

## CleanEarth4Kids Step Up to Protect Children's Health Integrated Pest Management Program

### PURPOSE

The purpose of this Integrated Pest Management Program (IPM) is to direct health conscious and environmentally sensitive pest management strategies on City owned, leased and managed parks, beaches, buildings and facilities including City landscape medians and parkways in accordance with applicable federal, state and local regulations.

The primary goal of the IPM is to protect human health and the surrounding environment by reducing, if not eliminating pesticide usage on City owned and leased properties, specifically wherever people and children congregate such as parks, athletic fields, playgrounds and beach areas.

An initial first step/goal would be to achieve a plan similar to the city of Malibu's that prohibits the use of synthetic fertilizers and chemical pesticides such as herbicides, insecticides, and rodenticides on all City-owned, managed, or leased properties. This follows the innovative Earth Friendly Management Policy (EFMP), an adopted strategy that designates a natural organic approach to the total environment. The EFMP serves as an exemplary example of a strong and safe IPM that accounts for the health of soil, humans, plants, and more.

Many pesticides used in the City are possibly neurotoxic and carcinogenic, and also are a suspected cause of endocrine disruption, kidney/liver damage, and reproductive and child development issues.<sup>1</sup> Research has shown that children are more vulnerable to pesticide exposure because their organs, nervous systems, and immune systems are still developing<sup>2</sup>. Chronic health effects from pesticide exposure include cancer and other tumors, brain and nervous system damage, birth defects, infertility and other reproductive problems along with damage to the liver, kidneys, lungs and other body organs. Chronic effects may not appear for weeks, months or even years after exposure.<sup>3</sup>

These pesticides can also be toxic to surrounding wildlife, including microorganisms in the soil that are responsible for sequestering more carbon than the atmosphere and all

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<sup>1</sup> ["Gateway on Pesticide Hazards and Safe Pest Management,"](#) Beyond Pesticides, accessed Jan 2, 2021

<sup>2</sup> ["Pesticide Exposure and Child Neurodevelopment,"](#) National Institutes of Health, accessed Jan 13, 2021

<sup>3</sup> ["Chemical Pesticides and Human Health: The Urgent Need for a New Concept in Agriculture,"](#) National Institutes of Health, accessed Jan 12, 2021

plants combined.<sup>4</sup> Therefore, significantly limiting pesticide use will improve public health, protect the environment, and help combat the greenhouse effect.

The IPM also applies to any City-owned, managed, or leased agricultural zoned lands as pesticide use on these properties is especially high, increasing the threat to human health.

20% of all pesticides used in the United States are in California, yet California cropland is only 2-3% of total planted acreage in the U.S. In 2015, 23% of the 213 million pounds of pesticides used were considered especially dangerous, linked to acute poisoning, cancer, birth defects, sterility, neurotoxicity, damage to the developing child, and or contamination of groundwater<sup>5</sup>. Many of these pesticides are banned in other countries, including China and the European Union.<sup>6</sup>

### Precautionary Principle

1. The City will use the precautionary principle to reduce risk from the use of pesticides as a lack of full scientific certainty of harm does not allow the use of a product that poses potential harm to human health and the environment.

The City:

- will take preventive action in the face of uncertainty
- seek alternatives to potentially harmful activities
- increase public participation and transparency in decision-making

### Policy

In addressing pest management needs, the City shall focus on long-term prevention or ongoing suppression of pest problems, including consideration of a “no action” approach to minimize or eliminate the use of any chemical pest control methods.

It is the policy of the City of that:

- 1) A tiered approach will be followed in managing pests using cultural, mechanical/physical, environmental, and biological controls. Only when these methods have been shown to be inadequate and there is a risk to public property or health or a threat to a sensitive habitat or species as required by local, state or federal law may pesticides be used. The use of pesticides will be a last resort, the least toxic

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<sup>4</sup> [“Can Soil Help Combat Climate Change?”](#), Columbia University *State of the Planet* blog, Feb 21, 2018

<sup>5</sup> [“California Pesticide Use”](#), Californians for Pesticide Reform, accessed Jan 2, 2021

<sup>6</sup> [“New Study: United States Uses 85 Pesticides Outlawed in Other Countries,”](#) Center for Biological Diversity, accessed Jan 5, 2021

to human health, targeted to the pest and never used wherever the public congregates.

