CITY OF PETALUMA
INTEGRATED PEST MANAGEMENT
PROGRAM

PURPOSE:

The Integrated Pest Management Program (IPMP) provides operational procedures for implementing the policy adopted by the City Council titled "Integrated Pest Management Policy." According to that policy, the program shall be developed and maintained by an appointed IPM Coordinator and contain, at minimum, the following:

1. List of approved IPM control methodology, including preventative measures
2. List of prohibited products or processes
3. Procedure for considering and allowing exemptions
4. List of exempted product names, the location at which application is allowed, and the duration for which the exemption has been granted
5. Process for receiving, compiling, and making available to the public records

Section 1. List of Approved IPM Control Methodology

The following minimum-risk pest control products and methods may be used:

1. Caulking agents and crack sealants
2. Borates, silicates, and diatomaceous earth
3. Soap-based products
4. Organic products that are exempt from provisions of the Federal Insecticide, Fungicide, and Rodenticide Act due to their characterization as a minimum risk pesticide (40 CFR § 1 52 .25).
5. National Organic Program-approved products
6. Organic products and generic materials on the Organic Materials Review Institute (OMRI) approved list
7. OMRI-approved and cruelty-free baits and traps for rodents and other mammals. Cruelty-free includes live traps that do not injure the organism trapped, and which allow for re-habitation, or traps that instantaneously kill the organism trapped, such as electrocution traps
8. Cryogenics, electronic products, heat and lights
9. Biological controls, such as parasites and predators
10. Microbial pesticides (naturally occurring microorganisms that target specific pests)
11. Insect growth regulators
12. Physical barriers or removal of material providing pest habitat

The following methodology is representative of the IPM Approach:

1. <u>Perform Accurate Pest Identification</u>

Proper identification of pests is critical in order to establish appropriate thresholds and applicable control alternatives. City staff and contractors shall obtain appropriate training in order to identify pests properly. Qualified instructors shall provide this training and shall be re-occurring in order to maintain proficiency.

2. Establish Action Thresholds

Action thresholds shall be set by the IPM Coordinator such that if exceeded, pest control activity is initiated. Action thresholds may vary by pest, site, or time of year and are established to guide the implementation of control measures necessary to reduce or prevent unacceptable impacts to human and environmental health and safety, economic loss, and functional damage to City facilities and infrastructure.

3. Focus on Preventative Measures
   a) Community Development Department staff shall review all new development and rehabilitation project plans for consistency with Integrated Pest Management in order to prevent pest pressure in excess of action thresholds. For example, habitat manipulation, modification of cultural practices, and use of resistant varieties are acceptable IPM prevention practices.
   b) Use a standardized protocol for the routine and non-routine application of pesticides and fertilizers.
   c) Encourage planting and retention of California native and Mediterranean climate-adapted vegetation to reduce the amount of water, pesticides, and fertilizers.
   d) Ensure pesticides and fertilizers are not applied to an area immediately prior to a likely rain event, during or immediately after a rain event, or when water is flowing off the area.
   e) Limit or replace pesticide use with alternatives such as conducting manual weed removal.
   f) Apply pesticides in accordance with product instructions, or if no instructions exist, with the Department of Pesticide Regulation[1] requirements to prevent surface water contamination.
   g) Minimize irrigation run-off by using efficient methods of irrigation and scheduling, such as an evapotranspiration-based irrigation schedule, soil moisture sensors, and rain sensors as possible.
   h) Store pesticides and fertilizers indoors or under cover on paved surfaces with secondary containment.
   i) Reduce the use, storage, and handling of hazardous materials to reduce the potential for spills.
   j) Regularly inspect storage areas.
   k) City staff, contractors, and lessees shall consider and implement feasible habitat manipulation, use of resistant varieties, and cultural practices that reduce a pest's ability to establish, reproduce, disperse, and survive. This can be accomplished by removing or minimizing the pest's food, water, and shelter sources, and/or by making certain areas less desirable for pests.

