PHAER Zones

PESTICIDE HAZARD AND EXPOSURE REDUCTION (*PHAER*) ZONES IN THE LANDSCAPE

A guidebook for schools, parks, childcare providers, landscape professionals and environmental managers.

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v 1.2

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Pesticide Hazard And Exposure Reduction (PHAER) Zone System for Landscapes
V 1.2

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Executive Summary

The Pesticide Hazard and Exposure Reduction (PHAER) Zone System arose out of a need for a standardized, results-based reduced-risk pest management strategy, and addresses several common challenges faced by many Integrated Pest Management (IPM) programs.

Decision and policy makers seek a way to measure progress towards risk reduction goals, grounds managers need flexibility in their management options, the community is entitled to information about the general level of pesticide hazard that could be present on a site-by-site basis, and children and the environment deserve the highest degree of safety possible.

The PHAER Zone System establishes management zones on each site based upon the unique risk reduction goals of individual jurisdictions. These zones are designated as Green, Yellow, and Special Circumstance Zones, with Green Zones providing the lowest potential for pesticide hazard and exposure. Each Zone has a corresponding pesticide list determined by existing toxicological data.

The objectives of the PHAER Zone System are to

- Identify concrete risk reduction goals (Green Zone management)
- Establish a measurable timeline for risk-reduction activities (transition to Green Zones or other management goals)
- Communicate to the public the general level of pesticide hazard on a site-by-site basis through colored zones maps
- Provide a platform for public education through a regional adoption of the PHAER Zone System

This guidebook has evolved through the efforts of many jurisdictions throughout California and is designed to allow self-implementation. However, a multiple jurisdiction, regional approach may simplify adoption and maximize the program benefits

Section

1

Introduction

Adoption of Integrated Pest Management (IPM) programs has increased in the past several years. We see schools and public parks striving to provide a safer environment for their users, and to prevent chemical contamination of public land and water. Each entity that creates an IPM program sets goals and creates a unique implementation plan to achieve them. Challenges arise, however, in meeting the needs of the many groups interested in the IPM process and outcome. These diverse stakeholders and jurisdictions, be they schools, childcare facilities, advocacy groups, policy makers, or park managers, have distinct interests and needs from the IPM process.

A parent with a child in a childcare facility might want to know what materials the facility is using to care for its landscaping and lawn. A park manager may need to determine her budget for the next year, and how she'll allocate funding to manage pests in different areas. A school groundskeeper might need a specific list of what compounds are safe to use around children, and what protocols should be used in their application.

We saw a need to create a decision-making model that levels the playing field, a system that *anyone* interested in planning and implementing an IPM program can use. For the model to be effective there must be consistency in its use among managers, but equally important there must be a method to communicate the process, implementation, and outcome to end-users (parents, park users, and the general public).

We designed the Pesticide Hazard and Exposure Reduction (PHAER) Zone System to fill this need. All jurisdictions that use the PHAER method will evaluate their sites by the same standards. They will have the flexibility to choose which areas justify immediately transition to reduced-risk management, and which areas to transition more slowly, depending upon resources, policy and social needs. Further, all participants will be able to utilize a common pesticide screening, language, and decision making process.

This system was first piloted at the Ventura Unified School District beginning in 2001. The application was broadened and refined with input from the Santa Barbara County Regional IPM Coalition, funded by the California Department of Pesticide Regulation in 2002. Finally, with funding from the National Foundation for IPM Education and support from stakeholders throughout the state, the program and handbook have been formalized.

Section

2

Background

The Pesticide Hazard and Exposure Reduction (PHAER) Zone System is a tool that guides, prioritizes, and clearly communicates pesticide use decisions in the outdoor landscape setting. It is designed to minimize human and environmental exposure to pesticides that have elevated safety concerns. The method helps to achieve the following:

- Improve pesticide use communication to the public
- Provide flexibility to managers
- Shift limited resources to areas of greatest need
- Create measures of IPM improvement for budgeting purposes
- Prioritize risk-reduction activities
- Promote the good stewardship of public lands by the agencies that manage them

Risk = Exposure X Hazard

Phil Boise, the method's designer, based this intuitive mapping system on the formula for 'risk,' which includes:

The potential for human and environmental exposure[1] to pesticides

The hazard[2] presented by a pesticide.

The higher the potential for exposure in an area, the more vital it is to use a very low-hazard pest management material. In areas where there is little or no potential for exposure, pest managers have more flexibility to use a higher-hazard compound to treat pests.

