INTEGRATED PEST MANAGEMENT PROGRAM

for the

CONTRA COSTA COUNTY GROUNDS DIVISION

GENERAL SERVICES DEPARTMENT

I. PROGRAM GOALS FOR PEST MANAGEMENT

To provide aesthetically pleasing, clean, and healthy landscapes amid the urban hardscape

II. SITES UNDER MANAGEMENT

The Grounds Division manages approximately 127 sites comprising

A. County-owned and County-leased buildings—landscape (trees, shrubs, ornamental grasses, ground cover, and a small amount of turf) and hardscape (sidewalks and parking lots)

B. Special Districts—Frontage landscaping, one playing field, and medians in two- and four-lane roads

C. Smaller pocket parks and two larger parks (Livorna Park and Lynn Brook Park)

III. DECISION-MAKING IN THE MANAGEMENT PROCESS

A. The following influence pest management actions:

1. Action priorities, including (but not necessarily in order of importance):
    - Potential for harm to property or critical infrastructure
    - Potential for environmental damage (e.g., noxious weeds)
    - Human health or safety risks (e.g., tripping hazards from fallen olive or laurel fruit, or hazards associated with pesticide use)
    - Complaints from citizens, homeowner associations, building occupants, public officials
    - Fundamental priorities associated with the IPM philosophy, such as pest prevention
2. Available resources
    - Budget: General Services receives money from each site under management for the maintenance of that site. These funds fluctuate according to the budgets of the Departments housed at the sites.
    - Available departmental staffing
    - Available staff augmentation (contractors, volunteers, court-ordered public service)
    - Available equipment and materials
    - Available effective and economic non-chemical management methods
    - Available effective and economic chemical management methods
3. Actions may be modified based on local conditions, including
    - Weather conditions including wind and rain or the prediction of rain
    - Issues arising from property owners, property managers, or other local interests, e.g., the amount of use a site gets, whether children use the facility, specific aesthetic standards of the residents in Special Districts
    - Concern for worker safety
    - Concerns for public safety
    - Steep slopes
    - Proximity to hydrologic features such as steams, ponds, storm drains, high water tables
    - Proximity to Threatened or Endangered Species habitat
4. Actions may be tied to specific stages of plant or insect development or other strategic "windows of opportunity" determined by the biology of the target
5. Greenhouse gas emissions involved in the activity

B. Decision-making process

1. Gather information from the work location.

2. Understand the maintenance standards for the site; be aware of and respond to public and political expectations for maintenance at the site.
3. Understand the budget for the site.
4. Take into account employee sick leave, vacations, and injuries when planning activities.
5. Prioritize activities when funding is insufficient to meet all needs: this is based on hazard level, if any; on how labor can be deployed to accomplish the most in the time allotted; and on the consequences of no action.
6. Identify problem species and problem situations at the site; understand the biology/ecology
    a. Use the expertise of the CCC Ag Department and of colleagues and expert professionals; use university and IPM internet sites, periodicals and reference books.
    b. Note new or unusual species, especially those that spread quickly and aggressively, take samples, and alert Ag Department.
7. Determine if the problem is truly a problem and/or whether a plant problem has progressed so far that the plant(s) should be removed. If left alone, will the plants recover on their own? Can the weeds at the site or the damage to the plant be tolerated at the site? Are the plants or the site worth the effort it will take to fix the problem?
8. Identify successful strategies for controlling or eliminating problem species or situations
    a. Look especially for strategies that will prevent the problem in the future
    b. Use the expertise at the CCC Ag Department and of colleagues and expert professionals; use university and IPM internet sites, periodicals and reference books.
    c. Solicit solutions from staff.
9. Evaluate solutions for efficacy, cost, environmental impact, and feasibility
    a. Consider the possibility of doing nothing.
    b. Look next at long-term solutions that emphasize prevention.
    c. Choose non-chemical strategies wherever and whenever possible.
    d. When chemical strategies are necessary, choose the least-toxic pesticide that is effective and consider the chemical properties of each pesticide and the site to which it will be applied, for instance,
        1. how persistent is the chemical?
        2. is the chemical highly soluble in water?
        3. is water likely to run off the site carrying the pesticide into a creek or storm drain?
        4. is the soil sandy or gravelly and is groundwater near the surface at the site?
        5. are non-target species such as birds, fish, or bees particularly sensitive to the chemical?
        6. is there a chance that non-target species might contact the pesticide once it is applied?

e. Make sure that control strategies can be timed properly for maximum effectiveness.

10. Develop a plan that includes a mix of strategies, if at all possible, and explore ways to prevent the problem and avoid pesticide use in the future, even if the prevention strategies cannot be implemented immediately because of budget restrictions or other issues.
11. Implement the management plan and monitor the site to understand whether the plan worked and what changes might need to be made to fine tune the plan.
12. Maintain a list of changes that should be made to sites or plantings and a list operational changes that could improve and facilitate maintenance.
13. Maintain good communication between staff and management and within the staff in order to facilitate problem solving.

