habitat Guide Best Management Practices*, the guidebook is intended to comply with the National Marine Fisheries Service ESA 4(d) Rule Limit 10 program.
- Stone Creek Golf Course Integrated Pest Management Plan (2001)
- Clackamas County Integrated Vegetation Management (IVM) Plan (2000)

- Based on the *City of Portland's Integrated Vegetation Management Plan*, this program was developed using a multi-jurisdictional approach.

According to the Oregon Revised Statutes (ORS 2011),

“Integrated pest management means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency 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 chemical 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 Clackamas County IPM Plan represents both an important element of Clackamas County’s permit compliance strategy and a tool for use by various departments that complements and strengthens existing guidelines. By providing additional detail around pest management and resource protections the IPM Plan aims to protect public health, water quality and conditions for fish and wildlife.

3. IPM Process and Program Elements

IPM is an effective and environmentally sensitive approach to pest management that relies on common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interactions with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property and the environment (US EPA 2012). The IPM process includes pest management evaluations and decisions as well as consideration of all appropriate pest management options, including the judicious use of pesticides. It may be summarized in four steps:

- *Set Action Thresholds*
IPM sets action thresholds prior to taking action. An action threshold is the point at which conditions indicate the need for pest control. This may be the level at which pests pose an economic or environmental threat or when a pest spreads beyond a confined area.

- *Identify and Monitor Pests*
Not all introduced organisms require control. Many are innocuous or even beneficial. IPM programs identify and monitor pests so that appropriate control decisions can be made in conjunction with action thresholds. Knowledge of the pest combined with monitoring increases the likelihood that appropriate pest control will be used, and only when needed.
- *Use Prevention*
IPM programs work to manage the crop, lawn, forest or other area to prevent pests from becoming a threat. This could be through timely mowing, crop rotation or selection of more appropriate plant species. Such methods can be very effective and cost-efficient and present little or no risk. A critical element of prevention is the careful inspection and cleaning of clothing, tools, vehicles and equipment to remove seeds and other propagules prior to use at different sites.
- *Implement Control*
If preventive methods are ineffective and pest control is required, IPM implementers evaluate potential control methods for risk and effectiveness to determine the proper methods and timing. Effective, lower risk pest controls are chosen first. However, if further monitoring and action thresholds indicate that the pest is spreading, more aggressive pest control methods may be employed.

Effective IPM begins with proper planning and management decisions and evaluates the potential risks and benefits of each of the above elements individually or in combination for each pest or site to yield the best overall outcome. Pest control action thresholds should vary according to pest, current and desired site conditions and management expectations. Such factors will determine whether a particular area should be the focus of pest management and at what level of intensity.

Pest control decisions can have far reaching economic, public safety and environmental consequences. Use of the Clackamas County IPM Checklist (Appendix 1) can facilitate consideration of appropriate factors prior to taking action. At a minimum, IPM implementers must consider feasibility and cost effectiveness as well as public safety, potential impacts to water quality and non-target organisms prior to taking actions. To simplify pest management decision making, landscapes and other areas managed by IPM implementers are described Appendix 2. In the event that chemical control is needed, the Clackamas County IPM Products List (Appendix 3) includes all of the products approved for use by IPM implementers and indicates the areas in which each product may be applied. The Invasive Species List (Appendix 4) includes invasive plant species of local and regional concern as well as high priority species identified by the Oregon Invasive Species Council. Both lists are updated periodically in response to new information, changing pest conditions and control priorities. The Invasive Species Best Management Practices (BMP) Calendar (Appendix 5) provides recommendations for management of common weeds, but

for many other pest species, IPM implementers must rely on additional research and first hand experience.

Clackamas County IPM relies on the four major elements common to most IPM programs including: 1) cultural practices, which are focused on maintaining healthy, resilient systems that resist pest problems; 2) mechanical and physical controls; 3) biological controls; and 4) chemical controls that target specific pests using a range of products. Each program element is described below along with examples of representative pest control practices and methods.

Cultural Practices

Sound cultural methods of vegetation and pest management are those that create conditions favorable to beneficial species over pests. Such practices may be viewed as avoidance measures and are essential to the maintenance of healthy landscapes. Examples include:

- Botanical knowledge to provide conditions for plant health and resistance to pests;
- adequate site preparation prior to landscape installation including soil improvements, pruning of surrounding vegetation, grade adjustments, drainage improvements, and installation of irrigation systems;
- use of native species or non-invasive disease resistant cultivars;
- proper use of irrigation to reduce over or under-watering;
- proper timing and use of fertilization to eliminate over fertilization;
- use of cover crops to improve soil structure and reduce soil erosion;
- aeration, over-seeding, and top-dressing to improve turf health and suppress weeds; and
- mulching for weed reduction, water retention, winter protection and root zone improvement.

Mechanical and Physical Controls

This approach typically involves the manual or mechanical removal of vegetation, stinging insects or nuisance animals. Examples include:

- Mechanical edging of turf;
- mowing of weeds at the appropriate time to prevent seed set and reduce spreading;
- hand weeding in shrub beds;
- tilling and replanting with a more appropriate plant species to reduce persistent weed problems;
- use of environmentally safe traps for yellow jackets and mammalian pests;
- string trimming to control unwanted vegetation; and
- roof moss removal via pressure washing.

Biological Controls

Native or introduced non-pest species have been used to control many pests. However, due to unintended consequences resulting from previous introductions, this approach has limited applicability. Most biological control measures are regulated by the Oregon Department of Agriculture (ODA) and the USDA Animal and Plant Health Inspection Service (APHIS). Examples of biological controls include:

- 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;
- temporary livestock grazing; and
- installing raptor perches to control rodents.

Chemical Controls

Pesticides are derived from many sources and vary widely in their characteristics and effectiveness. They may pose a hazard to human health and natural resources and must be examined individually to determine their suitability within the IPM approach. Examples of chemical controls include:

- Insect baits or sprays;
- rodent baits;
- root control in pipes;
- rooftop moss control;
- natural areas invasive species control and management; and
- roadside vegetation spraying.

Clackamas County uses pesticides as part of its IPM strategy but gives preference to effective non-chemical alternatives where appropriate and limits the use of certain pesticides within specific areas. County procedures as well as state and federal regulatory requirements around pesticide use are included below in Section 7.

4. The Role of Landscape Design in IPM

Proper landscape design can reduce or eliminate many pest problems. While no landscape is free of pests, building and developed park area landscape designs should aim to minimize the need for continued management inputs. To promote healthy landscapes, the Clackamas County IPM Plan should be included by reference in county landscape planning documents and in construction and maintenance contracts. Additionally, Clackamas County Facilities Management and other departments and their landscape consultants and contractors should incorporate effective landscape design and management elements including:

- Using native plants, which are typically more disease and pest resistant, and drought tolerant than non-native species;
- replacing pest-susceptible plants with native or pest resistant species;

- selecting plants that are appropriate to sun exposure, soil type and irrigation capacity;
- modifying problem areas through adaptive management;
- appropriate spacing of plant materials to achieve shading;
- maintaining appropriate species diversity;
- eliminating alternate hosts for diseases;
- establishing appropriate groundcovers;
- maintaining an adequate layer of organic materials to reduce the need for irrigation fertilizers and pesticides; and
- establishing grades or modifying grades in existing landscapes to retain runoff.

5. Early Detection and Rapid Response

The need to implement potentially expensive weed control efforts (e.g., regional Japanese knotweed and garlic mustard control) may be reduced or prevented through the avoidance of species introductions, early intervention to prevent establishment and the protection and maintenance of natural processes and systems. Early Detection and Rapid Response (EDRR) describes such measures and is a key to effective land management on a regional scale.

To that end, Clackamas County Soil and Water Conservation District has developed a county wide EDRR network in cooperation with Clackamas County agencies and municipalities and other members of the Four-County Cooperative Weed Management Area (4-County CWMA¹) to improve the detection of invasive species and to increase the inter-jurisdictional communications needed to control invasive species.

A major aim of the Clackamas County IPM program is enhanced inter-agency and inter-departmental communication. A natural outcome of this will be greater integration with regional efforts. The Clackamas County Soil and Water Conservation District's WeedWise Program maintains a list of priority EDRR plant species on behalf of the county (Appendix 4) through an annual review of local concerns, state and federal weed risk assessments, and input from regional partners in the 4-County CWMA. The Clackamas County IPM Team will play an important role in communicating local needs to the Conservation District's WeedWise program during annual updates and maintenance to the Clackamas County priority EDRR list. The Clackamas County IPM Team will also serve to communicate list updates to the various County departments to facilitate regional control efforts with other EDRR programs in the region.

Clackamas County departments will report new Class A noxious weed occurrences to ODA upon identification and will report all priority weeds to the Oregon Invasive Hotline² or the Clackamas County Conservation District's WeedWise Program to facilitate timely response.

¹ <http://4countycwma.org/>

² <http://oregoninvasivehotline.org/>

County departments will also provide location data through either the Oregon *iMapInvasives*³ or the Oregon *WeedMapper*⁴ websites to promote inter-agency weed control efforts at the regional and state scales.

Commitments toward the rapid and coordinated containment of newly detected invasive species are vital to preventing establishment. Such commitments can be expected to yield significant cost savings through the avoidance of expensive and environmentally damaging long-term control programs (Cusack et al. 2009).

6. Management Guidelines for Selected Pest Species

Vertebrates

The Oregon Invasive Species Council (OISC) has identified several introduced fish, turtles, frogs and mammals as high priority invasive species. When discovered, listed species should be reported immediately via the Invasive Species Hotline website or 1-866-INVADER (1-866-468-2337). The impacts of pest species not included on the OISC list should be evaluated in the context of site or program priorities and available resources to determine whether control is warranted. In some circumstances, both native and introduced rats, voles, moles, mice, and gophers can cause health and safety problems and damage buildings, facilities and other infrastructure. Nutria (*Myocastor coypus*), an invasive rodent, can also cause extensive damage to stream banks, irrigation ditches and native vegetation. Classified as unprotected Nongame Wildlife (OAR 635-044-0132), Nutria may be removed without a license. Nutria and any other unprotected rodents may be trapped mechanically as long as traps do not present a safety hazard to humans or other wildlife. Nutria should not be relocated. Oregon Wildlife Services⁵ provides nutria and other rodent trapping services. A list of State licensed Wildlife Control Operators is available from the Oregon Department of Fish and Wildlife website⁶.

Chemical rodenticide use should follow IPM methods, as they may cause direct or indirect toxicity to non-target organisms and may pose a human health threat in publicly accessible areas. All non-lethal and lethal rodent control methods must comply with state and federal laws, and users must have appropriate licenses prior to using certain rodenticides.

Invertebrates

OISC listed terrestrial and aquatic invertebrate species should be reported via the number or address listed above. Damage from other species such as slugs, insects, mites and other invertebrates that to buildings, playgrounds or landscaped areas should be evaluated in the context of site or program priorities and available resources to determine whether control is warranted. Impacts can often be reduced to acceptable levels through improved cultural

³ <http://www.imapinvasives.org/orimi/map/>

⁴ www.weedmapper.org/

⁵ www.aphis.usda.gov/wildlife_damage/state_office/oregon_info.shtml or (503) 326-2346

⁶ www.dfw.state.or.us/wildlife/license_permits_apps/wildlife_control_operator_contacts.asp#NWillamette or (503) 947-6000

practices. In the event that invertebrate pests exceed tolerance thresholds, approved control products are included on the IPM Products List (Appendix 3). Information about selected pests is provided below.

Mosquitos

Mosquitoes breed in wetlands, slow moving waterways, drainage ditches and other standing water. Clackamas County Vector Control manages mosquitos and flies using methods outlined in an annual work plan available on the Clackamas County website⁷.