- 2) Any Department or contractor providing pest management services will comply with the City's IPM Program. This program will apply to all property and grounds owned, leased, or managed by the City, including all City departments and agricultural land.
- 3) The City requires all pest management services on all property owned, leased, or managed by the City to comply with the City's IPM Program. Lease holders are required to follow the IPM including reporting requirements.
- 4) Departments performing pest management will educate and train City staff on the IPM program, practices and policies along with safe alternatives to the use of chemicals.
  - a) City staff will be trained on the Best Management Practices (BMP's) on following a tiered approach, using alternatives to pesticides, and selecting and applying pesticides when absolutely necessary.
  - b) Staff will be trained on the public health concerns that pesticide use poses and the use of buffer zones minimize the health risk.
    - i) When applying pesticides, airborne particles can be picked up by the wind and land in residential areas, wildlife habitats, etc. where it was not intended to go. Therefore, measures like buffer zones, which are radii of protection from pesticide use in vulnerable areas, are crucial. For those who are in the vicinity of pesticide application and the surrounding area, they might suffer damage to their neurological function, central nervous system, and respiratory system, among others.
    - ii) More information on applying pesticides can be found on the Pesticide Environmental Stewardship website [here](#).
- 5) Monitor presence of pests on a routine basis and ensure the most safe and effective pest control methods are being used.
- 6) Effectively communicate usage of any chemical pesticides through signs, notices, and on-line literature to the public minimum 48 hours before application.
- 7) Chemical pesticides will only be used when all other controls have been shown to be inadequate and there is a risk to public property or health or a threat to a sensitive habitat or species as required by local, state or federal law.
  - a) Use and risk along with details of controls tried will be documented and effectively communicated to the public.
  - b) Use will be approved in writing by the Department Director for their area of oversight.
  - c) Approval and accompanying documentation will be communicated to the public minimum 48 hours before application.
- 8) No pesticide or chemical will be used that is on the PAN HHP (Pesticide Action Network Highly Hazardous Pesticides) list. Link [Here](#). These include, but are not limited to:

## Pesticides added to the PAN HHP List since January 2009

### 2009-2011

Alanycarb  
Amidosulfuron  
Asulam, sodium salt  
Benfuracarb  
Bensulide  
beta-HCH; beta-BCH  
Bioresmethrin  
Blasticidin-S  
Borax; disodium tetraborate decahydrate  
Boric acid  
Carbosulfan  
Chlordimeform  
Chlorpropham  
Clopyralid  
Cyhalothrin  
Cyhalothrin, gamma  
Diafenthiuron  
Dimofuron  
Dimoxystrobin  
Dinotefuran  
Diquat dichloride  
Dithianon  
E-Phosphamidon  
EPTC  
Ethaboxam  
Ethirimol  
Fenchlorazole-ethyl  
Fenothiocarb  
Fenpropidin  
Flufenoxuron  
Glufosinate-ammonium  
Lenacil  
Metazachlor  
Metobromuron  
Metoxuron  
Metsulfuron-methyl  
Milbemectin  
Naled  
Napropamide  
Nicosulfuron  
Nitenpyram  
Nitrobenzene

Oxycarboxin  
Penconazole  
Pentachlorobenzene  
Pirimiphos-methyl  
Prallethrin  
Profenofos  
Pyraclofos  
Pyrazophos  
Pyridaben  
Pyridiphenthion  
Pyrifenoxy  
Quinmerac  
Rotenone  
Silaflofen  
Sintofen  
Temephos  
Tralomethrin  
Tributyltin compounds  
Triphane  
Validamycin  
XMC

### Since 2011

Penthiopyrad  
Penflufen  
Sedaxane  
o-phenylphenol  
**Group:** Paraffin oils, Mineral oils  
*Paraffin oil (see group table)*  
Isopyrazam  
Amisulbrom  
Spinetoram  
Pyridalyl  
Penflufen  
Isopyrazam  
Ipconazole  
Penthiopyrad  
Sedaxane  
Fluxapyroxad  
Metazachlor  
Fuberidazole  
Oxadiazyl  
Zinc phosphide

Cyflufenamid

### Since June 2013

Magnesium phosphide  
Proquinazid  
Aclonifen  
Imiprothrin  
Sulfoxaflor  
Climbazole  
Metaflumizone  
Aminocyclopyrachlor

### Since November 2013

Anthraquinone  
Bromoxynil heptanoate  
Bromoxynil octanoate  
Chlorantraniliprole  
Chlorfluazuron  
Copper (II) hydroxide  
Fluazolate  
Flumetralin  
Halfenprox  
Prothiofos  
Pyrazachlor  
Tolfenpyrad

### Since June 2014

Glyphosate

### Since June 2015

Pendimethalin  
Triflumizole  
Group: Borax, borate salts (*see table Grouped Pesticides below*)

## TIERED APPROACH TO PEST CONTROL MEASURES

### Selection Criteria for Pest Management Controls

In selecting a pest management method all personnel shall consider the following factors and any additional factors relevant to the selection.

