



AGENDA REPORT

SAN CLEMENTE CITY COUNCIL MEETING

Meeting Date: September 5, 2017

Agenda Item 9-C
Approvals:
City Manager [Signature]
Dept. Head [Signature]
Attorney [Signature]
Finance [Signature]

Department: Public Works
Prepared By: Tom Bonigut, Public Works Director/City Engineer [Signature]

Subject: *CONSIDER APPROVAL OF INTEGRATED PEST MANAGEMENT (IPM) POLICY No. 801-4.*

Fiscal Impact: Yes. Implementation of the proposed IPM policy is expected to increase maintenance costs based on the anticipated need for greater manual labor and higher costs of alternative (organic) pesticides when those are needed. For reference, after the first year of implementing a very similar IPM policy adopted in 2016, the City of Irvine reported a 5.6 percent increase in maintenance costs.

Summary: The Beaches, Parks & Recreation (BP&R) Commission recommends City Council approval of proposed City Policy No. 801-4 titled "Integrated Pest Management" as further discussed in this report.

Background: At its March 2017 meeting, the BP&R Commission received an update on the use of pesticides at City properties maintained by the Public Works/Maintenance Services Division. The City practices IPM techniques and strives to minimize use of pesticides and herbicides in parks and medians, however there is currently no formal written IPM policy and pesticides and herbicides are used when needed to control pests and weeds. When herbicides must be used, the City typically uses a product which contains glyphosate, which is a synthetic, broad-spectrum systemic herbicide used to kill weeds and grasses. Glyphosate is the active ingredient in the trademarked product "Roundup" and thus is commonly referred to as such, although glyphosate is the key ingredient in other herbicide products. Note that Maintenance Services does not apply this herbicide to any turf areas or around playgrounds. However, due to concerns by some community members about the use of glyphosate, and synthetic pesticides and herbicides in general, the BP&R Commission was asked by the public to present a recommendation to the City Council to discontinue use of glyphosate and synthetic herbicides. After considering public testimony, the BP&R Commission formed an ad-hoc subcommittee whose purpose was to develop a proposed policy that would formally guide landscape and pest management practices. Based on public input, the BP&R Commission suggested that the City of Irvine's recent updated IPM policy should serve as a model to inform the development of San Clemente's proposed policy. The ad-hoc subcommittee membership consisted of:

- BP&R Commissioners Tim Shaw and John Dorey;
- Two City staff (Deputy Public Works Director Tom Bonigut and Public Works Maintenance Services Manager Randy Little);
- Three members of the citizen group "Non-Toxic San Clemente" (Michelle Schumacher, Lara Francisco and Stephanie Fetzer); and
- A member of the public (John Koen).

The ad-hoc subcommittee met three times to develop a proposed IPM policy for potential application by the City. At its June 13, 2017 meeting, the BP&R Commission considered the proposed policy, and recommended City Council approval of the IPM policy.

Discussion: As suggested by the BP&R Commission, members of the public and Non-Toxic San Clemente, the subcommittee obtained the City of Irvine's recently-updated IPM policy and used that as a template for the City's proposed IPM Policy. The City of Irvine IPM policy is provided for reference in Attachment 1. The proposed City of San Clemente IPM Policy No. 801-4 (refer to Attachment 2) is very similar to the Irvine policy and in general provides additional explanation throughout to further clarify the intent of various IPM approaches and procedures. Selected key changes include:

- *Section 4.1 Prevention:* added text to clarify that intent of review new projects is to maximize natural pest/weed controls and proper ground coverage with a diversity of native plants.
- *Section 4.2 Monitoring:* provided specifics of monthly pesticide reporting, and clarified that even when no pesticides are used a "non-use" monthly report will be filed in accordance with State law.
- *Section 4.3 Non-Chemical Control Measures:* added examples throughout this subsection of various cultural, mechanical and biological control practices.
- *Section 4.4 Pesticide Controls:* clarified that synthetic pesticides may only be used when the above approaches are deemed ineffective, as specifically defined in this policy. This section also provides a prioritized use of pesticides for certain types of facilities (e.g. organic pesticides first), and restricts the use of EPA Category I and II pesticides to rodent control when other methods have failed and with specific application requirements.
- *Section 4.5.4 Posting:* added the notification of pesticide use will also be posted on the City's website.
- *Definitions:* provided definitions of key terms and reference links to State Proposition 65 and Healthy Schools Act Lists.

The proposed policy is geared toward first implementing measures that don't involve the use of pesticides to control pests and weeds, such as prevention, monitoring and cultural, mechanical and biological controls as discussed in the policy. Per the proposed policy, organic pesticides could be used when these approaches have not worked to eliminate or control the target pest, however synthetic pesticides could only be used when the pest poses a public health threat. In the case of weeds in parks and street medians for example, under the proposed policy synthetic pesticides such as glyphosate (e.g. Roundup® and similar products) would likely never be used because it is unlikely that presence of weeds would ever be considered a public health threat. In this case, the City would make best efforts to control weeds via other approaches per the policy, which could result in some periods where weeds are more prevalent than in the past or increased costs for mechanical removal and/or more frequent application of organic pesticides.