Stinging Insects

Public or worker safety risk from bees, wasps, hornets and yellow jackets varies with insect species, nest location, season and other factors. Yellow jackets and some wasp species can be particularly aggressive towards people, especially around nests. Honeybee swarms generally do not pose a significant risk. Nests located near walkways, buildings and playgrounds or in vegetation management areas may require intervention while those located in remote areas typically do not.

When stinging insect nests are discovered on county managed property, site managers should evaluate the safety threat. Nests that present an immediate hazard, such as those in playgrounds and publically accessible structures should be controlled or removed by qualified individuals. Nests near walkways, trails and work sites that do not present an immediate safety hazard should also be controlled or removed as necessary. Individuals with known wasp or bee allergies shall not participate in wasp or bee control.

When yellow jackets present a serious and ongoing problem at a site, use of commercial traps to target emerging queens in the spring should 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. Typically 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 may be ineffective (PP&R 2012). Honey bee swarm collection is an effective alternative to controlling problem bees in heavily used areas. The Oregon State Beekeepers Association posts the Swarm Call List on its website⁸.

Vegetation

Where practicable, Clackamas County supports the control or removal of all species included on the Clackamas County Weed List. The Invasive Species BMP Calendar (Appendix 5) provides best management practices for controlling common invasive weeds. Invasive plants not included on the list may also be controlled or removed as part of native plant community enhancement or revegetation efforts. Native and non-native vegetation may also be removed or controlled as necessary to provide safety, habitat health, aesthetics and other benefits in accordance with protections to ESA-listed species and the

⁷ www.clackamas.us/vector/annual.jsp

⁸ http://www.orsba.org/htdocs/swarm_call_list.php

Oregon Forest Practices Act. Activities such as manual, mechanical or chemical vegetation management in roadside rights of way, parks, natural areas and golf courses, and forest plantation thinning shall be carried out in accordance with IPM principles and applicable regulations. Diseased trees may be removed in accordance with current Clackamas County tree ordinances or treated by licensed applicators using approved pesticides included on the IPM Products List.

Mosses growing on rooftops and paved surfaces may be considered a nuisance, but many moss control products are known to have negative impacts on aquatic species. In the event that control is necessary, methods should minimize impacts to water resources. When possible, runoff from pressure washing or treatment with moss control agents included on the IPM Products List should be diverted to lawns or landscapes rather than gutters or storm drains.

7. Pesticide Procedures and Regulations

State and federal agencies regulate the use of pesticides. Clackamas County conforms to all applicable pesticide laws and regulations and only uses herbicides that are registered by the Environmental Protection Agency (EPA) and the Oregon Department of Agriculture (ODA). Chemicals included on the IPM Products List are screened for human and environmental health risks and several Clackamas County departments consult periodically with *Salmon-Safe*⁹, *EcoBiz*¹⁰, *GreenPro*¹¹ or other third-party certifiers as a means of validating environmental performance, maintaining public trust, promoting awareness, enhancing operational efficiency and achieving cost savings.
<http://www.npmagreenpro.org/>

Applicator Licensing

Pesticide applicators must be licensed as required by ODA's *Pesticide Licensing in Oregon*¹². Contractors must also have Commercial Operator Licenses and the appropriate Commercial Applicator or Trainee Licenses for each applicator. Responsibility for maintaining a valid license lies with the applicator.

Public Notification

IPM implementers will provide notification on school properties in accordance with ORS 634.700-634.75¹³. In other areas, notification will be used at the discretion of the IPM Implementer or if required by the product label. Where applicable, notification signage shall be posted in clearly visible locations at the entrance(s) to a treatment area(s). Signs shall include the name of the product(s) in use and a phone number for inquiries (see Appendix 6). Where required, signs may be removed after the re-entry requirements on

⁹ <http://www.salmonsafe.org/>

¹⁰ <http://www.ecobiz.org/>

¹¹ <http://www.npmagreenpro.org/>

¹² http://www.oregon.gov/ODA/PEST/licensing_index.shtml

¹³ http://www.oregon.gov/ODA/PEST/docs/pdf/school_ipm_web.pdf?ga=t

the product label have been met. If the label does not specify a re-entry interval, applicators may remove the signs after the pesticide mixture has dried. On school grounds signs must remain in place for 72 hours.

Application Decisions

Pesticides on the IPM Products List may be used according to their labeled uses in appropriate areas when all of the following criteria are met.

- Applicators meet ODA license requirements;
- applicators adhere to all product label requirements concerning the safe and effective use;
- public notification requirements have been satisfied; and
- weather conditions are appropriate for the application.

Application Record Keeping

Licensed applicators shall maintain written pesticide application records in accordance with ODA requirements and keep these records for at least three years. Application records must be available for review by the ODA.

Commercial pesticide operators and public pesticide applicators are required to keep the following information for each pesticide application made. An example pesticide application record form is included as Appendix 7.

- Name of firm or person for whom the pesticide application was made;
- Applicator license;
- location of the land or property where application was made;
- date and approximate time of application;
- supplier of pesticide product(s) applied;
- trade name and the strength of such pesticides applied;
- amount or concentration pesticide product applied;
- specific property, crop or crops to which the pesticide was applied;
- description of equipment, device or apparatus used; and
- name of applicator(s) or trainee(s) who made application.

Pesticide Use Reporting

Clackamas County will provide reports to the Oregon Department of Environmental Quality (DEQ) as required under its MS4 Permit and will document the amount of surface area or number of linear miles treated by permittee in a calendar year within permitted area as required under the DEQ Pesticide General Permit (2300A)¹⁴, if applicable.

Pesticide Storage, Transport and Disposal

Pesticides or pesticide containers shall be kept in secure and safe locations in accordance with local, state, and federal laws. Pesticides shall not be transported in passenger cabs of vehicles, and shall be secured within the truck bed in tightly sealed containers. Oregon

¹⁴ <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes2300a/2300aPermit.pdf>

OSHA standards (OAR 437-004-1680) are available at the ODA website¹⁵.

At a minimum, storage facilities shall feature:

- Signage identifying facility;
- locked access to authorized personnel only;
- inventory list of all of the chemicals in storage and MSDS for each product;
- container labeling identifying contents, mix date, and volume remaining when placed in storage;
- protection from elements and temperature control;
- location at least 50 feet from any body of water or stream (150 feet from streams with ESA-list species);
- nonporous floors;
- adequate lighting and ventilation;
- capacity for spill containment; and
- a clean water source.

Best Management Practices for Pesticide Storage

- Maintain and follow labels on all pesticide containers;
- store pesticides only in original containers, or make sure the new container is properly labeled;
- store like pesticides together (e.g., store herbicides with herbicides, and fungicides with fungicides);
- keep containers closed tightly;
- watch for damaged containers;
- store flammable pesticides separately;
- maintain an up-to-date inventory of pesticides;
- purchase only the amount needed;
- maintain ready access to spill containment materials; and
- post emergency contact information.

Use of Remaining Solutions and Rinsate

Applicators should conduct pesticide operations using methods that prevent the need for disposal of pesticide wastes. By purchasing no more pesticide than can be used in one season, mixing and loading only enough pesticide needed for a site and applying all the pesticide solution according to the label instructions it is possible to eliminate pesticide waste.

Applicators should drain all pesticide contents from containers at the application site until dripping stops. Empty containers should then be triple rinsed using water or another specified diluting agent or pressure washed until the containers are clean. The collected rinse solution and pesticide-contaminated water from the cleaning pesticide application equipment should always be saved and added to the spray solution. The collected mixture

¹⁵ <http://www.oregon.gov/ODA/PEST/disposal.shtml>

(rinsate) should then be sprayed onto the previously treated area, sites or targets per label requirements. In the event applicator cannot spray the rinsates or if there is leftover pesticide or pesticide-containing material because of error or miscalculation, material should be placed in a container marked with the name of the pesticide contents, EPA Registration Number and date. These materials may be used as a "product" during the next application.

Oregon pesticide wastes include, but are not limited to:

- Surplus spray solution, ultra-low volume (ULV) spray concentrate, dusts, granules, or baits remaining in the application equipment (such as tanks, hoppers, booms, hoses) after use
- Pesticide-contaminated water produced by cleaning the interior surfaces of the pesticide application equipment or from rinsing empty pesticide containers
- Pesticide-contaminated absorbent, water, or other materials generated from cleaning up spilled spray solutions
- Empty, contaminated (un-rinsed) pesticide containers

Disposal of Empty Containers and Unusable Pesticide

IPM implementers shall disposal of all pesticide wastes and empty pesticide containers in accordance with Oregon and federal regulations. Personal Protective Equipment (PPE) required by pesticide labels shall be worn during the handling and disposal of materials. Contaminated (unwashed), empty containers are considered hazardous wastes unless they are accepted by a pesticide distributor or manufacturer for refill. Adequately rinsed containers should be inspected visually, dried and either crushed or punctured. In some cases, properly decontaminated containers may be recycled.

Pesticide-containing materials that cannot or will not be reused (i.e., pesticide wastes) are classified as hazardous wastes and must be disposed of accordingly. IPM implementers shall maintain pesticide disposal records for three years along with other spray records. Materials generated in Clackamas County should be disposed of at the Metro South Station¹⁶. To qualify under Metro's Conditionally Exempt Generator (CEG) Program¹⁷, county departments and contractors must generate less than 220 pounds of hazardous waste per month and store less than 2,200 pounds on-site. It is illegal to transfer damaged or altered pesticides to another party for use. Additional information about pesticide waste management is available at the Oregon DEQ website¹⁸.

Adverse Incident Procedures

Generally, an adverse incident is an unusual or unexpected event in which a person or non-target organism is likely to have been exposed to pesticides or other toxins. This may include a spill, leak, or any unauthorized discharge to surface or ground water.

¹⁶ Located at 2001 Washington St., Oregon City, OR 97045

¹⁷ <http://www.oregonmetro.gov/index.cfm/go/by.web/id=4442>

¹⁸ <http://www.deq.state.or.us/lq/hw/pesticide.htm>

Oregon rules regarding spills or releases of hazardous substances are found in OAR 340, Division 142¹⁹. In the event of an adverse incident, IPM implementers shall:

- Activate alarms or warn persons in the immediate area;
- notify the Oregon DEQ if the incident is near a potable water intake location;
- undertake every reasonable method to contain the hazardous material;
- in the case of a medical emergency or public safety hazard, notify local emergency responders (fire department, ambulance, etc.) using 911 where available;
- if the amount of hazardous material exceeds 25 gallons or 200 pounds of a pesticide or visible oil sheen (in any 24-hour period), report the spill or release to the Oregon Emergency Response System and to the National Response Center;
- take further corrective action if any permit requirement is not met;
- notify the appropriate agency if the incident involves ESA listed species or critical habitat;
- submit a report to DEQ within 30 days; and
- maintain documentation of unreported adverse incidents for three years.

Best Management Practices for Minor Pesticide Spills

- Locate and control the source;
- If spill appears large, call 911;
- undertake every reasonable method to contain the hazardous material;
- for small spills, use kitty litter, vermiculite, shredded newspaper, adsorbent pillows, clean sand, or pads;
- direct large spills away from ditches, storm drains, water quality facilities, ponds and other water resources;
- place contaminated material in a plastic container for proper disposal; and
- report spills to the appropriate individuals or agencies as soon as possible.

8. Worker Protection and Training

Clackamas County requires its employees and contractors to comply with Oregon and federal laws governing worker protection and safety. Section 8 of the Clackamas County Risk Management Manual includes information regarding Hazard Communications/Right to Know rules and Personal Protective Equipment (PPE). The Federal Worker Protection Standard (WPS) is designed to protect employees engaged in pesticide application from occupational exposure to pesticides. The WPS contains requirements for notifying employees of applications, the use of PPE and restrictions on entry into treated areas. Licensed pesticide applicators must use all PPE required by pesticide product labels.

