CITY COUNCIL AND DIRECTORS

Memo

To: City Council

Via: Sean Crumby, City Manager

From: Luis Estevez, Director of Public Works and Sustainability

Date: May 4, 2026

Re: **Integrated Pest Management Program Annual Report**

In February 2016, the City Council approved an Integrated Pest Management (IPM) Policy, which focuses on limited use of pesticides. The IPM program is administered on all City-owned properties including parks, athletic fields, playgrounds, right-of-way, facilities/buildings, and open-space with a focus on reducing the use of synthetic pesticides. Per the IPM Policy, an annual report is to be submitted to the City Council.

The 2025 IPM Annual Report (Attachment 2) will be posted on the City's website to provide general information on the IPM program, including approved organic pesticides used during the reporting period and a summary of pesticide usage quantities.

Attachments:

1. Integrated Pest Management Program – 2025 Annual Report

CITY OF IRVINE

Integrated Pest Management Program

2025 Annual Report

Introduction

The City of Irvine continues to implement the Public Works and Sustainability (PWS) Department's Integrated Pest Management (IPM) program adopted by the City Council in February 2016. This IPM policy sets forth the following goals:

Citywide Pest Management Guiding Principles

- Use of organic pesticides in all City properties.
- Limit exposure to any pesticides where children and the general public congregate.
- Incorporate additional guidance on the use of pesticides for City rights of way, facilities, and other properties, as reflected in the February 23, 2016, staff report.
- Use Environmental Protection Agency (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.

The 2025 IPM annual report summarizes program activities and application data for the year. The IPM program applies to all City departments, although the majority of pest management responsibilities are under the guidance of the Public Works and Sustainability, Landscape Division.

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. All costs and impacts associated with pesticide use, including community and environmental health, are considered.

IPM is a decision-making process for managing pests. A monitoring system is utilized to determine pest levels and tolerance thresholds. It combines biological, cultural, physical, and chemical tools to minimize health, environmental, and financial risks. The monitoring system requires extensive knowledge about pests, such as infestation thresholds, life

histories, environmental requirements, and natural enemies to complement and facilitate control of pests.

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

To ensure 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 shall continuously examine and evaluate components of the program's effectiveness. In addition, all contractors that apply pesticides on the City's behalf are required to adhere to the IPM Policy.

Alternative Pest Control Methods for Landscape Maintenance

The Landscape Division employs alternative methods for weed control such as mechanical removal and applying three inches of mulch in landscape planter areas and around trees to minimize weed growth. City contract services manually remove cattails in drainage facilities to ensure proper water flow. In addition, Smart Irrigation Controllers apply the proper amount of water to City landscapes, which minimizes disease and weed growth, thus limiting pesticide use.

The City is responsible for maintenance of 100 acres of fuel modification zones in the vicinity of Turtle Rock area. The City works with the Orange County Fire Authority to remove vegetation in these zones through mechanical means to avoid the use of pesticides.

The Landscape Division also used biological control to reduce pest populations. Biological control uses organisms often referred to as beneficials, natural enemies, or biocontrols. The biological controls act to keep pest populations low enough to prevent significant economic damage. The most common organism types used for biological

control in landscapes to combat pest populations are predators and parasites. 50,000 predatory mites were placed in city trees along with 100,000 lacewings as part of the biological control program.

Lastly, landscape modification and proper sanitation continues to be an effective non-chemical approach to rodent management. By removing plants away from buildings, removing understory vegetation and using closed trashcan receptacles, rodent populations are manageable.

Pesticide Application

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 of 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. 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.

Table 1 provides the organic pesticides used in 2025.

Pest Control Methods for Public Facilities Maintenance

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 Staff perform routine inspections to identify, report, and manage pest activity. Compliance has been achieved using monthly services provided by the City's existing pest control contractors and ongoing staff training. Staff frequently communicates with building occupants to identify pest activity and trends. Staff work closely 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 the staff is dedicating additional time to pest management research, planning, and response.

Staff addressed 129 pest control service requests in 2025. Staff addressed 218 requests in 2024. Requests to address pest issues are tracked and logged using the division work order system (Lucity).