Currently the City does not provide notice to the public when applying pesticides at City facilities because the City doesn't actually apply any pesticides that require posting. The proposed policy includes the same noticing requirements found in the

Irvine policy, which provides at least 48 hours advance notice of an application, with signs to remain in place at least 72 hours after an application, plus the addition of posting information on the City's web page for this same duration. Note also that these noticing durations slightly exceed those required by the State Healthy Schools Act.

City of Irvine Experience

The City of Irvine updated its IPM policy in early 2016. Recently the City of Irvine prepared an update on the first year of implementation of its new IPM approach. That report is provided in Attachment 3 and key findings include:

- About one million beneficial insects were released in parks and streetscapes combat destructive pests instead of relying on pesticides.
- Some median landscape plant palettes were changed to deter small rodents.
- Due to high acidity of organic weed control products, application requires extra care to avoid damaging desirable plants, and applicators must use protective equipment to shield their eyes and skin which gives the appearance that a toxic pesticide is being applied.
- Irvine has managed to maintain a healthy turf grass population with no weed killer applications on any turf areas and no landscape pesticide applications in any park.
- The practice of using contract labor to mechanically and manually control weeds has proved effective in the parks, but has been a challenge in the public right-of-way due to the vast acreage and the abundance of weed seed that gets dispersed daily by wind and traffic. This has resulted in a heavy germination of weeds too abundant for successful hand removal, and organic pesticides are unable to kill the root and only prove effective on the leaf of the weeds. Therefore, staff noted regrowth of weeds which then required multiple follow up applications to control existing weeds and the constant growth of new weeds. Organic products also could not adequately control perennial weeds.
- Organic products have provided adequate control for insects and algae but rodent control has proven to be only slightly effective.
- The density of foliage has been reduced around facilities where an increase in pest activity was reported, which has provided tolerable control of pests in most cases. On a few occasions, there has been difficulty controlling pests for several weeks. Rodent, roach and ant activity has increased noticeably at the facilities routinely serving food to the public, and rodent and roach activity has increased in storage areas and outdoor trash enclosures.
- Manual hand weeding and organic pesticides require the use of more labor, more product, and increased frequency of applications to provide a similar result as compared to past pesticide practices.

The City of Irvine is continuing to implement its updated IPM policy. Implementation of a very similar proposed IPM policy in San Clemente is certainly achievable, but likely will result in some increased operational costs and potential lower service levels (e.g. weeds may be present for longer periods in some areas). However, if the Irvine experience holds true for San Clemente, the increased cost may not be significant. As for timing on when to implement the proposed policy if it is ultimately approved, staff suggests a "full" implementation beginning at the start of Fiscal Year 2019 (i.e. July 1; 2018). This is because all of the Public Works/Maintenance Service Division

landscape related existing contracts run until that time, but staff will be soliciting bids during the current Fiscal Year for all of the expiring contracts. The bids would include the requirements of the updated IPM policy which could result in more competitive costs to implement. In the meantime, the Maintenance Services Division would strive to implement the policy to the extent possible given current contract provisions. For example, use of glyphosate products would be discontinued in parks or other areas where the public recreates, and be limited to use in street median planters if needed to control weeds when other measures fail.

As noted above, the BP&R Commission recommended approval of the proposed IPM policy, and also suggested that outreach be provided prior to implementation to inform the public of the planned change in landscape management approach.

Recommended

Action: THE BEACHES, PARKS & RECREATION COMMISSION RECOMMENDS THAT the City Council approve and adopt City Policy No. 801-4 titled "Integrated Pest Management."

Attachments:

1. City of Irvine March 2016 Integrated Pest Management Policy.
2. Proposed City Policy No. 801-4 ("Integrated Pest Management").
3. City of Irvine Integrated Pest Management Program 2016 Annual Report.

Notification: BP&R IPM Subcommittee Members.

S:\cd\Engineering\secure\Admin\2017 Admins\9-5-17\9-5-17-14r.docx



Public Works Department
Maintenance Operations
Policies and Procedures

INTEGRATED PEST MANAGEMENT PROGRAM

PURPOSE: To establish criteria for an Integrated Pest Management (IPM) Program.

POLICY: The City of Irvine will focus on long-term prevention or suppression of pest problems with minimum impact on human health, the environment, and nontarget organisms with the limited use of pesticides in accordance with direction provided by the City Council for Parks, Fields and Playgrounds; and City-wide Pest Management Guiding Principles:

City-wide Pest Management Guiding Principles

- a. Use of organic pesticides in all City properties.
- b. Limit exposure to any pesticides where children and the general public congregate.
- c. Incorporate additional guidance on use of pesticides for city rights of way, facilities, and other properties as reflected in the staff report.
- d. Use EPA Level pesticides in a targeted manner, and only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when pests cannot be managed by other methods that we would have.

