



**City of Santa Barbara  
Integrated Pest Management Strategy**

**DRAFT 2018 Annual Report**

**Prepared February 2019**



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## **I. BACKGROUND**

In January 2004, the City of Santa Barbara (City) adopted a City-wide Integrated Pest Management (IPM) Strategy to reduce pesticide hazards on City property and promote effective pest management.

The IPM Strategy contains the mission and purpose, assigns responsibilities, and outlines pest management processes, among other things. In addition, The Strategy requires an annual report be prepared that addresses the following:

- Types of pest problems encountered by each Department
- Types and quantities of pesticides used by each Department
- Exemptions in place and granted during the past year
- Alternatives used for phased out pesticides
- Alternatives proposed for use within the next 12 months
- Effectiveness of any changes in practices implemented
- Planned changes to pest management practices

### **PHAER Zone System**

The IPM Strategy required the development of a “Zone System” tied to the IPM Approved Materials List to limit pesticide use based on potential human exposure. In February 2006, the City Council approved the PHAER Zone system to be incorporated into the IPM Strategy.

The PHAER Zone system assigns a Green, Yellow, or Special Circumstance/Red Zone designation to each site, or portions of sites, based upon the potential for exposure by humans and sensitive habitat to hazardous pesticides, and allows the use of carefully screened materials by zone designation. For example, Green Zones are areas of high exposure potential, and only pesticides designated as “Green”, which show very limited human and environmental impacts, may be used. Yellow Zones are areas with less potential for harm from exposure, and a broader range of “Yellow” materials are permitted under the PHAER Zone system.

### **Citizen and Staff IPM Advisory Committees**

The City Council established the 5 member Citizen IPM Advisory Committee by Resolution No. 06-008. The members of the Committee are appointed by the Parks and Recreation Commission to serve two-year terms. The purpose of the Committee is to review and advise on the implementation of the City’s Integrated Pest Management Strategy. The 2018 Citizen IPM Advisory Committee included the following representatives:

- Greg Chittick, Community at large
- Larry Saltzman, Pesticide Awareness and Alternative Coalition
- Kristen LaBonte, Community at large

The Citizen IPM Advisory Committee has had two positions that have remained unfilled for the past year due to a lack of applicants.

Department IPM Coordinators are representatives appointed by Department Directors to serve on the Staff IPM Committee. Department representatives included: Jeff McKee from the Airport, Joe Poire from Fire, Mike Wiltshire from Public Works, Karl Treiberg from the Waterfront, and Santos Escobar from Parks and Recreation. The Staff IPM Committee continued to work effectively with the Citizen IPM Advisory Committee to administer the IPM Strategy and oversee

pest management practices. The Parks and Recreation Department coordinates both the Citizen and Staff IPM Committees and oversees the implementation of the City's IPM Program.

## **II. IPM 2018 STRATEGY RESULTS**

### **1. Citizen IPM Advisory Committee Actions**

The Citizen IPM Advisory Committee met once in 2018 to review the materials list, and approve the 2017 IPM Annual Report. The Committee approved the report and materials list.

## 2. Pests Encountered

A variety of pests were encountered on City properties in 2018 as outlined in Table 1. Departments ranked their top three pest problems with the numbers 1, 2 and 3. Other pest problems encountered are asterisked (\*). Footnote annotations reference additional information including names of plant diseases, weeds, grasses, and specific insects. Due to the low rainfall, the overall abundance of these pests was down as compared to other non-drought years.

**Table 1. Pest Problems Encountered by Department/Division**

| Pest Category | Specific Pest                | Airport  | Creeks | Golf                  | Parks                 | Parking  | Public Works | Waterfront |
|---------------|------------------------------|----------|--------|-----------------------|-----------------------|----------|--------------|------------|
| Plant pests   | Giant whitefly               | *        |        |                       | *                     | *        | *            |            |
|               | Misc. plant insects          |          |        | *                     | *2                    | <b>3</b> | *            |            |
|               | Disease                      | *        |        | <b>1</b> <sup>1</sup> | *3                    | *        |              |            |
| Tree Pests    | Oak Worm                     |          |        |                       | *                     | <b>2</b> | *            |            |
|               | Psyllids                     |          |        |                       | *2                    |          |              |            |
|               | Various Pine Bark Beetle sp. |          |        |                       | *                     |          |              |            |
| Weeds         | Invasives                    | *        | *      |                       | <b>1</b> <sup>4</sup> |          |              |            |
|               | General weeds                | <b>3</b> | *      | *                     | <b>1</b>              | <b>1</b> | *            | <b>3</b>   |
|               | Perennial grasses            | *        | *      |                       | <b>1</b> <sup>5</sup> |          | *            | *          |
| Vertebrates   | Gopher                       | <b>2</b> |        | <b>3</b>              | <b>2</b>              |          | *            | *          |
|               | Ground Squirrel              | *        |        | <b>2</b>              | *                     |          |              | *          |
|               | Gulls/ nuisance birds        | *        |        |                       | *                     | *        |              | <b>2</b>   |
|               | Moles                        |          |        | *                     | *                     |          |              |            |
|               | Raccoons                     | *        |        | *                     |                       |          |              |            |
|               | Skunks                       | *        |        | *                     |                       |          |              |            |
| Human Health  | Poison Oak                   | *        |        |                       | *                     |          |              |            |
|               | Bees, yellow jackets, etc.   | *        |        | *                     | <b>3</b>              | *        | <b>2</b>     |            |
|               | Rats/ mice                   | *        |        | *                     | *                     | *        | <b>3</b>     | <b>1</b>   |
|               | Mosquitoes                   | <b>1</b> |        | *                     | *                     |          | <b>1</b>     |            |
| Other         | Termites                     | *        |        |                       |                       |          | *            |            |
|               | Roaches                      |          |        |                       |                       |          | *            |            |
|               | Ants                         | *        |        |                       |                       | *        | *            |            |
|               | Pigeons                      |          |        | *                     |                       |          |              |            |
|               | Crows                        |          |        | *                     |                       |          |              |            |