[1] Exposure: When we speak of 'exposure' we mean contact with a pesticide or pesticide residue—this contact can be direct or indirect contact to humans or sensitive habitats or species. 'Exposure' may come through direct skin or clothing contact with pesticides or residues applied to surfaces, or through indirect contact from volatilization, drift, sub-soil movement, or run-off.

[2] Hazard: The hazard is the level of harm that can come from a pesticide. Determined by existing data reflecting the potential for the material to cause neural, dermal, ocular or inhalation damage ('signal word'), or to cause cancer, reproductive harm, endocrine (hormone) disruption, eco-toxicity, or water contamination. This evaluation process is described in Appendix B.

While ‘zero’ pesticide exposure is not the goal of this system, we believe that it is an achievable goal to limit exposure to pesticides that are carefully screened, and avoid exposure to pesticides that have documented health risks.

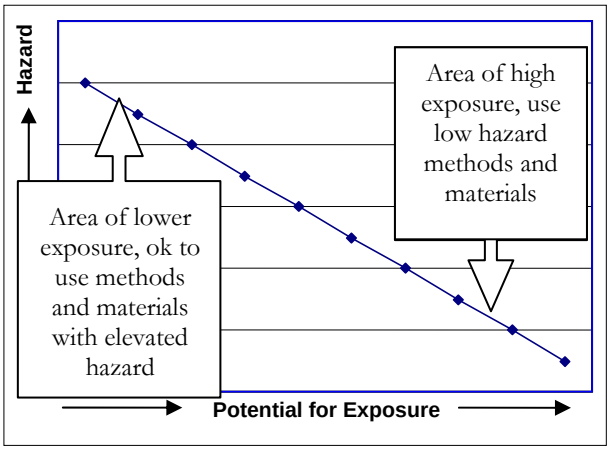


Figure 1: Risk as a relationship between exposure and hazard.

Who Benefits from PHAER Zones?

As mentioned in the introduction, diverse groups will use the PHAER System. There are three broad categories of users: grounds managers, citizens (including children), and decision-makers. The PHAER method provides a common platform for each group to achieve varied objectives.

Grounds Managers. Grounds managers work with various property types, uses, and needs, and require flexibility in their pest management planning. They must be able to shift resources as necessary to meet established priorities, and they must be able to communicate their actions and objectives to diverse stakeholders.

Citizens. Citizens seek information about the potential risks of materials used at a particular site; this information is most valuable if it is clear and consistent between jurisdictions.

Children. Children do not have a voice in the process, so we’ve factored their needs into the system. All children deserve a clean and healthy place to play and learn. The PHAER System builds extra precaution into the pesticide screening protocols, and clearly communicates the level of potential risk from pesticides used on each site to parents in advance of use.

Decision-Makers. Decision-makers need achievable, measurable risk-reduction objectives for time and budget planning. They often have difficulty responding effectively to public concerns and pressures because of a lack of common definitions and objectives. They might want to adopt IPM strategies, but do not want to compromise efficiency and safety. Decision-makers also recognize that a common, regional, and systematic approach will be the most efficient method of achieving environmental protection goals.

Why the PHAER Zone System Was Developed

The PHAER system was originally developed to help prioritize IPM activities and expenses at Ventura Unified School District while providing the highest level of protection.

A difficult issue with IPM implementation is the measure of compliance. The concept of Integrated Pest Management casts a wide net, and generally describes the process of pest management rather than final risk-reduction objectives. For example, most definitions of IPM encourage sanitation and sound cultural practices to reduce the presence of pests. Therefore, emptying trashcans and managing irrigation practices could be considered IPM implementation, regardless of whether or not the goals of risk-reduction are advanced.

It could be said that if risk reduction is the destination, then IPM would be a vehicle used to move towards it. The PHAER Zone System would be the map providing guidance and gauging progress towards the goal.

With the PHAER method, we provide a framework for setting measurable risk-reduction goals. The system provides clear measures of compliance combined with management flexibility. It should be simple enough to determine if 'Green Zones' have been managed with GREEN LIST materials. The method allows policy makers, advocates, and managers to clearly set and understand risk-reduction objectives, as well as to ascertain if these objectives have been met.

Assumptions

Five fundamental assumptions form the base of this method:

1. Jurisdictions with diverse sites will have a need for diverse materials, some of which may pose a greater health and environmental risk than others.

2. To reduce *risk* we must understand the *hazard* of the material, and the potential for *exposure* to the material from drift, run-off, volatilization, or contact with residues. In areas with a high potential for exposure (where children play, for example), we must strive to use only low hazard materials and methods.

3. Sustained risk reduction requires a shift in current management models and systems. Very few existing school or park settings have been designed, or are currently operating, with pest prevention as a primary design factor.

