



Integrated Pest Management Plan
June 2019

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I. INTRODUCTION

The Cascade School District Board of Directors is committed to a pest management plan that puts a priority on the health and safety of staff and students. This integrated pest management plan will be used on all Cascade School District facilities.

The Facilities subject to this plan include:

- A. Cascade Secondary Campus and grounds
- B. Aumsville Elementary School Campus and grounds
- C. Cloverdale Elementary School Campus and grounds
- D. Turner Elementary School Campus and grounds
- E. Cascade Opportunity Center Campus and grounds.

II. WHAT IS INTEGRATED PEST MANAGEMENT?

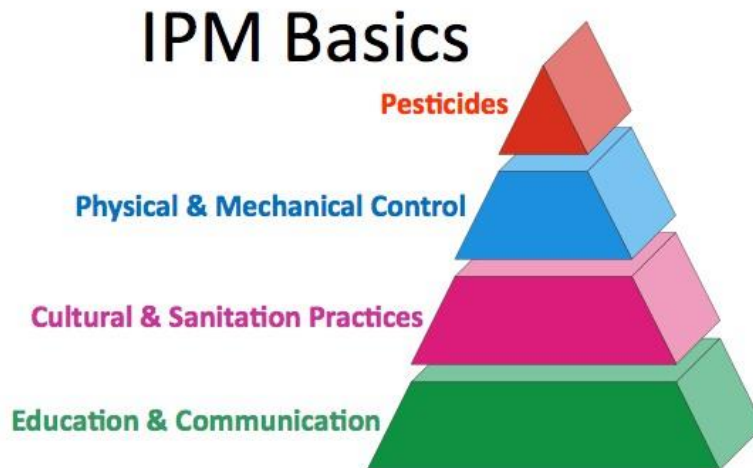
The Cascade School District Integrated Pest Management Plan (IPM), works to achieve long-term, environmentally sound pest suppression through a wide variety of tactics. Control strategies in this plan include structural and procedural improvements to reduce the food, water, shelter, and access used by pests. Pesticides will be used only in the most severe infestations or pest emergencies.

Fundamentals of the IPM Plan:

- A. **Education & Communication**: The foundation for an effective IPM program is education and communication. We need to know what conditions can cause pest problems, why and how to monitor for pests, proper identification, pest behavior and biology before we can begin to manage pests effectively. Communication about pest issues is essential. *A protocol for reporting pests or pest conducive conditions and a record of what action was taken is the most important part of an effective IPM program.*
- B. **Cultural & Sanitation**: Knowing how human behavior encourages pests helps you prevent them from becoming a problem. Small changes in cultural or sanitation practices can have significant effects on reducing pest populations. Cleaning under kitchen serving counters, reducing clutter in classrooms, putting dumpsters further from kitchen door/loading dock, proper irrigation scheduling, and over-seeding of turf areas are all examples of cultural and sanitation practices that can be employed to reduce pests.
- C. **Physical & Mechanical**: Rodent traps, sticky monitoring traps for insects, door sweeps on external doors, sealing holes under sinks, proper drainage and mulching of

landscapes, and keeping vegetation at least 24 inches from buildings are all examples of physical and mechanical control.

- D. **Pesticides:** IPM focuses on remediation of the fundamental reasons why pests are here; pesticides should be rarely used and only when necessary.



III. IPM DECISION-MAKING PROCESS - RESPONSIBILITIES

B. Cascade School Board Responsibilities

1. Annually the board will review Board Policy EBB Integrated Pest Management
2. Approve the Cascade School District Integrated Pest Management Plan and review annually
3. Annually designate the Cascade School District Integrated Pest Management Coordinator
4. Monitor the district's implementation of the IPM by requesting periodic reviews from the superintendent.

C. Superintendent (or Designee) Responsibilities

1. Develop Integrated Pest Management Plan
2. Oversee the Integrated Pest management Plan with the IPM Coordinator

3. Review information prior to the declaration of a pest emergency
4. Annually receive written report from the IPM Coordinator and work with Coordinator to develop action plan for issues arising from pest management.

D. IPM Plan Coordinator Responsibilities

The Cascade School District designates Mike Boniface as the IPM Plan Coordinator who is given the authority for overall implementation and evaluation of this plan. The Coordinator is responsible for:

1. Attending not less than six hours of IPM training each year.
The training shall include at least a general review of IPM principles and the requirements of ORS 634.700 – 634.750.
2. Conducting outreach to the school community (custodians, maintenance, construction, grounds, faculty, and kitchen staff) about the school's IPM plan; The IPM Plan Coordinator (or designee) will provide training as outlined in Section VII below.
3. Overseeing pest prevention efforts;
The Coordinator will work with custodians, teachers, and maintenance to reduce clutter and food in the classrooms, and seal up pest entry points.
4. Assuring that the decision-making process for implementing IPM in the district (section IV) is followed;
The Coordinator will continually assess and improve the pest monitoring/reporting/action protocol.
5. Assuring that all notification, posting, and record-keeping requirements in section VIII are met when the decision to make a pesticide application is made;
6. Maintaining the approved pesticides list as per section IX; and
7. Responding to inquiries and complaints about noncompliance with the plan.
Responses to inquiries and complaints will be in writing and kept on record with the Coordinator.
8. Complete annual IPM report as per section VI.

E. Custodial Services Responsibilities

1. Attending annual IPM training provided by the IPM Plan Coordinator (or designee).

2. Develop a record keeping system with assigned clerical staff for all documentation related to integrated pest management.
3. Keeping records of pest complaints received via email in a log type format (work with clerical staff assigned this responsibility).
4. Placing and checking sticky insect monitoring traps in staff lounge, cafeteria, and kitchen as per the IPM Plan Coordinator's instructions.
5. Assuring floor under serving counters is kept free of food and drink debris.
6. Sealing up small cracks or holes when reported by teachers or noticed by custodian when this can be done in a short time (e.g. less than 15 minutes).
7. Recording his/her pest management actions in the pest logs (work with clerical staff assigned this responsibility).
8. Reporting pest problems that he/she cannot resolve in less than 15 minutes to the IPM Plan Coordinator via written notice with a cc to clerical staff responsible for IPM.
9. Reporting teachers to the building administrator who repeatedly refuse to reduce clutter and other pest-conducive conditions in their classrooms.
10. Reporting pest-conducive conditions to the IPM Plan Coordinator via written notice with a cc to clerical staff responsible for IPM if the custodian cannot fix them in less than 15 minutes.
11. Confiscating any unapproved pesticides (such as aerosol spray cans) discovered during inspections or regular duties and delivering them to the IPM Plan Coordinator.
12. Following up on issues found in annual inspection report as instructed by the IPM Plan Coordinator (IPM Plan Coordinator will determine which schools receive annual inspections based on pest and pesticide use history).

F. Clerical Responsibilities

Each building will designate one clerical staff member to be responsible for managing and developing a system all record keeping related to this plan for their school. This includes:

Developing a pest log and communicating any pest issues with the building engineer.

G. Maintenance Department Responsibilities

Staff involved in facilities maintenance are responsible for working with the IPM Plan

Coordinator to ensure their daily tasks, projects and operations enhance effective pest management. This includes:

1. Receiving training from the IPM Plan Coordinator (or designee of the Coordinator) on the basic principles of IPM, sealing pest entry points, and sanitation during construction projects.
2. Continually monitoring for pest conducive conditions during daily work, and sealing small holes and cracks when noticed (if they can be sealed in a short period of time – e.g. 15 minutes).
3. Working with the Coordinator to develop a protocol and priority list with deadlines for sealing holes, installing external door sweeps, and other pest exclusion needs which cannot be done in a short period of time (e.g. 15 minutes).
4. Developing protocols and provisions for pest avoidance and prevention during construction and renovation projects. The IPM Plan Coordinator has the authority to halt construction projects if these protocols and provisions are not being met.
5. Keeping vegetation (including tree branches and bushes) at least three feet from building surfaces.
6. Proper mulching in landscaped areas to reduce weeds.
7. Proper fertilization, over-seeding, mowing height, edging, drainage, aeration, and irrigation scheduling in turf areas to reduce weeds (see OSU turf management publications EC 1521, EC 1278, EC 1550, EC 1638-E, and PNW 299 - available free online at <http://extension.oregonstate.edu/catalog/>).
8. When the decision is made to apply a pesticide, following notification, posting, record-keeping and reporting protocols in Section VIII.

H. Kitchen Staff Responsibilities

Kitchen staff includes Cascade School District employees

1. Attending any annual IPM training provided by the IPM Plan Coordinator (or designee).
2. Assuring floor under serving counters is kept free of food and drink debris.
3. Promptly emptying and removing corrugated cardboard materials.
4. Keeping exterior kitchen doors closed.

5. Reporting pest conducive conditions that require maintenance (e.g., leaky faucets, dumpster too near building, build-up of floor grease requiring spray-washing, etc.) to building engineer and clerical staff responsible for documenting pest concerns.
6. Participating in any inspections conducted by custodian or IPM Plan Coordinator.
7. Checking sticky trap monitors once per month for cockroaches or drain flies. Immediately reporting these pests and any sightings of rodents or rodent droppings via email to the building engineer with a cc to the assigned clerical staff.

I. All Staff Responsibilities

All staff includes any staff without a specific identified function in the IPM Plan. This includes teachers, teaching assistants, clerical staff, etc.

1. Attending any annual basic IPM training provided by the IPM Plan Coordinator (or designee).
2. Keeping their classrooms and work areas free of clutter.
3. Making sure students clean up after themselves when food or drink is consumed in the classroom.
4. Reporting pests and pest conducive conditions to the building engineer via written notice with a cc to the assigned clerical staff.
5. Following first steps of protocol for ant management before notifying the custodian (clean up any food the ants are eating, kill visible ants, wipe down area where ants were with soapy water, notify custodian only if ants continue to be found after following these steps).

J. School Principal/Administrator Responsibilities

1. Scheduling time for teachers to receive annual training provided by the IPM Plan Coordinator (or designee).
2. Attending any annual IPM training for teachers.
3. Assign one clerical staff to be responsible for organization and documentation of all items related to the IPM.
4. Assuring that teachers keep their rooms clean and free of clutter in accordance with the IPM Plan Coordinator's instructions.

5. Assuring that all faculty, administrators, staff, adult students and parents receive the annual notice (provided by the IPM Plan Coordinator) of potential pesticide products that could be used on school property as per Section VIII.
6. Working with the IPM Plan Coordinator to make sure all notifications of pesticide applications reach all faculty, administrators, staff, adult students and parents.
7. Assuring that all staff fulfil their role as outlined in the district's IPM plan (reducing pest conducive conditions, participation in monitoring and pest log recording, attendance at IPM training(s), cooperation with the district's IPM Plan Coordinator).

IV. IPM DECISION-MAKING PROCESS - MONITORING REPORTING AND ACTION PROTOCOL

An important component of the Cascade School District integrated pest management plan is the ongoing monitoring for pests by all district staff.

A. Monitoring: Observation

All staff will provide ongoing monitoring for pests within our facilities. Any evidence of pests or pest conducive conditions will be reported via written notice to the building engineer with a cc to assigned clerical staff.

The IPM Plan Coordinator (or designee) and Custodians will periodically conduct careful observations with written observations. The IPM Plan Coordinator will develop a monitoring schedule for all district facilities.

The periodic monitoring will include careful observation and written observations.

1. Buildings

- Pest conducive conditions inside and outside the building (structural deterioration, holes that allow pests to enter, conditions that provide pest harborage)
- The level of sanitation inside and out (waste disposal procedures, level of cleanliness inside and out, conditions that supply food and water to pests)
- The amount of pest damage and the number and location of pest signs (rodent droppings, termite shelter tubes, cockroaches caught in sticky traps, etc.)
- Human behaviors that affect the pests (working conditions that make it impossible to close doors or screens, food preparation procedures that provide food for pests, etc.)

- Their own management activities (caulking/sealing, cleaning, setting out traps, treating pests, etc.) and their effects on the pest population.

2. Grounds

- The condition of the plants (vigor and appearance)
- The amount of plant damage
- pH, phosphorus, and potassium levels of turf
- Kind and abundance of pests (weeds, insects, mites, moles, etc.) as well as natural enemies (ladybugs, spiders, lacewing larvae, syrphid fly larvae, etc.)
- Weather conditions (record any unusually dry, hot, wet, or cold weather in the past few weeks)
- Proper drainage
- Human behaviors that affect the plants or pests (foot traffic that compacts the soil, physical damage to plants caused by people, insistence on having certain plants grow in inappropriate situations, etc.)
- Management activities (pruning, fertilizing, mulching, aeration, treating pests, etc.) and their effects on the plants and the pest population.

B. Monitoring: Sticky traps for insects

Sticky traps are neither a substitute for pesticides nor an alternative for reducing pest populations, but rather a diagnostic tool to aid in identifying a pest's presence, their reproductive stage, the likely direction pests are coming from, and the number of pests.

All staff will be made aware of the traps and their purpose so they don't disturb them. Custodians will be responsible for setting them out and checking them once per month (approximately 10 minutes), and replacing them once every four months (approximately 30 minutes). Kitchen staff will be responsible for checking those in the kitchen primarily for cockroaches and drain flies once per week (approximately 4 minutes).

After receiving training in the use of pest monitoring sticky traps by the IPM Plan Coordinator (or designee), custodial staff will be responsible for checking traps placed in pre-determined "pest-vulnerable areas" in the staff room, kitchen, and cafeteria (other areas that are often pest-vulnerable are: special education or kindergarten classrooms, home economics/life skills classrooms, concession stands, classrooms with animals/plants, custodial closets/storage) on a monthly basis, and replacing them every four months. If custodial staff cannot interpret what they find in the monitors they will

contact the IPM Plan Coordinator for assistance.

C. Reporting (pests, signs of pests, and conducive conditions)

When staff observe pests or pest conducive conditions they will provide written notice to the building engineer with a cc to the assigned clerical staff. The building engineer and assigned clerical staff will keep a record of all pest reports.

D. Reporting “Pests of Concern”

“A pest of concern” is a pest determined to be a public health risk or a significant nuisance pest. These include cockroaches (disease vectors, asthma triggers), mice & rats (disease vectors, asthma triggers), yellow jackets (sting can cause anaphylactic shock), cornered nutria, raccoons, cats, dogs, opossums, skunks (they can bite), and bed bugs (significant nuisance pest).