Clackamas County will make Material Safety Data Sheet (MSDS) information available to all employees who apply pesticides and will provide the necessary training or education to promote the full understanding of and adherence to the worker protection and safety

¹⁹ <http://www.deq.state.or.us/regulations/rules.htm>

requirements. Contractors are responsible for maintaining current licenses, Material Safety Data Sheets (MSDS) for the products they use and for complying with state and federal worker protection and safety requirements.

Accidental Pesticide Exposure

MSDS documents provide information about the symptoms and procedures for handling overexposure to individual pesticides. IPM implementers who apply pesticide must remain informed of proper procedures in case of pesticide exposure. Anyone who inquires about pesticide exposure should be referred to his or her personal physician, the Oregon Poison Center (OPC), and the Pesticide and Analytical Response Center (PARC). In the event of employee or contractor exposure to a pesticide, a report should also be filed with Clackamas County Risk Management. A summary of emergency and information contacts is included as Appendix 8.

Procedures in the case of a medical emergency:

- Call 911 for emergency assistance;
- contact the Oregon Poison Center;
- take a label for reference for medical personnel if it is necessary to leave the site;
- inform employee supervisor as soon as possible; and
- file a report with appropriate personnel.

9. IPM Monitoring and Adaptive Management

To evaluate the effectiveness of its IPM Program Clackamas County will monitor and document the outcomes of its pest management practices and procedures. Monitoring activities may include visual or quantitative monitoring for beneficial or adverse effects, internal or external surveys or other data collection. To compliment monitoring efforts the county will conduct ongoing education and outreach to employees, contractors and the public.

The IPM Team will review and revise the Clackamas County IPM Plan periodically to maintain current and applicable information and to enable logical, local prioritization within the context of available resources and regional initiatives. Following revisions to the plan the IPM Team will take steps to inform IPM implementers about revised content.

Products will be removed from or added to the IPM Products List using the following criteria:

- Existing data or experience regarding product efficacy;
- documented public health risks (Appendix 9);
- documented impacts to water resources and wildlife;
- legal bans on use of product; and
- changes to the product label or formulation restrict its intended use.

Legal products deleted from the IPM Products List may be placed on a *Do Not Restock List*

and used until current supplies are exhausted or disposed of in a legal manner. Products used to protect public health are exempt from the IPM review process.

10. Disclaimer

The use of product trade names in this document does not constitute an endorsement by Clackamas County. Trade names have been used specifically for reader familiarity and no discrimination is intended.

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U.S. Environmental Protection Agency. 2012. Integrated Pest Management (IPM) Principles. Pesticides: Topical & Chemical Fact Sheets. <http://www.epa.gov/opp00001/factsheets/ipm.htm>.

12. Additional Resources

Integrated Pest Management	
Pacific Northwest Insect Management Handbook http://pnwpest.org/pnw/insects	Hard copy and on-line manuals of pest management options from extension personnel in OR, WA and ID.
Pacific Northwest Plant Disease Management Handbook http://pnwhandbooks.org/plantdisease/	
Pacific Northwest Weed Management Handbook http://pnwhandbooks.org/weed/	
OSU Pacific Northwest Nursery IPM website http://oregonstate.edu/dept/nurspest/index.htm	Educational materials and links for the identification and management of nursery pests
Washington State Pest Management Resource Service http://ipm.wsu.edu/	Research-based information on pest management choices for home and commercial use
Internet Center for Wildlife Damage Management http://www.icwdm.org/	An IPM Center resource for diagnosis and management of wildlife problems in agriculture
Oregon State University Integrated Plant Protection Center http://www.ipmnet.org/	Coordinates IPM programs in Oregon, delivers on-line IPM Handbooks, on-line weather and degree models
Oregon IPM Requirements for Schools http://www.oregon.gov/ODA/PEST/docs/pdf/school_ipm_web.pdf?ga=t	Pesticides and the Oregon IPM in Schools Law, ORS 634.700-634.750
Pesticides	
EPA Pesticides Program http://www.epa.gov/pesticides/	The U.S. EPA pesticides information page
EPA Pesticide registration documents http://www.epa.gov/pesticides/reregistration/status.htm	Status of each chemical in the reregistration review process. Links to a company websites
EXTOXNET http://extoxnet.orst.edu/	Extension TOXicology NETWORK
CDMS Label and MSDS site http://www.cdms.net/LabelsMsds/LMDefault.aspx?t=	CDMS National Agro-chemical database
Washington and Oregon Pesticide Information Center Online (PICOL) Databases http://cru66.cahe.wsu.edu/LabelTolerance.html	Washington and Oregon (ODA and IPPC)-funded database of pesticide labels and pesticide tolerances
Weather and degree-days for IPM decision making http://www.pnwpest.org/wea/	Development models for over 40 pests, diseases and weeds, and general degree-day models for PNW states linked to weather data and maps

National Pesticide Information Center http://npic.orst.edu/	National toll-free public service to answer questions and respond to concerns about any aspect of pesticide use, exposure or toxicity
Oregon Department of Agriculture, ODA Pesticides Division http://oregon.gov/ODA/PEST/	Laws, licensing, IPM, Pesticide Use Reporting System info, etc.
Salmon-Safe High Risk Pesticide List www.salmonsafe.org/urban/salmonsafe-urban54.pdf	Non-profit organization promoting fish-friendly farms
Federal Worker Protection Standard http://www.epa.gov/pesticides/safety/workers/PART170.htm	Links to federal regulations regarding worker protections
Oregon Pesticide Exposure Safety & Tracking (PEST) program http://public.health.oregon.gov/PHD/OEPH/RES/PESTICIDE/Pages/index.aspx	Tracking and investigation of health effects reported by people exposed to pesticides
Oregon Poison Center http://www.ohsu.edu/poison/about/index.htm	24-hour regional poison information
<i>Invasive Species</i>	
Nature Conservancy Invasive Species Initiative http://www.invasive.org/	'Invasives 101' and management strategies
Oregon Department of Agriculture, Plant Division http://oregon.gov/ODA/PLANT/index.shtml	Pest alerts, insect management, noxious weed control and Oregon State Weed Board grants program
Western Invasives Network http://www.westerninvasivesnetwork.org/pages/plants.php	ED/RR species identified by one or more CWMA or ED/RR programs in Oregon and Washington
Oregon Invasive Species Hotline www.oregoninvasiveshotline.org	Tips and identification and reporting of invasive species
Oregon iMapInvasives http://imapinvasives.org	Information regarding invasives species as well as a real-time map of invasives species locations reported throughout Oregon
Oregon Invasive Species Council http://oregon.gov/OISC/	Oregon strategy for invasive species management
Weed Mapper http://www.weedmapper.org/	Spatial information on noxious weed distribution
Portland State University Center for Lakes and Reservoirs http://www.clr.pdx.edu/	Aquatic invasive weed management
Four-County Cooperative Weed Management Area http://4countycwma.org/	Cooperative Clackamas, Multnomah, Washington and Clark County focus on invasive weeds
Clackamas Soil and Water Conservation District WeedWise Program http://conservationdistrict.org/programs/weedwise	Species lists, control info and priorities
City of Portland Invasive Species Program http://www.portlandonline.com/bes/index.cfm?c=45696	Species lists, control info and priorities

Water Quality	
Oregon DEQ, Clackamas Water Quality Assessments http://www.deq.state.or.us/wq/assessment/rpt0406/results.asp	2004/2006 Integrated water quality assessment report
Clackamas River Basin Council http://clackamasriver.org/	Watershed information
Metro http://www.oregonmetro.gov/	Maps, data and other information

APPENDIX 1

Clackamas County IPM Checklist	
<p>Effective IPM is predicated on the implementer's knowledge of the site, the target pest and the potential impacts of different management actions. This checklist presents key questions in logical order to help land managers identify and respond to pest management opportunities and constraints. To use the checklist proceed from top to bottom responding "yes" or "no" and continuing to the next question. This checklist may be used in an informal manner or completed and saved as a record of changing conditions, priorities and management actions.</p>	
User Name: _____	Site or Area Name: _____
Target Pest or Problem: _____	Date: _____

Site characteristics		
	If yes...	If no...
1. Adjacent to or drains directly to surface waters?	<input type="radio"/> Consider non-chemical IPM methods. See Water Quality Sensitive Areas management guidelines and approved products.	<input type="radio"/> Next question.
2. High erosion potential?	<input type="radio"/> Maintain ground cover, avoid soil disturbance.	<input type="radio"/> Next question.
3. ESA-listed species in, adjacent to or near the work area?	<input type="radio"/> Consider lowest impact IPM methods and/or timing. Follow all regulations to avoid 'Take' and document activities.	<input type="radio"/> Next question.
4. Adjacent to or within school grounds?	<input type="radio"/> Comply with Oregon IPM Requirements for Schools (ORS 634.700-634.750)	<input type="radio"/> Next question.
5. High use by public?	<input type="radio"/> Consider non-chemical IPM methods. See High-Use Public Areas management guidelines and approved products.	<input type="radio"/> Next question.
6. Site meets intended use?	<input type="radio"/> Consider whether pest is likely to interfere with current use and conditions.	<input type="radio"/> Evaluate current conditions and site context. Review desired future condition to establish an IPM plan.

Pest characteristics		
	If yes...	If no...
7. Is pest on Clackamas County or regional EDRR lists?	<input type="radio"/> Review pest with local and regional partners to evaluate current and potential threat. Determine pest tolerance threshold.	<input type="radio"/> Review invasive species literature and, if necessary, revise EDRR list with local and regional partners. Determine pest tolerance threshold.
8. Current infestation mapped?	<input type="radio"/> Estimate infestation area and number of locations. Determine land ownership and evaluate access limitations.	<input type="radio"/> Consult with local and regional partners to determine and map infestation.
9. Mode of pest spread known?	<input type="radio"/> Implement spread prevention measures.	<input type="radio"/> Determine mode of spread.
10. Potential rate and extent of spread estimated?	<input type="radio"/> Estimate annual control cost for all of known infestation (throughout jurisdiction or in target areas).	<input type="radio"/> Assuming no intervention, estimate potential rate of spread. Estimate potential infestation area and number of sites five years in future.
11. Pest infestation at or above tolerance threshold?	<input type="radio"/> Next question.	<input type="radio"/> Implement spread prevention measures and monitor infestation(s).
Pest control or eradication feasibility		
	If yes...	If no...
12. Effective control methods available?	<input type="radio"/> Compile list of all known effective control methods.	<input type="radio"/> Research potential control methods. Next question.
13. Pest associated with other pest species?	<input type="radio"/> Evaluate potential interactions with other pest species and compile list of potential control methods for (1) target pest and (2) target pest + associated pests.	<input type="radio"/> Next question.
14. Site-specific control or eradication deemed feasible?	<input type="radio"/> Determine site size and evaluate potential constraints. From the list of effective control methods (questions 12, 13) compile short list of feasible options.	<input type="radio"/> Next question.
15. Local control or eradication deemed feasible?	<input type="radio"/> Determine the scale of infestation. Evaluate jurisdictional boundary issues, cost-share opportunities and potential constraints. Coordinate with local partners to compile short list of feasible options.	<input type="radio"/> Next question.

