



INTEGRATED PEST MANAGEMENT PLAN

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**Parks & Recreation Department
Public Works Department**

Section I - Purpose

The purpose of this Integrated Pest Management (IPM) plan is to direct health conscious and environmentally sensitive pest management strategies on city owned or controlled properties and public rights of way, in accordance with applicable federal, state and local regulations.

Section II - Policy

The city will focus on the prevention and suppression of pest issues with the least impact on human health, the environment, and non-target organisms. In particular, the use of chemical pesticides on city owned or operated properties and public rights of way will be significantly reduced, according to these guiding principles:

- A. Emphasize the initial use of organic pesticides.
- B. Limit the use of chemical pesticides where the general public congregates.
- C. Use EPA level pesticides in a targeted manner, and only if deemed necessary by supervisory staff - to protect public safety; to prevent a threat to sensitive species or native habitats; to assist in meeting regulatory compliance requirements; or to prevent economic loss - when pests cannot be managed by other tactics.

Section III - Goals

The goals of the IPM plan are:

- A. Protect human health and the surrounding environment by implementing a range of preventative strategies, and using the least-toxic pesticides available for pest control and eradication.
- B. Monitor presence of pests on a routine basis to ensure the most effective (combination of) pest control tactics are being used. Reference Section VI. E. 6.
- C. Minimize the quantity of products used for pest management.
- D. Use species-specific products for pest management and carefully target application areas.
- E. Chemical pesticides shall only applied to: protect public safety; to prevent a threat to sensitive species or native habitats; to assist in meeting regulatory compliance requirements; or to prevent economic loss - when pests cannot be managed by other tactics.
- F. Provide public notification signs at perimeter of outdoor areas or at entrances of buildings, where chemical pesticides are to be applied.

Section IV - Response

One of the characteristics of an IPM approach that make it effective is that the basic decision making process is the same for any pest problem in any location. The strategies and tactics may change, but the steps taken to decide if and when treatment is needed, and which methods to use, are the same each time. The IPM plan is built around the following components:

- A. Routinely monitoring the pest populations and other relevant factors
- B. Accurately identifying the pest
- C. Determining injury and action levels that trigger treatments
- D. Timing treatments to the best advantage
- E. Spot treating the pest (to minimize human and other non-target organism exposure to pesticides)
- F. Selecting least disruptive tactics
- G. Evaluating the effectiveness of treatments to determine future actions



Section V - General Preventative Practices

General preventative practices are simple landscaping procedures that eliminate sources of food, water and shelter that attract pests to the building or grounds. The city shall use the following methods as the foremost means for controlling pests and preventing outbreaks:

- A. Install mulch and other landscaping best practices to promote soil and plant health.
- B. Use weed-free soil amendments.

- C. Plan and maintain landscape features to eliminate safe havens for pests and rodents.
- D. Clean up plant debris, especially from fruit-bearing trees.
- E. Remove invasive plants that are known to harbor or provide food for pests.

Section VI - Pest Control Tactics

Integrated Pest Management uses a variety of pest control tactics in a compatible manner that minimize adverse effects to human health and the environment. A combination of several control tactics is usually more effective in minimizing pest damage than any single control method. The type of control(s) selected will likely vary on a case-by-case basis due to differing site conditions.

The primary pest control tactics to choose from include:

- Cultural
- Mechanical
- Environmental/Physical
- Biological
- Pesticide

A. Cultural Controls

Cultural controls are modifications of normal plant care activities that reduce or prevent pests. Cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height. For example, spider mite infestations are worse on water-stressed plants; over-fertilization may cause succulent growth which then encourages aphids; too low of a mowing height may thin turf and allow weeds to become established.

B. Mechanical Controls

Mechanical control tactics involve the use of manual labor and machinery to reduce or eliminate pest problems, such as handpicking, physical barriers, or machinery. Other examples include hoeing and applying mulch to control weeds, using trap boards for snails and slugs, and use of traps for gophers.

C. Environmental/Physical Controls

The use of environmental/physical controls such as altering temperature, light, and humidity, can be effective in controlling pests. Although in outdoor situations these tactics are difficult to use for most pests, they can be effective in controlling birds and mammals if their habitat can be modified such that they do not choose to live or roost in the area. Other examples include removing garbage in a timely manner, and using netting or wire to prevent birds from roosting.