When pests of concern (or their droppings, nests, etc.) are observed, staff should immediately notify the building engineer. The building engineer will contact the IPM Coordinator immediately.

E. Action

Any items (such as sealing up holes) that maintenance/construction staff or custodial staff observe (or see on Pest Logs) that they can resolve in less than 15 minutes should be taken care of and this follow up action should be noted in the Pest Log.

The building engineer and assigned clerical staff will review Pest Logs weekly and any items he/she cannot resolve in less than 15 minutes should be marked in order of priority.

Pest Logs will be sent to the IPM Plan Coordinator monthly. However, if there are pest concerns, the building lead custodian will contact the IPM coordinator as soon as possible via written notice. Any pest issues requiring district action will be documented on the district maintenance list and discussed for completion at the bi-monthly maintenance meetings.

The Coordinator will keep records of time and money spent to manage the pest, including copies of original receipts.

The appendices to this plan provide threshold levels for specific pests and the district response for each pest.

F. Acceptable Thresholds (pest population density levels)

A threshold is the number of pests that can be tolerated before taking action. The acceptable threshold for cockroaches, mice, rats, raccoons, cats, dogs, opossums, skunks, and nutria is 0.

Acceptable thresholds for other pests will be determined by the IPM Plan Coordinator

and the governing body.

G. Inspections

1. Routine Inspections

The IPM Plan Coordinator will conduct routine inspections of different schools throughout the year (schedule and schools to be determined by the governing body and the Coordinator). Site custodians are required to accompany the Coordinator during the inspections. The inspections will typically last one to two hours and will focus on compliance with this plan and an inspection of the kitchen, staff room, and any other place of concern. After each routine inspection the Coordinator will write a one-page report on findings and recommendations. The report will be submitted to the school principal and custodian.

2. Annual Inspections

The IPM Plan Coordinator will conduct annual inspections at individual schools. Site custodians are required to assist the Coordinator with the annual inspection. The annual inspections will be more thorough than the routine inspections, and will use the Annual IPM Inspection Form (see Appendix 2) to guide the inspections. The specific schools to be inspected will be determined by the IPM Plan Coordinator and governing body based on a review of the annual number of pest problems and pesticide applications reported in the Annual IPM Report and Annual Report of Pesticide Applications.

V. Pest Emergencies (see also Section VIII. B. below)

Pesticide use may be permitted in the event of a pest emergency. The IPM Coordinator may declare a pest emergency after consultation with the Superintendent or designee determines that the presence of a pest or pests immediately threatens the health or safety of students, staff, faculty members or members of the public using the campus, or the structural integrity of campus facilities, he or she may declare a pest emergency. Examples include (but are not limited to) yellow jackets swarming in areas frequented by children, a nutria in an area frequented by children, a half a dozen mice or rats running through occupied areas of a school building.

IMPORTANT: If a pest emergency is declared, the area must be evacuated and cordoned off before taking any other steps.

VI. Annual IPM Report (completed by IPM Plan Coordinator)

In January of each year, the IPM Plan Coordinator will provide the governing body and the OSU School IPM Program Coordinator an annual IPM report. The report will include a summary of data gathered from Pest Logs, as well as costs for PMPs and pesticides (including turf and landscape pesticides). Costs for items such as sealants, fixing screens, door sweeps and other items that would not normally be considered part of pest control will not be recorded. See Appendix 9 for a template for the annual IPM report.

Prevention and management steps taken that proved to be ineffective and led to the decision

to make a pesticide application will be copied and pasted or incorporated into the annual report of pesticide applications (see section VIII. D)

VII. REQUIRED TRAINING/EDUCATION

ORS 634.720 (2) requires that the IPM Plan Coordinator “shall complete not less than six hours of training each year. The training shall include at least a general review of IPM principles and the requirements of ORS 634.700 to 634.750.

As required in ORS 634.700 (3) (i) all staff will receive education on the principals of IPM and sanitation, monitoring and inspection of pest control measures. After the initial training, the district will train all new staff with the same training. Basic training on the principals of IPM and the main points of this IPM Plan will also be provided to coaches who use athletic fields and will include an overview of basic monitoring and IPM practices for turf so they understand key pest problems to look out for and when to report them.

Each year the IPM Coordinator will determine based on pest concerns and documentation any need for annual or additional training of district staff. The need for training will be based on the job functions for each employee group and will be tailored to the IPM requirements for the individual employee groups.

VIII. PESTICIDE APPLICATIONS: REQUIRED NOTIFICATION, POSTING, RECORD KEEPING, AND REPORTING

Any pesticide application (this includes weed control products, ant baits, and all professional and over-the-counter products) on school property must be made by a licensed commercial or public pesticide applicator. At the beginning of each school year, all faculty, administrators, staff, adult students and parents will be given a list of potential pesticide products that could be used in the event that other pest management measures are ineffective. They will also be informed of the procedures for notification and posting of individual applications, including those for pest emergencies. This information will be provided to all the above via e-mail as well as hard copy to adult students and parents.

A. Notification and Posting for Non-emergencies

When prevention or management of pests through other measures proves to be ineffective, the use of a low-risk pesticide is permissible. Documentation of these measures is a pre-requisite to the approval of any application of a low-risk pesticide. This documentation will remain on file with the IPM Plan Coordinator and at the office of the head custodian where the application takes place.

No non-emergency pesticide applications may occur in or around a school until after 3:30 PM on a Friday while school is in session, unless the IPM Plan Coordinator authorizes an exception. If the labeling of a pesticide product specifies a reentry time, a pesticide may not be applied to an area of campus where the school expects students to be present before expiration of that reentry time. If the labeling does not specify a reentry time, a pesticide may not be applied to an area of a campus where the school

expects students to be present before expiration of a reentry time that the IPM Plan Coordinator determines to be appropriate based on the times at which students would normally be expected to be in the area, area ventilation and whether the area will be cleaned before students are present.

The IPM Plan Coordinator (or a designee of the Coordinator) will give written notice of a proposed pesticide application (via the method most likely to reach the intended recipients) at least 24 hours before the application occurs.

The notice must identify the name, trademark or type of pesticide product, the EPA registration number of the product, the expected area of the application, the expected date of application and the reason for the application.

The IPM Plan Coordinator (or a designee of the Coordinator) shall place warning signs around pesticide application areas beginning no later than 24 hours before the application occurs and ending no earlier than 72 hours after the application occurs.

A warning sign must bear the words "Warning: pesticide-treated area", and give the expected or actual date and time for the application, the expected or actual reentry time, and provide the telephone number of a contact person (the person who is to make the application and/or the IPM Plan Coordinator).

B. Notification and Posting for Emergencies

1. The IPM Plan Coordinator may not declare the existence of a pest emergency until after consultation with school faculty and administration.
2. If a pesticide is applied at a campus due to a pest emergency, the Plan Coordinator shall review the IPM plan to determine whether modification of the plan might prevent future pest emergencies, and provide a written report of such to superintendent or designee.
3. The Superintendent or designee shall review and take formal action on any recommendations in the report.
4. The declaration of the existence of a pest emergency is the only time a non low-impact pesticide may be applied.
5. If a pest emergency is declared, the area must be evacuated and cordoned off before taking any other steps.
6. If a pest emergency makes it impracticable to give a pesticide application notice no later than 24 hours before the pesticide application occurs, the IPM Plan Coordinator shall send the notice no later than 24 hours after the application occurs.

7. The IPM Plan Coordinator or designee shall place notification signs around the area as soon as practicable but no later than at the time the application occurs.
8. Note: ORS 634.700 also allows the application of a non-low-impact pesticide “by, or at the direction or order of, a public health official”. If this occurs, every effort must be made to comply with notification and posting requirements above.

C. Record Keeping of Pesticide Applications

The IPM Plan Coordinator or designee shall keep a copy of the following pesticide product information on file at the head custodian’s office at the school where the application occurred, and at the office of the IPM Plan Coordinator:

1. A copy of the label
2. A copy of the MSDS
3. The brand name and USEPA registration number of the product
4. The approximate amount and concentration of product applied
5. The location of the application
6. The pest condition that prompted the application
7. The type of application and whether the application proved effective
8. The pesticide applicator’s license numbers and pesticide trainee or certificate numbers of the person applying the pesticide
9. The name(s) of the person(s) applying the pesticide
10. The dates on which notices of the application were given
11. The dates and times for the placement and removal of warning signs
12. Copies of all required notices given, including the dates the IPM Plan Coordinator gave the notices

The above records must be kept on file at the head custodian’s office at the school where the application occurred, and at the office of the IPM Plan Coordinator, for at least four years following the application date.

D. Annual Report of Pesticide Applications

In July of each year, the IPM Plan Coordinator will provide the Superintendent or designee and the OSU School IPM Program Coordinator an annual report of all pesticide applications made the previous year. The report will contain the following for each application:

1. The brand name and USEPA registration number of the product applied
2. The approximate amount and concentration of product applied
3. The location of the application
4. The prevention or management steps taken that proved to be ineffective and led to the decision to make a pesticide application
5. The type of application and whether the application proved effective

IX. APPROVED LIST OF LOW-IMPACT PESTICIDES

Note: All pesticides used must be used in strict accordance with label instructions.

According to ORS 634.705 (5), the governing body of a school district shall adopt a list of low-impact pesticides for use with their integrated pest management plan. The governing body may include any product on the list except products that:

- (a) Contain a pesticide product or active ingredient that has the signal words “warning” or “danger” on the label;
- (b) Contain a pesticide product classified as a human carcinogen or probable human carcinogen under the United States Environmental Protection Agency 1986 Guidelines for Carcinogen Risk Assessment; or
- (c) Contain a pesticide product classified as carcinogenic to humans or likely to be carcinogenic to humans under the United States Environmental Protection Agency 2003 Draft Final Guidelines for Carcinogen Risk Assessment.

As a part of pesticide registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) and re-registration required by the Food Quality Protection Act (FQPA), EPA Office of Pesticide Programs (OPP) classifies pesticide active ingredients (a.i.) with regards to their potential to cause cancer in humans. Depending on when a pesticide active ingredient was last evaluated the classification system used may differ as described above.

The National Pesticide Information Center (<http://npic.orst.edu/>) can be contacted at 1.800.858.7378 or npic@ace.orst.edu for assistance in determining a pesticide i.e. cancer classification.

The most current list of approved low-impact pesticides is available on our website at www.cascade.k12.or.us

APPENDIX 14: WHAT IS INTEGRATED PEST MANAGEMENT

WHAT IS AN INTEGRATED PEST MANAGEMENT PLAN?

ORS 634.700 defines an IPM plan as a proactive strategy that:

(A) Focuses on the long-term prevention or suppression of pest problems through economically sound measures that:

- a) Protect the health and safety of students, staff and faculty;
- b) Protect the integrity of campus buildings and grounds;
- c) Maintain a productive learning environment; and
- d) Protect local ecosystem health;

(B) Focuses on the prevention of pest problems by working to reduce or eliminate conditions of property construction, operation and maintenance that promote or allow for the establishment, feeding, breeding and proliferation of pest populations or other conditions that are conducive to pests or that create harborage for pests;

(C) Incorporates the use of sanitation, structural remediation or habitat manipulation or of mechanical, biological and chemical pest control measures that present a reduced risk or have a low impact and, for the purpose of mitigating a declared pest emergency, the application of pesticides that are not low-impact pesticides;

(D) Includes regular monitoring and inspections to detect pests, pest damage and unsanctioned pesticide usage;

(E) Evaluates the need for pest control by identifying acceptable pest population density levels;

(F) Monitors and evaluates the effectiveness of pest control measures;

(G) Excludes the application of pesticides on a routine schedule for purely preventive purposes, other than applications of pesticides designed to attract or be consumed by pests;

(H) Excludes the application of pesticides for purely aesthetic purposes;

(I) Includes school staff education about sanitation, monitoring and inspection and about pest control measures;

(J) Gives preference to the use of nonchemical pest control measures;

(K) Allows the use of low-impact pesticides if nonchemical pest control measures are

ineffective; and

(L) Allows the application of a pesticide that is not a low-impact pesticide only to mitigate a declared pest emergency or if the application is by, or at the direction or order of, a public health official.

Note: As mentioned above, ORS 634.700 allows for the routine application of pesticides designed to be consumed by pests. To avoid a proliferation of pests and/or unnecessary applications of pesticides, several steps must be taken before **any** “routine” applications are allowed:

- 1) Staff must be educated on sanitation, monitoring, and exclusion as the primary means to control the pest.
- 2) An acceptable pest population density level must be established.
- 3) The use of sanitation, structural remediation or habitat manipulation, or of mechanical or biological control methods must be incorporated into the management strategy of the pest.
- 4) Documentation that the above steps were ineffective.
- 5) The pesticide label must be read thoroughly to make sure the pesticide will be used in strict compliance with all label instructions.

Appendix 1a

Small Ants

Most small ants in Oregon are harmless. They do not transmit human disease and are thus called nuisance ants. Pavement Ants and Odorous House Ants are the two most common types of ants found in Oregon schools.

Nuisance ants may nest outdoors under objects, in soil, or within wall voids of structures. Pavement ants nest in soil under concrete walkways or foundations. Ants sometimes enter buildings in search of food or water, or during periods of heavy rain. Some sugar-feeding ants may move indoors in winter when their preferred food source (honeydew from aphids) is gone. Ants may also be more noticeable in spring or summer as colonies are dividing and establishing new nests.

Pavement Ant

The pavement ant gets its name from commonly locating its nest in or under cracks in pavement. It also nests under stones and at the edges of pavement. In winter it will nest in buildings in crevices adjacent to a heat source. Pavement ants tend aphids for their honeydew, and feed on seeds and insect remains. Indoors they may feed on sweets and greasy food.

Odorous House Ant

The odorous house ant gets its name from the pungent, rotten-coconut-like odor given off when it is crushed. It nests in a wide variety of places both outdoors and indoors. Odorous house ants tend aphids (as well as scale insects and mealybugs) for their honeydew, which they prefer, but they also feed on other insects. Indoors they may feed on sweets, protein foods, and greasy food. When odorous house ants are disturbed or threatened, they can break off from the main colony and form satellite colonies. This is called "budding". When odorous house ants disperse and form new colonies and nests in this way, one colony of ants can actually have multiple satellite colonies and multiple queens. Disturbances, such as spraying a pesticide on a group of odorous house ants, actually increases the number of ants because of budding.