16. Regional control or eradication deemed feasible?	○ Plan for inter-jurisdictional activities (e.g., along watershed boundaries). Evaluate cost-share opportunities and potential constraints. Coordinate with regional partners to compile short list of feasible options.	○ Next question.
Risk of preferred IPM method		
If yes...		If no...
17. High risk to non-target aquatic organism(s)?	○ If you answered 'Yes' to question 1, consider alternative methods and/or timing. If high risk method is deemed necessary, follow all regulations and document activities.	○ Next question.
18. High erosion or soil disturbance potential?	○ If you answered 'Yes' to questions 1 or 2, consider alternative methods and/or timing. If high risk method is deemed necessary, implement seeding or other erosion control measures.	○ Next question.
19. High risk to ESA-listed species?	○ If you answered 'Yes' to question 3, consider alternative methods and/or timing. If high risk method is deemed necessary, follow all regulations to avoid 'Take' and document activities.	○ Next question.
20. High human health or safety risk?	○ If you answered 'Yes' to questions 4 or 5, consider alternative methods and timing. If high risk method is deemed necessary, implement communications strategy, restrict access to treatment area, follow all regulations and document activities.	○ Next question.
21. High risk to non-target terrestrial organism(s), including beneficial pollinators?	○ Consider alternative methods and/or timing. If the high risk method is deemed necessary, follow all regulations and document activities.	○ Next question.

Characteristics of most effective pesticide		
	If yes...	If no...
22. High acute toxicity?	<input type="radio"/> If you answered 'Yes' to one or more of questions 1-5, use lower toxicity pesticide. If the high toxicity pesticide is deemed necessary, select application method to minimize toxicity, restrict access to treatment area, follow all regulations and document activities.	<input type="radio"/> Next question.
23. High environmental mobility potential?	<input type="radio"/> If you answered 'Yes' to one or more of questions 1-3, use less mobile pesticide. If the high mobility pesticide is deemed necessary, select application method to minimize mobility, follow all regulations and document activities.	<input type="radio"/> Next question.
24. High environmental persistence potential?	<input type="radio"/> If you answered 'Yes' to one or more of questions 1-5, use less persistent pesticide. If the high persistence pesticide is deemed necessary, select application method to minimize use, follow all regulations and document activities.	<input type="radio"/> Next question.
25. High bio-accumulation potential in fish or wildlife?	<input type="radio"/> Use alternative pesticide. If the pesticide is deemed necessary, select application method to minimize use, follow all regulations and document activities.	<input type="radio"/> Next question.
26. High herbicide resistance potential in plants?	<input type="radio"/> Use alternative pesticide. If the pesticide is deemed necessary, select application method to minimize development of resistance, follow all regulations and document activities.	<input type="radio"/> Next question.

Fiscal impacts of preferred IPM method		
	If yes...	If no...
27. High control cost?	<input type="radio"/> Evaluate current and long-term budget capacity against anticipated costs. Consider potentially higher cost of delayed control efforts.	<input type="radio"/> Next question.
28. Expected environmental or infrastructure damage without control?	<input type="radio"/> Evaluate cost and likelihood of success of early intervention.	<input type="radio"/> Next question.
29. Long-term control likely necessary?	<input type="radio"/> Evaluate long-term budget capacity. Consider likelihood of continued programmatic support for control efforts.	<input type="radio"/> Next question.
Select the appropriate IPM method(s)		
30. No viable IPM intervention identified. Take no action.		
31. Attempt site-specific control or eradication. Proceed to 34.		
32. Attempt local control or eradication. Proceed to 34.		
33. Attempt regional control or eradication. Proceed to 34.		
34. Rank control or eradication options described in questions 12-16. Next question.		
35. Select best available option and implement control or eradication strategy. Next question.		
36. Evaluate and document effectiveness of action(s) and take corrective measures as necessary.		

APPENDIX 2 Clackamas County Management Areas and Pest Management Guidelines

IPM principles and practices will be applied in the management of all Clackamas County owned or managed lands and facilities. The following table defines 14 Management Areas within four broad categories: Water Quality Sensitive Areas, High-Use Public Areas, Forestry and Upland Natural Areas and Roadside Rights of Way. Pesticides approved for use in each Management Area are listed in Appendix 3.

Note: Additional pesticide use restrictions from the Oregon Department of Fish and Wildlife, the National Marine Fisheries Service or other agencies to protect certain species or habitats may also apply.

	Management Area	Pest Management Guidelines
Water Quality Sensitive Areas	<p>Ponds and Lakes Includes both isolated natural and man-made water bodies</p> <p>For additional information see Clackamas County Vector Control: http://www.clackamas.us/vector/</p>	<p>Use of approved aquatic labeled products is permitted for mosquito control, high priority noxious weeds and other high priority pests only where there is no existing or potential direct outflow to other surface waters. Such treatments must be for the protection of public health or the aquatic environment.</p> <p>Aquatic pesticide applications require applicators to have aquatic certification. Applicable permits from other agencies may be required prior to treatment.</p>
	<p>Rivers and Streams Includes both natural and man-made flowing rivers, streams and ditches. Such areas may be either privately owned or Waters of the State.</p> <p>Pesticide use near public and private potable water intake points is further regulated by Oregon DEQ: http://www.deq.state.or.us/wq/dwp/swrpts.asp#4100187</p>	<p>Submerged weeds and other invasive aquatic species will not be controlled by chemical means in rivers, streams or other moving waters without the involvement of (or specific permission from) state regulatory agencies. In the rare need for pest control within such areas, cultural, mechanical and biological means will be utilized where possible. When these methods are not feasible, noxious emergent weeds may be controlled above the water line using approved aquatic labeled herbicides and surfactants. Examples include control of yellow flag iris and purple loosestrife to maintain healthy habitat. Such treatments shall take place at mid-summer.</p> <p>Aquatic pesticide applications require applicators to have aquatic certification. Applicable permits from other agencies may be required prior to treatment.</p>

Water Quality Sensitive Areas	<p>Seasonally Inundated Areas Includes stream banks (below Ordinary High Water), wetlands, storm water facilities and bio-swales actually or potentially connected to surface water resources. Such areas may be privately or publically owned and may include jurisdictional wetlands.</p>	<p>The establishment and maintenance of appropriate vegetation helps protect water quality and habitat. Pest management shall be focused on controlling or preventing the establishment of species that threaten water quality, habitat health or the proper functioning of storm water management infrastructure. Approved aquatic labeled pesticides may be applied using backpack or hand application. Treatment areas must be free from standing water at the time of application. Use of fertilizers is not permitted.</p>
	<p>Vegetated Buffer Areas Includes corridors of land a minimum of 25 feet in width surrounding or adjacent to Ponds and Lakes, Rivers and Streams, and Seasonally Inundated Areas measured from above the Ordinary High Water line.</p>	<p>The establishment and maintenance of appropriate vegetation helps protect water quality and habitat. Pest management shall be focused on controlling or preventing the establishment of species that threaten water quality or habitat health or that interfere with native vegetation. Approved pesticides may be applied using backpack or hand application. Use of fertilizers is not permitted.</p>
High-Use Public Areas	<p>Building and Facilities Landscapes Includes buildings, parking areas, turf and flower, tree and shrub landscapes outside of Water Quality Sensitive Areas.</p>	<p>Highly managed landscapes provide a variety of functions around buildings and other facilities. Approved pest management products shall be used within an IPM context to minimize both the quantity applied and the necessary frequency.</p>
	<p>Public Golf Courses</p>	<p>See <i>Stone Creek Golf Course Integrated Pest Management Plan</i></p>
	<p>Park Developed Areas Includes buildings, parking areas, turf, flower, tree and shrub landscapes within parks but outside of Water Quality Sensitive Areas.</p>	<p>Parks provide a variety of recreational functions. High use by the public makes the judicious use of pest control products especially important, and their use within an IPM context can reduce both the quantity applied and the necessary frequency. Area closures and notification using temporary signage may be required prior, during and following the use of certain products.</p>

High-Use Public Areas	<p>Park Playground Areas Includes fenced and unfenced playground or play structure areas with turf and/or wood chip surfaces within parks.</p>	<p>Playgrounds experience high levels of use by children. Pest management practices and materials used in these areas are, therefore, highly restrictive. Chemical pesticides will not be used to control vegetation in active playground turf or in chipped play areas or their margins. Instead, turf should be mowed periodically and chipped areas maintained through the periodic addition or replacement of wood chips. Playground/turf interface borders will be maintained through manual or mechanical means. If mowing, manual weeding and wood chip maintenance are inadequate to manage target weeds, playground areas should be closed temporarily for renovation. Stinging insects may be controlled using approved products.</p>
	<p>Park Athletic Fields Includes turf fields managed for athletics that are not on school property. For athletic fields on school property, see the School Campuses section below.</p>	<p>Athletic fields experience high levels of use by children. Effective turf management combined with the judicious use of pest control products within an IPM context can reduce both the quantity applied and the necessary frequency. Where warranted, spot spraying should be used over broadcast treatments for turf weeds. To protect public health, any proposed pesticide applications must take into account athletic field scheduling, nearby school activities, evening recreation and other anticipated uses. Area closures and notification using temporary signage may be required prior, during and following the use of certain products</p>
	<p>Park Off-Leash Pet Areas Includes fenced or unfenced park areas designated for users with off-leash dogs.</p>	<p>Concentrated pet activity in off-leash pet areas creates unique pest management challenges. Methods and materials should minimize potential risks to dogs and their owners. Off-leash pet areas should be closed prior to herbicide application within fenced areas or along fence lines. Area closures and notification using temporary signage may be required prior, during and following the use of certain products.</p>

High-Use Public Areas	<p>Community Gardens Includes officially sanctioned fenced or unfenced community tended vegetable gardens.</p>	<p>Pest management in Community Gardens is generally limited to cultural, mechanical and physical and biological methods. In the absence of permission and prior notification, garden plots, pathways, fence lines, and any areas within and along garden boundaries are considered 'no-spray' areas. Low pressure, spot directed pesticide applications of approved products are permitted at least 25 feet from the outside perimeters of Community Gardens without prior notification. Broadcast pesticide applications boom sprayer equipment shall be kept at least 50 feet from the outside perimeters of Community Gardens without notification. Special circumstances requiring the applications of pesticides inside these limits must be made only through mutual agreement.</p>
	<p>School Campuses Includes public or private school buildings, other structures, playgrounds, athletic fields, school parking lots, or other areas on school property that are accessed by students on a regular basis.</p> <p>A school IPM Coordinator is responsible for all aspects of pesticide use on school property. Pesticide applications are regulated by the Oregon IPM Requirements for Schools (ORS 634.700-634.750). For additional information see: http://www.oregon.gov/ODA/PEST/docs/pdf/school_ipm_web.pdf?ga=t</p>	<p>At a minimum, schools must be notified in writing (email is acceptable) not less than 24 hours (during work days) before pesticide applications on school property. The notice must include the name of the pesticide product, the type of pesticide, the EPA registration number of each product, the expected date and area of application, the reason for the application. Notification signage must be posted around the pesticide application areas at least 24 hours before the pesticide application occurs and removed no earlier than 72 hours after the application. Signage must include: "Warning: Pesticide-Treated Area", the expected or actual data and time for the application and the telephone number of a contact person. The appropriate public or private pesticide applicator license or trainee license is required for anyone applying "low-impact" pesticides. The law requires that detailed pesticide application records be kept on file at schools for four years.</p>

Forestry and Upland Natural Areas

Includes upland (i.e., not within Water Quality Sensitive Areas) county managed forests and natural areas exclusive of High-Use Public Areas.

Forests and natural areas provide wildlife habitat, timber and recreational opportunities. Pest management shall be focused on controlling or preventing the establishment of species that threaten habitat health or that interfere with native vegetation. Approved pesticides may be applied using backpack or hand application. Boom sprayers may be used in natural areas during preparation of open sites for revegetation with native plants as long as drift prevention measures and other label requirements are met. Motorized and aerial pesticide application is allowed in the context of forestry, only.

Roadside Rights-of-Way

Includes all public rights-of-way and the land on which roadways and their associated facilities and appurtenances are located. Where rights-of-way intersect with Water Quality Sensitive Areas, relevant requirements in such areas apply.