4. Monitor Pest Presence
   a) City staff, contractors, and lessees shall monitor for the presence of pests. If monitoring indicates pest presence or damage is less than action thresholds, preventative measures shall be considered and implemented. If monitoring indicates that pest presence or damage is greater than action thresholds, control measures shall be considered and implemented. Pest monitoring shall generally be conducted at least as frequently as routine maintenance is performed.
   b) Findings from pest monitoring shall be used to inform pest management decisions, such as which control measures to implement and when to implement them.

[1] https://www.cdpr.ca.gov/

c) Monitoring records shall be provided to the IPM Coordinator no less than annually by City staff, contractors, and lessees. Monitoring records shall include information such as monitoring date and location, pest identification, size and extent of the pest population, observations of pest damage, control measures utilized, effectiveness of the control measures, and an estimated cost of labor, equipment, and materials.

5. Factors to Consider for the Use of Non-Pesticide Control Measures

City staff, contractors, and lessees shall prioritize the use of non-pesticide control measures over pesticides as follows:

a) Use cultural controls by implementing modifications to typical plant care activities that reduce or prevent pests. In addition to methods used in pest prevention, examples of other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height.
b) Use physical/mechanical control measures to reduce or eliminate pests through manual labor and/or machinery. Examples of physical/mechanical control methods include hand pulling, installation of physical barriers such as weed cloth, or use of machinery (e.g., mowers, traps).
c) Manipulate environmental conditions such as habitat, temperature, light, and humidity that influence a pest or its behavior. For example, birds and mammals may be controlled by modifying or excluding habitat to prevent roosting or reproduction.
d) Introduce biological controls which use living organisms to reduce pest populations. These organisms are often referred to as beneficials, natural enemies, or bio-controls. They act to keep pest populations below thresholds low enough to prevent significant economic damage, particularly when used in combination with other control measures. Examples of bio-controls include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released. Common organisms used for biological control in landscapes are predators, parasites, pathogens, and herbivores.

While the procedure for the prioritization of non-chemical and chemical control practices is applicable to all pests, decision-making on how and when to implement them depends on the pest, its threat level, the site objectives, and the action threshold. Refer to Appendix B for a tabular overview of this decision-making process.

6. Factors to Consider for the Use of Pesticide Controls

a) Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied to minimize risks to human health, beneficial and nontarget organisms, and the environment.
b) Only Organic pesticides may be used unless the IPM Coordinator approves an exemption as provided for in Section 3.
c) All pesticides used are registered by the U.S. Environmental Protection Agency (USEPA) and the California Department of Pesticide Regulation (DPR). Alternatively, pesticides which meet USEPA criteria for “minimum risk pesticides” may be used. Because “minimum risk pesticides” are recognized as posing little to no risk to human health or the environment, USEPA has exempted them from the

requirement that they be registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

d) Prior to a pesticide application, a written recommendation shall be prepared by a DPR-licensed Pest Control Adviser (PCA).
e) Pesticide applications shall be made by an individual holding a DPR Qualified Applicator License (QAL) or Certificate (QAC) or a Structural Pest Control Board (SPCB) License, as applicable.
f) City staff, contractors, and lessees shall utilize pesticides in the order of preference specified below when other methods do not adequately control the pest. EPA Level pesticides shall be used only if deemed necessary to protect public health and economic loss by a licensed PCA and City staff.