When Nuisance Ants Come Inside

Total eradication of nuisance ants indoors is extremely difficult. The district's first response to any trail of ants is to clean surfaces with soapy water or a disinfectant. Fortunately, most ants will leave on their own if denied access to food and water. Additional control measures are warranted if ants are entering a school in large enough numbers to cause a disruption in the learning environment. The district will use mechanical methods (such as crack sealing) first, and may use low-impact pesticide baits only as a last resort.

If nuisance ants become a disruption at a school, staff should take the following steps:

- Ask the custodian to vacuum any food crumbs, clean up any garbage or spills, and to use soap and water to clean areas where ant trails are seen (unless the areas are small and staff can clean them quickly). This can prevent other ants from following the pheromone trails that ants leave to mark the way to food.
- Make sure that any other food or water sources are removed, placed in tightly sealed containers, cleaned, or repaired. Food and water sources can include human or pet food, recycling bins, leaking faucets, clogged drains, damp wood, etc. For repairs, ask your custodian to fill out a work request on line.
- If staff finds a place where an ant trail enters the room or building, they should mark it for later sealing by the custodian or the maintenance department. A temporary “seal” can be made with duct tape, if desired.

PROTOCOL FOR TREATING NUISANCE ANTS

A. When staff observe a small number of ants (e.g. under 10 ants) they must:

- 1st) Spend two minutes trying to find out where the ants are coming from
- 2nd) Kill the ants with a paper towel or similar
- 3rd) Remove any food or liquid the ants were eating
- 4th) Wipe down the area with soapy water or disinfectant to remove pheromone trails
- 5th) Jot down any action(s) they take in the Pest Log

B. If the ants come back or there are more than a small number (e.g. under 10 ants):

- 1st) Spend two minutes trying to find out where the ants are coming from
- 2nd) Jot down any action(s) they take in the Pest Log
- 3rd) Ask the custodian to come with vacuum and sealant as soon as he/she is able

C. The custodian will:

- 1st) Spend two minutes trying to find out where the ants are coming from
- 2nd) Vacuum up the ants and any food debris nearby (vacuum up a tablespoon of corn starch to kill most of the ants in the vacuum bag, then put the vacuum bag inside plastic garbage bag, seal it, and dispose of it properly)
- 3rd) Seal up the crack or hole where the ants were coming from (do what can be done in less than 15 minutes)
- 4th) Wipe down the area with soapy water or disinfectant to remove pheromone trails
- 5th) Jot down the above in the Pest Log

When to use baits:

To avoid a proliferation of small ants and/or unnecessary applications of pesticides, the routine use of ant baits is not permitted without first:

- 1) Educating staff on sanitation, monitoring, and exclusion as the primary means to control the ants.
- 2) Establishing an acceptable pest population density (e.g. 10 ants).
- 3) Improving sanitation (e.g. cleaning up crumbs and other food sources) and structural remediation (sealing up cracks or holes where the ants are coming from).
- 4) Following A, B, and C above.

If the use of a low-impact pesticide baits are deemed necessary, they will be placed in childproof containers, and used only in areas that are out of sight and reach of children/students. Small amounts of low-impact pesticide gels or pastes may also be placed in cracks and crevices or low-impact pesticide dusts may be sprayed into wall voids.

Staff must be informed that sanitation is important to ensure the effectiveness of any baits that are used. Ants are less likely to take a bait if there are more attractive food and water sources nearby.

ADDITIONAL EXCLUSION MEASURES

In addition to sealing up cracks and holes where the ants are coming from, custodial and/or maintenance staff should routinely seal up as many cracks and holes as time allows, especially those around:

- Baseboards
- Cupboards
- Electrical outlets
- Pipes
- Sinks
- Toilets

Outdoors, pipe and electrical chases should be sealed off.

Grounds staff should prune away any tree limbs or bushes (leaving about 24" of space) that are touching the building.

Appendix 1-g Grounds Pests - GOPHERS AND MOLES

TEXT IN RED IS GENERIC AND MUST BE CHANGED FOR INDIVIDUAL SCHOOLS OR DISTRICTS

MATRIX OF HIERARCHICAL STEPS TO MANAGING PESTS - Level 1 is the preferred first action, Level 2 is the preferred second action, Level 3 is the preferred last action.

This matrix is to be used in conjunction with **our School District** IPM Plan

This is a matrix that identifies a pest problem or issue and defines approved practices for proper control. The goal is the safest, least toxic, and cost-effective methods of control.

The IPM Plan Coordinator (or designee) must approve any additional strategies before they are used.

Site personnel must always consult **the Grounds Staff Lead** prior to taking action against pests on District property.

Uneven athletic turf is often caused by the burrowing of moles and gophers. This can result in injuries to users of these fields, and a general deterioration of the quality of the turf surfaces. Dogs, often allowed by their owners to run loose on district fields increase the hazards by digging into the burrows.

LEVEL 1: Action approved for school supervised volunteer or district staff					
ACTION	Threshold	DONE BY:		IPM RESPONSE	
		VOLUNTEER	STAFF	CODE	COMMENTS
SITE INSPECTION	Complaint	X	X	T	Area not actively used
REDUCE DEEP ROOTED WEEDS/PLANTS THROUGH CULTIVATION PRACTICES (Gophers only)	Complaint/work order/site inspection One fresh mound in playing field	X	X	P/E	Effective for gophers only: Top Dress, Irrigating, Fertilize, Re-seeding
LEVEL 2: Action approved for licensed applicator, (district staff or contractor)					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
TRAP	Complaint/work order/site inspection		X	P	Use in any weather No trapping when students are present without on-site monitoring. Trap location needs identification.
XXXXX RODENTICIDE	Complaint/work order/site inspection		X	P	Follow notification-posting-reporting requirements in IPM Plan Use in wet season - Early in morning before students arrive
LEVEL 3: District and Site approved action for licensed applicator (district staff or contractor) required					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
NO CURRENTLY APPROVED TREATMENT					

IPM (Integrated Pest Management) RESPONSE CODE REFERENCE

P - Prevention

E - Exclusion

S - Structural Modification

T - Tolerance

X = Person who may respond to action items listed

Appendix 1-g Grounds Pests - ATHLETIC FIELD WEEDS - IRRIGATED

(Appendix 1-f excerpted and modified from Eugene School District 4J Landscape Matrices)

Version 2.0 Last updated 9/26/2019
 Periodic updates available at www.ipmnet.org/tim

MATRIX OF HIERARCHICAL STEPS TO MANAGING PESTS - Level 1 is the preferred first action, Level 2 is the preferred second action, Level 3 is the preferred last action.

This matrix is to be used in conjunction with our Cascade School District IPM Plan

This is a matrix that identifies a pest problem or issue and defines approved practices for proper control.

The IPM Plan Coordinator (or designee) must approve any additional strategies before they are used.

Site personnel must always consult the IPM Plan Coordinator prior to taking action against pests on District property.

Although irrigation, top dressing, over seeding, fertilization, and aeration are the dominant variables in maintaining quality turf, there are instances in which fields are so infested with broadleaf plants that they are no longer usable for athletic events. The uneven playing surfaces caused by the mix of grass and broadleaf weeds, such as plantains, create significant variations in footing. Sometimes the fields are just difficult on which to play; sometimes they are unsafe for play. Besides the uneven playing surfaces the presence of a large number of weeds also improves the habitat for gophers, which prefer this vegetation for food, resulting in a very uneven surface for running with large mounds and deep holes. These render the field unplayable, and have resulted in a number of injuries to people who try to play on them. Facilities has embarked on a more aggressive gopher and mole control program. Eliminating their preferred food source (the roots of broadleaf vegetation) improves the effectiveness of this program. (See: Gophers & Moles matrix)

LEVEL 1: Action approved for school supervised volunteer or district staff					
ACTION	Threshold	DONE BY:		IPM RESPONSE	
		VOLUNTEER	STAFF	CODE	COMMENTS
SITE INSPECTION	Presence/Complaint	X	X	T	Small number of localized weeds
INSPECT & ADJUST IRRIGATION SYSTEM	Presence/Complaint	X	X	T/P	Adjustment by appropriate staff
HAND CULTIVATING	Complaint	X	X	P	Baseball diamonds
INCREASED MOWING	Complaint/work order/site inspection	X	X	P	Reduces seeds
OVER SEEDING	Complaint/work order/site inspection	X	X	P/S	Helps grass compete with weeds
FIELD RENOVATION/REPAIR IRRIGATION, TOP DRESSING, OVER SEEDING, FERTILIZATION, AERATION	Complaint/work order/site inspection	X	X	P/S	Could be routine maintenance if labor is available District specified fertilizer Compost maybe used as fertilizer if budgets allow
LEVEL 2: Action approved for licensed applicator, (district staff or contractor)					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
NO CURRENTLY APPROVED TREATMENT					
LEVEL 3: District and Site approved action for licensed applicator (district staff or contractor) required					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
NO CURRENTLY APPROVED TREATMENT					

IPM (Integrated Pest Management) RESPONSE CODE REFERENCE

P - Prevention E - Exclusion S - Structural Modification T - Tolerance X = Person who may respond to action items listed

Appendix 1-g Grounds Pests - POISON OAK

TEXT IN RED IS GENERIC AND MUST BE CHANGED FOR INDIVIDUAL SCHOOLS OR DISTRICTS

MATRIX OF HIERARCHICAL STEPS TO MANAGING PESTS - Level 1 is the preferred first action, Level 2 is the preferred second action, Level 3 is the preferred last action.

This matrix is to be used in conjunction with **our School District IPM Plan**

This is a matrix that identifies a pest problem or issue and defines approved practices for proper control.

The IPM Plan Coordinator (or designee) must approve any additional strategies before they are used.

Site personnel must always consult the Grounds Staff Lead prior to taking action against pests on District property.

Poison Oak can spread rapidly without proper detection. This native plant is problematic in that, when contacted by skin, the leaves release a substance called urushiol, in oil form, which causes severe contact dermatitis in most people. It may also have dangerous (to the point of life-threatening) systemic impact on a limited number of people. There is the obvious danger of severe allergic reaction to poison oak. A secondary problem can be just as dangerous: children (and adults) can scratch skin infected by the poison oak with finger nails that contain bacteria. There is a very real danger of life-threatening staph, strep, and other bacterial infections.

LEVEL 1: Action approved for school supervised volunteer or district staff					
ACTION	Threshold	DONE BY:		IPM RESPONSE	
		VOLUNTEER	STAFF	CODE	COMMENTS
SITE INSPECTION	Complaint	X	X	T	Inform site staff Instruct children: no play area Proximity to exposure
HAND/MACHINE REMOVAL/PRUNE DIG OUT	Complaint/work order/site inspection Localized patch 1' x 1'	X	X	p	Dig out preferred
LEVEL 2: Action approved for licensed applicator, (district staff or contractor)					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
ASPHALT	Complaint/work order/site inspection		X	E/S	Walkway through area
CONCRETE	Complaint/work order/site inspection		X	E/S	Under benches Fence lines
XXXX HERBICIDE	Complaint/work order/site inspection Localized patch 2' x 2'		X	P	Follow notification-posting-reporting requirements in IPM Plan Localized patch 2' x 2'
XXXXX HERBICIDE	Complaint/work order/site inspection Greater than 2' x 2'		X	P	Follow notification-posting-reporting requirements in IPM Plan
LEVEL 3: District and Site approved action for licensed applicator (district staff or contractor) required					
ACTION	Threshold	VOLUNTEER	STAFF	CODE	COMMENTS
XXXX EPA REGISTERED HERBICIDE	Complaint/work order/site inspection Greater than 2' x 2'		X	P	Follow Notification Guidelines Spray before leaves turn red

IPM (Integrated Pest Management) RESPONSE CODE REFERENCE

P - Prevention

E - Exclusion

S - Structural Modification

T - Tolerance

X = Person who may respond to action items listed

Appendix 1h

IPM of the House Mouse in Schools

After humans, the House Mouse (*Mus musculus*) is the second most successful mammal in the world. They breed rapidly, can consume a broad variety of food, require little or no water, and are able to adapt to a wide range of habitats. Unfortunately, they are disease vectors and the proteins found in their urine circulate in the air and can be asthma triggers for sensitized individuals. They are considered one of the most troublesome pests in the United States. The acceptable indoor threshold for the House Mouse is zero.

Poorly sealed school buildings are highly vulnerable to mouse invasion. Most rooms are maintained at favorable temperatures and often contain edible items. A mouse running along the outside edge of a building is drawn into the building by warm air and food odors coming from under doors and through holes in the wall.

Mice have good hearing, sense of smell, taste, and touch. They are excellent climbers and can run up vertical walls to get to food. They can move along wires, utility cables, or ropes, can jump vertically 12 inches, and survive an 8' fall. Adult mice can squeeze through openings slightly larger than 1/4 inch in diameter.

Once inside, mice often establish themselves inside food storage and prep areas, closets, cabinet bases, rooms with lots of clutter, or similar locations. They will also climb wall utility lines for electrical or plumbing, and nest within suspended ceiling spaces.

Portable-style classroom buildings are extremely vulnerable to a mouse invasion as portables provide attractive crawl spaces providing access to dark, dirt floors, cool in summer; warm in winter, and protection from predators. Once the mice have gained entry to the crawl space, they find their way up through the floor along crevices or gaps created by plumbing or other utility lines following their nose towards food odors or warm/cool air currents. Portables also contain gaps and openings directly into the portables through any broken vent louvers, screens etc.

Excluding mice from buildings

In order to reduce the threat of rodent borne diseases, mouse allergens, and other possible health threats from mice, it is important to make every reasonable effort to prevent mice from becoming established inside buildings.

Inspect for access points and seal them up

1. Any gaps of 1/4 inch or more should be properly sealed using the appropriate sealant (steel wool, foam and other temporary materials are not recommended). Seal off using good materials (i.e., not steel wool nor expandable foam). We recommend silicone and acrylic urethane products because they stretch as gaps and cracks in buildings expand and contract due temperature changes and other factors. Larger holes and cracks can be stuffed with XCLUDER cloth or STUF-FIT copper mesh, then sealed up with a silicone or acrylic urethane product.