Example of the Decision-Making Process

White Grubs at Bettencourt Ranch

White grubs, identified as the northern masked chafer (Cyclocephala sp.) had destroyed large sections of an 18,000 sq. ft. lawn at the entrance to Bettencourt Ranch development, a Special District that is maintained with fees assessed to the homeowners. The site is funded at only 37% of the amount needed to adequately maintain the site. Complaints from the homeowner association were increasing because the beauty of the lawn is very important to the residents.

The site was surveyed, the grubs were identified, and solutions were researched. The lawn is problematic because it is a Kentucky bluegrass lawn (particularly susceptible to white grubs) growing on a hot, south-facing slope with irrigation and drainage problems. It is impractical to maintain such a large area of turf in our hot, dry climate, but convincing the homeowner association of this is a difficult and long-term project.

In the past, the Grounds Crew had raked out the dead patches of lawn, reseeded the bare soil, and spent extra time at the site watering and making sure the new grass got off to a good start. Costs were estimated for this work, and bids for similar renovation were solicited from outside contractors. Having the Grounds Crew perform the renovation was the least expensive, but there was not enough money in the site budget to do the renovation and still maintain the site for the rest of the fiscal year. The idea of completely removing the section of lawn that was most affected, mulching the soil, and gradually transitioning the area to drought-tolerant shrubs was also considered, but of course, funds were not available for this work either. The budget for Bettencourt Ranch is inadequate to even maintain the site, and there is no extra money for landscape renovation. Other sources of funding were explored, but none were found.

Doing nothing was not an option. Although the grubs had already done their damage, stopped feeding, and were preparing to pupate, it was extremely likely that the infestation would recur at the site since it had a history of white grub problems. In order not to incur more damage to a lawn that could not be renovated, the next generation of grubs had to be prevented from maturing. Consequently, the next solution considered was treating the turf with an insecticide. The cost of using an insecticide was several hundred dollars compared to several thousand for renovation. Merit® (imidacloprid) was the first insecticide considered but was rejected as an option because of its toxicity to bees, the possibility that the material might run off-site and into a storm drain, and the fact that the site is near possible habitat for threatened and endangered species.

Acelepryn® (chlorantraniliprole) was the insecticide that was finally chosen because its toxicological profile was better than Merit and it could be used at a much lower dose—0.2 fl. oz. per 1000 sq. ft (3.6 oz. of material for the18,0000 sq. ft. lawn).

Since the grubs were at a stage that was not susceptible to any chemical treatment, the treatment was delayed until the next generation of grubs was in the soil, but small enough to be particularly susceptible to the insecticide.

The site is being monitored to determine how well the treatment has worked.

IV. ENVIRONMENTAL STEWARDSHIP

The Grounds Division makes every effort to give preference to non-chemical strategies for pest management whenever and wherever possible. All pesticides must be used according to the label and with the proper personal protective equipment. Care is taken to avoid using pesticides and fertilizers where and when they might run off the site and into a water body or storm drain. Where possible, tree trimmings are chipped to use on site or elsewhere in order to prevent excess green waste.

V. SHORT- AND LONG-RANGE PLANS FOR MANAGEMENT—not complete

VI. RECORDS

Records are kept of daily pesticide use by site, and reported monthly to the County Department of Agriculture. Records of pesticide use by contractors are also kept by site. Records are kept of trainings attended by Grounds Division personnel.

VII. LICENSING REQUIREMENTS

The State of California does not require that the Grounds Crew be licensed, except in certain situations: anyone on the Grounds Crew who applies a restricted material must have either a Qualified Applicator

Certificate (QAC) or a Qualified Applicator License (QAL) from the Department of Pesticide Regulation. Even thought the Grounds Division does not use restricted materials, the Grounds Manager has a QAL and one staff member has a QAC.

If anyone on the Grounds Crew applies pesticides to a park, a right-of-way, a cemetery, or a golf course, the Grounds Division must secure a written recommendation for the treatment from a state-licensed Pest Control Advisor (PCA). In the past the Division had a PCA on staff, but now the Division contracts with an outside PCA.

VIII. TRAINING

California regulations require yearly pesticide use and safety training. Staff who have a QAL or QAC are required by the Department of Pesticide Regulation to obtain continuing education hours each year in order to maintain their licenses.

Grounds staff attend pertinent conferences and trainings on landscaping practices, IPM, and environmental stewardship.

IX. EMERGENCIES

When pest management emergencies arise, the Grounds Division relies on expertise from the County Department of Agriculture and on professional IPM consultants to help guide the Division in the appropriate action necessary.

X. PUBLIC EDUCATION AND OUTREACH

The Grounds Division has no formal public education and outreach program but the Grounds Crew do speak with curious passers-by about what they are doing and why.