PROCEDURES:

Prevention

1. Public Works Staff shall review all new development and rehabilitation projects plans to verify compatibility with the site's environment.

Monitoring

1. The Maintenance Divisions shall hire a consultant or contractor to provide regular monitoring services for all of the City's properties.



2. The consultant or contractor shall determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic.
3. The consultant or contractor shall provide monthly monitoring records which include information such as date of examination, pests found, size and extent of the infestation, location of the infestation, control options utilized, effectiveness of the control options, labor and material costs.

Non Chemical Control Measures

1. The Landscape Division shall utilize cultural controls which are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height.
2. The Maintenance Divisions shall utilize mechanical control tactics involve the use of manual labor and machinery to reduce or eliminate pest problems using methods such as handpicking, physical barriers, or machinery to reduce pest abundance indirectly.
3. The Maintenance Divisions shall utilize the use of environmental manipulations that indirectly control or prevent pests by 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.
4. The Maintenance Divisions shall utilize a biological control practice which uses 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. Beneficial organisms can occur naturally or can be purchased and released. The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.



Pesticide Controls

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

Parks, Fields and Playgrounds:

When pesticides are needed, use the following prioritized approach: (1) organic pesticides; (2) Water Quality Act Allowed Pesticides; and (3) EPA Level III "caution" labeled pesticides only when deemed necessary to protect public health and economic impact by a licensed pest control adviser.

Rights of Way (Street medians/parkways) – Prioritized Use of Pesticides:

- a. Use organic pesticides first, when pesticides are needed.
- b. Use Clean Water Act allowed pesticides.
- c. EPA Level III "caution" label pesticide only if deemed necessary to protect public health and economic impact by a licensed pest control adviser and City staff.
- d. EPA Level II "warning" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when other methods do not adequately control the pest.
- e. EPA Level I "danger" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when other methods do not adequately control the pest.

Facilities/Buildings – Prioritized Use of Pesticides:

- a. Use organic pesticides first, when pesticides are needed.
- b. Use Clean Water Act allowed pesticides.
- c. Bait formulations of insecticides will be used where appropriate.
- d. EPA Level III "caution" label pesticide only if deemed necessary to protect public health and economic impact by a licensed pest control adviser and City staff.
- e. EPA Level II "warning" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control advisor and City staff, when other methods do not adequately control the pest.



- f. EPA Level I "danger" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when other methods do not adequately control the pest.

Other City Properties – Prioritized Use of Pesticides:

- a. Use organic pesticides first, when pesticides are needed.
- b. Use Clean Water Act allowed pesticides
- c. EPA Level III "caution" label pesticide only if deemed necessary to protect public health and economic impact by a licensed pest control adviser and City staff.
- d. EPA Level II "warning" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when other methods do not adequately control the pest.
- e. EPA Level I "danger" label pesticides, only if deemed necessary to protect public health and economic loss by a licensed pest control adviser and City staff, when other methods do not adequately control the pest. Pesticides should only be used when other methods fail to provide adequate control of pests and just before pest populations cause an unacceptable damage, since the overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop.

Approvals and Application of Chemical Pesticides

1. Pesticides shall be approved by the Maintenance Division Superintendents for their area of oversight prior to use. A written recommendation of proposed pesticide, including commercial name, concentrations, allocation rates, usage and reentry time shall be prepared by a licensed California Pest Control Adviser and site specific schedule submitted for approval. No work shall begin until written approval of use is obtained and a notice of intent has been filed with the County Agricultural Commissioner's office, as required. Copies of Safety Data Sheets and specimen labels shall be given to the City prior to pesticide use on City property.
2. For Facilities and Building Maintenance, the referenced responsibilities of a licensed pest control adviser presented throughout this policy are to be performed by a California State Licensed Structural Pest Control Operator.
3. Chemicals shall only be applied by those persons possessing a valid California Qualified Applicator license/certificate; or a Structural Pest



Control License. Application shall be in strict accordance with all governing regulations. Records of all operations shall be kept per California Department of Pesticide Regulations, or the California Structural Pest Control Board.

4. Pesticides shall be applied in a manner to avoid contamination of non-target areas. Precautionary measures shall be employed to keep the public from entering the spray zone until it is safe.
5. Posting of signs shall be required at all park facilities when any application of pesticides is performed.