2. Seal around water, gas, electric, and other pipes and conduits going through walls.
5. All external doors should be mouse proofed using the high quality brush-type door sweeps that seal the gap between the threshold and the door base.
6. All ventilation screens, louvers used in attic spaces, furnace closets, and so forth, should be kept in good repair. All gaps around the frames of screens and louvers should also be kept tightly sealed.
7. It is not realistic to attempt to mouse proof the crawl space skirt around portable classrooms. However, it makes sense to keep the skirting as tight as possible and in good contact with the ground to deny entry to other mammal pests such as raccoons, feral cats, skunks, rats, and other mammal pests.

Don't Attract the Mice

No trash should be allowed to accumulate along the exterior walls. If food trash is allowed to remain, this condition will attract mice to the building perimeter.

Do not place trash receptacles close to exterior doorways.

Keep dumpsters clean, with lids closed. Drainage holes can be screened or plugged.

Don't Harbor Mice

De-clutter storage areas and classrooms! It is best to use plastic (transparent) totes for storage. If cardboard boxes have not been opened in 2 years, the box and contents may be contaminated with urine and feces. Recycle, or Chuck-it-Out. Consider a principal-mandated 15 minute clear-out session a few times each year. Consider Clutter Bug Awards for the worst offenders, or Clutter Free Awards for the best examples.

Mouse Vulnerable Areas (MVAs)

Once inside, mice most commonly nest and/or forage about in mouse vulnerable areas:

- 1) Kitchen, pantry, food preparation areas, and food consumption areas (including classrooms and teachers lounge).
- 2) The crawl space beneath portable classrooms. Invading mice will often construct platform nests up on the various structural ledges made up of grasses, leaves, feathers, or the building's batting insulation. The mice will also carry in and store relatively large amounts of seeds, nuts, and insect carcasses in any available floor and wall nooks.
- 3) Furnace closets (especially if the closet's ventilation louver is not in good repair).
- 4) Beneath kitchenette and bath cabinets where utility lines come up through the floor.
- 5) Within the suspended ceilings during the cold weather months.
- 6) Stuffed chairs and couches in staff lounges.

These MVAs are the target zones for setting out mousetraps.

Eliminating Established Mice with Snap Traps

Snap trapping results in the fastest elimination of mice, however trapping is useless in a cluttered environment. **You have to de-clutter if you want to de-mouse.**

Mice typically do not venture more than 30 feet from their nest (unless food is sparse).

Traps are very effective for mice. They take advantage of their curiosity. Mice will be trapped easily the first night, but then they will be trap shy. Set many traps the first night (six per mouse, at least three feet apart); clear them in the morning, and remove. Set them again a week later, in slightly different locations. This technique will overcome trap-shyness. Dead mice and their fecal pellets should be handled as described in the "Safety Precautions" section at the end of this document.

Plastic style snap traps (e.g., the Kness Snap-E, J.T. Eaton JAWZ, Bell Trapper Mini Rex, Woodstream Quick Kill, etc.) are more durable, and can be cleaned with disinfectants more easily. The disposable wooden-based traps are an option when a disposable trap is required.

Traps can be baited with small smudges of peanut butter or a few drops of vanilla, orange, or any other extract oils. Despite common myths, there is no one "favorite" bait for mice. They are opportunists, and will sample most food odors they bump into. Mice also forage for nesting materials as well as food, so cotton balls may be used with traps. Mice mainly travel along walls. Place traps up against walls with the snap end facing the wall.

Inspecting and Monitoring for Mice

When carrying out inspections, look for fecal pellets in mouse vulnerable areas. Also look at cardboard boxes, stuffed furniture, and similar items for signs of gnawing.

In areas with past mice problems or potential mice problems, bait stations with non-toxic detection blocks (e.g. DETEX BLOX) may be used to monitor activity. Block baits should be replenished on an 8-12 week basis, or as necessary due to consumption, or spoilage of the blocks.

It must be stressed that even when using non-toxic detection blocks, they should be put inside tamper-resistant bait stations that are designed so the blocks will not fall out should the stations be picked up and shaken.

Possible locations for the stations include:

Within the furnace closet, in the back area of the closet, preferably behind the furnace; 2) beneath any kitchenette sink; 3) beneath any bath cabinet; 4) in the suspended ceiling, positioned directly above the kitchenette, bath, and nearby the furnace closet.

To monitor for mice under portables, put one or two tamper-resistant bait stations along the middle of the side of the skirts underneath the portable. To accomplish this, each portable must have an access door that is easily opened, and closes tightly.

Exterior storage sheds (bike sheds, dumpster sheds, equipment sheds, etc.) should also be monitored for mice. This can be accomplished by installing two bait stations; one on each side of the shed. The baits should be replenished on an 8-12 week basis, or as necessary as mentioned above.

Safety Precautions for Handling and Removing Rodent Carcasses and Feces from Schools and Other Public Buildings*

Despite good efforts, some mice inevitably gain entrance to schools and other public buildings. Most mice and the accompanying excrement are not considered to be highly hazardous to our health. Still, it makes sense to err on the side of caution, and practice good safety measures when handling dead rodents in traps, and/or cleaning up rodent excreta.

Precautions When Handling Dead Rodents

- 1) Wear rubber or plastic gloves (disposable gloves are usually purchased in boxes of 100 by pest management professionals, and building custodians).
- 2) Spray the dead mouse and any trap with disinfectant until wet.
- 3) Any inexpensive household disinfectant will suffice as will a weak (5-10%) solution of bleach and water.
- 4) Turn a ziplock bag inside out.
- 5) With a hand inside the bag, pick up the rodent and the trap.
- 6) Invert the bag over your hand and seal the bag.
- 7) Wrap the bag in a newspaper and dispose in a dumpster or garbage can.
- 8) Spray the area where the trap or the dead mouse was lying with a light spray of disinfectant and let dry.
- 9) Dispose of the gloves in the trash, or for re-useable gloves, spray the outside of the gloves with disinfectant, then remove the gloves and wash hands with soap and water.

Precautions When Cleaning up Small Amounts of Rodent Droppings

- 1) Feces should not be swept up, or vacuumed because this can cause the excrement residues to become airborne and be inhaled.
- 2) Wear rubber or plastic gloves (disposable gloves are usually purchased in boxes of 100 by pest professionals, and building custodians).
- 3) Spray the droppings and affected area with disinfectant until wet.
- 4) Use a wet paper towel to pick up the disinfected droppings.
- 5) Place the droppings and paper towel into a ziplock bag and seal the bag.
- 6) Dispose the bag in a dumpster or garbage can.
- 7) Dispose of the gloves in the trash, or for re-useable gloves, spray the outside of the gloves with disinfectant, then remove the gloves and wash hands with soap and water.

Note:

1. For employees wishing to maximize personal protection, and/or when removing rodent feces in enclosed spaces, and where a large amount of rodent feces are present, coveralls, and a respirator with a HEPA (NP 100 to NP 400) filter should be worn.

* Adapted from:

- 1) CDC Hantavirus preventative Recommendations (www.CDC.gov.)
- 2) Army Pest Management Bulletin, 2001. Vol. 22 (4)
- 3) Communications from Bobby Corrigan, Ph.D. RMC Pest Management Consulting.

Appendix 1j IPM for Yellowjackets and Paper Wasps



There are two types of common stinging wasps in Oregon school environments: paper wasps (*Polistes* spp and *Mischocyttarus flavitarsis*) and yellowjackets (*Vespula* spp. and *Dolichovespula* spp). These wasps often nest in, on, and near school structures, as well as on playgrounds and sports fields. They are also able to sting multiple times (unlike honeybees), making paper wasps and yellowjackets a significant pest for many school districts.

Colonies of both paper wasps and yellowjackets begin with a single queen each spring. The queen overwinters in various natural and man-made protected habitats. She emerges in early to mid-spring; the timing varies interannually based on weather conditions and therefore may occur as early as March in some years. Upon emerging, the queen selects a nest site, begins construction, and lays the first generation of eggs. Once the first generation of workers reaches maturity, they assume various roles including foraging, nest construction and maintenance, defense, and tending the young. The queen is then able to focus more of her energy on egg-laying and colony growth from that point on.

Paper wasp and yellowjacket colonies continue to grow in nest size and number of individuals throughout the summer, reaching a maximum nest size in August-September; however, some yellowjacket species may persist into November. In late summer colonies begin to produce a limited number of male wasps to fertilize new queens. As cooler fall weather sets in, workers and males die leaving only the inseminated queen to overwinter and begin the cycle anew the following spring.

Nests are not reused in Oregon by either paper wasps or yellowjackets. Paper wasps exhibit a high fidelity to specific nest sites, and are known to construct new nests in the same location each year. In some cases, if the old nest is still present, paper wasps may attach a new nest onto the previous year's nest.

Beyond these basic life history features, paper wasps and yellowjackets differ significantly in their biology, temperament, and particularly their management. Therefore, identification to determine which wasp type you have is a critical first step when assessing a wasp issue. [Note: bees are not wasps, and care should be taken with identification for this reason as well. Many species of bees are critical pollinators of both urban and agricultural environments.]

Characteristics of yellowjackets and paper wasps		
	Yellowjackets	Paper wasps
		
Appearance	Workers are ½" long; stocky body, black and yellow or black and white; anterior portion of thorax at right angle	Workers are ¾" long; thin body, long legs trail in flight; anterior portion of thorax tapers backward
Basic life cycle (inseminated queen overwinters, emerges following spring, begins new nest and colony)	same	same
Nest type	Encased in paper envelope, with multiple tiers of comb	Exposed, single comb attached to a surface by a thin, short stalk
Nest location	Variable – most likely to notice and have problems with ground nests, but may be in buildings, or enclosed spaces	Highly variable – under protected eaves, in pipes, handrails, playground equipment, utility boxes, etc.
Behavior	Aggressive, likely to sting in proximity of nest	Less aggressive, less likely to sting unless provoked

Paper wasps

While paper wasps are generally regarded as less aggressive than yellowjackets, their habit of nesting in the eaves outside of school entrances, playground equipment, inside utility boxes, etc., gives them a high level of visibility. Paper wasps have a slender body ½-¾" long. Their legs trail in flight, giving them a floaty-flier appearance that helps to differentiate them from yellowjackets and bees. The paper wasp nest is a single-layer comb that lacks a paper envelope surrounding it and is therefore completely exposed.

The nest faces downward and is attached to a surface via a slender stalk. Nest location may vary in height from head-level to more than two stories. Nest size is typically 100 cells (the European paper wasp) to 200 cells (native paper wasps), but may reach up to 400 cells in size. In ideal conditions, paper wasps may take as little as 40 days to develop from an egg to adult. Paper wasp females can and will sting if provoked (e.g., as when wasps become trapped between clothing and skin, if nest destruction is attempted, etc.).

There are several species of paper wasps in Oregon that may be found in school environments. The European paper wasp, *Polistes dominula*, was introduced to the United States east coast in the 1970's, and since spread to most areas of the West by the early 2000's. The European paper is wasp is slightly smaller than other paper wasps. It is also synanthropic (associates strongly with human environments) and as such often nests in protected spaces in and on man-made structures such as areas under eaves, in and around playground equipment, bird houses, utility boxes, pipes, handrails, etc. Nesting in these types of habitats is not exclusive to the European paper wasp, but this wasp is more consistent at nesting in and around human structures and equipment than Oregon's native paper wasps.

Other species of paper wasp that may be found in school environments in Oregon include *Polistes fuscatus*, the golden paper wasp, which has narrow yellow bands and may appear overall more dark. *Mischocyttarus flavitarsis* has a long, narrow petiole (or "waist") that clearly distinguishes it from yellowjackets and other types of paper wasps. *M. flavitarsis* is more variable in its selection of nest sites. Nests located in natural habitats are commonly positioned in tight places such as cracks in rocks or the underside of rocks, boards, logs, etc. In urban environments, *M. flavitarsis* nests may be more hidden than other paper wasps'.

Paper wasps do not exhibit a preference for human foods, and are not the pic-nic-crashers that yellowjackets are so well known for being. Adult paper wasps frequent flowers to feed on nectar. Adults are considered a beneficial insect for their role in biological control of soft-bodied insects (including several species of caterpillar pests, aphids, etc.) and spiders, all of which they grind up and feed to the developing wasp larvae (Cranshaw -- CO state, 04/08). They have also been known to scavenge for dead insects and spiders for the young as well.

Yellowjackets

Yellowjackets are stocky in appearance with a ½" long body length. They have a sleek look and are fast fliers. Yellowjackets may initially appear similar to bees, but

yellowjackets lack the fuzzy (hairy) appearance of bees, and also do not forage for nectar on flowers.

In Oregon school environments, yellowjackets include aerial (e.g., tree) nesters (*Dolichovespula* spp.) and those that most often nest in the ground, structures, or cavities (*Vespula* spp.). The two aerial, or tree-nesting, *Dolichovespula* typically seen include *D. maculata* – a black and white wasp also known as the “bald-faced hornet” – and *D. arenaria* – a yellow and black wasp that typically nests in trees.

Ground nesting (*Vespula* spp.) yellowjackets comprise the great majority of yellowjackets responsible for stinging incidents and management concerns in Oregon school environments. Perhaps the most commonly encountered ground-nester in Oregon is the Western yellowjacket, *Vespula pensylvanica*, which is native to western North America. The common yellow jacket, *Vespula vulgaris*, is also native, and in spite of its name it is less commonly encountered in urban environments. The common yellowjacket prefers to nest in the ground or logs, and is more typical of forested areas. The German yellowjacket, *Vespula germanica*, was introduced to the East coast of North America in the mid-1800’s and arrived in Oregon in the mid-1990’s. Its occurrence seems to be correlated with areas of high urban population along the I-5 corridor as well as areas along the Oregon coast. While a ground-nester, the German yellowjacket also shows a preference for nesting in structures between walls, in attics or other cavities, abandoned cars, etc. German yellowjackets are behaviorally different from our native yellowjackets; they tend to be less responsive to mowing activities, wall-pounding (for wall void or attic nesters), and other forms of disturbance.