7. Pesticide Application Approval

a) Prior to pesticide use:
    i. Pesticide applications shall be approved by the Department Director or their designee for their area of oversight and by the IPM Coordinator. If deemed appropriate, product approvals may be considered valid until the end of each calendar year.
    ii. A written recommendation of proposed pesticide use, including commercial name, concentrations, application rates, and necessary precautions shall be prepared by a licensed PCA and submitted for approval annually.
    iii. Safety Data Sheets and product labels shall be given to Department Directors and the IPM Coordinator prior to pesticide use.
b) No pesticide applications shall occur until all requirements of the Sonoma County Agricultural Commissioner's office[2] have been met.
c) For Facilities and Building Maintenance, the referenced responsibilities of a licensed PCA presented throughout this policy are to be performed by a licensed Structural Pest Control Operator.
d) Non-profit organizations and volunteers assisting the City with land management are prohibited from applying pesticides, except in accordance with this Policy.
e) Pesticides shall be applied in a manner to avoid movement to non-target areas.
f) Precautionary measures shall be employed to keep the public from entering treated areas during application until the spray has dried and/or until the area has been adequately ventilated.
g) Posting of signs shall be made at all park facilities and athletic fields where pesticide applications are made. Specific requirements for posting are as follows:
    i. Post signs at all major entrances at least 48 hours prior to pesticide applications. For pesticide application sites that abut sidewalks or trails, signage may be posted near the application site or at regular intervals (e.g., every 100 ft) facing the pedestrian walkway.
    ii. The name and contact information for the City department responsible for the application, target pest, product name, signal word, and application date must be provided on the sign.
    iii. Signs shall be designed to withstand adverse weather conditions and attached four-foot (4') high stakes. Signs must be readable 25' away.
    iv. Signs should remain posted for 72 hours after the pesticide applications are completed, then removed promptly.

[2] https://sonomacounty.ca.gov/natural-resources/agricultural-weights-and-measures

v. A temporary mesh fence, such as orange plastic construction fencing, may be erected on the perimeter of any area that is to be treated with the intent to keep people and pets off the treated area.

Section 2: List of Prohibited Products and Processes

The following products and processes are prohibited from use by the City of Petaluma employees, contractors, and lessees:

1. Products containing glyphosate
2. Pesticides on the California Proposition 65 list (the Safe Drinking Water and Toxic Enforcement Act of 1986, materials known to the State to cause cancer or reproductive or developmental toxicity), including mutagens and teratogens
3. Known carcinogen, probable carcinogen, or possible carcinogen identified by in the US EPA "List of Chemicals Evaluated for Carcinogenic Potential"
4. Known endocrine disruptors listed by the US EPA Endocrine Disruptor website.
5. Pesticides in the organophosphate category banned or discontinued for residential use by the US EPA
6. Organochlorines banned by the US EPA
7. Foggers, bombs, and fumigants containing pesticides identified by the State of California as potentially hazardous to human health (3 CCR § 6198.5). This does not include organically certified mixes such as mint oil or soap solutions, etc., that may be applied in spray format.

Section 3 – Procedure for considering and allowing exemptions

When an exception from the IPM Policy is determined by City staff, contractors, or lessees to be necessary, the following procedure shall be used prior to application:

1. Requestor must contact the IPM Coordinator to discuss the pest issue, alternative control methods, and desired exemption.
2. Requestor must complete a Pesticide Exemption Request form (Appendix B) and submit to the IPM Coordinator for review.
3. If recommended by the IPM Coordinator, the form will be submitted to the City Manager for consideration.
4. If approved by the City Manager, the IPM Coordinator will inform the Requestor that they may proceed with a one-time, pilot application or time-limited basis. Time-limited exemptions shall not exceed one year per exemption request. Requestors may submit an additional exemption request no earlier than 30 days prior to the expiration of the existing exemption.

Notes to Exemption Process:

1. Approvals must be obtained prior to the pesticide application.
2. Exemptions will only be granted in cases of documented and justified need for the variance as it relates to public health and safety and/or noxious pest control, including alternative control measures implemented

and deemed ineffective or impractical and documentation that the recommended pesticide is the least toxic pesticide available to control the target pest.

3. Under no circumstances will pesticides banned by the US EPA be used on City-owned or City-operated properties.
4. Exemptions will be granted if an emergency or other unforeseen circumstance exists that threatens the health and safety of City residents or the preservation and protection of City resources.
5. IPM Coordinator has sole discretion to revoke any exemption approval if determined to be in the best interest of the City and in keeping with the IPM Policy and Program.