1. Golf reported these plant diseases (fungus): Anthracnose, Summer Patch, Brown Patch, Take-All Patch, and Rapid Blight.
2. Parks reported these plant insects: Lerp Psyllids, Mites, Oak Moths, Thrips, Aphids, Snails, Slugs, and Ants.
3. Parks reported these plant diseases: Leaf Spot, Mildew, Blight, Pink Bud Rot, Sooty Mold, *Pythium*, *Armillaria*, and *Phytophthora*.
4. Parks reported these invasive weeds: Arrundo, Nutgrass, Kikuyu Grass, Clover, *Oxalis*, Malva, Foxtail, Spurge, Dandelion, Milkweed, Sow Thistle, *Poa annua*, Puncture Vine, Johnson Grass, and Poison Oak.
5. Parks reported the following perennial grasses: Crab, and Bermuda.

### 3. City-wide Pesticide Use

City Departments that applied pesticides, or contracted with pesticide applicators, also prepared monthly pesticide and alternative use reports, and participated in the preparation of this Annual Report. The monthly reports form the basis of the Annual Report and are available at the main offices of each Department.

Table 2 below provides a summary of total pesticide use (pesticides are reported in either pounds or gallons depending on whether they are dry or liquid) for 2018, including any increase or decrease in use from 2017. Use decreased 196% since 2017 for Green materials but increased for yellow material by 89%, primarily for mosquito control. Red materials decreased by 258%. All material applied decreased by 20% from 2017 levels.

**Table 2. 2018 Pesticide Use Summary**

|                               | Material Use |              |              |               |
|-------------------------------|--------------|--------------|--------------|---------------|
|                               | Green        | Yellow       | Red          | Total         |
| <b>Gallons</b>                | <b>9.2</b>   | <b>5.4</b>   | <b>23.6</b>  | <b>38.4</b>   |
| <b>Pounds</b>                 | <b>409.3</b> | <b>722.4</b> | <b>2.7</b>   | <b>1134.4</b> |
| <b>Total Change from 2017</b> | <b>-196%</b> | <b>+89%</b>  | <b>-258%</b> | <b>-20%</b>   |

Table 3 presents a more in-depth look at pesticide use by Department/Division, including: pesticide tier and name, active ingredient, class of pesticide, units and number of applications. At the Department level, the Airport Department decreased the use of pesticides overall since 2017, down 50% overall for material applied in gallons and pounds. The Mosquito and Vector Management District applied 566 lbs. of Altosid (Yellow) and 355 lbs. of Vectobac (Green) on the Airport's behalf to control mosquito sources and prevent West Nile Virus and other disease transmission. Rodent control is an important part of the Airport's efforts to minimize bird strikes to aircraft, and to accomplish this they applied 100 lbs. of Wilco Ground Squirrel Bait to control squirrels. The Airport applied 56 gallons of Roundup (Yellow) to control weeds on the runway, in addition to manual weed control.

The Golf Division decreased its overall pesticide use by 48% from 2017, mainly because no Affirm (Yellow) or RoundUp (Yellow) were applied in 2018. However, their Red materials increased mainly due to the increased use of the fungicides Daconil and Proxy.

The Parks and Recreation Department increased its pesticide use by 513%, though this is specifically due to the increased use of Green materials to control weeds and slugs and snails, reducing the need for Yellow materials to provide control. The Parks Division used Sluggo (Green), Iron Phosphate, at Alice Keck Park Memorial Gardens and the Mission Rose Garden to combat slugs and snails. The Green materials Burn Out and Avenger were used for weed control at Cabrillo Ball Field, Harbor West Parking Lot, and Chase Palm Park. The Creeks Division applied .05 gallons (1:16 dilution rate) of the herbicide Polaris (Yellow) at Arundo treatment sites along Arroyo Burro Creek, throughout 6 applications.

The Public Works Department decreased use of pesticides by 80% from 2017. Vectobac G (Green) was applied 40 times over the course of the year for the treatment of mosquitos. As is typical, the majority of the pesticide was applied at the Andrée Clark Bird Refuge, with additional sites including: Lighthouse Creek at La Mesa Park; culvert at Dwight Murphy Field/Por La Mar; ditch at 3015 Calle Noguera; creek, ditches and drains at Chase Palm Park; the channel at Municipal Tennis Courts on Old Coast Highway, the bioswale at the Honda Valley Preserve, ponds at Sylvan Park, Mission Creek below Foothill, and Laguna Channel. Public Works also applied .05 gallons each of Arilon and Advion (Yellow) for control of ants in facilities.

It is important to note that because pesticide use will vary from year to year, an increase or decrease from the previous year does not necessarily indicate a long-term trend. Many factors affect the amount of pesticides applied in any one year. This topic is further discussed in Section 7.