4. This shift in management models should allow for incremental steps towards risk reduction while alternative practices are tested and habitat modification practices are put into place to prevent future pest problems.

5. the most effective method of transition will be to prioritize areas of the greatest need based upon the highest potential exposure. Resources should be directed towards these areas, while areas of low potential exposure could be conventionally managed.

Benefits of the PHAER Zone System

The benefits of the method are extensive and should offer positive incentives to diverse stakeholders.

Flexibility of Implementation

The system allows decision makers to designate management priorities based upon their own needs. For example, a school may choose to map a parking lot as a Yellow Zone if the risk of exposure to children is low. A pollution prevention officer, however, working on behalf of a city park regulated by the Clean Water Act might choose to map a parking lot as a Green Zone to prevent herbicides of concern from moving into a nearby creek system.

The people carrying out pest management (grounds managers and technicians) will be able to choose from a list of materials that is common between jurisdictions and has been carefully screened for hazards.

Budgeting Flexibility

Decision-makers have the opportunity to set their risk-reduction goals and use their pest management budgets to accomplish what they deem most important. If a decision- or policy-maker wishes to designate partial or entire sites as Green Zones, this system will provide measurable goals for long-term budgeting, as well as justification for budget requests.

Highest Standard of Safety in Areas of Greatest Need

When decision-makers map their site and choose which areas should become Green Zones, they are identifying areas with the highest potential for users to be exposed to pesticides. Every area that is transitioned to a Green Zone will offer the highest standard of safety for both its users and applicators.

Communication Tool

End-users of PHAER-managed sites will know what degree of pesticide hazard to expect in any location they visit, whether a school, a park, or playground. The transparency of full disclosure that will be available and posted on-site will allay concerns, answer questions, and potentially educate the public about reduced-risk practices.

Further, during the testing of this system in various settings we have discovered that many parks and schools are already using reduced-risk methods in a majority of their sites. This system has appeal to these entities as a tool to publicly demonstrate current good stewardship practices.

Guidance for Material Selection

The tiered pesticide list system allows applicators to clearly and simply evaluate the short and long term hazards of a material. This system helps applicators select safer materials that meet the same management goals (e.g. selecting a YELLOW LIST selective herbicide instead of a SPECIAL CIRCUMSTANCE material).

Incremental

The PHAER System allows for incremental movement towards reduced-risk practices at a pace established by the involved stakeholders. This provides a fair starting point for new IPM programs, and a manageable timeline for improvement.

Measurable

A significant disadvantage of current IPM systems is the lack of measurement standards that are essential to gauging progress towards risk-reduction objectives. The PHAER System provides these measures in the form of expansion of Green Zones. An increase in the total area of Green Zones means a decrease in exposure to hazardous pesticides for humans and the environment. These standards can be measured, budgeted, and evaluated for compliance.

Results-Based, Process Flexible

The PHAER System addresses the final objectives of IPM programs, reducing exposure to hazardous pesticides while providing flexibility in the implementation. Implementers would utilize IPM practices to achieve their measurable PHAER risk reduction goals.

Public Education through Demonstration / Clean Water Compliance

Many municipalities are obligated to provide outreach to the public about reducing impacts of pesticides on water quality. PHAER provides education through demonstration by showing the public attractive landscapes managed with reduced-risk materials. Regional municipalities would have a platform to jointly encourage utilization of the GREEN LIST materials, pre-screened for water quality impairment.

Section

3

Assigning Zones

As mentioned earlier, any participant using the PHAER System will begin the process the same way: by characterizing the site. This entails obtaining a map, walking the property, and distinguishing between areas of high and lower exposure.

Step 1: Characterize Exposure

Obtain at least two copies of a map of the property. Walk the entire property with an individual who is knowledgeable about the uses of the area. For example, at a school, a groundskeeper or teacher would have first-hand information about areas that children use and don't use.

During your walk, categorize areas as either "High Exposure" or "Low Exposure." For ease, mark on a draft copy of the map areas of high exposure with a green highlighting pen, and areas of low exposure with a yellow highlighting pen. Use this draft map during Step 2.

Some examples of high exposure areas include, but are not limited to:

- Recreational turf
- Asphalt play surfaces
- Garden areas
- Bike racks and locker areas (frequent skin contact)
- Six-foot perimeter around opening doors, buildings with windows, air intakes, or HVAC (heating/ ventilation/ air conditioning) systems
- Slopes adjacent to playing fields where pesticides may migrate onto the field with soil or water movement
- Fencelines surrounding playing fields where ball contact is likely (backstops, down-slope fences)
- Curbs and landscapes around bus and vehicle loading areas
- Habitats containing EPA listed sensitive or endangered species
- Other sites as designated by IPM Coordinator (impervious surfaces that drain into regulated waterways, etc.)