See *Clackamas County Integrated Vegetation Management Plan*

APPENDIX 3
Clackamas County IPM Products List

Product Type	Active Ingredient(s)	Product Names (Examples only)	Intended Purpose	Pesticide Hazard Tier ¹	Water Quality Sensitive Areas				High-Use Public Areas ²								Forestry and Upland Natural Areas	Roadside Rights-of-Way ²
					Ponds and Lakes	Rivers and Streams	Seasonally Inundated Areas	Vegetated Buffer Areas	Building/Facilities Landscapes	Public Golf Courses	Park Developed Areas	Park Playground Areas	Park Athletic Fields	Park Off-Leash Pet Areas	Community Gardens	School Campuses		
Fungicide	Azoxystrobin	Heritage	Fungus control in turf	I*					•	•								
Fungicide	Chloroneb	Scotts V	Fungus control in turf	I					•	•								
Fungicide	Chlorothalonil	Daconil	Fungus control in turf	I*					•	•								
Fungicide	Dithane	Mancozeb	Fungus control in turf	I					•	•								
Fungicide	Fenarimol	Rubigan	Fungus control in turf	I					•	•								
Fungicide	Iprodione	Chipco 20619	Fungus control in turf	I*					•	•								
Fungicide	Mancozeb	Fore	Fungus control in turf	I*					•	•								
Fungicide	Metalaxyl	Subdue	Fungus control in turf	I					•	•								
Fungicide	Pentachloronitrobenzene	PCNB	Fungus control in turf	I					•	•								
Fungicide	Propiconazole	Fertlome Liquid Systemic Fungicide, Alamo, Banner	Fungus control in turf	I*					•	•								
Fungicide	Thiophanate-methyl	Scotts FF, Fungo	Fungus control in turf	I*					•	•								
Fungicide	Triadimefon	Bayleton	Fungus control in turf	I					•	•								
Herbicide	Acid blue 9, acid yellow 23	Aquashade	Aquatic algae control - blue colorant used to suppress algae growth	III	•				•	•	•							
Herbicide	Fluridone	Sonar AS	Aquatic weed control	III	•				•	•	•							
Herbicide	2,4-Dichlorophenoxyacetic acid	Weed B Gone, PAR III, Trillion, Tri-Kil, Killex and Weedaway	Broadleaf selective herbicide	I*					•	•						•	•	
Herbicide	Aminopyralid	Milestone	Broadleaf selective herbicide	II				•	•	•		•	•		•	•	•	
Herbicide	Aminopyralid + Triclopyr (amine)	Milestone VM Plus	Broadleaf selective herbicide	II					•	•	•					•	•	
Herbicide	Clopyralid	Transline	Broadleaf selective herbicide	I					•	•						•	•	
Herbicide	MCPA, MCPP-p, Dicamba	TrimecEncore	Broadleaf selective herbicide	I*					•	•						•	•	
Herbicide	MCPA, Triclopyr, Dicamba	Horsepower	Broadleaf selective herbicide	I*					•	•		•				•	•	
Herbicide	Metsulfuron methyl	Escort	Broadleaf selective herbicide	II					•	•						•	•	
Herbicide	Triclopyr (amine)	Garlon 3A, LM Blackberry, Brush, Renovate 3, Tahoe 3A	Broadleaf selective herbicide	II					•	•	•					•	•	
Herbicide	Triclopyr (ester)	Garlon 4 Ultra	Broadleaf selective herbicide	I*					•	•	•					•	•	
Herbicide	Triclopyr (ester); 2,4-D	Crossbow	Broadleaf selective herbicide	I*					•	•	•					•	•	
Herbicide	Isoxaben	Gallery 75 DF	Broadleaf selective pre-emergent herbicide	I*					•	•						•	•	
Herbicide	2,4-D, 2-ethylhexyl ester, Mecoprop-p acid, Dicamba acid, Carfentrazone-ethyl	Speedzone	Broadleaf weed control in turfgrass	I*					•	•	•							
Herbicide	Clopyralid, 2,4-D, Triclopyr	Millenium	Broadleaf weed control in turfgrass	I*					•	•								
Herbicide	Fluroxypyr	Spotlight	Broadleaf weed control in turfgrass	I					•	•	•		•	•				

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					Ponds and Lakes	Rivers and Streams	Seasonally Inundated Areas	Vegetated Buffer Areas	Building/Facilities Landscapes	Public Golf Courses	Park Developed Areas	Park Playground Areas	Park Athletic Fields	Park Off-Leash Pet Areas	Community Gardens	School Campuses		
Herbicide	Triclopyr + Clopyralid	Confront	Broadleaf weed control in turfgrass	I					•	•								
Herbicide	Clethodim	Section 2EC	Grass selective herbicide	I				•	•								•	•
Herbicide	Fluazifop	Fusilade II	Grass selective herbicide	I				•	•		•						•	•
Herbicide	Sethoxydim	Poast, Vantage	Grass selective herbicide	II					•								•	•
Herbicide	Potassium salts of fatty acids	Safer Moss and Algae Attack Concentrate, DeMoss	Moss control for structures and non-vegetated surfaces	III					•		•							
Herbicide	Ferrous sulfate monohydrate	Lilly Miller Moss Out!	Moss control in turf	II					•	•	•							
Herbicide	Glufosinate	Finale, Basta, Rely, Ignite, Challenge, and Liberty	Non-selective herbicide	I*					•	•							•	•
Herbicide	Glyphosate (aquatic label)	AquaMaster, AquaPro, Rodeo, Accord Concentrate, Aquaneat	Non-selective herbicide	III	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Herbicide	Glyphosate with polyethoxylated tallow amine (POEA) surfactant	RoundUp, Ranger Pro, Roundup Pro	Non-selective herbicide	II					•	•	•		•	•	•	•	•	•
Herbicide	Imazapyr	Arsenal, Chopper	Non-selective herbicide	II					•		•		•	•			•	•
Herbicide	Imazapyr (aquatic label)	Habitat, Polaris	Non-selective herbicide	II	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Herbicide	Pendimethalin	Pendulum 2G	Non-selective herbicide	I*					•		•						•	•
Herbicide	Dichlobenil (2,6-dichlorobenzonitrile)	Casoron 4G	Non-selective pre-emergent herbicide	I*					•	•	•							
Herbicide	Oryzalin: 3,5-dinitro-N4N4-dipropylsulfanilamide	Surflan	Non-selective pre-emergent herbicide	I*					•	•	•							
Herbicide	Trifluralin and Isoxaben	Snapshot	Non-selective pre-emergent herbicide	I*					•		•							
Herbicide	Pelargonic fatty acid	Scythe	Non-selective top-kill of early-stage, easily killed weeds	III			•	•	•		•						•	•
Insecticide	Permethrin, natural pyrethrin	Anvil	Adult mosquito control	I*					•									
Insecticide	Azadirachtin	Turplex, Margosan-O, Azatin XL Neem tree extract	Control through growth regulating and anti-feeding effects	II					•									
Insecticide	Pyrethrin compounds	Aerosol Wasp Sprays	Directed jet sprays used for individual wasp and hornet nest treatments posing human safety threat	III					•	•	•	•	•	•	•	•	•	•
Insecticide	Horticultural oils	Sunspray, others	General insect control both for dormant and growing season use.	III					•	•	•		•	•	•	•	•	•
Insecticide	Polydimethylsiloxane	M-Pede, Safer Insecticidal Soap, others	General soft body insect control	III					•	•	•		•	•	•	•	•	•

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					Ponds and Lakes	Rivers and Streams	Seasonally Inundated Areas	Vegetated Buffer Areas	Building/Facilities Landscapes	Public Golf Courses	Park Developed Areas	Park Playground Areas	Park Athletic Fields	Park Off-Leash Pet Areas	Community Gardens	School Campuses		
Insecticide	Chlorpyrifos	Dursban	Insect pest control	I*					•	•								
Insecticide	Imidacloprid	Mallet, Merit	Insecticide in turfgrass	I*					•		•							
Insecticide	Tetramethrin, Sumithrin	Enforcer, Raid	Insecticide, wasp and hornet	II					•	•	•	•	•	•	•	•		
Insecticide	Natural pyrethrin	ULD HydroPy-300	Mosquito control	III					•	•	•	•	•	•	•	•		
Insecticide	<i>Bacillus thuringiensis</i>	<i>Bacillus thuringiensis</i>	Mosquito control in isolated ponds, water features and catch basins	IV	•				•	•	•							
Insecticide	Methoprene	Altosid	Mosquito control in isolated ponds, water features and catch basins	II	•				•	•	•							
Insecticide	Monomolecular surface film	Agnique MMF	Mosquito control in isolated ponds, water features and catch basins	III	•				•	•	•							
Insecticide	Emulsifiable permethrin	Flit	Terrestrial mosquito control	I*					•									
Insecticide	Pheromone trap	Wasp/yellow jacket traps	Yellow jacket trap	III					•	•	•	•	•	•	•	•		
Insecticide/other	Fenamiphos	Nemacure	Nematode control in turf	I*					•	•	•							
Insecticide/other	<i>Steinernema carpocapse</i>	Turfco Vector	Nematode/insect control in turf	IV					•	•	•			•	•			
Marker dye	Marker dye	Dynamark U.V., Hi-Light Blue Indicator	Spray solution indicator dye	IV	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Marker dye	Marker dye	Turf Trax, Signal, others	Spray solution indicator dye	IV	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Rodenticide	Bromethalin	Talpirid	Mole control	II					•	•	•							
Rodenticide	Chlorophacinone formulated as paraffinized pellets	Rozol Rat and Mouse Killer Pellets	Rodent bait for use only when placed in locked, tamper resistant bait boxes	II					•		•							
Slug control	Iron phosphate	Sluggo, Escargo	Slug and snail bait for specialty areas	IV					•		•							
Surfactant	Alkyl phenol ethoxylate, Polyethylene glycol, Isopropanol, and Polydimethylsiloxane	No Foam	Surfactant to enhance spray coverage and increase efficacy	IV					•	•	•		•	•	•	•	•	•
Surfactant	Ethylated Corn, Canola, Soybean Oil and Non-Ionic Surfactant blend	Hasten, Competitor	Surfactant to enhance spray coverage and increase efficacy	III	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Surfactant	Methylated Seed Oil	MSO, Super Spread MSO	Surfactant to enhance spray coverage and increase efficacy	IV	•	• ³	•	•	•	•	•		•	•	•	•	•	•
Surfactant	Silicon based	Activator 90, R-11, LI 700, Hasten, Silwet, Syl-Tac, others	Surfactant to enhance spray coverage and increase efficacy	III			•	•	•	•	•		•	•	•	•	•	•

¹ = Minimize use or find alternative (* = Listed on high risk chemical lists), II = More restrictive use, III = Less restrictive use, IV = Least restrictive use