**Table 3. Pesticide Use by Department/Division**

| Pesticide Name           | Active Ingredient      | Type         | Amount of Pesticide Applied |               |              |            |                         |           |              |             |                         |           |                      |              |   |    |
|--------------------------|------------------------|--------------|-----------------------------|---------------|--------------|------------|-------------------------|-----------|--------------|-------------|-------------------------|-----------|----------------------|--------------|---|----|
|                          |                        |              | Airport                     |               | Golf         |            | Parks and Recreation    |           | Public Works |             | Applications            |           |                      |              |   |    |
|                          |                        |              | Gallons                     | Pounds        | Gallons      | Pounds     | Gallons                 | Pounds    | Gallons      | Pounds      | Airport                 | Golf      | Parks and Recreation | Public Works |   |    |
| BurnOut II / Avenger     | Citric Acid/Clove Oil  | Herbicide    |                             |               |              |            | 4.12                    |           |              |             |                         |           |                      |              | 3 |    |
| Primo Maxx               | Trinexapac-ethyl       | Regulator    |                             |               | 5            |            |                         |           |              |             |                         |           |                      | 27           |   |    |
| Safer                    | K salts of fatty acids | Insecticide  |                             |               |              |            | 0.1                     |           |              |             |                         |           |                      |              | 2 |    |
| Sluggo                   | Iron Phosphate         | Molluscicide |                             |               |              |            |                         |           | 40           |             |                         |           |                      |              | 1 |    |
| Vectobac                 | Bti                    | Insecticide  |                             | 354.7         |              |            |                         |           |              | 14.6        | 42                      |           |                      |              |   | 40 |
| <b>Green Totals</b>      |                        |              | <b>0</b>                    | <b>354.7</b>  | <b>5</b>     | <b>0</b>   | <b>4.22</b>             | <b>40</b> | <b>0</b>     | <b>14.6</b> | <b>42</b>               | <b>27</b> | <b>6</b>             | <b>40</b>    |   |    |
| Advion Gel               | Indoxacarb             | Insecticide  | 0.19                        |               |              |            |                         |           |              |             | 9                       |           |                      |              |   |    |
| Acelepryn                | Chloraniliprole        | Insecticide  |                             |               | 0.56         |            |                         |           |              |             |                         | 2         |                      |              |   |    |
| Altosid XR               | Methoprene             | Insecticide  |                             | 566.40        |              |            |                         |           |              |             | 3                       |           |                      |              |   |    |
| Polaris                  | Imazapyr               | Herbicide    |                             |               |              |            | 0.05                    |           |              |             |                         |           |                      | 6            |   |    |
| Round-up Custom          | Glyphosate             | Herbicide    |                             | 56            |              |            | 3                       |           |              |             | 4                       |           |                      | 16           |   |    |
| Trilogy                  | Neem Oil               | Fungicide    |                             |               |              |            | 1.5                     |           |              |             |                         |           |                      | 2            |   |    |
| Wilco                    | Diphacinone            | Rodenticide  |                             | 100           |              |            |                         |           |              |             | 6                       |           |                      |              |   |    |
| <b>Yellow Totals</b>     |                        |              | <b>0.19</b>                 | <b>722.4</b>  | <b>0.56</b>  | <b>0</b>   | <b>4.55</b>             | <b>0</b>  | <b>0</b>     | <b>0</b>    | <b>22</b>               | <b>2</b>  | <b>24</b>            | <b>0</b>     |   |    |
| Daconil                  | Chlorothalonil         | Fungicide    |                             |               | 9.9          |            |                         |           |              |             |                         | 4         |                      |              |   |    |
| Bayleton Fro             | Triadimefon            | Fungicide    |                             |               | 0.7          |            |                         |           |              |             |                         | 1         |                      |              |   |    |
| Dorado                   | Propiconazole          | Fungicide    |                             |               | 1.35         |            |                         |           |              |             |                         | 1         |                      |              |   |    |
| Insignia                 | Pyraclostrobin         | Fungicide    |                             |               | 1.47         |            |                         |           |              |             |                         | 3         |                      |              |   |    |
| Proxy                    | Ethephon               | Regulator    |                             |               | 10.2         |            |                         |           |              |             |                         | 3         |                      |              |   |    |
| Velista                  | Penthiopyrad           | Fungicide    |                             |               |              | 2.7        |                         |           |              |             |                         | 1         |                      |              |   |    |
| <b>Red Totals</b>        |                        |              | <b>0</b>                    | <b>0</b>      | <b>23.62</b> | <b>2.7</b> | <b>0</b>                | <b>0</b>  | <b>0</b>     | <b>0</b>    | <b>0</b>                | <b>13</b> | <b>0</b>             | <b>0</b>     |   |    |
| <b>Department Totals</b> |                        |              | <b>0.19</b>                 | <b>1077.1</b> | <b>29.18</b> | <b>2.7</b> | <b>8.77</b>             | <b>40</b> | <b>0</b>     | <b>14.6</b> | <b>64</b>               | <b>42</b> | <b>30</b>            | <b>40</b>    |   |    |
| <b>City-wide Totals:</b> |                        |              | <b>Gallons 38.14</b>        |               |              |            | <b>Pounds 1,134.400</b> |           |              |             | <b>Applications 176</b> |           |                      |              |   |    |

## 4. EXEMPTIONS

Under the IPM Strategy and PHAER Zone system, exemptions may be granted when a pest outbreak poses an immediate threat to public health, employee safety, or will result in significant economic or environmental damage. Exemption requests are often made in anticipation of a particular pest outbreak and may be requested for one-time application or as a programmatic exemption for a set time period. The exemption process is outlined in the IPM Strategy.

No exemptions were requested in 2018, one (1) exemption was requested in 2017 and three (3) in 2016. This downward trend is due to Departments not proposing new materials or procedures, instead relying on the current adopted materials list.

**Table 4. Comparison of Exemptions for 2016, 2017, and 2018**

| <b>Exemptions</b>                                 | <b>2016</b> | <b>2017</b> | <b>2018</b> |
|---|-------------|-------------|-------------|
| Number of Exemption Requests (total)              | 3           | 1           | 0           |
| Number of Exemption Requests Approved             | 3           | 1           | 0           |
| Number of Approved Exemption Requests Applied     | 3           | 1           | 0           |
| Number of Approved Exemption Requests Not Applied | 0           | 0           | 0           |

## 5. ALTERNATIVE PEST MANAGEMENT PRACTICES USED IN 2017

The use of non-chemical IPM alternatives are emphasized over pesticide applications. Hours reported for the total year are from the *Monthly Alternative Use Reports* prepared by each Department. Non-chemical pest management alternatives are presented in Table 7 and vary from year to year. A check (✓) indicates the alternative was used, but time was not tracked. City Departments track time using a variety of methods. Some Departments track Alternative Management Practices by issuing Work Orders, while some track time by having their staff fill out reports on their daily activities. Additionally, when time has been spent on Alternative Management Practices by contractors, they usually report the time spent to the Department that oversees the contract. Table 7 below presents a combination of staff time and contractor time when reported.