Queens select ground nests by searching for indentations in the soil, which may occur from old mammal burrows. She, and later the workers, will additionally excavate the space to make room for the growing nest. At their peak size, bald-faced hornet nests may reach several hundred individuals, and ground-nesting (or cavity-nesting) yellowjackets may reach several thousand individuals. Unfortunately, by the time cavity and ground nests become noticeable, they are quite large and more likely to sting in defense of their nest. Nests reach peak size in late summer to early fall, and colonies tend to persist longer than paper wasps. German yellowjackets, for example, reach a peak colony size in October to early November.

Yellowjackets are aggressive in their foraging habits and are known for their eager invasion of outdoor lunch areas. They are particularly fond of fish (including sandwiches) and sweet beverages (fruit and soda). Yellowjackets will readily land on food as it is being eaten, and often crawl inside pop or juice cans to drink. They may also land on human skin to consume the salt in our perspiration. While this foraging behavior often leads to close encounters between yellowjackets and students or staff, these wasps sting less readily when foraging and away from the nest (unless swatted at

or otherwise threatened). They have been documented to forage up to 165 feet from their nest and unfortunately have demonstrated a keen memory for food sources. After just one successful feeding from a student lunch or open garbage can, they may return repeatedly – even after the food source has been removed.

Wasp Management

Following identification to determine whether it is a paper wasp or yellowjacket, the threshold for the wasp should be considered. Thresholds define at what point action is taken to manage a pest. Each pest should have a threshold associated with it that is based on their ability to proliferate, cause harm to humans or the environment, damage resources/structures, and the likelihood of them coming into contact with students or staff. Thresholds may also take into consideration the values and tolerance levels of your school district, or even the individual school site.

1. Thresholds

There are numerous situational factors that may also affect thresholds and whether or not action should be taken (and what type of action that should be). Among these factors are weather and the time of year. In late summer or early fall, for example, the approaching cold weather will reduce or eliminate wasp activity for the year, so a wasp nest located in a low-traffic area of the school could be “waited out” in some cases.

Consider the following when crafting your thresholds for paper wasps and yellowjackets:

- a. Type of wasp (e.g., the level of aggression likely to be exhibited if staff or students come into contact it)
- b. A nest versus foraging wasps. For each wasp type, it may make sense for your district to establish thresholds for foraging wasps, and another set of thresholds for the nest.
- c. type of nest and its location on the school property (e.g., in a tree, in the ground, or in a swing set, etc.) and its likelihood to be encountered
- d. time of year and near-term seasonal weather
- e. The level of wasp knowledge of students and staff, and their ability to cooperate with instructions to avoid being stung. Note: when educating staff, students, and parents about your district’s thresholds, it is important to include information about the biology of the wasp to support your choice of action. Education is often instrumental in reducing concern.

When responding to a paper wasp or yellowjacket complaint, it is therefore critical to begin by assessing the situation *in person*, knowing which wasp type you have, whether it includes foragers or a nest, etc., etc., and from there deciding whether any thresholds are being reached.

2. Preventative Maintenance

- a. Brush up, know your pest. As a facilities or maintenance personnel, learning about your pest is the single most valuable thing you can do to manage it effectively.
- b. Inspect. Regular inspections consist of walking around your structures and looking for nests tucked under eaves, in/on playground equipment, inside utility boxes, etc. Early detection and removal is less likely to result in stings of students, staff, and those removing the nest.
- c. Rodent management: collapse rodent burrows once/year – particularly in areas where there is regular rodent burrow activity and human foot traffic. This is best done December – February to avoid stirring up ground-nesting yellowjackets.

3. Chemical-free methods

Chemical-free methods are most effectively employed at night or near-dawn, when most wasps are in the nest and activity is at its lowest. Any action taken against a nest will incite some degree of response from the wasps that may take many hours to subside – particularly later in the season when nests are larger, and particularly in the case of yellowjackets. Therefore, any action against a nest should take place outside of regular school hours when students are not expected to return for at least several hours.

- a. Paper wasp nests that are less than 10' off the ground can simply be knocked down with a long-handled tool (e.g., a rake or shovel). Caution: you will need to do this when students are not present. If you do not have a bee suit, be prepared to move away quickly after agitating the nest. If you are unsuccessful, let the nest calm down and approach it at a later date.
- b. Vacuuming is commonly used for ground-nesting yellowjacket nests. A vacuum hose may be placed near the nest entrance. Careful observation of nest response may convey the size of the nest and therefore how long it may take (2-3 hours). Yellowjackets may begin to ignore the vacuum, so it may be effective to turn the vacuum off for 20 minutes after the first hour, then resume vacuuming. A bee suit is strongly recommended.

- c. Soapy water poured down a nest hole, or sprayed/hosed onto a paper wasp nest. Water alone will simply bead up on the exterior of their waxy cuticle, but the soap will facilitate not only suffocation, but make it difficult for them to fly as well. This knock-down method allows you to vacuum up the wasps and remove the nest.
- d. Aerial wasp nests (those in trees, for example) may be enclosed in an extra-thick plastic bag, frozen for 24 hours, and discarded.

4. Products and applications

- a. Yellowjacket traps attract foraging wasps with formulated lures, soda pop, etc. While there is no scientific evidence that trapping queens reduces the number of nests, traps can be used to help draw foraging wasps away from buildings and high traffic areas.
- b. If pesticides are used, the district is responsible for following the proper posting and notification requirements, using "caution" label products only (except in cases involving a declared pest emergency), and making sure any pesticides used are applied by licensed applicators.

5. Preventative approaches

Staff and student awareness of wasp behavior as well as the importance of sanitation is going to make any facilities and maintenance personnel job easier. A wasp "Pest Press" for staff and students is available from Oregon State University's School IPM Program.

- a. The presence of foraging wasps (e.g., there is no identified nest) is often an educational issue. Soda (spilled or in cans), juice and other sweet beverages, and a variety of meaty or sweet foods will attract wasps. Quick clean-up is necessary, and prevention is even better given the keen memory for food sources that yellowjackets have.
- b. If foraging wasps are a recurring problem in a given area, encourage those in charge to corral food and drink to a given area of the school.
- c. Make sure trash cans have tight-fitting lids. During the fall, these lids should be hosed off regularly to discourage foraging yellowjackets.
- d. Take a proactive approach. Educate staff at the start of each school year (when wasp colonies are at their largest): who to notify for wasp complaints; who to notify in the event of spilled food and beverages outdoors; staff and students should never swat at wasps, but rather move

away slowly from aggressive foragers (swatting is perceived as a threat and may induce stinging); avoiding the color yellow and perfumes in late summer through early fall may also help discourage wasps from landing on students and staff.

For further reading on paper wasps or yellowjackets, please visit:

- University of California yellowjacket curriculum. apps.cdpr.ca.gov/schoolipm/training/curricula/yellowjackets.pdf
- Washington State University Cooperative Extension publication: Yellowjackets and Paper Wasps. <http://www.pesticide.org/solutions/home-and-garden-toolbox/pest-solutions/yellow-jackets>

Complete in-text citations available upon request.

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Annual IPM Inspection Form (Pests and Pest Conducive Conditions Checklist)

Cascade School District

School or Site	
Date	
Inspected by	

Entryways	Yes	No	Not Sure	N/A
Doors closed when not in use				
Doors shut tight and close on their own				
Door sweeps installed so no ¼" gaps				
Cracks & crevices around door are sealed				

If pests are present in the area, write what kind here _____

Notes:

Outside Areas	Yes	No	Not Sure	N/A
Area free from trash, old vehicles, other pest attractants				
All trash cans have secure lids				
Trash cans cleaned regularly				
Site has good drainage and is free from standing water				
Bushes, shrubs, trees at least 18" from building				
Tree branches not overhanging roof				
All dumpsters located away from building				
All dumpsters clean				
No gaps between windows or screens and frame				
Eaves and roofs free from birds, wasps, etc.				
Play structures free from wasp harborage areas				

If pests are present in the area, write what kind here _____

Notes:

Kitchen and Food Preparation Area	Yes	No	Not Sure	N/A
Free of unauthorized pesticides				
Trash emptied daily				
Door sweeps installed so no ¼" gaps				
Floor at every corner is clean and without signs of pests				
Area is free of standing water				
Floor drains and floor sinks are clean				
All faucets close properly and have no leaks or drips				
Under stoves, sinks, and dishwasher kept clean				
No open holes or other access to outside				
Any cracks in walls or floors are sealed properly				
Windows have screens on them				
Vents are free of grease and dirt				
Storage is kept off the floor on wire rack shelving				
Food is put away and stored properly in sealed containers				
Cardboard boxes present				
No long term storage of anything in cardboard boxes				
Pest monitors (sticky traps) are present and dated				
Pest log is posted				
Breaker boxes free of evidence of pests				

If pests are present in the area, write what kind here _____

Notes:

Custodial and Custodial Closets	Yes	No	Not Sure	N/A
Area is free of unauthorized pesticides				
Mops are clean and hanging up when not in use				
Closets are free of trash and food				
Custodial closets are in good order and organized				
Trash cans and maid carts are emptied daily and clean				
Break area is clean and free of food, crumbs and trash				
Storage areas free of items stored in cardboard boxes				
Break area free of cloth covered couches and chairs				
Custodians are trained in the IPM process				
IPM records (including pest logs, monitoring trap data, pest management actions, etc.) are on file				

If pests are present in the area, write what kind here _____

Notes:

Boiler Rooms and Fan Rooms	Yes	No	Not Sure	N/A
Free of unauthorized pesticides				
Room is free of standing water				
Room is cleaned regularly				
Room is free of trash and food				
Room is free of storage, especially in cardboard boxes				
Floor drains are clean				
Plumbing is free of leaks and condensation				
Cracks or holes in floors and walls are sealed properly				
Outside air intakes are properly screened & free of trash				

If pests are present in the area, write what kind here _____

Notes:

Teachers Lounge	Yes	No	Not Sure	N/A
Room is free of cloth couches and chairs				
It's clean behind and under microwave				
It's clean under and behind vending machines				
It's clean inside, under, and behind the refrigerator				
All counters clean and free of food bits and such				
Floor at every corner is clean and without signs of pests				
Under sink is kept clean				
Cupboards clean and any food is in sealed containers				
Free of unauthorized pesticides				
Pest monitors (sticky traps) are present and dated				
Pest log is posted				

If pests are present in the area, write what kind here _____

Notes:

Classrooms or Offices	Room #	Yes	No	Not Sure	N/A
Free of unauthorized pesticides					
Free of clutter					
Indoor plants healthy and free of pests					
Desks, closets, and cubbies clean and free of food, clutter					
All food items are stored in sealed plastic containers					
Animal or bird cages are clean in and around the area					
Any pet food is stored in sealed plastic containers					
Sinks are free of dripping or standing water					
Gaps or holes under sinks or counters have been sealed					
Holes or gaps to the outside are sealed					
Outside windows and doors close tight and have no gaps					
Window screens (if any) are in good repair					
Nothing (except short-term) is stored in cardboard boxes					

If pests are present in the area, write what kind here _____

Notes:

Classrooms or Offices	Room #	Yes	No	Not Sure	N/A
Free of unauthorized pesticides					
Free of clutter					
Indoor plants healthy and free of pests					
Desks, closets, and cubbies clean and free of food, clutter					
All food items are stored in sealed plastic containers					
Animal or bird cages are clean in and around the area					
Any pet food is stored in sealed plastic containers					
Sinks are free of dripping or standing water					
Gaps or holes under sinks or counters have been sealed					
Holes or gaps to the outside are sealed					
Outside windows and doors close tight and have no gaps					
Window screens (if any) are in good repair					
Nothing (except short-term) is stored in cardboard boxes					

If pests are present in the area, write what kind here _____

Notes:

Classrooms or Offices	Room #	Yes	No	Not Sure	N/A
Free of unauthorized pesticides					
Free of clutter					
Indoor plants healthy and free of pests					
Desks, closets, and cubbies clean and free of food, clutter					
All food items are stored in sealed plastic containers					
Animal or bird cages are clean in and around the area					
Any pet food is stored in sealed plastic containers					
Sinks are free of dripping or standing water					
Gaps or holes under sinks or counters have been sealed					
Holes or gaps to the outside are sealed					
Outside windows and doors close tight and have no gaps					
Window screens (if any) are in good repair					
Nothing (except short-term) is stored in cardboard boxes					

If pests are present in the area, write what kind here _____

Notes:

Other Room:	Yes	No	Not Sure	N/A
Free of unauthorized pesticides				
Room is free of standing water				
Room is free of trash and food				
Room is free of storage, especially in cardboard boxes				
Any food items are stored in sealed plastic containers				
Free of clutter				
Cracks or holes in floors and walls are sealed properly				
Outside windows and doors close tight and have no gaps				
Window screens (if any) are in good repair				

If pests are present in the area, write what kind here _____

Notes:

Appendix 4

Training Outlines

CUSTODIAL STAFF TRAINING

1. Concerns about Pests and Pesticides
 - a. Pests which are Public Health Risks
 - b. Pesticide Risks
2. Introduction to Integrated Pest Management (IPM)
 - a. IPM is...
 - b. IPM involves...
3. Benefits of IPM to custodial staff
 - a. Recognition of your important role within the school district
 - b. More effective, efficient, and long-lasting solution to specific pest issues
 - c. Reduced pesticide use
 - d. Improved children's health
 - e. Long-term cost savings for school and school district
 - f. Better organized working environment
4. Pest basics
 - a. Food
 - b. Water
 - c. Shelter
5. Role of custodial staff in a school IPM program
 - a. Custodial staff are critical to the success of a district's IPM program
 - b. Awareness of pest conducive conditions
 - c. Reduction of pest conducive conditions
 - d. Use of insect monitoring traps
 - e. Communication
 - i. Report pests in pest log
 - ii. Report maintenance needs
 - iii. Regular communication and follow up with facilities staff/IPM Coordinator
 - f. Sanitation
 - g. Cultural changes
 - h. Attend annual IPM training provided by the IPM Plan Coordinator
 - i. When to take action against a pest: appropriate pest-response action for custodial staff
6. Requirements of ORS 634.700 – 634.750 (IPM plan, Coordinator, no pesticides applied without license, etc.)