XI. CHARACTERIZATION OF SITES AND MANAGEMENT PROCEDURES

A. Landscaping around County-Owned and County-Leased Buildings

a. Characterization of Sites

There are approximately 100 sites of various sizes under management that comprise a wide variety of plants and landscaping styles, including a very small amount of turf.

b. Overall Management Objectives

1. To provide an aesthetically pleasing landscape amid the urban hardscape
2. To maintain healthy landscaping
3. To maintain a trash-free landscape

4. To maintain a certain aesthetic that is appropriate to the site (determined by experience, complaints, and politics)
    a. Maintain sites as weed-free as possible
    b. Maintain sites to avoid complaints
5. To minimize the risk of pesticide exposure to the general public

c. Maintenance standards for landscaping

These vary according to the site, its use, the budget, and complaints.

d. Monitoring procedures and frequency for these sites

The majority of the sites are monitored weekly. A few sites are monitored monthly and a few are only visited on request. Monitoring consists of visual inspection during the course of normal maintenance work.

e. Management Procedures

Weeds are the primary problem in landscaping around buildings; vertebrates, insects, and diseases are rare. The tools for hand and mechanical weeding include weedwackers, reciprocating weeders, mowers, discs, flails, hoes, shovels, and other hand tools. Additional tools for managing weeds include competitive plantings, mulch applications (a simple layer of woodchips or sheet mulching), flamers, and steam. The main chemical tool used by staff for weeds is Roundup® (glyphosate) applied by backpack sprayer as a spot treatment. Other pesticides may be used from time to time or by contractors.

f. List of pesticides appropriate to the site (Note: This list is under development.)

B. Parking Lots and Hardscapes

a. Characterizations of Sites

These are sidewalks, parking lots, and other hardscape associated with County-owned and County-leased buildings.

b. Overall Management Objectives

1. To preserve pavement in good condition as long as possible (water going along plant roots can get under pavement and cause heaving, plants can break up asphalt allowing water to infiltrate)
2. To maintain trash free parking lots and sidewalks
3. To maintain parking lots and sidewalks as weed free as possible
4. To maintain safety for the public and staff by removing tripping hazards and maintaining sightlines for people who come to or leave from County facilities after dark.
5. To minimize the risk of pesticide exposure to the general public

c. Maintenance standards for parking lots

These vary according to the site, its use, the budget, and complaints.

d. Monitoring procedures and frequency for these sites

The majority of the sites are monitored weekly. Monitoring consists of visual inspection during the normal course of maintenance activities.

e. Management Procedures

Weeds are the primary problem in hardscapes. The tools for hand and mechanical weeding include weedwackers, hoes, shovels, and other hand tools. Additional tools for managing weeds include flamers and steam. The main chemical tool used by staff for weeds is Roundup® (glyphosate) applied by backpack sprayer as a spot treatment. Other pesticides may be used from time to time or by contractors.

f. List of pesticides appropriate to the site (Note: This list is under development.)

C. Special Districts

a. Characterization of Sites

The Grounds Division maintains 27 Special District sites of varying sizes. These sites include both wide and narrow median strips in two- and four-lane roads, plantings between the sidewalk and curb, plantings between the sidewalk and sound wall, and one playing field.

b. Overall Management Objectives

1. To maintain a healthy and aesthetically pleasing landscape
2. To avoid high numbers of complaint calls from residents
3. To maintain sight lines for road safety
4. To minimize the risk of pesticide exposure to the general public

c. Maintenance standards

These vary according to the site, its location, its use, the budget, and complaints

d. Monitoring procedures and frequency for these sites

The majority of the sites are monitored weekly. Several sites are visited only on request. Monitoring consists of visual inspection during the normal course of maintenance activities.

e. Management Procedures

Weeds are the primary problem in Special Districts; vertebrates, insects, and diseases are rare. The tools for hand and mechanical weeding include weedwackers, reciprocating weeders, mowers, discs, flails, hoes, shovels, and other hand tools. Additional tools for managing weeds include competitive plantings, mulch applications (a simple layer of woodchips or sheet mulching), flamers, and steam. The main chemical tool used by staff for weeds is Roundup® (glyphosate) applied by backpack sprayer as a spot treatment. Other pesticides may be used from time to time and by contractors.

f. List of pesticides appropriate to the site (Note: This list is under development.)

D. Parks

a. Characterization of Sites

The Grounds Division maintains six pocket parks and two larger parks. All of these parks are in Special Districts.

b. Overall Management Goals

1. Manage turf and landscaping as much as possible without pesticide
2. Maintain a clean, aesthetically pleasing area for family recreation
3. Maintain a certain aesthetic
4. Maintain parks free of tripping hazards and keep vegetation trimmed in a way to avoid security issues
5. To minimize the risk of pesticide exposure to the general public, especially children and pets

c. Maintenance standards

These vary according to the site, its location, its use, the budget, and complaints

d. Monitoring procedures and frequency for these sites

All sites are monitored weekly. Monitoring consists of visual inspection in the normal course of other maintenance activities.

e. Management Procedures

Weeds are the primary problem in these parks; vertebrates, insects, and diseases are rare. The tools for hand and mechanical weeding include weedwackers, reciprocating weeders, mowers, discs, flails, hoes, shovels, and other hand tools. Additional tools for managing weeds include competitive plantings, mulch applications (a simple layer of woodchips or sheet mulching), flamers, and steam. The main chemical tool used by staff for weeds is Roundup® (glyphosate) applied by backpack sprayer as a spot treatment. Other pesticides may be used from time to time and by contractors.

f. List of pesticides appropriate to the site (Note: This list is under development.)

XII. LIST OF KEY PEST SPECIES (Not completed)