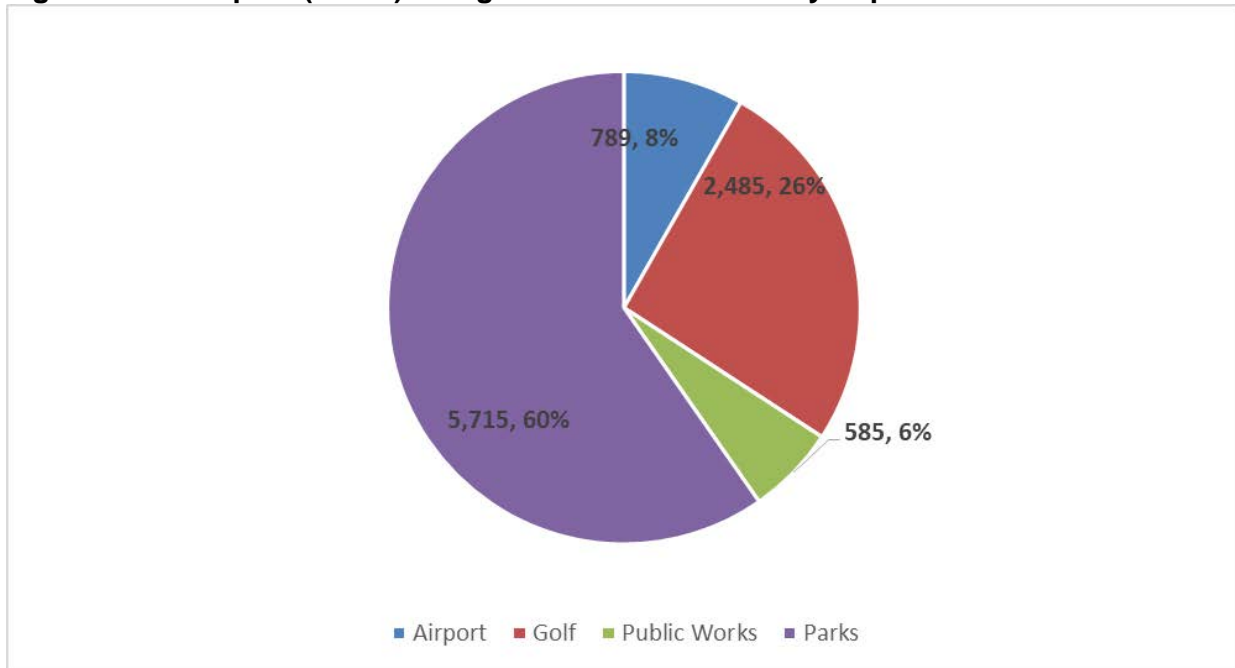
Of the tracked hours for City-wide alternative practices, there was a decrease of 22% from 12,198 hours in 2017 to 9,574 hours in 2018. As a whole, maintaining weeds through mulching, hand weeding, weed whipping and other practices accounts for 7,919 hours, 83% of the total time tracked; mechanical traps for gopher, squirrels, rats and mice control accounted for 15% of total tracked time, or 1,434 hours, bee control accounted for 221 hours, or 2% of total time tracked. Much of the City's rodent trapping and bee control are done by contractor.

**Table 5. Staff and Contractor Time Using Alternative Management Practices (hours)**

| PEST               | Alternative               | Airport    | Golf         | Public Works | Parks        | Creeks   | Citywide Hours |
|--------------------|---------------------------|------------|--------------|--------------|--------------|----------|----------------|
| WEEDS              | Mulch & wood chips        | 17         | 125          |              | 194          | ✓        | 336            |
|                    | Weed fabric               |            |              |              | ✓            |          | 0              |
|                    | Propane flame weeder      |            |              |              | ✓            |          | 0              |
|                    | Hand weeding              | 542        | 62           |              | 850          | ✓        | 1,454          |
|                    | Weed whip                 | 106        | 1,633        | ✓            | 4,006        | ✓        | 5,745          |
|                    | Habitat modification      |            |              |              | ✓            | ✓        | 0              |
|                    | Irrigation Mgmt.          |            | 384          |              | ✓            |          | 384            |
|                    | Host plants squeeze out   |            |              |              | ✓            |          | 0              |
| PLANT PESTS        | Irrigation Mgmt.          |            | ✓            |              | ✓            |          | 0              |
|                    | Compost tea/microbial in. |            | ✓            |              |              |          | 0              |
|                    | Enhance plant health      |            | ✓            |              | ✓            |          | 0              |
|                    | Worm castings             |            |              |              | ✓            |          | 0              |
|                    | Effective micro-organisms |            | ✓            |              | ✓            |          | 0              |
|                    | Wash off plants           |            |              |              | ✓            |          | 0              |
|                    | Remove plant/tree         |            |              |              | ✓            |          | 0              |
| GOPHERS            | Traps                     | 70         | 185          |              | 300          |          | 555            |
| SQUIRRELS          | Traps                     |            | 96           |              | 92           |          | 188            |
| RATS & MICE        | Mechanical traps          | 54         |              | 364          | 273          |          | 691            |
|                    | Cat                       |            |              |              |              |          | 0              |
| MOSQUITOES         | Mosquito fish             |            |              |              |              |          | 0              |
|                    | Remove stagnant water     |            |              |              | ✓            |          | 0              |
| BEES               | Bee Keepers               |            |              | 221          | ✓            |          | 221            |
| OTHER              | Glue traps/roaches        |            |              |              |              |          | 0              |
|                    | Heat Treatment            |            |              |              |              |          | 0              |
| <b>Total Hours</b> |                           | <b>789</b> | <b>2,485</b> | <b>585</b>   | <b>5,715</b> | <b>0</b> | <b>9,574</b>   |