MAINTENANCE/CONSTRUCTION STAFF TRAINING

1. Concerns about Pests and Pesticides
 - a. Pests which are Public Health Risks
 - b. Pesticide Risks
2. Introduction to Integrated Pest Management (IPM)
 - a. IPM is...
 - b. IPM involves...
3. Benefits of IPM to schools
 - a. More effective, efficient, and long-lasting solution to specific pest issues
 - b. Reduced pesticide use
 - c. Improved children's health
 - d. Long-term cost savings for school and school district
 - e. Better organized working environment
4. Pest basics
 - a. Food
 - b. Water
 - c. Shelter
5. Role of maintenance/construction staff
 - a. Monitoring for pest conducive conditions
 - b. Working with Coordinator to develop priority list, deadlines for pest exclusion needs
 - c. Working with Coordinator to develop protocols and provisions for pest avoidance and prevention during construction and renovation projects
 - d. Attend annual IPM training provided by the IPM Plan Coordinator
6. Requirements of ORS 634.700 – 634.750 (IPM plan, Coordinator, no pesticides applied without license, etc.)

GROUNDS STAFF TRAINING

1. Concerns about Pests and Pesticides
 - a. Pests which are Public Health Risks
 - b. Pesticide Risks
2. Introduction to Integrated Pest Management (IPM)
 - a. IPM is...
 - b. IPM involves...
3. Benefits of IPM to schools
 - a. More effective, efficient, and long-lasting solution to specific pest issues
 - b. Reduced pesticide use
 - c. Improved children's health
 - d. Long-term cost savings for school and school district
4. Grounds Pest Basics
 - a. Food
 - b. Water
 - c. Shelter
5. Grounds Pest Specifics
 - a. Review of OSU turf management publications
 - b. Review of model plan appendix 1-g
 - c. Mulching landscaped areas
 - d. Aeration of turf
 - e. Irrigation scheduling
 - f. Gophers, Moles, Voles
 - g. Other pests
6. Role of Grounds Staff
 - a. Keeping all vegetation at least three feet from buildings
 - b. Proper aeration, mulching, irrigation scheduling, etc.
 - c. Attend annual IPM training provided by the IPM Plan Coordinator
 - d. Pesticide application notification, posting, record keeping, and reporting
7. Requirements of ORS 634.700 – 634.750 (IPM plan, Coordinator, no pesticides applied without license, etc.)

KITCHEN STAFF TRAINING

1. Concerns about Pests and Pesticides
 - a. Pests which are Public Health Risks
 - b. Pesticide Risks
2. Introduction to Integrated Pest Management (IPM)
 - a. IPM is...
 - b. IPM involves...
3. Benefits of IPM to Kitchen Staff
 - a. Reduced potential for pest-vectoring diseases
 - b. More effective, efficient, and long-lasting solution to specific pest issues
 - c. Reduced pesticide use
 - d. Improved children's health
 - e. Long-term cost savings for school and school district
4. Pest Basics
 - a. Food
 - b. Water
 - c. Shelter
 - d. Kitchen and pantry are often the most pest-prone area of a school
5. Role of Kitchen Staff in a School IPM Program
 - a. Awareness of pest conducive conditions in kitchen, pantry, dumpster area
 - b. Reduction of pest conducive conditions in kitchen, pantry, and dumpster area
 - c. Communication
 - i. Report pests in pest log
 - ii. Report maintenance needs
 - d. Sanitation
 - e. Cultural Changes
 - f. Education
 - i. Maintain IPM awareness among all kitchen staff
 - ii. Participation in IPM inspections of kitchen
 - iii. Attend annual IPM training provided by IPM Plan Coordinator
 - g. When to take action against a pest: appropriate pest-response action for kitchen staff
6. Requirements of ORS 634.700 – 634.750 (IPM plan, Coordinator, staff cannot use pesticides)

FACULTY TRAINING

1. Concerns about Pests and Pesticides
 - a. Pests which are Public Health Risks
 - b. Pesticide Risks
2. Introduction to Integrated Pest Management (IPM)
 - a. IPM is...
 - b. IPM involves...
3. Benefits of IPM to Faculty
 - a. More effective, efficient, and long-lasting solution to specific pest issues
 - b. Reduced pesticide use
 - c. Improved children's health
 - d. Long-term cost savings for school and school district
 - e. Better organized working environment
4. Pest Basics
 - a. Food
 - b. Water
 - c. Shelter
5. Role of Faculty in a School IPM Program
 - a. Awareness of pest conducive conditions in your classroom and teacher's lounge
 - b. Reduction of pest conducive conditions in your classroom and teacher's lounge
 - c. Monitoring & communication
 - i. Report pests in pest log
 - ii. Report maintenance needs
 - d. Sanitation
 - e. Cultural changes
 - f. Education
 - i. Involve students in classroom pest management (monitoring, sanitation, cultural changes)
 - ii. Attend annual IPM training provided by IPM Plan Coordinator
 - g. When to take action against a pest: appropriate pest-response action for faculty
6. Requirements of ORS 634.700 – 634.750 (IPM plan, Coordinator, teachers cannot use pesticides)

Appendix 6

Pesticide Application Notification Form

A pesticide application is scheduled for / was performed on:

DATE _____ TIME _____

Pesticide Common Name	Pesticide Trade Name / Type of Pesticide Product	EPA Registration Number

Expected Area of the pesticide application: _____

Expected date of application: _____

Reason for the application:

WARNING

PESTICIDE-TREATED AREA

A pesticide application is scheduled for/was performed on:

DATE _____ TIME _____

Expected / Actual reentry time _____

For further information regarding this notice please contact:

Name

Telephone Number

Appendix 9

Template for Annual IPM Report

January ____, 20__

Report completed by IPM Plan Coordinator

Report submitted to the Cascade Board of Directors and the OSU School IPM Program Coordinator

Notes:

Pages 2 – 3 of this template are to be used by IPM Plan Coordinator to tabulate data from individual schools. This data should then be summed up and input into pages 4 – 5. Data on pages 4 – 5 should be included in the annual report, along with a short written summary of the overall pest management for the year.

Prevention and management steps taken that proved to be ineffective and led to the decision to make a pesticide application will be copied and pasted or incorporated into the annual report of pesticide applications (see section VII. D of IPM Plan)

Short Written Summary of Overall Pest Management for the Year:

DATA FROM INDIVIDUAL SCHOOL (first part)

Name of School _____

Pests, pest-conducive conditions, actions taken, Costs (taken from pest logs):

Number of Pest Sightings Reported:

Small ants _____

Bats _____

Cockroaches _____

Spiders _____

Yellow Jackets _____

Other _____

Number and Type of Pest Conducive Conditions:

Standing water in Kitchen _____

Window screens missing or torn _____

Gap under external door _____

Other _____

Number of Actions Taken:

Sanitation – Cleaned up Area _____

Reduced Clutter _____

Set rodent traps _____

Sealed up hole or crack _____

Fixed screen _____

Installed external door sweep _____

Pesticide Application _____

Breakdown of prevention and management steps taken that proved to be ineffective and led to the decision to make a pesticide application:

Pest Problem and Date(s) _____

Prevention and Management Steps and Date(s):

Why Prevention and Management Steps Ineffective:

Pesticide Applied and Date: _____

DATA FROM INDIVIDUAL SCHOOL (second part)

Costs (from Pest Logs):

Sticky traps

Mouse traps

Rat traps

Pest Management Professional

Pesticides

Total:

Costs (from Grounds Records):

Propane Fuel for flame weeders

Mole Traps

Pest Management Professional

Pesticides

Total:

DATA FROM SCHOOL DISTRICT (first part)

Name of School District _____

Pests, pest-conducive conditions, actions taken, Costs (taken from pest logs):

Number of Pest Sightings Reported:

Small ants _____
Bats _____
Cockroaches _____
Spiders _____
Yellow Jackets _____
Other _____

Number and Type of Pest Conducive Conditions:

Standing water in Kitchen _____
Window screens missing or torn _____
Gap under external door _____
Other _____

Number of Actions Taken:

Sanitation – Cleaned up Area _____
Reduced Clutter _____
Set rodent traps _____
Sealed up hole or crack _____
Fixed screen _____
Installed external door sweep _____
Pesticide Application _____

Breakdown of prevention and management steps taken that proved to be ineffective and led to the decision to make a pesticide application:

Pest Problem and Date(s) _____

Prevention and Management Steps and Date(s):

Why Prevention and Management Steps Ineffective:

Pesticide Applied and Date: _____

DATA FROM SCHOOL DISTRICT (second part)

Costs (from Pest Logs):

Sticky traps

Mouse traps

Rat traps

Pest Management Professional

Pesticides

Total:

Costs (from Grounds Records):

Propane Fuel for flame weeders

Mole Traps

Pest Management Professional

Pesticides

Total:

Appendix 11

Hiring an Outside Contractor

Contents:

A. In-House vs. Contractor: Advantages & Disadvantages	Page 1
B. Bid Specifications – Important Things to Remember	Page 3
C. Sample Bid: IPM Plan Contract Guide Specification	Page 5

(The following guidance is excerpted and modified from NC State University's IPM North Carolina Schools Manual)

A. In-House vs. Contractor: Advantages & Disadvantages

Schools in Oregon receive pest control services from pest control companies or trained school maintenance employees. Both pest control companies and school employees with the proper training can successfully perform Integrated Pest Management (IPM). Some school districts contract pest control companies to provide pest control services. Others combine in-house and contracted services and some use in-house services exclusively. Each approach has advantages and disadvantages therefore school officials should decide which one best suits the school district's resources and needs.

Pest Control by In-House Personnel

Advantages

1. Compared to contracted pest control services, school pest management personnel may find it easier to communicate and develop a rapport with students, teachers, staff and other school employees. Cooperation with all individuals in the school is needed for the program to succeed.
2. When a school employee performs pest control services, schools may find it efficient to incorporate some pest control activities with other maintenance activities performed by certified in-house employees, as long as the employee is a certified pest control operator.
3. Because in-house personnel are always around the schools, they are more likely to identify pest problems before they become too serious.
3. When in-house personnel perform pest control, there is no need to develop a bid invitation and therefore the potential difficulty of choosing a pest control firm based on reliability rather than simply on lowest bid.
4. Maintenance or buildings and grounds supervisors have greater control over personnel selection and performance, and subsequently the quality of pest control services.

Disadvantages

1. There is need to find safe storage sites for pesticides and pest control equipment. The potential liability of the district in regard to pesticide use is probably higher in an in-house program.
2. If a re-entry time interval is needed which is greater than that listed on the label, overtime expenses could be incurred.
3. Certifying an employee to apply pesticides in a school will require time and a charge for the certification exam. In addition, all pesticide applicators will need to maintain ongoing certification by attending continuing education events.

Contracted Pest Control Services

Advantages

1. Professional pest control personnel usually have a broader range of experience, ongoing training, and greater familiarity with the full range of treatment techniques and potentially expensive equipment available to safely and effectively control pests. By contracting with an outside pest control company, the School district eliminates or reduces the need to train and maintain pesticide applicator certification for employees, although schools are encouraged to have certified applicators who can better evaluate the quality of the work performed by the contractor.
2. Using contracted services can reduce potential liability of the school system with regard to the use and storage of pesticides. The need for locating a special storage site for pesticides is eliminated.
3. There are times when pest control activities must be performed after-hours or on weekends to meet reentry interval requirements. By hiring a contractor the school district avoids the need for overtime expenses.
4. Contracted pest control services can provide school administrators with the flexibility of using specialized and professional labor on an "as-needed" basis, as opposed to investing in the development of in-house capabilities that may not be used on a continuous basis.

Disadvantages

1. Communication between contracted individuals and school employees may not be as easily developed as in an in-house program.

2. School districts must develop a bid invitation for contracted services and choose a pest control firm based on IPM expertise and reliability rather than simply on lowest bid.

B. Bid Specifications – Important Things to Remember

What to Look for When Choosing and Evaluating an IPM Contractor

- Is the contractor prevention-oriented or reactive-oriented?
- Is the contractor knowledgeable about the damage caused by each type of pest?
- Does the contractor inspect for pest-conducive conditions and monitor population levels at least monthly?
- Does the contractor use a flashlight during inspections?
- Does the contractor use monitoring traps for insects?
- Are the traps checked and changed according to IPM Plan schedule?
- Does the contractor explain ways to prevent further pest outbreaks?

Importance of Pest Management Bid Specifications

Thorough, stringent bid specifications help reduce the problem of unrealistically low bids by firms that are unable or unwilling to provide the quality of work your school district should expect. The selection of a pest control company should not be based solely or primarily on lowest bid. Just as with other important purchases/contracts, the quality of the expected service is extremely important.

Essential Items in IPM Bid Specifications

Some elements for IPM bid specifications are listed below:

- On-site inspections: Prospective bidders should conduct a thorough on-site inspection before submitting a bid. This allows potential bidders to view firsthand the facilities and pest problems, so bidders can make a realistic estimate of service needed and the time required for these services.
- IPM Plan: The bid should spell out exactly which sections of the district's IPM Plan will be carried out by the contractor, and how these will be coordinated and communicated with school staff.
- Minimum service times: The minimum amount of time that a pest control technician should take per scheduled visit can be defined by the school district in the bid. Bidders should understand that minimum service times are an expectation of the

contract, and any failure of the contractor to meet these minimum service times should be grounds for cancellation of the contract by the school district.

- **Monitoring tools:** The contractor should use appropriate monitoring tools (flashlight, sticky insect monitoring traps, etc.) and procedures mentioned in the IPM Plan on a regular basis to find pest infestations and assess the need for corrective action.
- **Approved Pesticides:** Only products from the district's list of approved pesticides shall be used. Districts should receive from the bidder copies of labels and Material Safety Data Sheets (MSDS) for all pesticides to be used on the school district property.
- **Reduced-risk formulations and methods:** The use of baits, bait stations, and crack-and-crevice or void treatments are the only approved treatments indoors. Aerosol, broadcast, spot, and baseboard treatments are prohibited except when a pest emergency as defined in the district's IPM Plan is declared. All applications must follow the requirements and protocols outlined in the Plan.