Examples of lower exposure areas include, but are not limited to:

- Landscaped islands in parking areas not used for sitting or waiting
- Strips between two fences that are inaccessible to general use
- Tree basins for which GREEN LIST pesticides or alternative practices have not proven effective or are prohibitive and where the public is not likely to rest or recreate
- Storage or valve areas where gates are locked
- Parking lots where skin contact is unlikely
- Areas not adjacent to or draining into habitats containing EPA listed sensitive or endangered species

We have developed a Decision Tree (Appendix C) that helps walk you through each landscape feature to determine if it is a high or low exposure area.

Step 2: Goal-Setting

The second is the PHAER step that provides the greatest flexibility.

Gather a Group of Core Decision-Makers

During Step 2, core stakeholders will sit down with the draft colored map. The group should include those involved with budgeting, maintenance, and any other essential aspect of your jurisdiction. The sites will be evaluated for Green Zone transition based upon site specific conditions such as budget, current management practices, policy or regulatory mandates, and community concern.

Determine Your Risk-Reduction Goals

The most important issue to discuss is what your priorities are. Do you want to immediately manage your site as a reduced-risk area, or do you want to incrementally transition parts of your site over a period of a few years?

Sites of highest exposure and available resources may immediately be designated as Green. Areas not immediately identified as green may be designated as Yellow, with a transition priority of T1 – T5, NT (see Figure 2). Once they decide, they will color-code the map to indicate their risk-reduction plan. This will be the document they refer to over the years to reference their goals and gauge their progress toward achieving them.

Keep in mind whether your jurisdiction fits into one of the following two approaches to goal-setting.

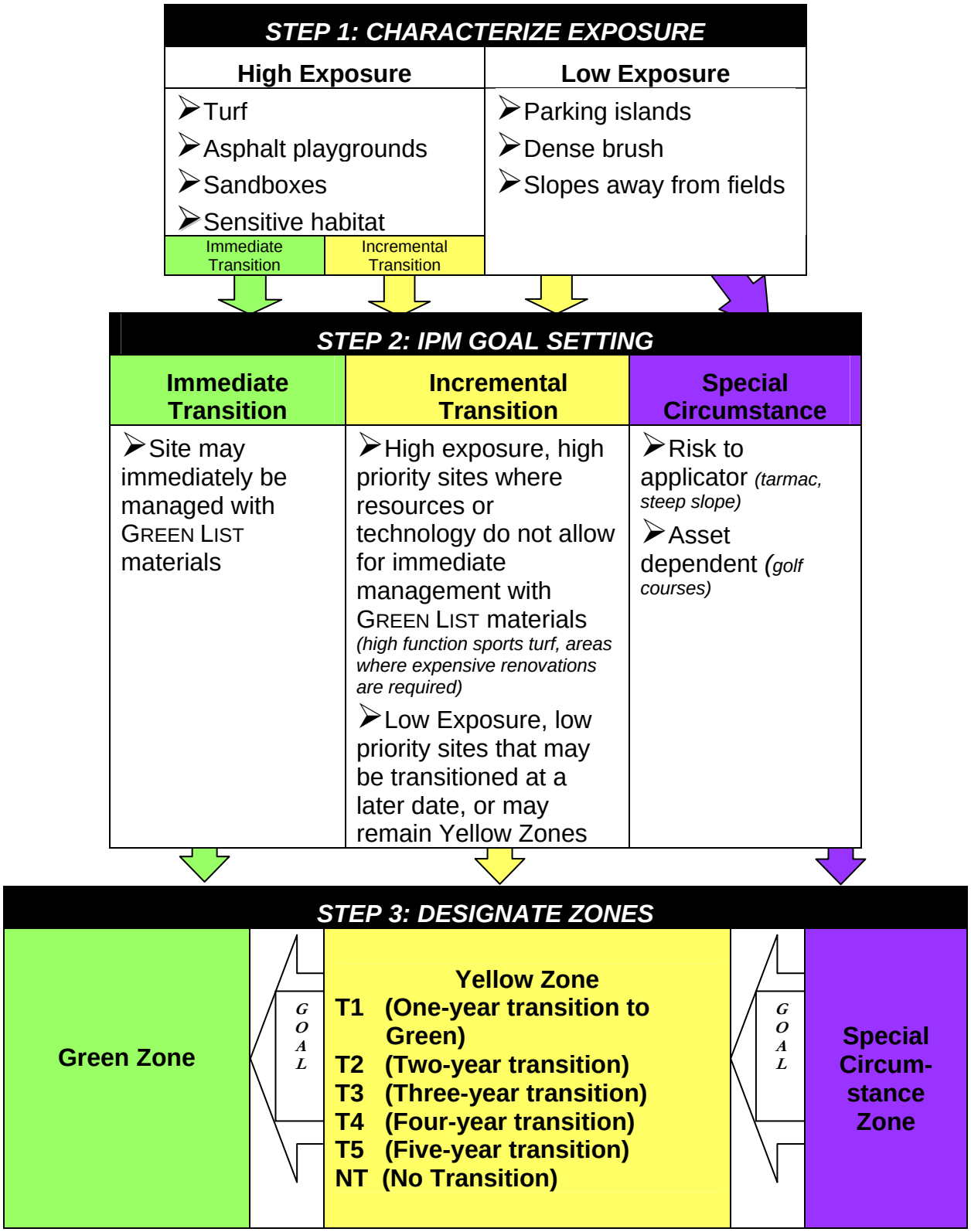
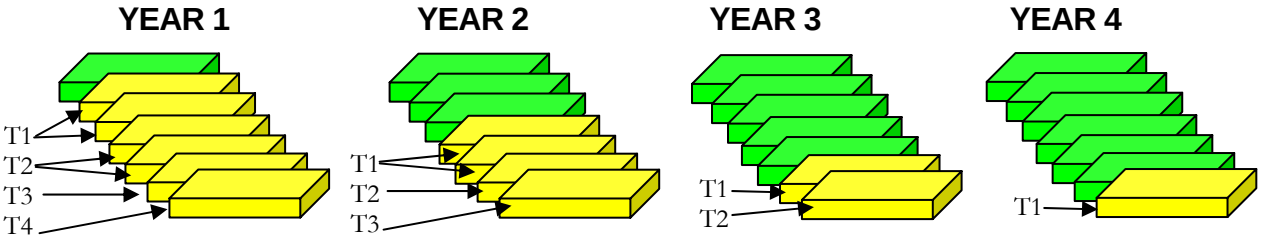