Staff conduct facility inspections to identify and eliminate mosquito breeding habitats. Staff have been trained in best practices for controlling mosquitoes around storage yards and facilities. During the latter part of the rainy season, staff inspects outdoor storage areas to address situations where rainwater is trapped in containers or equipment. Staff used adhesive paper traps to control flying insects that reached the interior of the facilities. Staff is documenting preventive pest-related inspections, field reports, and service requests using the division work order system (Lucity). Improvements to tracking and managing pest-related requests and complaints are ongoing in the software and in the work order issuance process to the pest control contractor.

The Landscape Division works closely with Facilities Maintenance to reduce the density of foliage around facilities to minimize pest activity. The modified program has been effective in controlling rodents in most cases. The program also emphasizes controlling rodent, roach, and ant activity in facilities that routinely serve food to the public.

Due to the limited availability of compliant insecticides and rodenticides, behavioral and operational changes are key to maintaining tolerable pest control under the IPM Policy.

The overall pest program in Facilities Maintenance focuses on improving seasonal planning, preventive control measures, monitoring, and reporting.

Pest Control Methods for Open Space Maintenance

The Public Works and Sustainability Department contracts with Irvine Ranch Conservancy (IRC) for its open-space management. IRC uses the Natural Communities Coalition‘s (NCC) Best Practices for Implementation of Invasive Plant Control for

Resource Management on the Nature Reserve of Orange County to guide its approach to invasive plant management.

Priority invasive plant species were removed/treated across approximately 472 acres, of which 72 were within Natural Community Conservation Plan (NCCP) Reserve boundaries. Artichoke thistle continues to be a major target species due to past effort invested and the ability of this species to rebound without control. Efforts continue to include other species, such as North African knapweed, Sahara mustard, crown daisy, tree tobacco, Fountain grass, and castor bean. With support from the Natural Communities Coalition, the first-ever record of North African knapweed in the Irvine Open Space Preserve was treated for the seventh year. 2025 was the first year this population was treated with herbicide. Late 2025 rains showed dramatic reductions in germination of African knapweed at the site that was treated earlier in the spring. It was first detected bordering Quail Hill along University Drive and the 405 freeway in May 2019 as part of the preserve-wide early detection/rapid response (EDRR) program.

IRC completed restoration work at most of the 4.2-acre East Fork restoration site but continues to treat invasive weeds and facilitate passive restoration through spot mowing and manual removal.

The 9.8-acre Bommer Meadow site (junction of the Bommer Meadow and Nature Loop trails) was seeded in January 2025. Mixed results were observed as residual effects from pre-emergent herbicide Indaziflam (“Esplanade 200SC”) a synthetic, non-Prop 65 herbicide, was still showing efficacy and prevented the germination of some of the species in the seed mix. However, an abundance of bush sunflower (Encelia californica) as well as California buckwheat (Eriogonum fasiculatum) and black sage (Salvia mellifera) filled in the site providing dense shrub cover with a variable forb understory. Weeds were minimal and manual control via hand weeding was the only form of weed control employed this year.

Site preparation activities continued at the 49-acre Fire Prevention, Fuel Modification, and Restoration project within Bommer Canyon. Restoration areas were mowed and cleared in fall 2023, and received one treatment of the pre-emergent herbicide Indaziflam ("Esplanade 200SC"). Indaziflam suppressed most weeds throughout the growing season of 2025. In July, an herbicide treatment of triclopyr ("Garlon 4 Ultra") was conducted targeting field bindweed (Convolvulus arvensis) and wild lettuce (Lactuca serriola) which were not affected by the indaziflam and germinated throughout the project area. A large-scale container planting event began in December 2024 and will continue with 2,000 more container plants in early 2026. With the first rains of 2026, 16 acres of the active restoration site will be imprint seeded.

Monitoring for Invasive Shot Hole Borer (ISHB) was initiated in September and completed in October. IRC conducted surveys in Quail Hill, Bommer Canyon, and Shady Canyon. In 2025, 223 trees were surveyed. 16 were actively infested. 16 were unconfirmed "maybes" and the remaining 191 were uninfested. All infested trees surveyed were of low-to-moderate severity without dieback and so did not warrant treatment.