Specific requirements for posting are as follows:

- Post signs at all park entrances at least 48 hours prior to spraying applications. The vendor's contact information, chemical name and application date must be listed.
- Place spray notices inside plastic page protectors. Attach them to a four-foot (4') high wooden stake. Signs must be readable 25' away from posted area.
- Leave the same signs up for 72 hours after the spraying applications are completed, then remove promptly.
- A temporary mesh fence such as orange plastic construction fencing can be erected on the perimeter of any area that is to be treated with a broadcast type application with the intent to keep people and pets off the treated area for a period of 24 hours.

Records and Reporting

Records of all pesticides used by the Contractor on City property shall be retained in accordance with Department of Pesticide Regulations. Maintenance Superintendents will keep records of all pesticide usage and the Public Works Department will provide an annual report to the City Council.



Manuel Gomez, Director of Public Works

Approved: March 2, 2016



POLICY AND PROCEDURE

Subject: Integrated Pest Management	Index: Public Works & Utilities Number: 801-4
Effective Date:	Prepared By: Public Works Dept.
Supersedes: N/A	Approved By:

1.0 PURPOSE:

It is the purpose of this policy to establish criteria for an Integrated Pest Management (IPM) Program that guides pest management efforts for the care of properties maintained by the Public Works Department Maintenance Services Division.

2.0 ORGANIZATION AFFECTED:

Public Works Department, Maintenance Services Division.

3.0 POLICY:

The City of San Clemente will focus on prevention or suppression of pest / weed issues with minimum impact on human health, the environment, and non-target organisms with the limited use of pesticides. Following are guiding principles for this policy:

- a. Use of organic pesticides in all City properties when appropriate.
- b. Limit exposure to any pesticides where children and the general public congregate.
- c. Use EPA Category I, II or III pesticides in a targeted manner, and only if deemed necessary to protect public health and economic loss by a licensed pest control advisor and City staff, when pests cannot be managed by other methods.

4.0 PROCEDURE:

4.1 Prevention.

For City areas such as trails, parks, playgrounds, fields, and street medians and parkways within public street right-of-way, Public Works

Maintenance Services Staff shall review all new development and rehabilitation projects plans to verify compatibility with the site's environment to maximize the natural controls available for pests and weeds and proper ground coverage with a diversity of native plants to the extent practicable.

4.2 Monitoring.

4.2.1 The Public Works Maintenance Services Division shall require its contractor(s) to provide regular monitoring services related to any potential issues for weeds and pests.

4.2.2 The contractor shall determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic.

4.2.3 The contractor shall provide monthly monitoring records which shall include at minimum a completed State Monthly Summary Pesticide Use Report Form (Form #DPR-PML-060). Even if no pesticides are used, a "non-use" monthly report shall also be filed.

4.3 Non-Chemical Control Measures.

4.3.1 The Maintenance Services Division shall utilize cultural controls which are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, aeration, organic fertilization, beneficial microbes, composts/mulch, humic and mowing height.

4.3.2 The Maintenance Services Division shall utilize mechanical control tactics that involve the use of manual labor and machinery to reduce or eliminate pest / weed problems using methods such as handpicking, physical barriers, or machinery such as weed whackers to reduce weeds.

4.3.3 The Maintenance Services Division shall utilize a biological control practice which uses living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest / weed populations low enough to prevent significant economic damage. Biocontrols include beneficial microbes, organic materials such as composts, competitive species, and beneficial organisms. Beneficial organisms can occur naturally or can be purchased and released. The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

4.4 Pesticide Controls.

Synthetic pesticides may be used, when the steps above are ineffective (as defined in this policy), in a prioritized approach on City properties

maintained by the Public Works Department Maintenance Services Division as follows:

4.4.1 Parks, Trails, Street Right of Way

When pesticides are needed, use the following prioritized approach: (1) organic pesticides; (2) pesticides not listed on the State Proposition 65 list; and (3) EPA Category III "caution" labeled pesticides only when deemed necessary to protect public health and economic impact by a licensed pest control adviser. EPA Category II and Category I pesticides shall not be used in City Parks, City Street Right-of-Way, or in or along City-maintained Trails, except if necessary to control rodents that are a threat to public health and safety and other methods of rodent control were ineffective. In such cases, these pesticides must be used in locked bait stations and rodent burrows where the pesticide would not be accessible to humans or domestic animals, and the application may only be conducted by a State-Certified Pest Control Advisor.

4.4.2 Sports Fields and Park Playgrounds

Pesticides shall not be used on sports fields or within park playgrounds, except if necessary to control rodents that are a threat to public health and safety and other methods of rodent control were ineffective. In such cases, these pesticides must be used in locked bait stations and rodent burrows where the pesticide would not be accessible to humans or domestic animals, and the application may only be conducted by a State-Certified Pest Control Advisor.