D. Biological Controls

Biological control practices use living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Biocontrols can occur naturally or they can be purchased and released.

The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

- Predators are organisms that eat their prey (e.g. Ladybugs)
- Parasites spend part or all of their life cycle associated with their host. Common parasites lay their eggs in or on their host and then the eggs hatch, the larvae feed on the host, killing it (e.g. tiny stingless wasps for aphids and whiteflies)
- Pathogens are microscopic organisms, such as bacteria, viruses, and fungi that cause diseases in pest insects, mites, nematodes, or weeds (e.g. *Bacillus thuringiensis* or BT)
- Herbivores are insects or animals that feed on plants. These are effective for weed control. Biocontrols for weeds eat seeds, leaves, or tunnel into plant stems (e.g., goats and some seed and stem borers)

In order to conserve naturally occurring biocontrols, broad-spectrum pesticides should not be used since the use of these types of pesticides may result in secondary pest outbreaks due to the mortality of natural enemies that may be keeping other pests under control

E. Pesticide Controls

As defined in California Food and Agriculture Code Section 12753, “Pesticide” includes any of the following: (a) any spray adjuvant; (b) any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth or for preventing, destroying, repelling or mitigating any pest...which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever. The term pesticides includes organic products and chemical products. Insecticides, herbicides, fungicides and rodenticides are all pesticides.

Pesticides may be used when other methods fail to provide adequate control of pests and before pest populations cause unacceptable damage. When pesticides are to be used, considerations will be made for how to apply them most effectively.

Pesticides that are broad-spectrum and persistent shall be avoided, since they can cause more environmental damage and increase the likelihood of pesticide resistance. The overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop. In addition, considerations should be given to the proximity to water bodies, irrigation schedules, weather, etc., that may result in the pesticide being moved offsite, into the environment.

1. Criteria for Selecting Treatment Strategies

Once the IPM decision making process is in place and monitoring indicates that pest treatment is needed, the choice of specific strategies can be made. Strategies will be chosen that are:

- a) Least hazardous to human health
- b) Least disruptive of natural controls in landscape situations
- c) Least toxic to non-target organisms other than natural controls
- d) Most likely to be permanent and prevent recurrence of the pest problem
- e) Easiest to carry out safely and effectively

- f) Most cost effective in the long term
- g) Appropriate to the site and maintenance system

2. Selection of Appropriate Pesticides

The following criteria will be used when selecting a pesticide:

- a) Safety
- b) Species specificity
- c) Effectiveness
- d) Endurance
- e) Speed
- f) Repellency
- g) Cost

When selecting pesticides, supervisory staff will rely on advisement from State of California certified pest control applicators, to ensure that the most appropriate pesticide is selected.

3. Prioritized Use of Pesticides

Pesticides are to be utilized in a prioritized approach on city properties as follows:

- a) Organic pesticides to be used first, when pesticides are deemed necessary.
- b) Pesticides registered with the California Department of Pesticide Regulations Registrations Branch to be used as a protocol.
- c) U.S. Environmental Protection Agency (EPA) Toxicity Category III “Caution” label pesticides to be used in a targeted manner by a certified pest control applicator, and only if deemed necessary by supervisory staff - to protect public safety; to prevent threats to sensitive species or native habitats; to assist in meeting regulatory compliance requirements; or to prevent economic loss - when pests cannot be managed by other tactics.
- d) U.S. EPA Toxicity Category II “Warning” label pesticides to be used in a targeted manner by a certified pest control applicator, and only if deemed necessary by supervisory staff - to protect public safety; to prevent threats to sensitive species or native habitats; to assist in meeting regulatory compliance requirements; or to prevent economic loss - when pests cannot be managed by other tactics.
- e) U.S. EPA Toxicity Category I “Danger” label pesticides, to be used in a targeted manner by a certified pest control applicator, and only if deemed necessary by supervisory staff - to protect public safety; to prevent threats to sensitive species or native habitats; to assist in meeting regulatory compliance requirements; or to prevent economic loss - when pests cannot be managed by other tactics.