² Excludes Water Quality Sensitive Areas

³ Use limited to control of noxious weeds

APPENDIX 4 Invasive Species Lists

Clackamas County Weed List					
Source: Clackamas County SWCD WeedWise Program, updated 6/26/2012					
Common Name	Scientific Name	ODA Listing	Priority ¹	Clackamas EDRR ²	Regional EDRR
Scotch Broom	<i>Cytisus scoparius</i>	B			
Portuguese Broom	<i>Cytisus striatus</i>	B			
Spurge laurel	<i>Daphne laureola</i>	B	yes	yes	yes
Cutleaf teasel	<i>Dipsacus laciniatus</i>	B	yes		
Paterson's curse	<i>Echium plantagineum</i>	A	yes		yes
South American waterweed	<i>Egeria densa</i>	B			
Spanish heath	<i>Erica lusitanica</i>	B			
Leafy Spurge	<i>Euphorbia esula</i>	B	yes		
Myrtle Spurge	<i>Euphorbia myrsinites</i>	B			
Oblong spurge	<i>Euphorbia oblongata</i>	A	yes		
Japanese Knotweed	<i>Fallopia japonica (Polygonum</i>	B	yes	yes	yes
Giant Knotweed	<i>Fallopia sachalinensis (Polygonum</i>	B	yes	yes	yes
Goatsrue	<i>Galega officinalis</i>	A	yes		yes
French Broom	<i>Genista monspessulana</i>	B			
Shiny leaf geranium	<i>Geranium lucidum</i>	B			
Herb Robert	<i>Geranium robertianum</i>	B			
Halogeton	<i>Halogeton glomeratus</i>	B	yes		
English ivy	<i>Hedera helix</i>	B			
Irish ivy	<i>Hedera hibernica</i>	B			
Spikeweed	<i>Hemizonia pungens</i>	B	yes		
Giant hogweed	<i>Heracleum mantegazzianum</i>	A	yes	yes	yes
Orange Hawkweed	<i>Hieracium aurantiacum</i>	A	yes	yes	yes
Yellow Hawkweed	<i>Hieracium floribundum</i>	A	yes		yes
Mouse-ear Hawkweed	<i>Hieracium pilosella</i>	A	yes		
King-devil Hawkweed	<i>Hieracium piloselloides</i>	A	yes		
Meadow Hawkweed	<i>Hieracium pratense</i>	A	yes		yes
Hydrilla	<i>Hydrilla verticillata</i>	A	yes		
St. Johnswort	<i>Hypericum perforatum</i>	B			
Policeman's helmet	<i>Impatiens glandulifera</i>	B			
Yellow flag iris	<i>Iris pseudacorus</i>	B			
Dyers woad	<i>Isatis tinctoria</i>	B			
Kochia	<i>Kochia scoparia</i>	B	yes		
Yellow archangel	<i>Lamium galeobdolon</i>	B			yes
Perennial peavine	<i>Lathyrus latifolius</i>	B			
Lens-podded Whitetop	<i>Lepidium chalepensis</i>	B	yes		
Hoary cress	<i>Lepidium draba</i>	B	yes		
Perennial pepperweed	<i>Lepidium latifolium</i>	B	yes		
Hairy Whitetop	<i>Lepidium pubescens</i>	B	yes		
Dalmatian Toadflax	<i>Linaria dalmatica</i>	B			
Yellow Toadflax	<i>Linaria vulgaris</i>	B			
Water primrose	<i>Ludwigia grandiflora</i>	B			yes
Water primrose	<i>Ludwigia hexapetala</i>	B			yes
Water primrose	<i>Ludwigia peploides</i>	B			yes
Money Plant	<i>Lunaria annua</i>				yes
Purple loosestrife	<i>Lythrum salicaria</i>	B	yes	yes	yes
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	B	yes		
Parrots feather	<i>Myriophyllum aquaticum</i>	B			

Clackamas County Weed List (contd.)					
Source: Clackamas County SWCD WeedWise Program, updated 6/26/2012					
Common Name	Scientific Name	ODA Listing	Priority ¹	Clackamas EDRR ²	Regional EDRR
Matgrass	<i>Nardus stricta</i>	A	yes		
Yellow floating heart	<i>Nymphoides peltata</i>	A	yes		
Scotch Thistle	<i>Onopordum acanthium</i>	B	yes		yes
Taurian Thistle	<i>Onopordum tauricum</i>	A	yes		
Small broomrape	<i>Orobanche minor</i>	B			
African rue	<i>Peganum harmala</i>	A	yes		
Japanese Butterbur	<i>Petasites japonica</i>				yes
Common reed	<i>Phragmites australis ssp. Australis</i>	A	yes		yes
American pokeweed	<i>Phytolacca americana</i>				yes
Himalayan Knotweed	<i>Polygonum polystachyum</i>	B	yes	yes	yes
Sulfur cinquefoil	<i>Potentilla recta</i>	B	yes		
Kudzu	<i>Pueraria lobata</i>	A	yes	yes	yes
Lesser celandine	<i>Ranunculus ficaria</i>	B			
Creeping yellow cress	<i>Rorippa sylvestris</i>	B			
Armenian (Himalayan) blackberry	<i>Rubus armeniacus (R. procerus, R.</i>	B			
Mediterranean sage	<i>Salvia aethiopsis</i>	B			
Tansy ragwort	<i>Senecio jacobaea</i>	B			
Blessed Milk Thistle	<i>Silybum marianum</i>	B			yes
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	A	yes		
Buffalobur	<i>Solanum rostratum</i>	B			
Johnsongrass	<i>Sorghum halepense</i>	B	yes		
Smooth Cordgrass	<i>Spartina alterniflora</i>	A	yes		
Common Cordgrass	<i>Spartina anglica</i>	A	yes		
Dense-flowered Cordgrass	<i>Spartina densiflora</i>	A	yes		
Saltmeadow Cordgrass	<i>Spartina patens</i>	A	yes		
Spanish Broom	<i>Spartium junceum</i>	B	yes		
Swainsonpea	<i>Sphaerophysa salsula</i>	B			
Medusahead rye	<i>Taeniatherum caput-medusae</i>	B	yes		
Saltcedar	<i>Tamarix ramosissima</i>	B			
European water chestnut	<i>Trapa natans</i>	A	yes		
Puncturevine	<i>Tribulus terrestris</i>	B			
Coltsfoot	<i>Tussilago farfara</i>	A	yes		
Gorse	<i>Ulex europaeus</i>	B	yes	yes	yes
Spiny cocklebur	<i>Xanthium spinosum</i>	B	yes		
Syrian bean-caper	<i>Zygophyllum fabago</i>	A	yes		

¹Priority weed species are eligible for Conservation District led control efforts. Priority weed criteria include ODA A-listing, and weeds that occur in an adjacent county but have not been observed in Clackamas County.

²Targeted weed species highlighted for free weed treatment in Clackamas County.

³Weed Species have been targeted for rapid response control efforts in the Portland Metro region. Affected landowners should contact their local SWCD for eligibility.

Oregon Invasive Species Council 100 Worst List		
Source: OISC, updated 9/5/2012		
Group	Common name	Scientific name
Aquatic invertebrates	Asian tapeworm	<i>Bothriocephalus acheilognath</i>
	Waterflea (fishhook, spiny)	<i>Cercopagis pengoi</i> , <i>Bythotrephes cederstroemi</i>
	Transparent tunicate	<i>Ciona savigny</i>
	Sea squirt	<i>Didemnum sp.</i>
	Zebra mussel, guagga mussel	<i>Dreissena polymorpha</i>
	Mitten crabs	<i>Eriocheir spp.*</i>
	Japanese shore crab	<i>Hemigrapsus sanguineus</i>
	Leidy's comb jelly	<i>Mnemiopsis leidy</i>
	Crayfish	<i>Orconectes virilis (virile crayfish)</i> , <i>Procambarus sp. (marbled crayfish or "marmorkrebs")</i>
	New Zealand seaslug	<i>Philine auriformis**</i>
	Asian clam	<i>Potamocorbula amurensis</i>
	Veined rapa whelk	<i>Rapana venosa</i>
	Club tunicate	<i>Styela clava</i>
	Aquatic plants	Flowering rush
Caulerpa seaweed		<i>Caulerpa taxifolia</i>
Dead man's fingers		<i>Codium fragile tomentosoides</i>
Rock snot		<i>Didymosphenia geminate</i>
Hydrilla		<i>Hydrilla verticillata</i>
Yellow floating heart		<i>Nymphoides peltata**</i>
Common reed		<i>Phragmites australis</i>
Algae, toxic (golden, toxic cyanobacteria)		<i>Prymnesium parvum</i> , <i>Cylindrospermopsis raciborskii</i>
Giant salvinia		<i>Salvinia molesta</i>
Cordgrasses		<i>Spartina alterniflora*</i> , <i>S. densiflora</i> , <i>S. anglica</i> , <i>S. patens**</i>
European water chestnut		<i>Trapa natans</i>
Asian kelp		<i>Undaria pinnatifida</i>
Birds		Mute swan
Fish	Snakehead	<i>Channa spp.</i>
	Threadfin shad (yellow tails, shad and muskellunge, northern pike, tiger muskie)	<i>Dorosoma petenense</i>
	Ruffe	<i>Esox spp.*</i>
	Asian carp (bighead, silver), black carp	<i>Gymnocephalus cernuus</i>
	Golden shiner	<i>Hypophthalmichthys nobilis</i> , <i>H. molitrix</i> , <i>Mylopharyngodon piceus</i>
	Amur goby, round goby, Shimofuri goby	<i>Notemigonus crysoleucas</i>
		<i>Rhinogobius brunneus</i> , <i>Neogobius melanostomas</i> , <i>Tridentiger bifasciatus</i>
	Atlantic salmon	<i>Salmo salar</i>
Land invertebrates	Emerald ash borer	<i>Agrilus planipennis</i>
	Oriental beetle	<i>Anomala orientalis</i>
	Asian longhorned beetle	<i>Anoplophora glabripennis</i> , <i>A. chinensis</i>
	Africanized honey bee	<i>Apis mellifera scutellata</i>
	Silver Y moth	<i>Autographa gamma</i>
	Japanese wax scale	<i>Ceroplastes japonicus</i>
	Plum curculio	<i>Conotrachelus nenuphar</i>
	Swede midge	<i>Contarinia nasturtii</i>
	Siberian moth	<i>Dendrolimus superans</i>
	Mexican bean beetle	<i>Epilachna varivestis</i>
	Light brown apple moth	<i>Epiphyas postvittana</i>

* Detected previously in Oregon, but eradicated or did not establish.

** Currently under eradication or restricted to a small area in Oregon.

Oregon Invasive Species Council 100 Worst List (contd.)			
Source: OISC, updated 9/5/2012			
Group	Common name	Scientific name	
Land	Old world bollworm	<i>Helicoverpa armigera</i>	
Invertebrates	Spruce bark beetle	<i>Ips typographus</i>	
	Argentine ant	<i>Linepithema humile*</i>	
	Gypsy moths (European, Asian, pink, nun moth)	<i>Lymantria dispar*</i> , <i>L. mathura*</i> , <i>L. monacha</i>	
	Bean plataspid	<i>Megacopta cribraria</i>	
	European corn borer	<i>Ostrinia nubilalis</i>	
	Japanese beetle	<i>Popillia japonica*</i>	
	European chafer	<i>Rhizotrogus majalis</i>	
	European woodwasp	<i>Sirex noctilio</i>	
	Imported fire ants (red, black)	<i>Solenopsis invicta*</i> , <i>S. richteri</i>	
	Brown spruce longhorn beetles	<i>Tetropium fuscum</i> , <i>T. castaneum*</i>	
	White garden snail, vineyard snail, and Heath snail (terrestrial snails)	<i>Theba pisana</i> , <i>Ceruella virgata</i> , <i>Xerolenta obvia</i>	
	Khapra beetle	<i>Trogoderma granarium</i>	
	Granulate ambrosia beetle	<i>Xylosandrus crassiusculus*</i>	
	Mammals	Feral swine	<i>Sus scrofa**</i>
	Micro-organisms	Blackberry yellow vein disease, blackberry yellow vein-associated virus (BYVaV) and blackberry virus Y (BVY)	
		Blueberry hill carlavirus - New Jersey strain	(BBS _{CV-NJ})
Willow watermark disease		<i>Brenneria salicis</i>	
Oak wilt		<i>Ceratocystis fagacearum</i>	
Chronic wasting disease		<i>CWD prion</i>	
Elm yellows		<i>Elm yellows phytoplasma</i>	
Potato cyst nematode		<i>Globodera pallida</i>	
Infectious salmon anemia virus		<i>ISAV</i>	
Whirling disease		<i>Myxobolus cerebralis</i>	
Viral hemorrhagic septicemia virus (VHSV)		<i>Novirhabdovirus spp.</i>	
Alder root rot		<i>Phytophthora alni</i>	
Phytophthora taxon C		<i>Phytophthora kernoviae</i>	
Ramorum canker and blight, sudden oak death		<i>Phytophthora ramorum</i>	
Plum pox		<i>Plum pox potyvirus (PPV)</i>	
Hazelnut bacteria canker		<i>Pseudomonas avellanae</i>	
Southern wilt, bacteria wilt		<i>Ralstonia solanacearum Race 3 Biovar 2</i>	
Potato wart		<i>Synchytrium endobioticum</i>	
Poplar canker		<i>Xanthomonas populi</i>	
Bacterial blight of grape		<i>Xylophilus ampelinus</i>	
Reptiles		Eastern snapping turtle	<i>Chelydra serpentina serpentina</i>

* Detected previously in Oregon, but eradicated or did not establish. **
 Currently under eradication or restricted to a small area in Oregon.