When appropriate for the site, conditions, size of the population, phenology of the targeted weed, manual/mechanical methods were used. Most annual species, including Sahara mustard, were pulled by hand. Most perennial species cannot be controlled with organic herbicides and must be dug out of the ground. In particular, mature artichoke thistle is nearly impossible to hand pull and must be removed by shovel to destroy the tap root and prevent seeding. However, this approach causes soil disturbance and is largely ineffective due to the size of the tap root and resprouting. The magnitude and threat of the North African knapweed population necessitated a chemical treatment in the spring of 2025. This dramatically reduced the population by the end of 2025.

Pesticides Usage in Parks and Public Facilities for Weed Control

Since the IPM policy implementation, the City has continued the practice of not using "Speedzone" (2, 4-D) and "Round-Up" (glyphosate) pesticides. With 61 parks and the

Great Park, the use of pesticides was necessary to keep up with effective pest control in the parks. Synthetic herbicides are used to control weeds and disease on the high-profile athletic fields.

Table 2 lists the products used for pest control in citywide parks and open space. Table 3 lists the products used for pest control in the Great Park.

Pesticides Usage in Parks and Public Facilities for Insect Control

Fire ants continue to be a problem throughout City parks. The use of the organic product EcoVia EC provided adequate control after three consecutive daily treatments if the fire ants were detected early on in mound formation. The three consecutive treatments are labor intensive and costly, but the practice is an example of the City's commitment to the organic first approach to pest management. For large scale infestations, staff worked with Orange County Vector Control (OCVC) to apply synthetic baits to protect the public health. Meadowood Neighborhood Park and Heritage Community Park required OCVC to make treatments to control the fire ant infestations.

Table 5 lists the products used for insect control in parks and City right of way.

Pesticides Usage in Parks and Public Facilities for Rodent Control

Carbon dioxide remains the preferred method by the pest control contractor to control gophers.

Table 4 lists the products used for rodent control in parks and City right of way.

Pesticides Usage in the Right-of-Way for Weed Control

For approximately 945 acres of landscaped medians and parkways, manual hand weeding and organic herbicides still remains the primary practice. The presence of perennial weeds, nutsedge, field bindweed, and Bermuda grass equates to a small percentage of the weed population not successfully controlled by the current maintenance

practice. These weeds have extensive vegetative root systems that require systemic activity to control not only the top growth, but the aggressive underground roots as well. Selective and systemic synthetic products were applied to adequately control perennial weeds in limited areas not readily accessible to the public, primarily street medians. Selective and systemic weed killer products only affect the weed and not the desirable plant material surrounding the weed. The weed killer enters the plant through the leaf and moves throughout the weed for complete eradication. Organic products available for use at this time are neither selective nor systemic. The organic products burn down all foliage they come in contact with, including desirable plants.

Table 6 lists the pesticides used to control weeds in the right of way.

Pesticides Usage in the Right-of-Way for Insect Control

Insect work requests are difficult to manage with repeat organic treatments due to the vastness of the Citywide right-of-way landscaping exceeding 940 acres. This has modified the Landscape Division's practice to use synthetic products in medians and areas where no public interacts to control the pests more effectively without additional required treatments. This is especially targeted for ant control since they have a propensity to invade irrigation controller cabinets and cause electrical problems. Contractors responded to 99 service requests for bee control this past year.

Pesticides Usage in the Right-of-Way for Rodent Control

Staff implemented the practice to use synthetic products in medians and areas where no public interacts to control the pests more effectively without the additional required treatments needed with organic products. This provides cost savings and the ability to utilize those cost savings to apply organic products where people gather like parks. Contractors responded to 93 gopher service requests, 2 ground squirrel service requests and 2 rat service requests this past year.

IPM Program Impacts

Alternative methods and organic pesticides require the use of more labor and product, and an increase in the frequency of applications to provide a similar result as compared to past pesticide practices. The ability to operate solely with organic products has not been possible to maintain the same high-quality landscape and athletic fields prior to the policy implementation. With that said, the organic first approach significantly reduces the City's reliance on synthetic products specifically in the areas the public uses, such as parks. City staff will continue to evaluate new non-toxic options and refine practices to provide the most effective, non-toxic solution to pests in the landscape, facilities and open space.