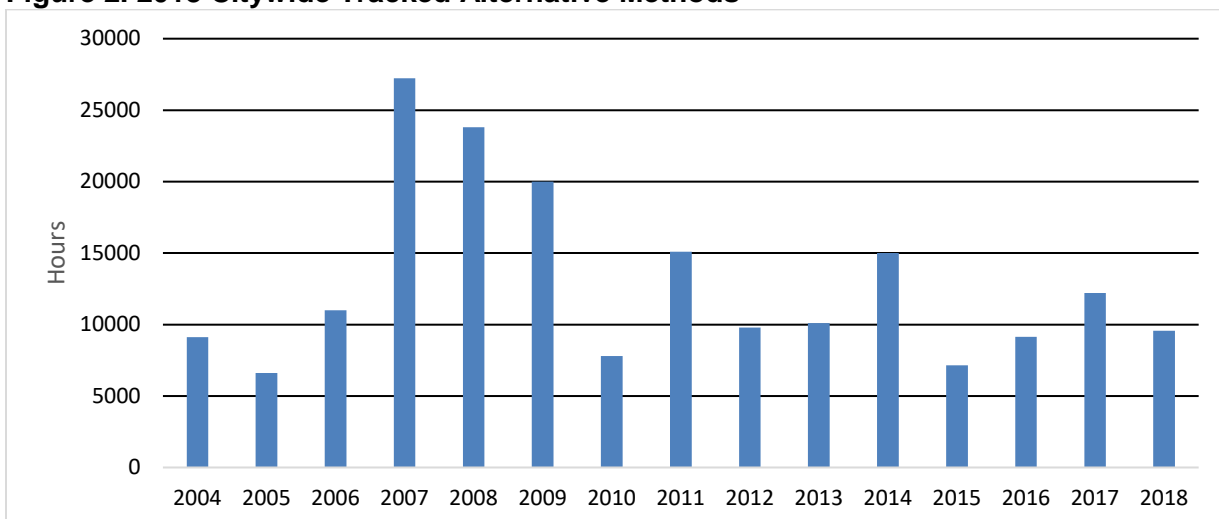
Figure 1 below compares the use of alternative methods (in hours) by Department/Division. Of the total 9,574 hours tracked using alternative methods the Parks Division accounted for 5,715 hours, or 60% of total time; the Golf Division accounted for 2,485 hours, or 26%; the Airport accounted for 789 hours, or 8% of total time; and Public Works accounted for 585 hours, or 6% of total time.

**Figure 1. Time Spent (hours) Using Alternative Methods by Department/Division**



A number of factors influence time spent on alternative practices including the number of staff available to perform alternative methods, department priorities, and severity of pest outbreak. Figure 2 reflects tracked hours by year since 2004. Though hours spent on alternative methods will vary from year to year, the City has averaged 13,000 hours on tracked alternative management practices. Weeding has historically been the category which most greatly affects time spent on alternative practices.

**Figure 2. 2018 Citywide Tracked Alternative Methods**



## 6. EFFECTIVENESS OF ALTERNATIVE PRACTICES IMPLEMENTED

In general, most alternative pest management practices are more labor intensive and costly, and not as effective as the use of Yellow and Red classified pesticides. While most Green materials and practices provide only moderate control of pest populations, there have been some successes.

The effectiveness of alternatives for the biggest pest problems encountered in an average year is reviewed below.