APPENDIX 5 Invasive Species Best Management Practices Calendar

Note: This weed management calendar was adapted from the Western Washington Invasive Weed Management Calendar (2007). The calendar is meant as a summary of general guidelines for use by restoration or vegetation management professionals who are working to limit the impact of invasives on natural area restoration projects. For each species, each row represents one management approach. When using herbicides, always follow the label of the product being used. Herbicide suggestions in this document should not be followed if they contradict the label on the product being used. Make sure to follow all local, state or federal regulations that apply to the particular project site. It is most effective to use an integrated vegetation management strategy. Always make sure that the benefits of the activity outweigh the impacts.

LATIN NAME	COMMON NAME	PLANT TYPE/ TREATMENT TYPE(S)	MINIMUM TREATMENT DURATION	WINTER			SPRING			SUMMER			FALL				
				December	January	February	March	April	May	June	July	August	September	October	November		
<i>Alliaria petiolata</i>	Garlic Mustard	Herbaceous Biennial	Seeds last 7+ years	Rosette/2nd Year Rosettes Re-emerge			Bolt			Seed Pods Mature/ Seed Mature							
										Flower	Flower/ Seed Pods Emerge	Seed Pods Release					
				Manual	>5 years	Pull and bag bolting, flowering and seeding plants. Dispose of bagged material in trash. Revisit sites every few weeks to pull plants sprouting from left behind root fragments.											
				Chemical IPM	>5 years >5 years	Mowing is not effective. Mowing when seed is present (typically between June and October) will spread garlic mustard seeds.						Spray with glyphosate or triclopyr			Spray rosettes with		
										Spray with glyphosate or triclopyr			Re-visit sprayed sites to hand pull all plants that were missed during, or grew after herbicide application				
<i>Buddleia davidii</i>	Butterfly Bush	Tall Deciduous Shrub						Leaf Out			Flower		Flower/Seed				
				Manual	Dig up or weed wrench and get entire root												
				Chemical (option 1)										Foliar spray (Triclopyr)			
				Chemical (option 2)										Foliar spray (Glyphosate)			
													Basal or cut stump application (Triclopyr or Glyphosate)				
<i>Calystegia sepium</i> or <i>Convolvulus arvensis</i>	Bindweed or Morning Glory	Herbaceous Perennial		Emerge			Flower			Seed							
				Manual or Mechanical	>2 years	Cut or pull; remove fragments									Heavily mulch infested area		
				Shade	3 to 5 years	Cover infested area with landscape fabric or cardboard/woodchips - need to maintain cover so plants get no light over whole population; watch surrounding area for plants (at least 5 10 feet from infested area)											
				Chemical	>2 years							Foliar spray (Aminopyralid at bud stage or Triclopyr at full flower). Unwind from desirable vegetation before spraying.			Foliar spray or wipe on (Glyphosate at full bloom to early seed or Triclopyr or Aminopyralid at post bloom-follow up in spring); when re-treating, wait until stems are > 12 inch long		
													Cut plants and spray/wipe on when regrowth > 12 inches (Glyphosate)				
<i>Centaurea biebersteinii</i>	Spotted Knapweed	Herbaceous Perennial					Rosettes			Flower			Flower/Seed				
				Manual or Mechanical	Pull/dig up; in compacted soils will need to use fork tool or digging knife; most effective when soil is moist												
				Chemical							Foliar spray (Triclopyr)		Foliar spray (Triclopyr or Glyphosate)				
<i>Cirsium arvense</i>	Canada Thistle	Herbaceous Perennial	>2 years				Germinate & Growth		Rosettes	Bolt	Flower		Flower/Seed	Seed	Germinate/Rosettes		
				Manual or Mechanical	Pull/mow every 3-4 weeks												
				Shade							Cut and Sheet Mulch			Cut and Sheet Mulch			
				Chemical										Foliar spot spray (Triclopyr or Aminopyralid)			Foliar spot spray (Glyphosate)
										Cut late July		Spray regrowth late August (Glyphosate)					

LATIN NAME	COMMON NAME	PLANT TYPE/ TREATMENT TYPE(S)	MINIMUM TREATMENT DURATION	WINTER			SPRING			SUMMER			FALL		
				December	January	February	March	April	May	June	July	August	September	October	November
<i>Cirsium vulgare</i>	Bull Thistle	Herbaceous Biennial						Emerge		Flower		Flower/Seed	Seed/Emerge		
		Manual or Mechanical							Cut below crown, mow, or dig up shortly before flowering						
		Chemical						Foliar spot spray (Triclopyr or Glyphosate)		Foliar spray before flower (Glyphosate)			Foliar spot spray (Triclopyr or Glyphosate)		
<i>Clematis vitalba</i>	Old Man's Beard	Climbing Deciduous Vine					Emerge			Flower			Seed		
		Manual or Mechanical						Pull young plants up/cut mature stems at ground; dig up roots							
		Mechanical + Chemical (option 1)	about 2 years						Cut stems and wipe on (Glyphosate, Triclopyr or Metsulfuron concentrate)						
		Mechanical + Chemical (option 2)	about 2 years					Apply herbicide to regrowth in spring					Cut stems in fall		
<i>Conium maculatum</i>	Poison-hemlock	Herbaceous Biennial					Germinate		Rosettes		Bolt	Flower	Seed	Germinate	
		Manual or Mechanical					Pull plants by hand or dig up roots when soil is moist			Cut to below crown (1-3 inches)					
		Mechanical						Mow to 3-4 inches							
		Chemical						Foliar spray before flowering (Aminopyralid, Triclopyr, or Glyphosate)							
<i>Cytisus scoparius</i>	Scotch Broom	Large Shrub; deciduous leaves, evergreen stems			Growth		Buds/Leaf Out		Flower			Seed		Growth	
		Manual			Pull small plants; weed wrench large plants										
		Mechanical							Cut mature stands down to ground						
		Chemical						Foliar spray (Triclopyr, Aminopyralid, Glyphosate)							
<i>Geranium robertianum</i>	Herb Robert	Herbaceous Annual					Rosettes	Seedlings/Rosettes		Flowering/Seed		Seed		Rosettes	
		Manual					Pull plants and mulch bare areas								
		Chemical					Foliar spray large patches of small seedlings (Glyphosate)			Foliar spray large patches of small seedlings (Glyphosate)			Foliar spray large patches of small seedlings (Glyphosate)		
<i>Hedera hibernica, H. helix</i>	English Ivy	Evergreen Woody Vine					Berry/ Seed		Vegetative			Flower		Berry/Seed	
		Manual or Mechanical	2 years				Dig up or pull up roots of accessible plants; Cut off vines (girdle) from base of trees								
		Cultural					Mulch to depth of 8 inches								
		Chemical (option 1)					Foliar spray on sunny day, temp >50 degrees F (Glyphosate or mix of Glyphosate and Triclopyr)		Foliar spray young plants with 2-4 newly expanded leaves (Glyphosate)				Spray regrowth (Glyphosate or Triclopyr); hand pull option		
		Chemical (option 2)									Foliar spray (Triclopyr & surfactant); more effective right after string trimming				
		Chemical (option 3)							Foliar spray (Aminopyralid)		Foliar spray on regrowth (Aminopyralid)				

LATIN NAME	COMMON NAME	PLANT TYPE/ TREATMENT TYPE(S)	MINIMUM TREATMENT DURATION	WINTER			SPRING			SUMMER			FALL		
				December	January	February	March	April	May	June	July	August	September	October	November
<i>Hieracium</i> sp.	Hawkweed	Herbaceous Perennial					Emerge		Bud/Flower		Flower/Seed				
		Manual or Mechanical					Dig up including roots and runners								
		Shading					Cover with landscape fabric								
		Chemical					Foliar spray before flowers open (Triclopyr)								
<i>Ilex aquifolium</i>	English Holly	Evergreen Shrub or Tree; often multi-stemmed			Growth				Flower				Berry/Seed		
		Manual			Pull or dig up small plants; use weed wrench on large plants										
		Mechanical + Chemical			Cut trunk as close to the ground as possible and apply concentrated herbicide within 20-30 seconds (Triclopyr or Glyphosate). On large trunks only the outer edge needs to be cut and treated.										
<i>Impatiens glandulifera</i>	Policeman's Helmet	Herbaceous Annual					Emerge		Flower		Flower/Seed				
		Manual or Mechanical							Pull or weed whack before seeds mature; compost on tarps						
		Chemical						Foliar spray young plants (Glyphosate)							
<i>Lepidium latifolium</i>	Perennial pepperweed	Herbaceous Perennial					Emerge		Flower		Flower/Seed				
		Manual						Pull or dig plants growing in sand or loose soil							
		Chemical					Foliar spray up through bloom stage (Chlorsulfuron with surfactant)				Foliar spray (Chlorsulfuron with surfactant)				
		Mechanical + Chemical					Mowing followed by foliar applications to resprouts (Glyphosate with appropriate surfactants)								
<i>Lysimachia vulgaris</i>	Garden Loosetrife	Herbaceous Perennial						Emerge		Flower	Flower/Seed				
		Manual or Mechanical						Cut at base/dig up where possible							
		Chemical						Foliar spray (Triclopyr or Glyphosate, aquatic formulation with suitable surfactant); need permit/license							
<i>Lythrum salicaria</i>	Purple Loosetrife	Herbaceous Perennial						Emerge		Flower	Flower/Seed	Seed			
		Manual or Mechanical	> 5 years					Pull small plants; cut large plants at base							
		Chemical	2-3 years					Foliar spray (Glyphosate or Triclopyr , aquatic formulation); need permit/license							
		Biocontrol	Up to 5 years before significant decrease in plant density					Release galerucella beetles on large stands			Release galerucella beetles on large stands				