The above provisions and others are specified in the following set of model bid specifications. **These specifications are strongly recommended as a model for school districts attempting to implement an indoor IPM program.** School districts may want to incorporate some elements of the model contract into existing bid specifications; others may adopt the requirements in total, with additions as suggested by their IPM coordinator, purchasing officer or other business personnel. Many standard clauses are omitted from the following contract to save space. If there is a conflict between the model bid specifications and the school district's usual bid process, the district should defer to its regular bidding process.

(The following bid is excerpted and modified from the Texas Agricultural Extension Service Publication B-6015)

C. Sample Bid: Integrated Pest Management Plan Contract Guide Specification

1. GENERAL

Description of Program: This specification is part of a comprehensive Integrated Pest Management (IPM) Plan for the premises listed herein. IPM is a process for achieving long-term, environmentally sound pest suppression and prevention through the use of a wide variety of technological and management practices (see Cascade School District's IPM Plan at www.cascade.k12.or.us). Control strategies in an IPM program include:

- Facility inspections to identify pest harborage and presence of conditions favorable to pests.
- Proper identification of pests and an understanding of pest biology and behavior.
- Structural and procedural changes to reduce food, water, harborage, and access used by pests.
- A preference for non-pesticide technologies such as trapping and monitoring devices.
- Use of low-risk pesticide compounds, formulations, and selection of application methods that present a reduced potential hazard to humans and the environment.
- Coordination among all facilities management programs that have a bearing on the pest control effort.

Contractor Service Requirements: The Contractor shall furnish all supervision, labor, materials, and equipment (excluding insect light traps, air curtains, and other major expense items unless requested by the contract administrator) necessary to accomplish the inspection, monitoring, trapping, pest management (including pesticide application if needed, but excluding sanitation and building maintenance), and pest removal components of the IPM Plan. The Contractor shall also provide detailed, site-specific recommendations for structural and procedural modifications to aid in pest prevention.

2. PESTS INCLUDED AND EXCLUDED

PESTS INCLUDED: The Contractor shall adequately suppress the following pests:

- A. Indoor populations of commensal rodents, insects, arachnids, and other arthropods.
For the purposes of this contract, commensal rodents include Norway rat, roof rat

and house mouse. There may be an additional charge for the control of certain species because of increased material and/or labor expenses such as bed bugs and other pests not specified in the contract.

- B. Outdoor populations of potentially indoor-infesting species that are within the property boundaries within _____ yards of the specified buildings.
- C. Nests of stinging insects within the property boundaries of the specified buildings.
- D. Individuals of all excluded pest populations that are incidental invaders inside the specified buildings.
- D. Populations (or individual animals) of vertebrates (other than commensal rodents), including birds and bats. For vertebrate pests, contractor should have a qualified person on staff to control them or recommend a qualified wildlife damage control agent.

PESTS EXCLUDED: The following pests are excluded from this contract:

1. Termites and other wood-destroying organisms.
2. Mosquitoes.
3. Pests that feed on outdoor vegetation

3. INITIAL BUILDING INSPECTIONS

The Contractor shall complete a thorough, initial inspection of each building or site at least ____ working days prior to the starting date of the contract. The purpose of the initial inspections is for the Contractor to evaluate the pest control needs of all locations and to identify problem areas and any equipment, structural features, and other conditions or management practices that are conducive or contributing to pest infestations. Access to building space shall be coordinated with the IPM Coordinator.

**Contact information for each facility (with address and phone number) is attached.*

4. THE INTEGRATED PEST MANAGEMENT CONTRACT

The Contractor shall submit to the IPM Coordinator an Integrated Pest Management (IPM) Contract at least _____ working days prior to the starting date of the contract. Upon receipt of the IPM Contract, the IPM Coordinator will render a decision regarding its acceptability within _____ working days. If aspects of the IPM Contract are incomplete or disapproved, the Contractor shall have ____ working days to submit revisions. The Contractor shall be on-site to perform the initial service visit for each building within the first _____ working days of the contract.

The IPM Contract shall consist of five (5) parts as follows:

- A. *Proposed Methods for Pest Identification, Monitoring and Detection:* The Contractor shall provide information on procedures to be used to identify pests, as well as describe methods and procedures to be used for identifying sites of pest harborage and access, for making objective assessments of pest population levels,

and for determining the need to implement specific control measures throughout the term of the contract.

B. Description of any Structural or Operational Changes That Would Facilitate the Pest Control Effort: The Contractor shall describe site-specific solutions for observed sources of pest food, water, harborage, access or other conditions conducive to pest problems.

C. Proposed Materials and Equipment for Service: The Contractor shall provide the following information:

1. A list of all pesticide products to be used. These must be on the school district's approved list of low-impact pesticides. They shall include each product's brand name, common name of the active ingredient.
2. A list of the brand names of pesticide application equipment, rodent bait boxes, insect and rodent trapping devices, pest monitoring devices, pest detection equipment, and any other pest control devices or equipment that may be used to provide service.
3. The current label (and labeling) and Material Safety Data Sheet (MSDS) for each pesticide product on the list referenced in C1.

D. Commercial Pesticide Applicator Documentation: The Contractor shall provide the following documents

1. The phone number for the currently designated state poison control center.
2. The names and phone numbers of at least two individuals who are designated as the primary and secondary 24-hour contacts for information concerning any aspects of the pest control service being provided.
3. A photocopy of the valid Oregon Pesticide Applicator License(s) under which all pest control is to be performed.
4. A photocopy of the Contractor's valid Certificate of Insurance.
5. A list of all Contractor employees who will be performing on-site service under this contract; this list shall include the employee's name and a statement of whether the employee is a licensed pesticide applicator or trainee.

E. Commercial Pesticide Applicator Documentation: The Contractor shall be responsible for carrying out work according to the approved Pest Control Plan. The Contractor shall receive the concurrence of the District prior to implementing any subsequent changes to the approved Pest Control Plan, including changes in on-site service personnel and any additional or replacement pesticides.

5. RECORD KEEPING

The Contractor shall be responsible for maintaining a pest management logbook for each building or site specified in this contract. These logbooks shall be kept on-site and accessible to all site staff and the IPM Coordinator. The Contractor shall maintain or

update the contents of these logbooks on each visit. Each logbook shall contain at least the following items:

- A. *Integrated Pest Management Contract*: A complete copy of the Contractor's approved IPM Contract.
- B. *Pest Log*: A school-district-approved form that permits school personnel to record the location any pest sightings and Contractors any action taken. The IPM Coordinator will review and approve the design of this form prior to its distribution and use at the facilities. The IPM Coordinator will be responsible for informing and educating all site staff about methods for reporting pest observations in the log.
- C. *Contractor's Service Report*: The Contractor shall document site-specific pest findings and subsequent control measures performed during the service visit. A separate form is not required if the Pest Log is designed to incorporate this information.

6. THE MANNER AND TIME TO CONDUCT PEST MANAGEMENT ACTIVITIES

- A. *Time Frame of Service Visits*: The Contractor will negotiate with _____ regarding time frame of service visits. It is imperative that the Contractor interacts with school staff during regular school hours to get a better understanding of the local situation and educate staff when necessary. It is also important that the Contractor conduct those pest management activities that may cause class disruption after school hours. All contractor employees shall adhere to all policies for notifying local personnel that the employee is onsite and working in the building. When it is necessary to perform work outside of the regularly scheduled service time set forth in the IPM Plan, the Contractor shall notify the IPM Coordinator at least ____ day in advance except when the IPM Coordinator requests emergency service as described in Section 7 of this contract. The IPM Coordinator shall approve such changes before any work is done.
- B. *Safety and Health*: The Contractor shall observe all applicable safety precautions throughout the performance of this contract. All work shall be in strict accordance with all applicable Federal, state, and local safety and health requirements, as well as specific pest control product label instructions. Where there is a conflict between applicable regulations, the most stringent will apply.
- C. *Compliance*: The Contractor shall assume full responsibility and liability for compliance with all applicable regulations pertaining to the health and safety of personnel during the execution of work. The contractor's liability insurance must be enforced throughout the term of this contract.
- D. *Special Entrance*: Certain areas within some buildings may require special instructions for persons entering them. Any restrictions associated with these special areas will be explained by the IPM Coordinator. The Contractor shall adhere to these restrictions and incorporate them into the IPM Contract.

E. *Uniforms and Protective Clothing:* All Contractor personnel working in or around buildings specified in this contract shall wear distinctive uniform clothing and a photo ID badge. The Contractor shall determine the need for and provide any personal protective items required for the safe performance of work. Protective clothing, equipment, and devices shall, as a minimum, conform to U.S. Occupational Safety and Health Administration (OSHA) standards and to any specific label requirements for the products being used.

F. *Vehicles:* Vehicles used by the Contractor shall be identified in accordance with state and local regulations. While on-site, all service vehicles shall be secured to prevent unauthorized access to chemicals and equipment. Service vehicles shall be equipped with appropriate pesticide spill control equipment in accordance with state and federal regulations. All pesticides on contractor vehicles shall remain locked or remain inaccessible while vehicles are unattended.

7. SPECIAL REQUESTS AND EMERGENCY SERVICE

On occasion, the IPM Coordinator may request that the Contractor perform corrective, special, or emergency services that are beyond routine service requests. The Contractor if possible shall respond to these exceptional circumstances and complete the necessary work within a timeframe approved by the IPM Coordinator, which will minimize disruption of the daily activities of the building.

8. CONTRACTOR PERSONNEL

Throughout the term of this contract, all Contractor personnel providing on-site applications must have a commercial applicators license in accordance with SB 637. They must also have specific IPM training. In addition, the contractor shall run criminal background checks and not allow any individual with a felony within the last 5 years to service the property.

9. INSECT CONTROL

The priority for insect control will be the use of non-pesticide methods. The Contractor shall use non-pesticide methods of control wherever possible. For example:

- Portable vacuums rather than pesticide sprays shall be the standard method for initial cleanouts of cockroach infestations and the control of spiders and other miscellaneous pests.
- Trapping devices, such as light traps, shall be the standard method for indoor fly control. The Contractor will make recommendations to the IPM Coordinator regarding the purchase and installation of such traps.

Pesticides can only be used after following the protocols of the district's IPM Plan. When pesticides are used, the Contractor shall use pesticides on the district's approved list of low-impact pesticides and employ reduced-risk methods of application.

- A. *Monitoring*: Monitoring devices (Sticky traps, light traps, etc) shall be used to guide decisions on appropriate pest control measures and subsequently to evaluate the effectiveness of these measures.
- B. *Insecticide Bait Formulations*: Non-volatile bait formulations shall be the first choice for cockroach and ant control. If possible, baits shall be applied or placed in areas that cannot be accessed by children or building occupants.
- C. *Application of Insecticides to Cracks and Crevices*: As a general rule, the Contractor shall apply liquid/dry insecticide formulations as "crack and crevice" treatments only, defined in this contract as treatments in which the formulated insecticide is applied to hidden or protected areas that are used as harborage sites by pests.
- D. *Application of Insecticides to Exposed Surfaces*: Application of insecticides to exposed surfaces shall be restricted to a pest emergency as defined in the district's IPM Plan where no alternative effective measures are practical. The Contractor shall obtain approval of the IPM Coordinator prior to any application of insecticide to an exposed surface or any space spray treatment. No surface application or space spray shall be made while the treatment site is occupied. The Contractor shall take all necessary precautions to ensure occupant and employee safety, and all necessary steps to ensure the containment of the pesticide to the site of application.
- E. *Space sprays*: Application of pesticides as space sprays ("fogging") are strictly prohibited, except when a pest emergency as defined in the district's IPM Plan is declared. The application must follow the same restrictions outlined for surface sprays. Space sprays must be timed to allow the specific treatment site to remain unoccupied for a minimum of 24 hours. The Contractor shall be responsible for ventilating the treatment site in accordance with instructions on the product label before school personnel reenter the site. The IPM Coordinator will assist the Contractor to secure the treatment site to prevent any unauthorized reentry to the area prior to ventilation or before any re-entry period specified on the product label, and to arrange for appropriate cleaning of exposed surfaces by district employees before the site is free for general use.

10. RODENT CONTROL

- A. *Indoors trapping*: As a general rule, rodent control inside buildings shall be accomplished with trapping devices only. All such devices shall be placed so as to conceal them from general view, make them inaccessible to building occupants,

and to protect them from any adverse effects of routine cleaning and other operations.

- B. *Trapping devices* shall be checked on a schedule approved by the IPM Coordinator. The Contractor shall be responsible for disposing of all trapped rodents and all rodent carcasses in an appropriate manner.
- C. *Use of Rodenticides*: In exceptional circumstances, when rodenticides are deemed essential for adequate rodent control inside buildings, the Contractor shall obtain approval of the IPM Coordinator prior to making any interior rodenticide treatment. ONLY block (paraffin-based or other types) rodenticides shall be used. Pellet/pack bait formulations and packaging shall not be used in/around school buildings. All bait shall be placed in EPA-approved tamper-resistant bait boxes that can be secured to a surface.
- D. *Use of Bait stations*: All bait stations shall be maintained in accordance with EPA and regulations, with an emphasis on the safety of non-target organisms. The Contractor shall adhere to the following five (5) points:
1. All bait stations shall be placed out of the general view, in locations where they will not be disturbed by routine operations.
 2. The lids of all bait stations shall be securely locked or fastened shut.
 3. All bait boxes shall be securely attached or anchored to floor, ground, wall, or other immovable surface, so that the station cannot be picked up or moved by unauthorized personnel.
 4. Bait shall always be secured in the feeding chamber of the station and never placed in the runway or entryways of the stations where it could be removed or dislodged.
 5. All bait stations shall be labeled with the Contractor's business name and address, and dated by the Contractor's technician at the time of installation and each servicing.
- E. *The locations of all trapping devices and baiting stations* will be recorded in the site's Pest Log. The Contractor shall record all changes/additions to this information before leaving the site during that service visit. The Contractor will provide the IPM Coordinator with a key and instructions for opening bait stations in the event of an emergency.