Figure 2: The Three-Step Zone Process

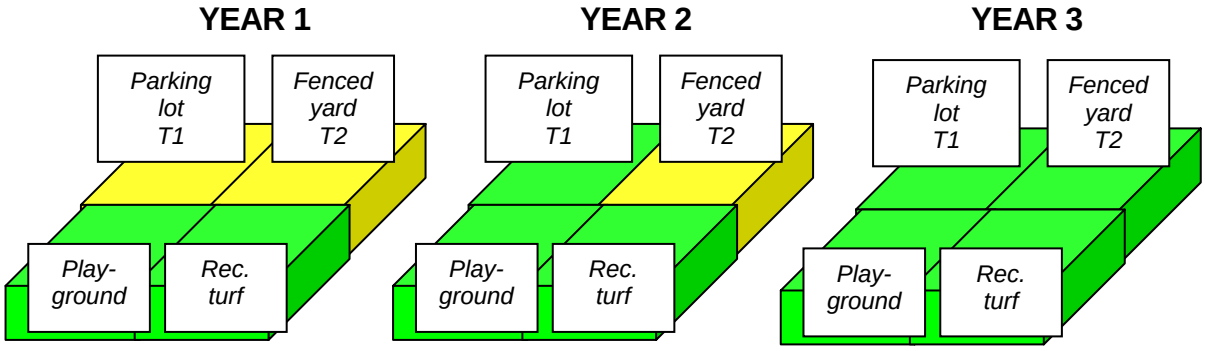
The 'Single Zone per Site' Approach

In our sample school district, there are seven schools. At the beginning of the program, there is one school that can be immediately managed as a Green Zone. The decision-makers assign conversion goals to the other six schools, choosing two T1, two T2, one T3, and one T4. The two T1 schools are the highest priority to the school district (perhaps elementary schools), and they want to manage them as Green Zones as quickly as possible. By the end of the fifth year of their plan, all of their schools would be Green.



The 'Multiple Zones per Site' Approach

In some jurisdictions, rather than convert an entire school to a Green Zone, managers will need to work incrementally within each school to transition individual areas. The example below illustrates this incremental approach. In the first year, this school was able to designate the playground and recreational turf as green, with a plan to transition the parking lot in Year 2 and the fenced yard in Year 3. They steadily convert individual areas (highest priority areas first) within the school until by Year 3, everything is Green.