Section 4 – List of exempted product names, the location at which the application is allowed, and the duration for which the exemption has been granted

(Currently none. To be updated as needed by IPM Coordinator)

Section 5 – Process for receiving, compiling, and making available to the public records

1. Records of all pesticide usage by City staff, contractors, and lessees shall be provided to the IPM Coordinator monthly. The IPM Coordinator shall maintain a city webpage that lists historical and current IPM activity and upon request under the California Public Records Act.
2. The IPM Coordinator shall retain pesticide use records in accordance with California Department of Pesticide Regulation[3] requirements and assist City Departments in providing any reporting to the City Council.
3. Records of all applications shall be kept per California Department of Pesticide Regulation and California Structural Pest Control Board (SPCB)[4] requirements and City retention schedule.
4. An annual report shall present descriptions of IPM activities and estimated costs and acres managed using all methods to document IPM program achievements and trends over time. IPM Program goals and priorities for the following year shall also be included.

ACKNOWLEDGEMENTS: The City of Petaluma thanks the Cities of Irvine, San Francisco, Cotati, and Windsor for sharing elements of their policies for inclusion in this document, as well as the community working group and Ad-Hoc Subcommittee of the Recreation, Music, and Parks Commission.

[3] https://www.cdpr.ca.gov/
[4] https://www.pestboard.ca.gov/

Appendix A - Definitions

Acute Toxicity

The adverse effects of a substance that result either from a single exposure or from multiple exposures in a short period of time (usually less than 24 hours). To be described as *acute* toxicity, the adverse effects should occur within 14 days of the administration of the substance.

Banned Pesticides

A pesticide will be considered a "banned pesticide" if it has been banned by the US EPA and is therefore not legal for sale and use in the United States.[5]

Best Management Practices (BMPs)

BMPs means actions based on current science and technology that have been proven to be effective in the control and management of the site or pest to prevent or reduce the incidence of pest problems, with careful consideration given to protecting public health and safety, wildlife, and the environment.

Carcinogen

Any substance that has the potential to cause cancer in living tissues. Carcinogen exposure can occur from the inhalation, ingestion, or absorption of many different types of substances into our bodies. Carcinogens cause changes to DNA at the cellular level and affect the rate of cell division.

Chronic Toxicity

Adverse health effects from repeated exposures of a substance, often at lower levels, over an extended time (months or years).

City

Any property owned or operated by the City of Petaluma.

CDPR Certified Applicator

A person who is certified by the California Department of Pesticide Regulation to apply pesticides.

Integrated Pest Management

An ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest

[5] https://www.epa.gov/pesticide-worker-safety/restricted-use-products-rup-report

control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non- target organisms, and the environment[6].

IPM Coordinator

The person designated as responsible for IPM program coordination for the City.

Mutagenicity

A physical or chemical agent that changes the genetic material, usually DNA, of an organism and thus increases the frequency of mutations above the natural background level.

National Organics Program

A program of the United States Department of Agriculture for listing substances in compliance with organic regulations[7]. Substances and ingredients are listed in the National List of Allowed and Prohibited Substances[8].

No Action

An option for pest managers to refrain from using any chemical pesticide, even if some pests remain present after the use of non-chemical methods. This option allows for some presence of pests if that level of pest presence is not detrimental to health and safety and maintains an acceptable aesthetic.

OMRI

The Organic Materials Review Institute (OMRI)[9] is an international nonprofit organization that is a recognizable resource to determine which input products are allowed for use in organic production and processing.

Organochlorines

Organochlorine pesticides are chlorinated hydrocarbons used extensively from the 1940s through the 1960s in agriculture and mosquito control. Representative compounds in this group include DDT, methoxychlor, dieldrin, chlordane, toxaphene, mirex, kepone, lindane, and benzene hexachloride. Most of these are banned for sale and use in the United States by the US EPA.