11. USE OF PESTICIDES

The contractor shall be responsible for application of pesticides according to the label and all additional labeling. All pesticides used by the Contractor must be registered with the U.S. Environmental Protection Agency (EPA) and the Oregon Department of Agriculture. Transport, handling, and use of all pesticides shall be in strict accordance with the manufacturer's label instructions and all applicable Federal, state, and local

laws and regulations. The Contractor shall adhere to the following rules for pesticide use:

- A. *Minimization of Risk*: Where pesticide use is necessary, the Contractor shall emphasize "reduced risk measures", i.e., the Contractor shall employ materials, quantities and application methods that minimize the risk or hazard of exposure to the applicator, building occupants, and the environment in general. The Contractor shall not give any pesticides to any site personnel for application to the site.
- B. *Selection of pesticide products*: Only products from the district's approved list of low-impact pesticides shall be used.
- C. *Approved Products*: The Contractor shall not apply any pesticide product that has not been included in the IPM Contract or has not been approved in writing by the maintenance/ facilities director or other designated personnel. Any additions to the list of approved pesticides must be submitted to the maintenance/ facilities director five (5) working days prior to the proposed date of use. The maintenance/ facilities director shall render a decision on the proposed addition within three (3) working days. Prior to the use of any new approved pesticide products, the Contractor shall provide product labels, labeling and MSDS in the logbooks of each site where the products are to be used.
- D. *Pesticide Storage*: The Contractor shall not store any pesticide product in the buildings specified in this contract.
- E. *Application by Need*: Routine pesticide applications will not be employed. Application of pesticides to any interior or exterior area shall be based on visual inspection or monitoring devices indicating the presence of pests in that specific area and the need to apply a pesticide, as specified in the district's IPM Plan.
- F. *Approved Applicators*: Only Contractor employees shall apply pesticides under the terms of this contract. The Contractor shall not provide pesticide products to non-certified school employees for their use in/around the building and property.

12. VERTEBRATE PEST CONTROL (OTHER THAN COMMENSAL RODENTS)

The following terms of the contract apply only if the Contractor has agreed to be responsible for vertebrate pest control.

- A. *General Vertebrate Pests*: The Contractor shall be responsible for the control of miscellaneous vertebrates, including snakes, raccoons, skunks. Where state, county or local regulations require the issuance of a wildlife depredation permit for the taking of such vertebrates, the contractor shall arrange for such permits. Subsequent to the issuance of the depredation permit, the Contractor shall take or arrange with a state-licensed Wildlife Damage Control Agent (WDCA) to take such vertebrates in accordance with all state and local wildlife regulations. If the WDCA

is not an employee of the contractor, then the Contractor shall inform the IPM Coordinator in advance the name of any WDCA to be used for such work. The cost for these services will be negotiated with the contractor separately from this contract.

- B. *Bat and Bird Populations*: Situations that require more extensive exclusion methods, such as the repairs to exclude bats from established roosting sites within buildings, or the installation of mesh, pointed wire or other devices to exclude birds from roosting will be negotiated with the Contractor separate from this contract. The proper removal/cleanup of animal feces (“guano”) may be included as part of the terms of a separate specific contract.

13. STRUCTURAL MODIFICATIONS AND RECOMMENDATIONS

Throughout the term of this contract, the Contractor shall be responsible for advising the IPM Coordinator about any structural, sanitary, or procedural modifications that would reduce pest food, water, harborage, or access. The Contractor will not be held responsible for carrying out structural modifications as part of the pest control effort, unless both parties agree upon such modifications. Minor applications of silicone sealant and other sealing materials by the Contractor to eliminate pest harborage or access may be approved by the IPM Coordinator on a case-by-case basis. The Contractor shall obtain the approval of the IPM Coordinator prior to any application of sealing material or other structural modification.

14. PROGRAM EVALUATION

The IPM Coordinator will continually evaluate the progress of this contract in terms of effectiveness and safety, and will require such changes as are necessary. The Contractor shall take prompt action to correct all identified deficiencies.

15. QUALITY CONTROL PROGRAM

The Contractor shall establish a complete quality control program to assure the requirements of the contract are provided as specified. Within 10 working days prior to the starting date of the contract, the Contractor shall submit a copy of his program to the Contracting Officer.

The program shall include at least the following items:

- A. *Inspection System*: The Contractor’s quality control inspection system shall cover all the services stated in this contract. The purpose of the system is to detect and correct deficiencies in the quality of services before the level of performance becomes unacceptable and/or the IPM Coordinator identifies the deficiencies. For the duration of this contract, the contractor shall carry out such inspections on a quarterly basis.

- B. *Checklist*: A quality control checklist shall be used in evaluating contract performance during regularly scheduled and unscheduled inspections. Every task shall be included on the checklist for every building or site serviced by the Contractor.

- C. *File*: A quality control file shall contain a record of all inspections conducted by the Contractor and any corrective actions taken. The file shall be maintained throughout the term of the contract and a copy provided to the district and IPM Coordinator.

- D. *Inspector(s)*: The Contractor shall state the name(s) of the individual(s) responsible for performing the quality control inspections.

- E. (OPTIONAL). The contractor may use an electronic system of bar codes and scanning systems to record such information. Such systems can facilitate the tracking of time "In and Out" of technicians and the sanitation condition of the facility. These records can allow the contractor to track the process and ensure performance at the facility.

16. Cascade School District's Maintenance Address and Contacts

For questions concerning specifications, or to preview facilities, contact the IPM Coordinator at the above numbers. The Cascade Board of Directors reserves the right to reject any or all bids for any or no reason, and to waive informalities.

Appendix 12

References and Source Materials

Used in the Preparation of Model IPM Plan for Oregon Schools (accessed 5/1/2012)

School IPM 2015

(Exhaustive list of resources and weblinks)

http://www.ipminstitute.org/school_ipm_2015/resources.htm

Outdoor IPM for Maine Schools

(Good basic, general manual on IPM for outdoors)

<http://www.maine.gov/agriculture/pesticides/schoolipm/pdf/outdooripm.pdf>

Portland Public Schools IPM Program Manual

(Click on “District’s IPM program manual” link in second-to-last paragraph)

<http://www.pps.k12.or.us/departments/facilities/3416.htm>

Eugene School District 4J Landscape Management

(Matrices of hierarchical steps to manage various outdoor pests)

<http://www.4j.lane.edu/facilities/pesticide>

Portland Parks & Recreation IPM Program

(A detailed “Pesticide Spill Response” section begins on page 29)

<http://www.portlandonline.com/shared/cfm/image.cfm?id=116237>

Salt Lake City School District IPM Plan

(click on “SLCSD IPM Plan 2010” link)

<https://aal.slcschools.org/pls/apex/f?p=118:40:1695263352950185>

California School IPM Guidebook, California Department of Pesticide Regulation

(Has sample chart on injury/action levels. Various sample forms and examples in appendices)

http://apps.cdpr.ca.gov/schoolipm/managing_pests/guidebook.cfm

North Carolina State University IPM for Schools & Child Care Facilities

(“IPM for North Carolina Schools Manual” link goes to well-written basic manual. Part Four has good information on how to develop bid invitations for IPM services)

<http://schoolipm.ncsu.edu/resources.htm>

Appendix 13

Low-Impact Pesticide List

List of products that meet the requirements of a Low-Impact Pesticide as required in ORS 634.700 – 634.750.

After receiving requests from several members of the Oregon School Facilities Management Association (OSFMA), the OSU School IPM Program e-mailed all members to offer assistance (via an OSU toxicologist with expertise in pesticide toxicology) with creating their “low-impact” pesticides lists. Members were asked to provide the active ingredient, EPA registration number, and product name of any “caution” labeled products they were using (or considering using) for the toxicologist to review.

Below is a list of the reviewed products that meet the requirements of the law, as well as abridged comments from the reviewer (for complete comments and the list with complete background information, see the IPM Plan Coordinator).

We will periodically review future requests (that include the active ingredient, EPA registration number, and product name of “caution” labeled products) from school IPM coordinators who have completed the OSU School IPM Program’s IPM coordinator training, and post updates to this list on our website.

Abridged Reviewer Comments:

Using the NPIC Pesticides and Active Ingredient Retrieval System, I checked the EPA registration numbers for each product. I then used EPA’s publication “Chemicals Evaluated for Carcinogenic Potential” to assign carcinogen classifications. For those active ingredients not classified in this 2006 publication I used other EPA sources, such as the Reregistration Eligibility Determinations or Federal Register Notices on the establishment of tolerances.

Signal words and carcinogen classification for the active ingredients on the review list were compared to language in ORS 634.705 Adoption of integrated pest management plan and related provisions; exceptions; low-impact pesticide list, Section (5), which states:

A governing body shall adopt a list of low-impact pesticides for use with the integrated pest management plan. The governing body may include any product on the list except products that:

- (a) Contain a pesticide product or active ingredient that has the signal words “warning” or “danger” on the label;
- (b) Contain a pesticide product classified as a human carcinogen or probable human carcinogen under the United States Environmental Protection Agency 1986 Guidelines for Carcinogen Risk Assessment; or

(c) Contain a pesticide product classified as carcinogenic to humans or likely to be carcinogenic to humans under the United States Environmental Protection Agency 2003 Draft Final Guidelines for Carcinogen Risk Assessment. [2009 c.501 §3]

Labels for all products on the review list have the signal word “Caution”. No products on the list have a carcinogen classification under the 1986 Guidelines of “human carcinogen” or “probable human carcinogen”. No products on the list have a carcinogenic classification of “carcinogenic to humans” under the 2003 draft guidelines.

List of “low-impact pesticides” that meet the requirements of ORS 634.700 – 634.750

Product Name	Formulation	EPA Registration #	Active Ingredient
Advion Ant Gel	Bait Gel	352-746	Indoxacarb
Advion Cockroach Gel Bait	Bait Gel	352-652	Indoxacarb
Aquamaster	Liquid	524-343 (-ZF)	Glyphosate, isopropylamine salt
Bee Bopper II, ARI	Pressurized liquid	7754-44	Tetramethrin
Wasp and Hornet Killer			d-Phenothrin
Casoron 4G	Granular	400-168	Dichlobenil
Crossbow	Emulsifiable Concentrate	62719-260-5905	2,4-D, butoxyethyl ester
K-Orthine Dust	Dust	432-772	Triclopyr, butoxyethyl ester
Delta Dust	Dust	28293-322	Deltamethrin
Demand G Insecticide	Granular	100-1240	Deltamethrin
The Andersons 0.25% Granular Dithiopyr Herbicide	Granular	9198-213	Lambda-cyhalothrin
EcoEXEMPT G Granular Insecticide	Granular	Exempt	Dithiopyr
EcoEXEMPT IC-2 Insecticide Concentrate	Concentrate	Exempt	Eugenol (clove oil) Thyme oil
EcoPCO WP-X Wettable Powder Insecticide	Wettable Powder	67425-25-655	Rosemary Oil
			Pyrethrins
			2-Phenylethyl propionate Oil of thyme

Envoy Plus	Emulsifiable Concentrate	59639-132	Clethodim
Generation mini blocks	Pellets/tablets	7173-218	Difethialone
Gourmet Liquid Ant Bait	Impregnated Materials	73766-2	Sodium Octaborate Tetrahydrate
Grant's Ant Control A bait stations	Impregnated Materials	1663-33	Hydramethylnon
Hi-Yield Super Concentrate Kill-Zall II	Soluble Concentrate	42750-61-7401	Glyphosate, isopropylamine salt
InTice Thiquid ant bait	Soluble Concentrate	73079-7	Sodium Tetraborate Decahydrate
Landmaster BW	Soluble Concentrate	42750-62	2,4-D, isopropylamine salt
Maxforce FC Professional Insect Control Roach Killer Bait Gel	Bait gel	432-1259	Glyphosate, isopropylamine salt Fipronil
Maxforce Professional Insect Control Roach Killer Bait Gel	Bait Gel	432-1254	Hydramethylnon
Milestone VM Plus	Emulsifiable Concentrate	62719-572	Aminopyralid, triisopropanolamine salt Triclopyr, triethylamine salt
MotherEarth D Pest Control Dust	Dust	499-509	Diatomaceous Earth (amorphous silica)
MotherEarth Granular Scatter Bait	Granular	499-515	Boric Acid
MotherEarth Wasp & Hornet	Pressurized Liquid	499-519	d-Limonene
Optigard Ant Gel Bait	Ready-to-Use Solution	100-1260	Thiamethaxom
Orange Guard	Ready-to-Use Solution	61887-1-AA	d-Limonene
Patrol Insecticide	Emulsifiable Concentrate	100-1066	Lambda-cyhalothrin
Phantom Termiticide-Insecticide	Emulsifiable Concentrate	241-392	Chlorfenapyr
QuickSilver Herbicide	Emulsifiable Concentrate	279-3301	Carfentrazone-ethyl

Raid wasp and hornet spray	Pressurized Liquid	4822-553	Cypermethrin Prallethrin
Rescue W H Y spray for wasp, hornet, & yellowjacket nests	Pressurized Liquid	Exempt	Lemongrass oil Clove oil (eugenol) Rosemary oil Geranium oil
Rodeo	Soluble Concentrate	62719-324	Glyphosate, isopropylamine salt
Round Up Pro Max	Soluble Concentrate	524-579	Glyphosate, potassium salt
Safari 20 SG Insecticide	Emulsifiable Concentrate	33657-16-59639	Dinotefuran
Safer Brand Wasp and Hornet Killer	Liquid Aerosol	36488-47	d-Limonene Pyrethrins
Snapshot 2.5 TG	Granular	62719-175	Potassium Salts of Fatty Acids Indian Palmarosa Oil
Talstar P Professional Insecticide	Emulsifiable Concentrate	279-3206	Trifluralin Isoxaben
Tempid SC Insecticide	Soluble Concentrate	432-1483	Bifenthrin
Termidor SC	Soluble Concentrate	7969-210	Imidacloprid beta-Cyfluthrin
Terro Liquid Ant Baits	Ready-to-Use Solution	149-8	Fipronil
TZone	Emulsifiable Concentrate	2217-920	Sodium Tetraborate Decahydrate
Whitmire PT 515 Wasp Freeze	Pressurized Liquid	499-362	Dicamba 2,4-D, 2-ethylhexyl ester Triclopyr, butoxyethyl ester Sulfentrazone d-trans Allethrin d-Phenothrin

² International Agency for Research on Cancer (IARC) found that there is inadequate evidence to link amorphous silica with cancer effects in humans or test animals. (<http://www.epa.gov/oppsrrd1/REDS/factsheets/4081fact.pdf>).