#### 1) Nature of the site

- Susceptibility to erosion and potential soil movement from water runoff
- Intended use and function of the landscape
- Feasibility of the control method, site location and scope of the problem
- Relative importance and public expectation of the site and plantings

- Site conditions such as soil type, grade, drainage patterns, and presence of surface water

2) Possible health and safety effects – Consider both short and long-term toxicological properties and any other related potential health effects of the materials or methods, both to the applicator and the public

- Equipment operation safety issues for both the operator and the public
- Worker safety and worker injury issues involved with carrying out the method

3) Possible environmental effects – Consider both acute and chronic toxicity and related potential effects of the material or method to non-target organisms including mammals, birds, amphibians, fish, invertebrates and other organisms

- Environmental effects from potential bioaccumulation
- Potential impacts to non-target plants and other organisms from materials or methods
- Potential impacts to federally listed threatened or endangered species
- Possible introduction or establishment of invasive plants

4) Costs – Short and Long Term Financial Impacts x Costs of the material or method

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

5) Characteristics of the Control

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

6) Special Considerations

- Application equipment availability
- Method of delivery
- Weather conditions
- Previous use of control to the site and the interval between treatments
- Possible development of pest resistance to a particular management method or material
- For natural area invasive plant removal, the presence of nesting birds in area to be treated

## **Cultural, Mechanical/Physical, Environmental and Biological Control Methods**

These methods are to be used first when addressing any pest problem:

### **Cultural Controls**

The City shall utilize cultural controls which are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, crop isolation, trap cropping and mowing height.<sup>7 8</sup>

### **Mechanical and Physical Controls**

The City will utilize mechanical control tactics involving the use of manual labor and machinery to reduce or eliminate pest problems using methods such as handpicking, physical barriers like escutcheons, grates, fences, and door sweeps, or machinery to reduce pest abundance indirectly.

Physical control refers to mechanical or hand controls where the pest is actually attacked and destroyed. Physical controls are used mostly in weed control. Tillage, fire, removal by hand, grazing and mowing are all used to destroy weeds and prevent reproduction.

### **Environmental Controls**

The City will utilize the environmental habitat manipulation that indirectly controls or prevents pests by altering temperature, light, and humidity. 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.

### **Biological Controls**

The City will utilize biological control practice which uses living organisms to reduce pest populations. These organisms are often referred to as biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released. The most common

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<sup>7</sup> Hill, Stuart. (2021). "[Pest Control in Sustainable Agriculture](#)"

<sup>8</sup> "[What Is Integrated Pest Management \(IPM\) Cultural Controls](#)", Univ of California Agriculture & Natural Resources, accessed Jan 15, 2021

organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.<sup>9</sup> For example, install owl and bat boxes and raptor perches to control rodent populations.

## **Pesticide Control Measures**

Chemical pesticides will only be used when other controls have been shown to be inadequate and there is a risk to public property or health or a threat to a sensitive habitat or species as required by local, state or federal law. The use of chemicals shall be a last resort, the least toxic to human health, targeted to the pest and never used wherever the public congregates.

### **Materials for Use: Least Toxic Pesticides**

The term “least toxic” refers to pesticides that have low or no acute/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 proven to be harmless to humans.

Least-toxic pesticides meet the following criteria:

1. Products contain no known, likely, or probable carcinogens as listed by the OEHHA CA Office of Environmental Health Hazard Assessment which also includes glyphosate.
2. Products contain no reproductive toxicants under CA Prop 65.
3. Products contain no items listed by the CA Department of Toxic Substance Control as known, probable, or suspected endocrine disrupters.
  - a. Endocrine disruptors are chemicals that interfere with the endocrine system, a chemical messenger system in the body. This system is responsible for how different parts of the body interacts and contacts other parts of the body. Disruption of this system can lead to birth defects, developmental problems, and cancerous tumors.
4. Active ingredients have soil half-life of 30 days or less.
  - a. Half life is defined as the time it takes for the original substance to reduce to half its original amount (due to decay or reactions).