The incremental approach allows limited resources (staff and budget) to be dedicated to the areas of greatest need (Green Zones, e.g. high use parks, elementary schools), while conventional management practices are continued on sites of lower potential exposure (Yellow Zones, e.g. middle/high schools, rural parks). As reduced-risk practices are tested and staff is trained, the total area of Green Zones can be expanded.

Step 3: Designate Zones

The process of assigning zones within your site will reflect the priority level you give to each area. After your group has decided the priorities, color-code the map with green, yellow, or purple to represent Green Zones, Yellow Zones, or Special Circumstance Zones. For any Yellow Zone, please also include a label T1, T2, T3, etc. to express your timeline for conversion to Green.

Green Zones

Green Zones are areas that you will immediately convert to reduced-risk pest management. Only very low-hazard materials will be applied to that area.

Yellow Zones

Yellow Zones are areas that will be managed with higher-hazard materials for some length of time. The goal is to ultimately transition every Yellow Zone into a Green Zone; the variable is how long it takes to undergo that transition. Each Yellow Zone should have a label that indicates the proposed timeline to transition it to a Green Zone. For example, a T1 designation indicates that that Yellow Zone will be converted to Green within one year. A T2 designation indicates it will be converted to Green within two years, etc. An area labeled T1 is consequently a higher priority than an area labeled T4. If the area poses very little exposure potential to humans or wildlife, then the site may be designated as a Yellow Zone indefinitely, unless it is the goal of the jurisdiction to completely transition all areas to Green Zones.

Now that you have met with your core decision-makers and have decided upon your risk-reduction strategy, you can assign a label to each area on your map.

Example: An elementary school and playground might be targeted for immediate Green Zone designation, since young children have unpredictable behavior and may not use a site as intended (i.e. playing in a landscape bed while waiting for a bus). However, if resources do not allow immediate transition of **all** areas to Green, then the majority of the high-exposure areas will be designated Green. Isolated parking islands, slopes draining away from playing fields, or exterior fencelines can be designated as Yellow Zones T-1 or T-2. High-use performance sports turf may require incremental transitions until resources and technology support management as Green Zones.

Special Circumstance Zones

In some cases, a particular area will be manageable as neither a Green nor Yellow Zone. A Special Circumstance Zone applies where the assets of the site are dependent upon pesticides that pose a high human or environmental hazard and for which no effective reduced-risk substitutes are available (golf greens, for example). A Special Circumstance Zone may also include sites where pest management activities pose a particular risk to the applicator, such as airport tarmacs or busy roadways. These sites require the fewest applications and the least disturbance of the site. Every effort should be made to reduce or eliminate SPECIAL CONSIDERATION materials in favor of YELLOW or GREEN materials.

Section

4

Managing Your Site

After you have color-coded and labeled the map to show which areas will be Green, Yellow, or Special Circumstance Zones, consult the corresponding lists of materials and protocols.

For every type of zone, there are standing exemptions, situations where it would be periodically acceptable to use a material with a higher hazard to protect human health and the value of the asset. We've built the exemptions into the method to provide more flexibility to managers in the execution of their jobs.

The Screening Process

The GREEN, YELLOW, and SPECIAL CIRCUMSTANCE MATERIALS LISTS have been developed using common screening protocols adopted by many municipalities throughout the country. The lists are not intended to be adopted in whole, but rather to serve as a reference list for zone management. For example, if a YELLOW MATERIAL contact herbicide is currently being used, the list may identify a GREEN MATERIAL contact herbicide that may be substituted, thus reducing the risk of the pesticide application.

The justification for these lists is described in detail in Appendix B. However, a summary of the list resources is below:

GREEN PESTICIDES:

- San Francisco Tier 3, Tier 2 Allowed Use
- Seattle Tier 3
- EPA Registration Exempt

YELLOW PESTICIDES:

- San Francisco Tier 2 Limited Use
- Seattle Tier 2

SPECIAL CIRCUMSTANCE PESTICIDES:

- San Francisco Tier 1, Tier 2 Limited Use/Special Concern
- Seattle Tier 1

Efforts are on-going to standardize the hazard screening protocol across California, and the PHAER method will adopt whatever system emerges from these activities.

Managing Green Zones

Management of a Green Zone will rely upon materials from the GREEN LIST, which is included in Appendix B. GREEN LIST materials have been thoroughly screened for their safety. The list contains pesticides that have minimal environmental or human health concerns. If used according to the following Green protocols, GREEN LIST materials can be employed seamlessly **without any disruption in use of an area**.

Because GREEN LIST materials have been carefully screened for human and environmental health concerns, some exposure to them may be tolerated. These materials are mostly comprised of food- or household- grade materials (e.g. corn gluten meal, vinegar, clove oil), biologically based pesticides, or are applied in ways that minimize exposure (e.g. self-contained ant bait stations). As an incentive to encourage the use of GREEN LIST materials, posting requirements are minimal.