4.4.3 Facilities/Buildings – Prioritized Use of Pesticides

- a. Use organic pesticides first, when pesticides are needed.
- b. Use only pesticides which are not on the State Proposition 65 list or the California Healthy Schools Act list of prohibited pesticides.
- c. Bait formulations of insecticides will be used where appropriate.
- d. Use EPA Category III "caution" label pesticide only if deemed necessary to protect public health and economic impact by a licensed pest control adviser and City staff.
- e. Use EPA Category II or I label pesticides only if necessary to control rodents that are a threat to public health and safety and other methods of rodent control were ineffective. In such cases, these pesticides must be used in locked bait stations and rodent burrows where the pesticide would not be accessible to humans or domestic animals, and the application may only be conducted by a State-Certified Pest Control Advisor.

4.5 Approvals and Application of Chemical Pesticides

4.5.1 Pesticides shall be approved by the Maintenance Services Division Manager or designee for their area of oversight prior to use. A written recommendation of proposed pesticide, including commercial name, concentrations, allocation rates, usage and reentry time shall be prepared by a licensed California Pest Control Advisor and site specific schedule submitted for approval. Copies of Material Safety Data Sheets (MSDS label) and specimen labels shall be given to the City prior to pesticide use on City property.

4.5.2 Chemicals shall only be applied by those persons possessing a valid California Qualified Applicator license/certificate. Application shall be in strict accordance with all governing regulations. Records of all operations shall be kept per California Department of Pesticide Regulations.

4.5.3 Pesticides shall be applied in a manner to avoid contamination of non-target areas and non target organisms. Precautionary measures shall be employed to keep the public from entering the spray zone until it is safe.

4.5.4 Posting of signs shall be required at all park facilities when any application of pesticides is performed. Specific requirements for posting are as follows:

- a. Post signs at all park entrances at least 48 hours prior to spraying applications. The vendor's contact information, pesticide name and application date must be listed.**
- b. Place spray notices inside plastic page protectors, or use plastic or metal signs. Attach them to a four-foot (4') high wooden stake. Signs must be readable 25' away from posted area.**
- c. Leave the same signs up for 72 hours after the spraying applications are completed, then remove.**
- d. Also place a notice of pesticide application on the City's website (under the Parks & Ball Fields page (www.san-clemente.org/recreation-community/parks-ball-fields)) for the durations noted above.**
- e. A temporary mesh fence such as orange plastic construction fencing can be erected on the perimeter of any area that is to be treated with a broadcast type application with the intent to keep people and pets off the treated area for a period of 24 hours.**

4.6 Records and Reporting

Records of all pesticides used by the Contractor on City property shall be retained in accordance with Department of Pesticide Regulations. Maintenance Services Division will keep records of all pesticide usage

and, when directed, provide a report to the Director of Public Works reflecting the pesticide usage each year. The Public Works Department will, when directed, provide a report to the City Council.

5.0 DEFINITIONS:

- 5.1 *California Healthy Schools Act List.* A list maintained by the State Department of Pesticide Regulation of pesticide products prohibited from use in schools and child care facilities. The list is available at <http://apps.cdpr.ca.gov/schoolipm/>.
- 5.2 *Ineffective:* When applicable approaches such as cultural, mechanical and biological controls or organic pesticides have not worked to eliminate or control the target pest, such that the pest poses a public health threat. In such cases a synthetic pesticide may be used in accordance with this Policy.
- 5.3 *Integrated Pest Management (IPM):* An ecosystem based strategy used to address pest problems while minimizing risks to people and the environment. IPM 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 that other methods are ineffective, and treatments are made with the goal of removing only the target organism. Pesticides are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.
- 5.4 *Non-Target Organism:* Any plant, insect, mammal, or other living organism that is not the pest which needs to be controlled or eliminated.
- 5.5 *Organic Pesticide:* A pesticide that is derived from natural sources, not synthetically manufactured. The Organic Materials Review Institute (OMRI) is a private, nonprofit organization that determines whether or not a product qualifies as organic under the USDA's National Organic Program (NOP). "OMRI" listed products are available at www.omri.org.
- 5.6 *Pest:* An organism that damages or interferes with desirable plants in fields, landscapes, or that damages 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.
- 5.7 *State Proposition 65 List.* A list maintained by the State Office of Environmental Health Hazard Assessment (OEHHA) of naturally occurring and synthetic chemicals that are known to cause cancer or birth defects or other reproductive harm. The list is available at: <https://oehha.ca.gov/proposition-65/proposition-65-list>.

City of Irvine

Integrated Pest Management Program

2016 Annual Report

Introduction

The City of Irvine initiated its new Integrated Pest Management (IPM) Program in February of 2016 with the City Council approval of the Public Works Integrated Pest Management Policy. This policy set forth the following goals:

City-wide Pest Management Guiding Principles

- a. Use of organic pesticides in all City properties.
- b. Limit exposure to any pesticides where children and the general public congregate.
- c. Incorporate additional guidance on use of pesticides for city rights of way, facilities, and other properties as reflected in the February 23, 2016 staff report.
- d. Use EPA Level pesticides in a targeted manner, and only if deemed necessary to protect public health and economic loss by a licensed pest control advisor and City staff, when pests cannot be managed by other methods that we would have.