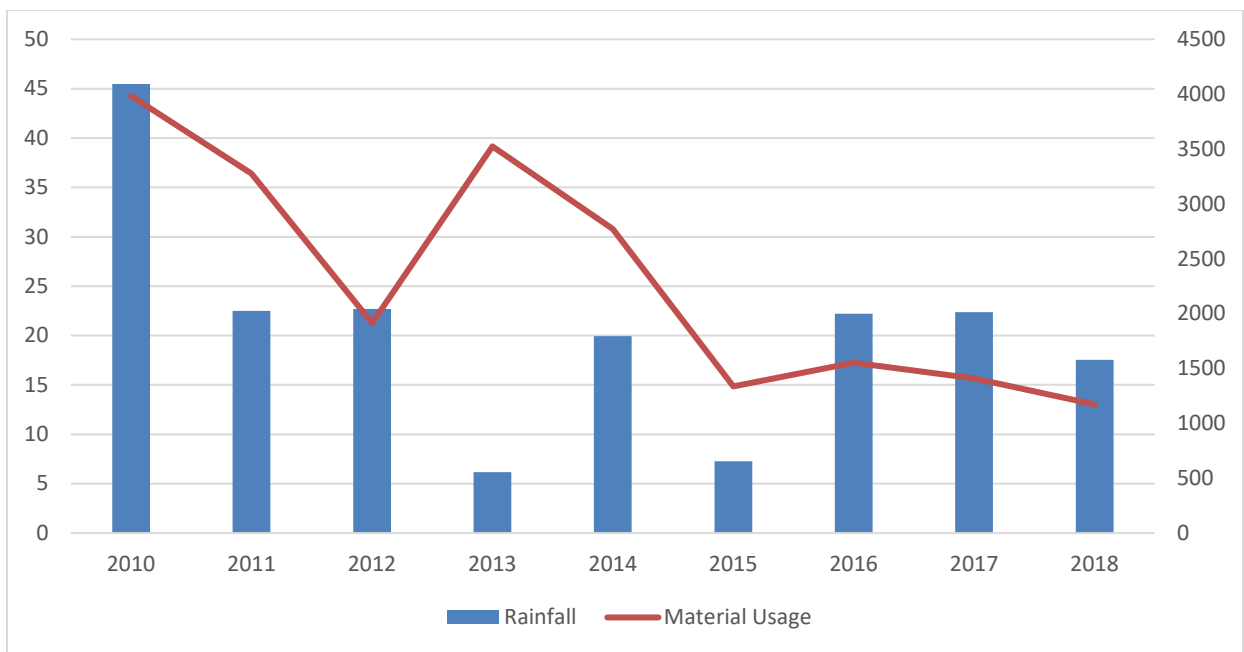
- **Weeds:** A variety of alternatives provide moderate effectiveness and control including: weeding, weed whipping, mulching, mowing, and using a flame torch in designated safe areas. These alternatives are significantly more labor and cost intensive and not as effective as Yellow materials such as Glyphosate. Alternative chemicals, such as clove oil or acid based herbicides, have not proven effective. This has resulted in a notable increase in weed populations, predominantly on parkland, that continues to have a negative effect on aesthetics and landscape health.
- **Insects / Mollusks:** Results are mixed for combating insects and mollusks. For some insects, there are no known effective alternatives. Some alternatives can be very effective but expensive, such as removing non-resistant plants and replacing them with resistant varieties. However, the following alternatives have proven successful against insects and mollusks:
  - Sluggo for snails and slugs
  - Worm castings for white fly
  - Insecticidal soap for aphids
  - Neem oil as a dormant spray
  - Bti and Spinisad for mosquitoes
  - Acelepryn for beetles
- **Disease:** No effective alternative has been found for most diseases. Where possible, staff focuses on preventative treatments to enhance plant health. Once disease strikes, a plant may be removed and replaced with a less susceptible plant. If a plant cannot be removed, pesticides are generally required to combat the disease.
- **Gophers:** For the most part, mechanical traps are being used City-wide. Traps have been found to be moderately effective and are more expensive than rodenticides due to higher costs of purchasing, installing, monitoring, and cleaning out traps.
- **Ground Squirrels:** Mechanical trapping, using snap traps, is the primary method of control at this time. This method is moderately effective at controlling populations. Both trapping and baiting have proven very labor intensive.
- **Mice / Rats:** At this time, traps are the primary way of controlling this population. Traps have been found to be effective depending on population size and location and available food sources. Positive public perception seems to far outweigh the costs of using traps. Traps are very effective in controlling rodents on downtown State Street and at Coast Village Road.
- **Termites:** Building Maintenance will use heat treatments to control drywood termites where appropriate. Heat was found to be equally effective as pesticides on smaller buildings with drywood termites. However, costs are 50% higher at this time, and heat is not effective on large structures or with subterranean termites.

## 7. CONCLUSION

Many factors contribute to the use of pesticides as well as the tier of pesticides used. These include weather patterns (unseasonably dry or wet weather), introduction of new, or changes to existing pest populations, effectiveness of alternative methods, as well as the effectiveness and availability of certain pesticide materials. Such variances are, and will continue to be, a normal occurrence.

One of the main factors that determine pest populations is rainfall. More rain generally amounts to a greater population of insects and weeds, thus more pesticide use. Figure 3 compares annual rainfall with total pesticide use. With the exception of 2013 and 2014, the data indicates a greater use of pesticides during wetter years. 2013 pesticide use was influenced by the Goleta Slough being closed to the ocean, leading to an increased mosquito population around the Airport.

**Figure 3. Comparison of Annual Rainfall with Total Pesticide Use**



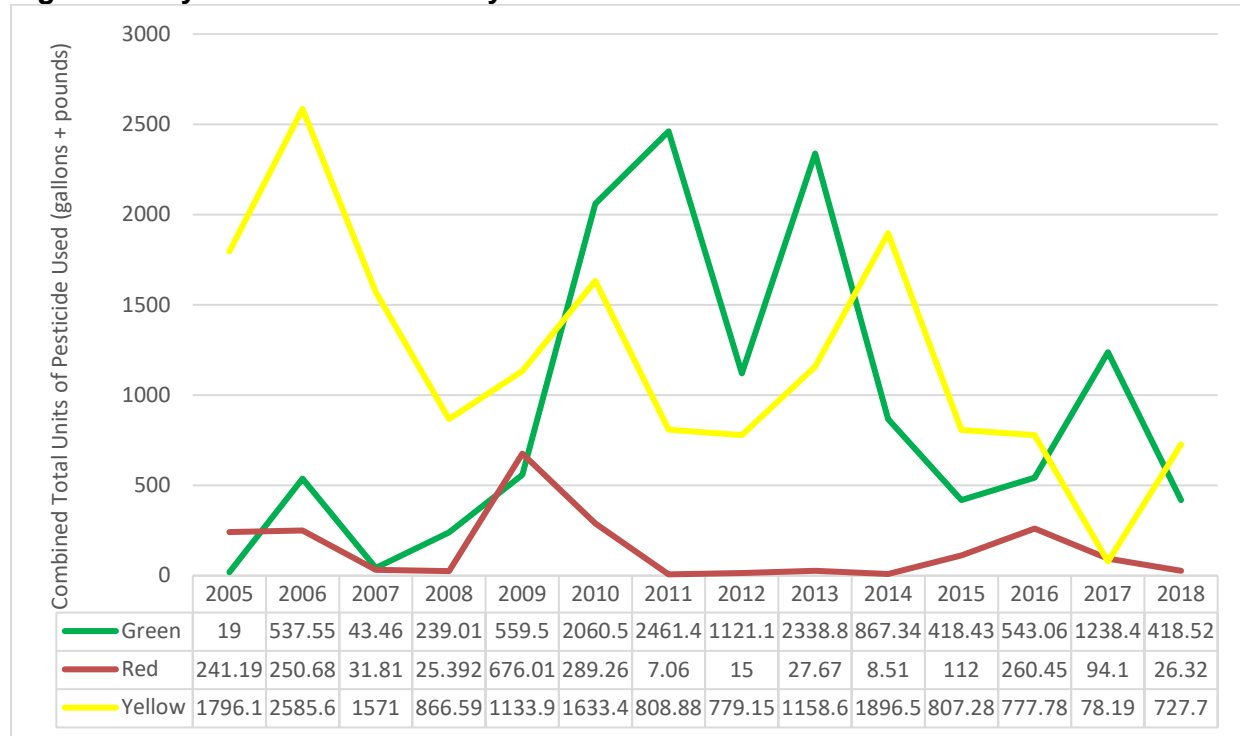
Because the number of factors that affect pesticide use can vary greatly from year to year, it is difficult to look at past pest management practices to predict future pesticide use. In addition, prior to implementing IPM and the PHAER Zone, pesticide use was analyzed only by the Parks Division and used at higher frequencies and in larger quantities<sup>1</sup>.