Pesticide Communication

A list and description of GREEN LIST pesticides will be posted with a colored zone map of the site at a central location (kiosk, activity board, school office, etc.) with a running list of application dates and materials. Community members who are concerned about pesticide exposure will recognize the reduced impact of Green Zones, and may check the list of applied GREEN materials periodically for more information.

No additional notification or posting will be required of GREEN LIST pesticides, except as required by standing agency policy.[3] The minor posting requirements are an incentive to select reduced-risk materials.

Exemptions

Exemptions are situations where it would be acceptable to use a YELLOW LIST material in a Green Zone[4]. They include:

1. Emergency applications to protect human health and against significant loss of assets.

2. A one-time exemption may be provided by the IPM Coordinator to use a YELLOW LIST pesticide in a Green Zone if ALL of the following conditions are met:

- A plan must be developed prior to application describing activities that will prevent the need for further YELLOW LIST pesticide applications. *(Field staff may be included in this planning to maximize their experience and to invest them in long-term IPM strategies).*

[3] The California Healthy Schools Act of 2000 exempts from posting and notification EPA Registration Exempt pesticides, also included as GREEN LIST pesticides. This Act also exempts pesticides applied in self-contained bait stations and gels/ pastes applied in cracks and crevices. Many of these common reduced-risk pesticides are classified by San Francisco as Allowed materials, also included as GREEN LIST pesticides.

[4] There is no provision to use a SPECIAL CIRCUMSTANCE material in a Green Zone. If a SC material is necessary, the zone designation should be changed to Yellow.

- Application is followed by a 14-day period during which no access is expected, or access to site is restricted by construction fencing, closed gates, etc.
- Site must be posted for 14-day period to the signage standards of the Healthy Schools Act[5].

3. Specific pest situations, as described in Figure 4.

These steps are established to allow management flexibility without compromising confidence in the high standard of safety provided by Green Zones. If the pest situation can not be solved with a one-time YELLOW LIST material and habitat modification, the site zone designation should be changed from Green to Yellow.

Managing Each Zone			
	Green Zone	**Yellow Zone**	**Special Circumstance Zone**
Approved Materials	▪ GREEN LIST	▪ GREEN LIST ▪ YELLOW LIST	▪ GREEN LIST ▪ YELLOW LIST ▪ SPEC. CIRC. LIST
Posting Requirements	• List of applied GREEN pesticides posted on-site at a central location	• List of YELLOW and GREEN pesticides posted on-site at a central location • Sign announcing application posted 24 hrs prior until 72 hrs after application (or current policy if more stringent), with a preferred 7-day no-use/ limited-access window.	• List of YELLOW, GREEN, and SC pesticides posted on-site at a central location • Sign announcing application posted 24 hrs prior until 72 hrs after application (or current policy if more stringent), with a preferred 7-day no-use window.

Figure 3: Managing Each Zone

[5] Sites should be posted to the signage standards, not the timing standards (24/72 hours) of the H.S.A. Application warning sign template: http://www.cdpr.ca.gov/cfdocs/apps/schoolipm/tools_templates/33_posting.pdf
Legislative text: "17612. (d) The…designee shall post each area of the…site where pesticides will be applied with a warning sign. The warning sign shall prominently display the term "Warning/Pesticide Treated Area" and shall include the product name, manufacturer's name, the United States Environmental Protection Agency's product registration number, intended date and areas of application, and reason for the pesticide application. The warning sign shall be visible to all persons entering the treated area and shall be posted 24 hours prior to the application and remain posted until 72 hours after the application. In case of a pest control emergency, the warning sign shall be posted immediately upon application and shall remain posted until 72 hours after the application."
http://www.cdpr.ca.gov/cfdocs/apps/schoolipm/school_admin/main.cfm?crumbs_list=1,8,11#Posting

Managing Yellow Zones

Yellow Zones will rely upon materials and protocols from either the GREEN LIST or the YELLOW LIST, which are included in Appendix B. YELLOW LIST materials have also been thoroughly screened. These materials, however, carry some elevated environmental or human health concerns and steps should be taken to reduce exposure to them.

Because YELLOW LIST materials have an elevated level of hazard, more information should be provided to site users. Signs should be posted in the immediate vicinity of the application to the standards of the Healthy Schools Act at least 24 hours in advance of an application and remain posted for 72 hours following the application, or in accordance with a standing agency policy if more stringent.
Further, every effort should be taken to make the YELLOW LIST materials applications when seven days of limited site access is expected following the application. This would allow school sites to apply YELLOW LIST materials during summer, fall, winter, and spring breaks of one week or longer. Such periods of limited use may vary more with public parks; however efforts to schedule during areas of limited activity (or to voluntarily increase signage posting to seven days following application) should still be undertaken.