Organophosphates

Organophosphates are chemical substances originally produced by the reaction of alcohols and phosphoric acid and include insecticides, such as diazinon, chlorpyrifos, disulfoton, azinphos- methyl, and fonofos, which

[6] https://ipm.ucanr.edu/what-is-ipm/
[7] https://www.ecfr.gov/current/title-7/subtitle-B/chapter-I/subchapter-M/part-205?toc=1
[8] https://www.ecfr.gov/current/title-7/subtitle-B/chapter-I/subchapter-M/part-205/subpart-G/subject-group-ECFR0ebc5d139b750cd
[9] https://www.omri.org/

have been used widely in agriculture and in household pest control. Chlorpyrifos has been discontinued in residential uses.

Organic

Organic or “non-synthetic” refers to pesticides that often originate from natural sources. Organic pesticides which are recognized by organizations such as the Washington State Department of Agriculture (WSDA) Organic Program, the Organics Materials Review Institute (OMRI), and/or the United States Department of Agriculture (USDA) National Organic Program.

Pests

Pests are organisms that damage or interfere with desirable plants in our fields and orchards, landscapes, or wildlands, or damage homes or other structures. Pests also include organisms that impact human or animal health. Pests may transmit disease or may be just a nuisance. A pest can be a plant (weed), vertebrate (bird, rodent, or other mammal), invertebrate (insect, tick, mite, or snail), nematode, pathogen (bacteria, virus, or fungus) that causes disease, or other unwanted organism that may harm water quality, animal life, or other parts of the ecosystem.

Pesticide

Federal law broadly defines a "pesticide" as any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest. Pests can be insects, mice and other animals, weeds, fungi or micro-organisms. Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, rodenticides, and various other substances used to control pests. A pesticide is also any substance or mixture of substances intended for use as a plant growth regulator, defoliant, or desiccant.

Signal Word

A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. Pesticide signal words are 'Danger,' 'Warning,' and 'Caution.'

Synthetic

Pesticides which are developed and/or produced in a laboratory or industrial setting.

Teratogen

Any agent that causes an abnormality following fetal exposure during pregnancy.[10]

[10] https://www.ncbi.nlm.nih.gov/books/NBK132140/

Appendix B – Policy Exemption Form

This form is to be used to request an exemption for use of a pesticide product that is not included on the Allowed Reduced-Risk Pesticide List. This form shall be submitted to the IPM Coordinator in advance of the pesticide application requested.

Application Information

Name_____ Department/Division _____

Phone_____ Email _____

Proposed Chemical Treatment: _____

Dates(s) of Proposed Use: _____

Product Name: _____

Active Ingredients*: _____

EPA Registration# Pesticide Type

_____

(Insecticide, Herbicide, Fungicide, etc.)

**Attach product label and MSDS Sheet*

Use Location

Street Address: _____

Detailed Location On-site: _____
(attach map if needed)

Justification

Target Pest: _____Date IPM Coordinator Notified:_____

Justification for Use

Explanation of Alternative Controls Tried

Strategies to Prevent Future Exemptions

Additional Comments

IPM Coordinator Review: _____ Date: _____

City Manager Approval: _____Date: _____

Appendix C – Threat Matrix:

The threat matrix below represents the decision-making process used to select the appropriate IPM action(s) to take based on the pest, the site objectives, and the action threshold. Pests that may be managed as part of the IPM Program include:

- Plant pests such as yellow starthistle, perennial pepperweed, and vegetation obstructing site lines for air or vehicular travel
- Vertebrate pests such as burrowing rodents, rats, mice, and geese
- Fungal pathogens such as anthracnose, pink snow mold, powdery mildew, dry rot, and *Phytophthora ramorum*
- Insect pests such as stinging insects, termites, aphids, and cockroaches

Example threat matrices for gophers in park lawn and turf areas and termites in City structures are provided below. Note: any management method in the Chemical Controls (Synthetic) column would require an approved exemption prior to application.