In addition, it should be noted that the amount of pesticides used and the number of applications are not necessarily accurate indicators of the extent of pesticide use or, conversely, the extent of use of reduced-risk pest management methods and alternative practices. For example, staff may apply several hundred small-scale "spot" applications targeted at problem areas rather than a few treatments of a large area. Further, staff may replace a more toxic pesticide used at a smaller quantity with a less hazardous compound that must be applied at a much larger quantity.

<sup>1</sup> Information based on staff and IPM Advisory Committee knowledge.

Figure 4 looks at the City’s pesticide use by tier since 2005. The data indicates that an increase in Yellow and Red materials generally amounts to less Green material, though this is not always the case. 2010, for example, saw a higher than average use of both Red and Yellow material, while still using a significant amount of Green material. The *2010 Annual Report* indicates that 80% of all pesticide use in 2010 was for mosquito control. In fact, mosquito control accounts for the majority of pesticide use in any given year.

**Figure 4. Citywide Pesticide Use by Tier**



It is always important for City staff to find cost effective, low risk, viable alternatives to reduce pesticide hazards and to increase the overall efficiency of IPM practices. Additionally, changes in maintenance standards and expectations may be necessary if more Green materials are employed.

Also critical to reducing pesticide hazards in the City of Santa Barbara is the continuation of community outreach and public education. It is anticipated that with greater community outreach, the public will become more aware of low risk alternatives that they can employ at home, thus adding to the overall health of the community.

### **III. PLAN FOR 2019**

The Parks and Recreation Department will continue to administrate and refine the IPM Strategy.

All departments will continue to test any promising new materials or methods of integrated pest management as they are introduced.

On September, 19, 2017, the City Council adopted Resolution 17-097 designating Santa Barbara as a BEE CITY USA affiliate. The Parks and Recreation Department is the designated BEE CITY USA sponsor assigned to facilitate the program. The Department is authorized to conduct a celebration of National Pollinator Week, including publicity through signage and creation of a webpage containing BEE CITY USA and local affiliate contact information; develop and implement a program to create or expand pollinator-friendly habitat; establish and annually review a policy in the IPM Strategy relating to pollinator conservation, and identifying locations for pollinator-friendly plantings.

Staff and the IPM Advisory Committee will continue to monitor research regarding impacts of pesticides on humans, wildlife and native habitats as well as begin a discussion on funding and staffing options for community education and outreach to reduce pesticide use on private property.



## ATTACHMENTS

### ATTACHMENT A: APPROVED MATERIALS LIST

The pesticides listed on the Approved Materials List are categorized according to the pesticide screening protocol in the PHAER Zone system.

| Product Name                     | Active Ingredient                      | ZONE   | Type             |
|----------------------------------|--|--------|------------------|
| Advance Ant Bait                 | Orthoboric Acid                        | Green  | Insecticide      |
| Advion Roach Stations (enclosed) | Indoxacarb                             | Green* | Insecticide      |
| AllDown                          | citric acid, acetic acid, garlic       | Green  | Herbicide        |
| <i>Any brand name</i>            | Orthoboric Acid ant bait station       | Green  | Insecticide      |
| Avert Cockroach Bait Station     | Abamectin B1 0.05%                     | Green* | Insecticide      |
| Avert Cockroach Gel Bait         | Abamectin B1 0.05%                     | Green* | Insecticide      |
| Bactimos Pellets                 | Bt                                     | Green  | Insecticide      |
| Bactimos Wettable                | Bt                                     | Green  | Insecticide      |
| Bio-Weed                         | corn gluten                            | Green  | Herbicide        |
| Borid Turbo                      | Orthoboric Acid                        | Green  | Insecticide      |
| BurnOut 2                        | clove oil                              | Green  | Herbicide        |
| Cease Biofungicide               | B. subtilis                            | Green  | Fungicide        |
| Cinnamite                        | cinnamaldehyde                         | Green  | Insect/Fung      |
| Conserve                         | spinosad                               | Green  | Insecticide      |
| Dipel Flowable                   | Bt                                     | Green  | Insecticide      |
| Drax Ant Kill PF                 | Orthoboric Acid                        | Green  | Insecticide      |
| EcoExempt                        | Wintergreen Oil                        | Green  | Herbicide        |
| EcoExempt D                      | 2-Phenethyl propionate / Eugenol       | Green  | Insecticide      |
| Embark                           | mefluidide                             | Green  | Growth Regulator |
| GreenErgy                        | Citric, Acetic Acid                    | Green  | Herbicide        |
| Kaligreen                        | potassium bicarbonate                  | Green  | Fungicide        |
| Matran (EPA Registration Exempt) | clove oil                              | Green  | Herbicide        |
| Natura Weed-A-Tak                | clove oil                              | Green  | Herbicide        |
| Niban                            | Isoboric Acid 5%                       | Green  | Insecticide      |
| Primo-Maxx                       | Trinexapac-Ethyl                       | Green  | Growth Regulator |
| Safer Soap                       | potassium salts of fatty acids         | Green  | Insecticide      |
| Sluggo                           | iron phosphate                         | Green  | Other            |
| Summit BTI Briquets              | Bt                                     | Green  | Insecticide      |
| Teknar HP-D                      | Bti                                    | Green  | Insecticide      |
| Terro II                         | Orthoboric Acid                        | Green  | Insecticide      |
| Vectobac G                       | Btk                                    | Green  | Insecticide      |
| VectoLex CG                      | bacillus sphaericus                    | Green  | Insecticide      |
| Victor Wasp and Hornet Killer    | Mint Oil 8% & Sodium Lauryl Sulfate 1% | Green  | Insecticide      |
| Acelepryn                        | Chlorantraniliprole                    | Yellow | Insecticide      |