4. Certification and Permitting

Restricted use pesticides shall only be applied by, or under the direct supervision of, an individual with a State of California, Department of Pesticide Regulations, Qualified Applicators Certificate.

Pesticides listed as "restricted" in the State of California shall be applied only under a restricted materials permit, issued by the San Diego County Department of Agriculture, Weights and Measures. The permit must be renewed annually for continued application.

5. Employee Training

Staff and contractors must know the information on the chemical label and the MSDS before using or handling the chemical. In addition, they will be trained annually and when a new pesticide is to be used.

The certified pest control applicators must know:

- The immediate and long-term health hazards posed by chemicals to be used, the common symptoms of chemical poisoning, and the ways poisoning could occur; and
- The safe work practices to be followed, including the appropriate protective clothing, equipment, mixing, transportation, storage, disposal and spill cleanup procedures applicable to the chemical used
- In addition to the training and annual continuing education required for certification, staff will be encouraged to participate in pesticide application programs that are above and beyond minimum compliance requirements.

6. Record Keeping

Monitoring the effectiveness of the IPM plan over time requires diligent tracking of several items: pest populations and locations; management strategies employed; quantities and types of chemicals or other products used; and the outcome of pest management activities. The certified pest control applicator is responsible for maintaining, and submitting to the city as requested, records that include the following:

- a) Target pest
- b) Prevention and other non-chemical methods of control used
- c) Type and quantity of pesticide used
- d) Location of the pesticide application
- e) Date of pesticide application
- f) Name of the pesticide applicator
- g) Application equipment used
- h) Summary of results

7. Materials for Use - Least Toxic Pesticides

Pesticides are considered a secondary resort under the tenets of IPM. This control strategy is to be used on city owned or controlled properties and rights of way after general preventative practices and non-chemical options - including organic pesticides - have been fully explored. Least-toxic pesticides meet the following criteria:

- a) Products contain no known, likely, or probable carcinogens - as listed by the CA Office of Environmental Health Hazard Assessment.
- b) Products contain no reproductive toxicants (CA Prop 65).

- c) Products contain no items listed by the CA Department of Toxic Substance Control as known, probable, or suspected endocrine disrupters
- d) Active ingredients have soil half-life of thirty days or less.
- e) Products are labeled as not toxic to fish, birds, bees, wildlife, or domestic animals.

The term “least toxic” refers to pesticides that have low or no acute or chronic toxicity to humans, affect a narrow range of species and are formulated to be applied in a manner that limits or eliminates exposure of humans and other non-target organisms. Examples of least toxic pesticides include products formulated as baits, pastes or gels that do not volatilize in the air and that utilize very small amounts of the active ingredient pesticide, and microbial pesticides formulated from fungi, bacteria or viruses that are toxic only to specific pest species but harmless to humans.

Least toxic pesticides include:

- Boric acid and disodium octobrate tetrahydrate
- Silica gels
- Diatomaceous earth
- Nonvolatile insect and rodent baits in tamper resistant containers
- Microbe based pesticides
- Pesticides made with essential oils (not including synthetic pyrethroids) without toxic synergists
- Materials for which the inert ingredients are nontoxic and disclosed.

The term least toxic pesticides does not include a pesticide that is:

- a) Determined by the U.S. EPA to be a possible, probable or known carcinogen, mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disrupter or immune system toxin.
- b) A pesticide in the U.S. EPA’s Toxicity Category I or II.
- c) Any application of the pesticide using a broadcast spray, dust, tenting, or fogging application.

8. Notification Signs

Chemical pesticide application notification signs shall meet the following criteria:

- a) Posted at perimeter of outdoor areas or at building entrances, where chemical pesticides are to be applied.
- b) Posted at least 24 hours prior to application of chemical pesticides and shall remain for at least 72 hours after the application.
- c) Include “Notice - Pesticide Treated Area,” and product’s/manufacturer’s name, scheduled date of application, and pest to be controlled - e.g., weeds, insects, rodents.

9. Revisions

Staff will review this IPM plan annually at minimum, and update it as needed.