This report presents the 2016 IPM program activities and application data. The IPM Program applies to all City departments, although the majority of pest management responsibilities fall within the Public Works Landscape Division.

2016 Program Components

The City of Irvine IPM Policy promotes environmentally sensitive pest management practices while preserving assets and protecting the health and safety of the public and City employees and contractors. All costs and impacts associated with pesticide use, including community and environmental health, will be considered.

Integrated Pest Management (IPM) is a decision-making process for managing pests that uses monitoring to determine pest levels and tolerance thresholds and combines biological, cultural, physical, and chemical tools to minimize health, environmental, and financial risks. The method uses extensive knowledge about pests, such as infestation thresholds, life histories, environmental requirements, and natural enemies to compliment and facilitate biological and other natural control of pests.

As part of an IPM program, pesticides are used when pest thresholds get too high. The definition of a pesticide is any substance, or mixture of substances, used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may be detrimental to vegetation, humans, or animals. Regardless if the pesticide is organic or synthetic, the goal is to rid a pest and caution must be taken when applying the product.

To ensure that the IPM program continues to be an adequate tool to meet the City's pest challenges while upholding the program goals adopted by the City Council; staff continuously reexamines and evaluates components of the program effectiveness. In

addition, all contractors that apply pesticides on the City's behalf are required to subscribe to the IPM Policy.

Alternative Pest Control Projects

The Public Works Landscape Division employs alternative methods of weed control such as mechanical removal through mowing and hand pulling. City landscape maintenance contractors provide up to 29 full-time equivalent employees to hand pull weeds in City parks and public roadway right-of-ways. Other non-pesticide weed control measures include the application of mulch in landscape planter areas to minimize weed growth and operating Smart irrigation controllers to apply the proper amount of water to City landscapes which minimizes disease and weed growth thus limiting pesticide use. City contract services have also moved away from pesticides in drainage facilities to utilizing manual removal of cattails to ensure proper water flow with no pesticide residue.

The City is responsible for maintenance of some fuel modification zones in the Village of Turtle Rock and an open space area in the City of Newport Beach. The use of mechanical discing and motor powered weed cutting tools are utilized to manage these zones. Staff is also exploring the possibility of using goats in the future to graze these areas for weed control.

The Landscape Division also utilizes biological control to reduce pest populations. Biological control uses organisms often referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores. In 2016, the City contractor released close to one million beneficial insects in the parks and streetscapes to combat destructive pests instead of relying on pesticides.

Another method employed by staff to control pests is habitat modification which was used on a few median planters in the Spectrum area. Small rodents, called voles, were severely damaging the landscape groundcover and control with an organic pesticide was impractical. So instead of a toxic pesticide application, the City's landscape maintenance contractor converted the landscape palette to another type of ground cover to deter the vole activity. This project eliminated the need for any pesticide and improved the overall appearance of the street median.

City of Irvine 2016 Pesticide Use and Analysis

The City's contractors are all licensed by the State of California to use organic and synthetic pesticides, as required by their contracts with the City. As the party responsible to the State for the application for any pesticide, the City's maintenance contractors researched available organic products approved for use in the State of California. All products used were reviewed by the City's Maintenance Superintendents or Department Managers and approved prior to use. Products under the trade names Avenger, Scythe and Suppress were identified by the contractors for organic weed

control in the right-of-ways. Products under the trade names Rat X and Uncle Ian's Gopher Repellant were selected for organic rodent control. EcoJet was chosen for emergency control of flying insects including bees and wasps. EcoVia EC and Essentria IC were chosen for ant control. Due to the high acidity of the organic weed control products, applicators must use protective equipment to shield their eyes and skin which can sometimes give the public the perception the pesticide being applied is toxic.

The chart below provides the active ingredient for the approved organic pesticides used in 2016.

Organic Pesticides			
Product	Active Ingredient	Target Pests	EP Category
Averger	Limonene citrus oil	Weeds	Caution
Scythe	Pelargonic acid	Weeds	Warning
Suppress EC	Caprylic acid	Weeds	Warning
Rat X	Corn gluten meal	Rodents	N/A
Uncle Ian's Gopher Repellent	Dried blood	Gophers	N/A
Eco Exempt Jet	2 Phenethyl proprionate, Rosemary oil	Insects	N/A
Eco Via EC	Thyme oil, rosemary oil , 2 phenethyl proprionate	Insects	Caution
Essentria IC3	Rosemary oil	Insects	Caution

Parks, Fields and Playgrounds

Since the Policy implementation in February 2016, the Landscape Division has managed to maintain a healthy turf grass population with no weed killer applications on any turf areas and no landscape pesticide applications in any park. The City has discontinued the use of weed killer "Speedzone" (2,4-D) and pesticide spray "Round-Up" (glyphosate). Table 1 below shows the amount of pesticides that were applied in 2015 as well as other synthetic weed control products that were previously used in park areas compared to 2016. The practice of using contract labor to mechanically and manually control weeds has proved effective in the parks.