LATIN NAME	COMMON NAME	PLANT TYPE/ TREATMENT TYPE(S)	MINIMUM TREATMENT DURATION	WINTER			SPRING			SUMMER			FALL		
				December	January	February	March	April	May	June	July	August	September	October	November
<i>Phalaris arundinacea</i>	Reed Canary Grass	Perennial grass					Emerge		Flower		Flower/Seed	Seed/Growth			
		Manual	at least 5 yrs				Hand pull/dig over whole population								
		Mechanical	5 to 10 years				Mow								
		Mechanical + Shade	at least 1 year				Mow and cover with a combination of several layers of cardboard covered with 4-6 inches woodchips								
		Flooding	1 to 3 yrs				Inundation for whole growing season								
		Mechanical + Chemical	1 to 2 years							Mow fields before seeds mature	Foliar spray when regrowth is 1 ft tall (Glyphosate); wait 2 weeks; mow; spray again				
		Chemical	1 year for small patches; 2 or more years for large infestations				Foliar spray young shoots (Glyphosate); less damage to native grasses				Foliar spray before summer dormancy (Glyphosate)		Foliar spray regrowth (Glyphosate); till 2-3 weeks after spray for improved control		
<i>Polygonum cuspidatum, P. bohemicum, P. sachalinense</i>	Knotweed	Tall Rhizomatous Perennial					Emerge	Growth		Flower		Seed		Die back	
		Mechanical	at least 5 years, not very effective on established patches				Cut twice each month								
		Mechanical + Shade	5 years; can plant in area after 3 years				Cut to ground and cover with landscape fabric; stake down and monitor for growth at the edges								
		Mechanical + Chemical									Cut once	Foliar spray when about 3ft (Glyphosate, Triclopyr or Aminopyralid)			
		Chemical alone	at least 2 years				Inject stems >1/2 inch								
<i>Prunus laurocerasus</i>	English Laurel	Evergreen Shrub or Small Tree							Flower		Seed				
		Manual				Pull or dig up small plants; use weed wrench on large plants									
		Mechanical + Chemical				Cut trunk as close to the ground as possible and apply concentrated herbicide within 20-30 seconds (Triclopyr or Glyphosate)									
<i>Rubus armeniacus, R. discolor, R. laciniatus</i>	Blackberry (Himalayan and Cutleaf)	Cane-Producing Shrub; roots at nodes				Growth			Flower		Berry/Seed				
		Mechanical	> 2 years			Clear mechanically			Clear mechanically (if only once: when flowers form)		Clear mechanically				
		Manual or Mechanical	at least 2 yrs			Cut canes/grub out crowns when soil is moist				Dig or cut regrowth		Grub out roots when soil is moist			

LATIN NAME	COMMON NAME	PLANT TYPE/ TREATMENT TYPE(S)	MINIMUM TREATMENT DURATION	WINTER			SPRING			SUMMER			FALL			
				December	January	February	March	April	May	June	July	August	September	October	November	
		Cultural Chemical (option 1)								Foliar spray when plants are actively growing (Triclopyr)			Mulch area after		Foliar spray when canes are actively growing and after berries are formed (Glyphosate); NOTE: post sprayed areas or control access to sprayed bushes	Clear dead canes, stabilize area to prevent possible erosion
		Chemical (option 2)								Cut large canes and spot spray immediately after cutting (Glyphosate or Triclopyr)			Check area and repeat if necessary			
		Mechanical + Chemical								Clear mechanically					Foliar spray regrowth (Triclopyr, Aminopyralid or Glyphosate)	
<i>Senecio jacobaea</i>	Tansy Ragwort	Herbaceous biennial					Rosettes	Bud/Flower	Flower	Flower/Seed	Seed/Rosettes	Rosettes				
		Manual or Mechanical					Dig up rosettes if soil is moist			Pull and bag flowering stems			Dig up rosettes if soil is moist			
		Chemical					Foliar spray rosettes and flowering plants (Aminopyralid or Triclopyr)						Foliar spray rosettes (Aminopyralid or Triclopyr)			
<i>Solanum dulcamara</i>	Bittersweet Nightshade	Semi- Woody Vine					Growth	Flower			Seed					
		Manual or Mechanical					Dig up plants in winter when possible to avoid damaging other plants						Dig, cut, pull or mow several times / season			
		Chemical								Information limited. Foliar spray or wipe on, late bud to early flower (Glyphosate, Triclopyr or Aminopyralid); plan to spray any regrowth						
<i>Sonchus arvensis</i>	Perennial Sowthistle	Herbaceous Perennial					Seedlings/Rosettes	Flower	Flower	Flower/Seed	Seed					
		Manual or Mechanical					Dig up including roots and runners						Remove and discard flowers			
		Shading					Cover with landscape fabric									
		Chemical					Foliar spray actively growing plants before bud stage and at bud stage before flowers open (Aminopyralid). Plan to spray regrowth and beware of permit/license restrictions in coastal and wet areas									
<i>Tanacetum vulgare</i>	Common Tansy	Herbaceous Perennial					Emerge	Flower	Flower	Flower/Seed	Flower/Seed					
		Manual					Dig up						Dig up, cut & bag seed head			
		Mechanical						Mow/cut before bud stage					Cut regrowth as needed			
		Chemical	>1 yr					Spot spray actively growing plants (Metsulfuron), or wipe on (chemical ?)					Wipe on during flower/seed set (Glyphosate); not as effective as metsulfuron - cut & bag flower/seed heads			

APPENDIX 6
Sample Pesticide Use Notification Sign


Warning:
Pesticide-Treated Area

Pesticides are being applied in this area to control target weeds or other pests. Application methods are designed to protect water quality, native species and public health.

Application Date _____
Application Time _____
Product _____
EPA Registration # _____
Target Pest(s) _____

Please keep pets on leash and refrain from contact with work area until sprayed surfaces have dried.

For information call: _____



The logo for Clackamas County, featuring a stylized green triangle above a blue and white wave-like shape, with the text "CLACKAMAS COUNTY" below it.

APPENDIX 7
Sample Pesticide Application Record

PESTICIDE APPLICATION RECORD			
Applicator's full name:		Applicator company name:	Applicator license#:
Trainee's full name:		Applicator company address:	Business license #:
Application Location:		Product name(s):	Mix ratio or percentage: (e.g., 3g/100g or 3%)
Date:	Site:	Formulation(s):	
Time in:			
Time out:	Specific area treated:	EPA registration number(s):	
Temp:			
Wind:			
Equipment used:			
	Target species:	Coverage rate (e.g., 6lbs/1000 sq ft):	
Notes:			
Pesticide supplier:			

APPENDIX 8 Clackamas County Emergency and Informational Contacts

Emergency Phone Numbers	
Fire, Ambulance, HAZMAT	911
Clackamas County	
Risk Management, Dwayne Kroening	503-655-8576
Medical Emergencies & Immediate Health Concerns	
Oregon Poison Center- 24 hours Daily	Portland Area 503-494-8968 Outside Portland Area 800-222-1222
DEQ Northwest Regional Office	503-229-4263
Oregon Emergency Response System	800-452-0311
Oregon DEQ Environmental Cleanup Program	503-229-5913
National Response Center	800-424-8802
CHEMTREK: an industry emergency spill information service	800-424-9300
Informational Phone Numbers	
NPIC - National Pesticide Information Center	800-858-7378
Oregon Department of Agriculture	503-986-4635
Pesticide Exposure Reporting	
Pesticide Analytical and Response Center (PARC)	503-731-4025

APPENDIX 9 Priority Chemicals of Concern Resources

Adapted from Multnomah County, Oregon.

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11. State of California, Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop 65), Chemicals known to the State to cause cancer or reproductive toxicity, February 3, 2006*, retrieved March 2006 from http://www.oehha.ca.gov/prop65/prop65_list/files/P65single20306.pdf .
12. Oregon Department of Environmental Quality, Oregon Air Toxics Program, *Notice of Proposed Rule Making, Ambient Benchmarks for 49 air toxics*, retrieved March, 2006 http://www.deq.state.or.us/news/publicnotices/uploaded/060207_5621_05-AQ-002_Benchmarks.pdf .
13. State of California, Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *All chronic reference exposure levels adopted by OEHHA as of February 2005*, retrieved March, 2006 from http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html .
14. Environmental Protection Agency (EPA), *National Partnership for Environmental Priorities, 31 Priority Chemicals*, retrieved March, 2006 from <http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm>.

**CITY OF SANDY PARKS & TRAILS ADVISORY BOARD
DRAFT ROLES AND RESPONSIBILITIES –FOR CITY COUNCIL REVIEW AND INPUT**

The Parks & Trails Advisory Board (Board) exists to aid the City of Sandy in providing ample and diverse recreation opportunities for City residents by advising the City Council, through the City staff member in charge of supporting the Board, on the implementation of the Parks and Trails Master Plan. This document lists the objectives and responsibilities of the Board.

- **Plan for the Future.** The Board provides advisory input on site-specific details for parks and trails outlined in the City of Sandy Parks and Trails Master Plan. The Board should evaluate existing parks, trails, and recreation facilities for needs, and recommend priorities. The Board should help develop individual park and trail master plans and establish short and long-range park development goals.
- **Become Knowledgeable about Funding Sources.** The Board should become familiar with federal, state and county grant programs and other external funding sources. Understanding the various funding sources will assist the board in providing feedback and recommendations when city staff drafts the biennial budget and assist with identifying appropriate grant opportunities.
- **Develop Relationships.** The Board should create and maintain cooperative working relationships with citizens, community organizations, special interest groups, businesses, elected officials, school districts and government agencies that are essential for the Board to improve services and effectively serve the Sandy community.
- **Inform Community and Build Public Support.** The Board serves as an ambassador for parks, trails and recreation by educating local residents about parks and trails. The Board distributes approved materials, interacts with park users at events and assists when needed, in social media posts regarding parks and trails.
- **Recruit and Train New Members.** The Board helps recruit and orient new Board members. The Board should reach out to citizens of varying ages, genders, and ethnicities to ensure the Board represents a variety of interests. Board members should be encouraged to attend training opportunities where appropriate.
- **Stay Knowledgeable About Legislation and Ballot Proposals.** The Board advocates where appropriate, and with direction from City Council, for legislation that positively impacts parks and trails, and when advised contacts legislators at the local, state and national levels for their support.
- **Understand the Scope of Authority.** The board must read and be familiar with its bylaws and abide by them, and understand its authority, structure and legal responsibilities. The Board is an advisory board and does not make decisions. Individuals cannot make public representations about Board policies or positions unless the Board has approved that position as a group and the City Council has approved that position. The Board does not have the authority to expend funds, direct city staff, or implement projects without permission.

DRAFT Sandy Parks and Trails Advisory Board By-Laws

Article I: Name

The organization shall be known as the Sandy Parks and Trails Advisory Board (Board). It is established in accordance with Resolution 2018-14 of the Sandy City Council (May 22, 2018).

Article II: Purpose

Advise the Sandy City Council, through the Sandy City staff member in charge of supporting the Board on the evaluation and development of parks, trails, and facilities to meet current and future needs of the city of Sandy and its service area. Participate actively in the goals, aims, and purposes of parks and trails.

Article III: Membership and Terms

The Board shall **ideally** consist of up to seven members. All members are appointed to a four-year term, with half of the members terms expiring on the even years and the other half on the odd years to avoid replacement of the entire board at any one time. Members may serve only two consecutive terms unless no other candidates apply. Terms of service shall commence on the first day of January in the year of their appointment. Appointments to fill an unexpected vacancy shall be made before the remainder of the unexpired term. Board members and applicants must be residents of Sandy with one Board member allowed to reside in the Urban Growth Boundary or Urban Reserve area outside city limits. Applicants for the Board will be interviewed by **council or their designees**.

To ensure representation of various interests of parks and trails users, the Board shall ideally include at least one member with interests in each of the following areas: playgrounds, youth and adult sports fields, dog parks, trails, and natural areas. A majority of the voting membership shall constitute a quorum.

A City Council liaison shall be a nonvoting ex officio member of the Board and shall take part in its discussions or deliberations. Ex Officio members shall not be counted toward the constitution of a quorum at any meeting.

Article IV: Officers

The officers of the advisory board shall be Chair, Vice Chair, and Secretary. They shall be elected at the last meeting of each fiscal year and shall serve for a one-year term. The Chair shall call and preside over meetings. The Vice Chair shall preside in the absence of the chair. The Secretary shall take meeting minutes.

Article V: Meetings

The Board shall meet **monthly as needed**, not less than six times a year. All meetings will be held in Council Chambers at Sandy City Hall, unless the room is unavailable in which case another room in city limits with suitable ADA accommodations will be used. A meeting date may be changed or canceled by the Chair, in consultation with the Sandy City staff member in charge of supporting the Board., with prior notice to the membership.

If a member should have two (2) consecutive unexcused absences from regular meetings, he/she may be replaced with a new member appointed by the Sandy City Council. The new appointee shall fill the former member's unexpired term.

Article VI: Amendments

These bylaws may be amended by City Council at their discretion at a regular scheduled meeting.