TABLE 1 ORGANIC PESTICIDES USED IN 2025			
PRODUCT	**ACTIVE INGREDIENT**	**TARGET PEST**	**EPA CATEGORY**
Finalsan	Ammoniated soap of fatty acids	Weeds	Warning
Suppress EC	Caprylic acid	Weeds	Warning
Fireworxx	Caprylic acid	Weeds	Caution
Solentra	Cholecalciferol	Rodents	Caution
ContraPest	4-Vinylcyclohexene diepoxide- 0.09604% Triptolide- 0.00118%	Rodents	Caution
Carbon dioxide	Carbon Dioxide	Gophers	N/A
Eco Via EC	Thyme oil, rosemary oil, 2 phenethyl proprionate	Insects	Caution
Entrust SC	Spinosad A & B	Insects	Caution

TABLE 2 PRODUCTS USED IN CITY PARKS AND OPEN SPACE						
PRODUCT	**PEST**	**TOTAL USE IN 2021**	**TOTAL USE IN 2022**	**TOTAL USE IN 2023**	**TOTAL USE IN 2024**	**TOTAL USE IN 2025**
Fiesta*	Weeds	0	0	0	925 oz.	0
Arrow 2EC	Weeds	0	0	1,205 oz.	1,005 oz.	0
Suppress*	Weeds	3,019 oz.	30,046 oz.	17,589 oz.	22,208 oz.	45,689 oz.
Fireworxx	Weeds	0	0	19,665 oz.	107,826 oz.	114,408 oz.
Phycomycin	Algae	0	0	0	250 lb.	0
Revolver	Weeds	220 oz.	0	0	0	0
Aquashade	Algae	0	0	0	5 gal.	0
Stonewall 4L	Weeds	0	2,057 oz.	0	0	0
Esplanade	Weeds	0	33.6 oz.	127 oz.	56.3 oz.	11.9 oz.
Garlan 4 Ultra	Weeds	0	0	336 oz.	800 oz.	457.6 oz.
Barricade 4FL	Weeds	0	0	85 gal.	16 gal.	0
Anderson's 0.48% Barricade	Weeds	0	0	4,708 lb.	0	0
Round Up Pro Max**	Weeds	0	0	0	0.25 oz.	1,504 oz.
Round Up Custom**	Weeds	0	0	0	2.95 oz.	46.4 oz.

**Suppress and Fireworxx are an organic weed killer product.*

*** Round Up was allowed for use in the Open Space per NCC Best Practices*

TABLE 3 PRODUCTS USED AT GREAT PARK						
PRODUCT	**PEST**	**TOTAL USE IN 2021**	**TOTAL USE IN 2022**	**TOTAL USE IN 2023**	**TOTAL USE IN 2024**	**TOTAL USE IN 2025**
Actinovate*	Disease	252 oz.	54 oz.	0	0	0
Companion Maxx*	Disease	2,800 oz.	0	0	0	0
Banner Max II	Disease	0	200 oz.	0	139.9 oz.	3,232 oz.
Clearys 3336F	Disease	2,000 oz.	0	0	0	0
Heritage TL	Disease	400 oz.	0	0	0	0
Chipco Signature	Disease	1,408 oz.	0	0	0	0
Arrow 2 EC	Weeds	3,763 oz.	40 oz.	0	0	0
Sedgehammer	Weeds	0.86 oz.	0	0	0	0
Phycomycin*	Algae	8,800 oz.	4,800 oz.	402 lb.	800 lbs.	1000 lbs.
Finalsan*	Weeds	20,627 oz.	0	0	0	0
Suppress EC*	Weeds	18,203 oz.	28,558 oz.	33,451 oz.	33,819 oz.	69,619 oz.
Scythe*	Weeds	17,079 oz.	0	0	0	0
Power Zone	Weeds	352.5 oz.	3,087 oz.	383 oz.	0	0
Barricade 4FL	Weeds	399 oz.	0	0	0	1,666 oz.
Revolver	Weeds	0	235 oz.	802 oz.	0	0
Primo Maxx	Growth Regulator	0	256 oz.	0	1,993 oz.	398 oz.
Legacy	Growth Regulator	0	0	0	0	1,221 oz.
Garlan 4 Ultra	Weeds	0	0	0	72 oz.	0 oz.