The lone exception for pesticide applications thus far has been the use of the organic products for rodent, insect and algae control. Staff has noted adequate control for insects and algae using the organic products, but rodent control has proven to be only slightly effective. Tables 3 and 4 (Appendix 1) highlight the amount of pesticides that were used for rodent and insect control in 2015 compared to the organic products in 2016, respectively.

Table 1 City of Irvine Pesticide Usage Summary Parks and Athletic Fields				
Location	Product	Pest	Total Use in 2015	Total Use in 2016
Parks and Athletic Fields	3336 F	Disease	47 oz	0
	3336 WP	Disease	4 lbs	0
	Aqua Shade	Algae	2 gal	0
	Arrow 2EC	Weeds	10 oz	0
	Fosetyl-A1 80 WDG	Disease	22 lbs	0
	Glyphosate 4 Plus	Weeds	1,564 oz	0
	Power Zone	Weeds	57 oz	0
	Revolver	Weeds	432 oz	0
	Round Up Custom	Weeds	1,104 oz	0
	Sedge Hammer	Weeds	18 gal	0
	Speed Zone	Weeds	17 oz	0
	Stone Wall 65 WDG	Weeds	12 lbs	0
	SurflanXL 2G	Weeds	400 lbs	0
Location	Product	Pest	Total Use in 2015	Total Use in 2016
OC Great Park	Glyphosate 4 Plus	Weeds	1,438 oz	0
	Crazylin 4	Weeds	128 oz	0
	Power Zone	Weeds	331 oz	0
	Speed Zone	Weeds	137 oz	0
	Turf Wash	Bacteria	6 oz	0
	Phycomycin*	Algae	16,400 oz	12,000 oz

**Phycomycin, an organic product for control of algae in the ponds and basins, is the sole organic product on this table. All other products are synthetic pesticides.*

Right of Way

In the Right of Way, effective manual hand weeding in this area has been a challenge for contract staff due to the vast acreage and the abundance of weed seed that gets dispersed daily by the winds and traffic. The Landscape Division's previous use of synthetic pre-emergent pesticides to prevent germination, and the use of the synthetic pesticide, "Round-Up" (glyphosate), to kill established weeds was an effective, low-cost treatment for weed control. The synthetic pre-emergent prevented a majority of the

weeds from germinating and becoming a pest. The weeds that did grow were treated with Round Up effectively working through the plant and killing the roots in one to two treatments including the tough perennial weeds with rhizomes and tubers like Bermuda grass. The elimination of synthetic pre-emergent pesticides (with no organic option available) has resulted in a heavy germination of weeds too abundant for successful hand removal. Organic weed killer products were utilized to assist the contractors with weed control, but unlike "Round-Up", the organic pesticides are unable to kill the root and only prove effective on the leaf of the weeds. With this in mind, staff noted regrowth of the weeds which then required multiple follow up applications to control existing weeds and the constant growth of new weeds. Staff also found the organic products could not adequately control perennial weeds such as field bindweed, nutsedge and Bermuda grass. Table 2 lists the pesticides used in the right of way in 2015 compared to 2016. Rodents and insect control in right-of-way areas achieved similar results as in parks utilizing the products in Tables 3 and 4 (see Appendix 1).

Table 2 City of Irvine Pesticide Usage Summary Right of Ways			
Product	Pest	Total Use in 2015	Total Use in 2016
Synthetic Pesticides			
Round Up	Weeds	8,139 oz	0
Arrow 2EC	Grassy Weeds	115 oz	0
Speed Zone	Turf Weeds	227.9 oz	0
Power Zone	Turf Weeds	14,848 oz	0
Turfion Ester	Turf Weeds	56oz	0
Sedge Hammer	Nutgrass Weeds	432 oz	0
Gallery 75	Pre-emergent	16 oz	0
Orazylin 4	Pre-emergent	89 oz	0
Organic Pesticides			
Avenger	Weeds	0	20,672 oz
Scythe	Weeds	0	9,538 oz
Suppress EC	Weeds	0	17,316 oz

Public Facilities

The Facilities Maintenance Division of Public Works has implemented an integrated and tiered approach to manage pests in compliance with the City's IPM policy. Facilities Maintenance performs routine inspections to identify, report and manage pest activity. Compliance has been achieved using existing contractors and ongoing staff training. Facilities Maintenance communicates more frequently with building operators and tenants to identify and control pest activity. Staff is continually working with facility

operators to improve food storage, sanitation and waste management practices. Exclusion methods and barriers have been deployed at several City facilities to minimize pest intrusions and staff is dedicating additional time to pest management research, planning and response.