Example IPM Threat Matrix: Gophers in Park Lawn and Turf Areas

Description of pest problem: Pocket gophers in park lawn and turf areas, including athletic fields, create burrow mounds and holes which interfere with mowing equipment and present tripping hazards to recreational users. Gophers can also damage desirable plants and City property such as irrigation lines as a result of their feeding and gnawing behavior. The threat level for this pest is between Level 2 and Level 3 in surveyed sites and has a maximum potential threat Level of 4.

	Example IPM Method Options From Most to Least Preferred				
Pest Threat Level	**Cultural Controls**	**Biological Controls**	**Physical/ Mechanical Controls**	**Chemical Controls (Organic)**	**Chemical Controls (Synthetic)**
Level 1 - Pest or pest damage has been observed but is not significantly impacting human or environmental health, City operations, or infrastructure. Pest presence can be tolerated at current levels.	Prevention (or no action)	N/A	N/A	N/A	N/A
Level 2 - Pest pressure has increased such that the action threshold has been met. Pest management is needed to prevent unacceptable impacts to human or environmental health, City operations, or infrastructure.	Prevention, habitat modification, repellents, frightening devices, flooding	Release or facilitation of control by predators such as owls and raptors	Physical exclusion, trapping, non-chemical fumigation, gas explosive devices	N/A	N/A
Level 3 - Pest pressure has increased or expanded such that reliance on solely non-chemical control methods does not adequately prevent unacceptable impacts to human or environmental health, City operations, or infrastructure (e.g., due to effectiveness, available resources, or scale).				Currently unavailable	N/A
Level 4 - Pest pressure has increased or expanded such that unacceptable impacts to human or environmental health, City operations, or infrastructure may be imminent without further intervention. Pest infestations are not effectively controlled through the sole use of non-chemical and organic methods.					Rodenticide baits, fumigation
Level 5 - A pest capable of rapidly causing unacceptable impacts to human or environmental health, City operations, or infrastructure has been observed and requires immediate action. The risks posed by the pest outweigh the risks posed by selective use of synthetic pesticides and must be mitigated promptly and effectively.	N/A	N/A	N/A	N/A	N/A

Example IPM Threat Matrix: Termites in City Structures

Description of pest problem: Drywood termite infestations can cause hazardous and costly structural damage to City buildings. Because they can be difficult to detect, it is important to work with management professionals to perform pest inspections, determine the extent of damage, and effectively manage infestations. When detected, the threat level for this pest is anticipated to be between Level 2 and Level 5.

	Example IPM Method Options From Most to Least Preferred				
Pest Threat Level	**Cultural Controls**	**Biological Controls**	**Physical/ Mechanical Controls**	**Chemical Controls (Organic)**	**Chemical Controls (Synthetic)**
Level 1 - Pest or pest damage has been observed but is not significantly impacting human or environmental health, City operations, or infrastructure. Pest presence can be tolerated at current levels.	Prevention via use of pressure treated lumber and resistant woods for building construction	N/A	N/A	N/A	N/A
Level 2 - Pest pressure has increased such that the action threshold has been met. Pest management is needed to prevent unacceptable impacts to human or environmental health, City operations, or infrastructure.		Currently unavailable	Physical barriers, heat treatment (whole structures), electrocution or microwaves (localized treatments)	N/A	N/A
Level 3 - Pest pressure has increased or expanded such that reliance on solely non-chemical control methods does not adequately prevent unacceptable impacts to human or environmental health, City operations, or infrastructure (e.g., due to effectiveness, available resources, or scale).				Currently unavailable	N/A
Level 4 - Pest pressure has increased or expanded such that unacceptable impacts to human or environmental health, City operations, or infrastructure may be imminent without further intervention. Pest infestations are not effectively controlled through the sole use of non-chemical and organic methods.					Insecticide liquids, dusts, or foams (localized treatments), fumigation
Level 5 - A pest capable of rapidly causing unacceptable impacts to human or environmental health, City operations, or infrastructure has been observed and requires immediate action. The risks posed by the pest outweigh the risks posed by selective use of synthetic pesticides and must be mitigated promptly and effectively.	N/A	N/A	N/A	N/A	