A record of YELLOW LIST material applications should be kept on-site at a central location (kiosk, activity board, school office) along with a colored zone map of the site.

Pesticide Communication

Signs will be posted in the immediate vicinity of the application to the standards of the Healthy Schools Act 24 hours in advance of an application until 72 hours following the application, or in accordance with a standing agency policy if more stringent.

Exemptions

1. Emergency applications to protect human health and against significant loss of assets.

2. A one-time exemption may be provided by the IPM Coordinators to use a SPECIAL CIRCUMSTANCE pesticide if ALL of the following conditions are met:

- A plan must be developed prior to application describing activities that will prevent the need for further applications. *(Field staff may be utilized in this planning to utilize their experience and invest them in long-term IPM strategies).*
- Application is followed by a14-day period during which no access is expected, or access to site is discouraged by construction fencing, closed gates, etc.
- Site must be posted for 14-day period to the signage standards of the Healthy Schools Act[6].

[6] Sites should be posted to the signage standards, not the timing standards (24/72 hours) of the H.S.A. Application warning sign template: http://www.cdpr.ca.gov/cfdocs/apps/schoolipm/tools_templates/33_posting.pdf
Legislative text: "17612. (d) The…designee shall post each area of the…site where pesticides will be applied with a warning sign. The warning sign shall prominently display the term "Warning/Pesticide Treated Area" and shall include the product name, manufacturer's name, the United States Environmental Protection Agency's product registration number, intended date and areas of application, and reason for the pesticide application. The warning sign shall be visible to all persons entering the treated area and shall be posted 24 hours prior to the application and remain

Managing Special Circumstance Zones

Special Circumstance Zones may be managed with materials from the GREEN LIST, YELLOW LIST, or the SPECIAL CIRCUMSTANCE LIST.

Pesticide Communication

Applications of SPECIAL CIRCUMSTANCE LIST materials should abide by the same communication requirements as YELLOW LIST materials.

Exemptions

The only exemption necessary in the Special Circumstance Zone is in the case of an emergency pesticide application, the warning signs should be posted immediately following application, and should remain in place for 72 hours following the application.

posted until 72 hours after the application. In case of a pest control emergency, the warning sign shall be posted immediately upon application and shall remain posted until 72 hours after the application."
http://www.cdpr.ca.gov/cfdocs/apps/schoolipm/school_admin/main.cfm?crumbs_list=1,8,11#Posting

Standing Exemptions

The dynamic nature of a landscape system requires additional flexibility with materials. A number of standing exemptions are allowed under the PHAER method to make sure the function and value of a site are not compromised by good intentions.

Standing Exemptions: Summary		
	Situation	**Mitigation**
YELLOW material in Green Zone	Emergency	Post, discourage access for 14 days
	One time for habitat modification	Post, discourage access for 14 days
	Ground Vertebrates	-Application to avoid exposure (subsoil, secure bait station); - Careful monitoring for dead/ dying animals during application period and for 14 days following last application
	Specimen Trees	- Soil, trunk injection only (no spray); - Cover basin (if soil); - Time application to avoid fruit set
	Significant invasive weed	Post, discourage access for 14 days
SPECIAL CIRCUMSTANCE material in Yellow Zone	Emergency	Same as above
	1 time for habitat modification	Same as above
	Specimen Trees	Same as above
	Significant invasive weed	Same as above

Figure 4: Standing Exemptions Summary

Section

5

Conclusions and Recommendations

The development of the PHAER System came out of a need for a standardized, results-based reduced risk pest management strategy. A year of field-testing has confirmed that the method can be utilized by diverse users to accomplish their pest management goals.

Provided herein is a program that has been successfully tested and may be immediately put into use. This guidebook has evolved through the efforts of many jurisdictions throughout California and is designed to allow self-implementation. However, a multi-jurisdiction, regional approach may simplify adoption and maximize the program benefits.

It is recommended that several regional jurisdictions convene to discuss a coordinated implementation of the PHAER Zone System. The cooperative effort would make material screening, zone assignments, and Best Management Practices in Green Zones more efficient and consistent throughout the area, while also reducing the effort of individual jurisdictions.

This is a new and evolving method that will improve with each new implementation. Efforts are underway to develop a network of PHAER Zone programs to facilitate the common advancement of these risk reduction goals. Please contact the author for more information.