Throughout many City facilities, it has been necessary to increase the use of snap traps and glue traps with non-toxic baits, pesticide applications using Essential IC3 an organic insecticide and Rat-X, a non-toxic rodenticide. The Landscape Division has been working closely with the Facilities Maintenance to reduce the density of foliage around facilities where increase in pest activity is reported. The effectiveness of the modified program has provided tolerable control of structural pests in most cases. On a few occasions, Facilities Maintenance had difficulty controlling pests for several weeks. Rodent, roach and ant activity has increased noticeably at the facilities routinely serving food to the public. Rodent and roach activity has increased in storage areas and outdoor trash enclosures.

Behavioral and operational changes will be necessary to achieve tolerable pest control under the new IPM Policy. The availability of compliant insecticides and rodenticides are limited. There are also cost concerns regarding non-toxic methods associated with the treatment for termites. The City's current pest control contractor recommends heat treatments or removing and restoring affected portions of structures to address termites. The structural program needs further development and improvement in seasonal planning, preventive control measures, monitoring and reporting.

Other City Properties

City Open Space and City farm lease property is also covered by the new organic pesticide policy. The control of artichoke thistle and castor bean remain a concern, as significant progress has been made over the past ten years to reduce the proliferation of these non-native, invasive plant species. The effectiveness of "Suppress" in maintaining control of artichoke thistle and castor bean will likely take two years. Other City properties, including agricultural field leases managed by the City's Community Development department were in compliance with the City's organic pesticide policy.

IPM Program Cost Impacts

Manual hand weeding and organic pesticides require the use of more labor, more product, and increased frequency of applications to provide a similar result as compared to past pesticide practices. The budget impact is anticipated to be in the range of a 5.6% increase to the Public Works \$21.2 million annual landscape maintenance budget.

The following chart provides a comparative example of the difference in costs between the use of Round Up (synthetic pesticide) and alternative organic pesticides.

Product	Cost Per Gallon	Dilution Rate	100 gallons of Solution	Total Cost
Synthetic Pesticides				
Round Up	\$26	2%	2 gallons	\$52
Organic Pesticides				
Avenger	\$80	25%	25 gallons	\$2,000
Scythe	\$95	7%	7 gallons	\$665
Suppress EC	\$70	9%	9 gallons	\$630

In accordance with the tiered structure of the IPM Policy, synthetic pesticides may be used to control pests after non-toxic practices and organic pesticides have proven ineffective in controlling weeds, insects, rodents or disease. Such limited applications shall only be employed if deemed necessary to protect public health and economic loss by a licensed pest control advisor and City staff, when pests cannot be managed by other methods.

All City staff involved with pest control will continue to evaluate non-toxic options to control pests and associated costs to adhere to the new Citywide Pest Management Guiding Principles.

Appendix 1

Page 1 of 2

Table 3 City of Irvine Pesticide Usage Summary Citywide - Rodent			
Product	Pest	Total Use in 2015	Total Use in 2016
Synthetic Pesticides			
Fumitoxin Tablets	Rodent	1.09 lb	0
Diphacinone	Rodent	69.0 lb	0
Rozol Vole	Rodent	2 lb	0
Maki Mini	Rodent	6.0 lb	0
Avalon Strchnine	Rodent	1.44 lb	0
Omega Gopher Grain	Rodent	30 lb	0
*Contract Bait Block	Rodent	28oz	52 oz
Organic Pesticides			
Rat X	Rodent	1.25 lb	60 lb
Uncle Ian's Gopher Repellant	Rodent	1.0 lb	212 lb

*Synthetic pesticides used prior to adoption of organic pesticide policy.

Appendix 1

Page 2 of 2

Table 4 City of Irvine Pesticide Usage Summary Citywide – Insects			
Product	Pest	Total Use In 2015	Total Use In 2016
Synthetic Pesticides			
Temprid	Insects	8 ml	0
Transport GHP	Insects	74.9 oz	0
PT Wasp Freeze	Insects	8 oz	0
P.I. Contact	Insects	156 oz	0
Demand CS	Insects	24.5 oz	0
Tengard	Insects	12.2 oz	0
Tempo SC Ultra	Insects	7.5 oz	0
UP Star Gold	Insects	6 oz	0
*Talstar	Insects	71.7 oz	208 oz
*Masterline Bifenthrin	Insects	95.93 oz	6.49 oz
Organic Pesticides			
Essentria IC3	Insects	0	13,516 oz
Eco EXEMPT Jet	Insects	0	1625 oz
EcoVia	Insects	0	43 oz

*Synthetic pesticides used prior to adoption of organic pesticide policy.

Appendix 2

**Contractor daily application logs and reports for 2016
(XXX pages are available for review in the Public Works
department)**