**Actinovate and Companion Maxx are organic products for disease control. Phycomycin, an organic product for control of algae in the ponds and basins. Finalsan, Suppress EC and Scythe are organic weed killer products.*

TABLE 4 CITY OF IRVINE PESTICIDE USAGE SUMMARY PARKS/CITY RIGHT OF WAY– RODENTS						
PRODUCT	**PEST**	**TOTAL USE IN 2021**	**TOTAL USE IN 2022**	**TOTAL USE IN 2023**	**TOTAL USE IN 2024**	**TOTAL USE IN 2025**
SYNTHETICS						
Fumitoxin Tablets	Rodent	378 tablets	921 tablets	18 tablets	3 tablets	0
Rat-X	Rodent	0	0	0	2 lb.	0
Aluminum phosphide	Rodent	0	0	0	2.5 lb.	0.15 lb.
Zinc Phosphide	Rodent	0	0	31 lb.	23 lb.	18 lb.
ORGANICS						
Selontra	Rodent	0	6,190 oz.	346.75 lb.	346.75 lb.	14.38 lb.
Uncle Ian's Gopher Repellant	Rodent	10 lb.	0	0	0	0
Repels-All	Rodent	0	2 lb.	0	0	0
ICI Carbon Dioxide	Rodent	84 lb.	94.75 lb.	0	0	100 oz.
Carbondioxide	Rodent	0	0	1,308 oz.	632.5 oz.	0
ContraPest	Rodent	108.24 oz.	498 oz.	1,925.6 oz.	332 oz.	0
Terad3 Blox	Rodent	127 lb.	196.2 lb.	11.13 lb.	0	0

TABLE 5 CITY OF IRVINE PESTICIDE USAGE SUMMARY PARKS/CITY RIGHT OF WAY – INSECTS						
PRODUCT	**PEST**	**TOTAL USE IN 2021**	**TOTAL USE IN 2022**	**TOTAL USE IN 2023**	**TOTAL USE IN 2024**	**TOTAL USE IN 2025**
SYNTHETICS						
Max Force Ant Bait Stations	Insects	0	0	0	24 ea.	
Amdro Pro	Fire Ants	0	0	0	0	0.7 lbs.
Extinguish plus	Fire Ants	0	0	0	0	95 lbs.
ORGANICS						
EcoVia	Fire Ants	157.5 oz.	277 oz.	175 oz.	97 oz.	43 oz.
Entrust SC	Fire Ants	228.13 oz.	263oz.	268 oz.	164 OZ.	OZ.
Neem Oil	Insects	0	0	0	0	96 oz.

TABLE 6 PRODUCT USAGE FOR RIGHT OF WAY/STREETSCAPES						
PRODUCT	**PEST**	**TOTAL USE IN 2021**	**TOTAL USE IN 2022**	**TOTAL USE IN 2023**	**TOTAL USE IN 2024**	**TOTAL USE IN 2025**
SYNTHETICS						
Arrow 2EC	Bermuda grass	2,488 oz.	2,332 oz.	1,649 oz.	2133 oz.	0
Sedge Hammer	Nutsedge	0	64 oz.	398 gr.	755.1 gr.	574.6 gr.
Fusilade	Bermuda grass	158 oz.	225 oz.	0	31.5 oz.	40 oz.
Reward	Cattails	864 oz.	384 oz.	0	4,011 oz.	9,146 oz.
Envoy Plus	Weeds	0	0	0	142 oz.	774 oz.
Prodiamine 4L	Weeds	0	0	0	36 oz.	1,504 oz.
Garlan 4 Ultra	Weeds	0	0	0	3,618 oz.	13,071 oz.
Esplanade 200 SC	Weeds	0	0	0	31.75 oz.	32.25 oz.
Intensity One	Weeds	0	0	0	1210 oz.	4,302 oz.
Snapshot	Weeds	0	0	0	0	828.5 lb.
Spectacle Flo	Weeds	0	0	0	0	132 oz.
ORGANICS						
Scythe	Weeds	4950 oz.	474 oz.	0	0	0
Suppress EC	Weeds	317,833 oz.	182,880 oz.	177,122 oz.	280,532 oz.	109,002 oz.
Finalsan	Weeds	65,802 oz.	8,320 oz.	70,400 oz.	754 oz.	157,952 oz.
Fireworxx	Weeds	0	0	189,102 oz.	4,742 oz.	312,452 oz.