| Product Name               | Active Ingredient              | ZONE   | Type                  |
|----------------------------|--------------------------------|--------|-----------------------|
| Advion Ant Arena           | Indoxacarb                     | Yellow | Insecticide           |
| Advion Roach Gel           | Indoxacarb                     | Yellow | Insecticide           |
| Advion Insect Granules     | Indoxacarb                     | Yellow | Insecticide           |
| Affirm                     | Polyoxin D zinc salt           | Yellow | Fungicide             |
| Agnique MMF                | POE Isoocatadecanol            | Yellow | Insecticide           |
| Aliette                    | fosetyl aluminum               | Yellow | Fungicide             |
| Altosid Briquettes         | methoprene                     | Yellow | Other                 |
| Altosid Liquid             | methoprene                     | Yellow | Other                 |
| Altosid Pellets            | methoprene                     | Yellow | Other                 |
| Altosid XR-B               | methoprene                     | Yellow | Other                 |
| Aquamaster-Rodeo           | glyphosate                     | Yellow | Herbicide             |
| Avid                       | abamectin                      | Yellow | Miticide/Insecticide  |
| Ditrac                     | Diphacinone                    | Yellow | Rodenticide           |
| Dormant                    | petroleum oil                  | Yellow | Insecticide           |
| Green Light                | Neem oil                       | Yellow | Insecticide/Fungicide |
| Kop-R-Spray                | Copper Oil                     | Yellow | Fungicide             |
| M-PEDE                     | potassium salts of fatty acids | Yellow | Insecticide           |
| Omni Oil                   | Mineral Oil                    | Yellow | Fungicide             |
| Polaris                    | Imazapyr                       | Yellow | Herbicide             |
| Prostar 70 WP              | flutolanil                     | Yellow | Fungicide             |
| Rose Defense               | Neem oil                       | Yellow | Insect/Fung           |
| Roundup Pro                | glyphosate                     | Yellow | Herbicide             |
| Roundup PROMAX             | glyphosate                     | Yellow | Herbicide             |
| Safticide Oil              | petroleum oil                  | Yellow | Insecticide           |
| Stylect Oil                | Petroleum distillates          | Yellow | Insecticide           |
| Sulf-R-Spray               | Parafin oil, sulfur            | Yellow | Fungicide             |
| Razoroater                 | Diquat                         | Yellow | Herbicide             |
| Superior Spray Oil         | petroleum distillates          | Yellow | Insecticide           |
| Surflan                    | oryzalin                       | Yellow | Herbicide             |
| Surflan AS                 | oryzalin                       | Yellow | Herbicide             |
| Termidor SC                | Fipronil                       | Yellow | Insecticide           |
| Triact                     | Neem oil                       | Yellow | Insecticide/Fungicide |
| Trilogy                    | Neem oil                       | Yellow | Insecticide/Fungicide |
| Wasp-Freeze                | allethrin                      | Yellow | Insecticide           |
| Wilco Ground Squirrel Bait | diphacinone                    | Yellow | Other                 |
| XL 2G                      | benefin; oryzalin              | Yellow | Herbicide             |
| Banner-maxx                | Propiconazole                  | S.C.   | Fungicide             |
| Bayleton                   | triadimafon triazole           | S. C.  | Fungicide             |
| Daconil                    | Chlorothalonil                 | S.C.   | Fungicide             |
| Fumitoxin                  | Aluminum phosphide             | S. C.  | Rodenticide           |
| Insignia                   | Pyraclostrobin                 | S.C.   | Fungicide             |

| Product Name | Active Ingredient   | ZONE   | Type             |
|--------------|---------------------|--------|------------------|
| Heritage     | Azoxystrobin        | S.C.   | Fungicide        |
| Manage       | halosulfuron methyl | S. C.  | Herbicide        |
| Medallion    | fludioxonil         | S. C.  | Fungicide        |
| Quick Pro    | glyphosate/diquat   | S. C.  | Herbicide        |
| Proxy        | Ethephon            | Red    | Growth Regulator |
| Reward       | diquat dibromide    | S. C.  | Herbicide        |
| Rubigan      | fenarimol           | S. C.  | Fungicide        |
| Rubigan EC   | fenarimol           | S. C.  | Fungicide        |
| Subdue       | metalaxyl           | S. C.  | Fungicide        |
| Trimmit 2SC  | Paclobutrazol       | Yellow | Growth Regulator |
| Turflon      | Triclopyr           | S.C.   | Herbicide        |
| Velista      | Penthiopyrad        |        | Fungicide        |
| Zp Rode      | Zinc phosphide      | S. C.  | Rodenticide      |
| Zythor       | Sulfuryl flouride   | S. C.  | Insecticide      |

\* By decision of the Citizen IPM Advisory Committee, chemicals that may be classified normally as Yellow materials may be classified as Green materials if they are entirely enclosed in factory sealed bait stations.