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<sup>9</sup> [“Integrated Pest Management Biological Controls”](#), Univ of California Agriculture & Natural Resources, accessed Jan 15, 2021

5. Products are labeled as not toxic to fish, birds, bees, wildlife, or domestic animals.

Least toxic pesticides include:

1. Boric acid and disodium octaborate tetrahydrate. These are chemicals that have very little effect on the human body through ingestion and absorption. It also has minimal effect on the environment, and targets plants that are sensitive to it.
2. Silica gels. Little beads of silica (silicon dioxide SiO<sub>2</sub>) absorb moisture to keep things dry. By eliminating moisture, it prevents Bacterial growth can be prevented by eliminating moisture.
3. Diatomaceous earth, human grade. Granulated powder from “diatoms” (fossilized aquatic organisms).
4. Nonvolatile insect and rodent baits in tamper resistant containers
5. Microbe based pesticides. Microbes are microorganisms such as bacteria.
6. Pesticides made with essential oils (not including synthetic pyrethroids) without toxic synergists.
  - a. Pyrethroids come from extracts from chrysanthemum and synthetic pyrethroids are modified to increase its effectiveness and also toxicity, which is harmful to humans.
7. Materials for which the inert (non-reactive) ingredients are nontoxic and disclosed.
8. Beyond Pesticides maintains a list of products considered to be least toxic, List of Products Compatible with Organic Landscape Management.<sup>10</sup>

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

1. 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.
2. A pesticide in the U.S. EPA's Toxicity Category I, II or III.
3. Any application of the pesticide using a broadcast spray, dust, tenting, or fogging application.

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<sup>10</sup> [“Products Compatible with Organic Landscape Management”](#), Beyond Pesticides, accessed Jan 18, 2021



Use of pesticides are to be utilized in a prioritized approach on City properties as follows:

1. Trapping (to include “Live”)
2. Least toxic pesticide
3. Organic pesticides<sup>11</sup>
4. EPA Toxicity Category IV “None” label pesticide

### **Approval of Chemical Pesticides**

The use of chemical pesticides will only when other controls have been shown to be inadequate and there is a risk to public property or health or a threat to a sensitive habitat or species as required by local, state or federal law.

When **Pesticide Control Measures** within the **Tiered Approach to Pest Control Measures Section** is required, the following measures shall be implemented.

1. Proposed use and details of controls tried will be fully documented including the risk to public property or health or threat to sensitive habitat or species as required by local, state or federal law.
2. Pesticide use must be approved in writing by the Department **Director** for their area of oversight prior to use.
3. Approval and accompanying documentation will be communicated to the public minimum 48 hours before application. Any Safety Data Sheet (SDS) will be included in the documentation.
4. The City requires the area where pesticides are applied to be clearly delineated a minimum 48 hours before and after being sprayed.

### **Record Keeping and Monitoring**

Monitoring the effectiveness of the IPM program over time requires diligent tracking of several items: pest populations and locations; management strategies employed; quantities and types of any product(s) used; and the outcome of pest management activities.

The IPM Coordinator will establish ongoing scouting or inspection procedures to monitor pest population levels. In-field assessments of each issue will be done on a regular basis.

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<sup>11</sup> Made from natural ingredients: derived from botanical and mineral sources. For example, neem oil.

Monitoring will be performed by designated personnel or contractors with training and knowledge of pest management and IPM policies and controls.

The IPM Coordinator shall keep written records of all pest management activities, including non-pesticide methods, including no-action, and applied pesticides used to control or prevent pests for at least two years.

An annual report will be prepared and provided to the Parks and Recreation Commission and the public detailing the pest control program including pests encountered, controls used and any pesticides used including amounts, location and reason why they were used.

All records will be accessible to the public via the California Public Records Act.<sup>12</sup> Residents should be informed of their right to this information on the City Public Works website.

The certified pest control applicator is responsible submitting to the City records that include the following:

1. Target pest
2. Location of pest
3. Control used including type, location and amount of any product used if applicable
4. Date and time
5. Name of the control applicator
6. Equipment used, if applicable
7. Summary of results.

### **Community Outreach and Education**

The City will make IPM policies, reports and documentation easily accessible to the public and will periodically offer public workshops to demonstrate integrated pest management techniques that can be implemented to reduce or eliminate pesticides in managing residential landscape areas.

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<sup>12</sup> ["Public Records,"](#) State of California, Office of the Attorney General, Feb 10, 2012