ADDENDUM No. 1

RFP No. 25-09

Parks & Natural Areas Stewardship Services

Due: February 6, 2025 by 2:00 P.M. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes thirty-five (35) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment C – City of Ann Arbor Non-Discrimination Declaration of Compliance**
- **Attachment D - City of Ann Arbor Living Wage Declaration of Compliance**
- **Attachment E - Vendor Conflict of Interest Disclosure Form of the RFP Document**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section	Change
All mentions	As provided in RFP No. 25-09 Document: Attachment A - Prevailing Wage Declaration of Compliance
As updated herein:	Removal of Attachment A - Prevailing Wage Declaration of Compliance

Comment: Prevailing Wage does not apply to this project and Attachment A no longer needs to be provided with proposal submittals.

Section	Change
All mentions	As provided in RFP No. 25-09 Section II.B 'Contract Implementation'
As updated herein:	Clarify that RFP No. 25-09 is entirely grant-funded. Funding for the activities and services described in RFP No. 25-09 is provided by the USDA Forest Service, Urban and Community Forestry Program. USDA is an equal opportunity provider and employer. While the City may choose to proceed to contracting with the successful Proposer, the City's approval of work will be contingent upon the availability of these federal grant funds.

Comment: The City of Ann Arbor cannot guarantee any work under this RFP No. 25-09 without the continued availability of USDA Forest Service grant funds. Proposers should understand that all of the proposed scope of work is limited by the availability of these federal grant funds, and any changes to the availability of those federal grant funds would impact the City's ability to proceed with the services outlined in RFP No. 25-09.

II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: In reference to the emergency and on-call contacts, what type of work would you expect to be done on an emergency or on-call basis? Would overtime rates apply? What response timeframe would be required?

Answer 1: Emergency on-call services would be limited to urgent follow-up on smoldering or reignited debris after a prescribed burn. The response timeframe for follow-up on smoldering or reignited debris would be immediately after the issue was reported. Rates would conform to those listed in the Fee Proposal Form.

Question 2: How much lead time would be provided for "on-call" services and what is the likely nature of this work?

Answer 2: See Answer 1

Question 3: The RFP notes "*The ability to respond to emergency service requests by City staff within the time* identified on the Fee Proposal Form" but there's no info on the fee proposal form relating to this. Can you clarify?

Answer 3: See Answer 1

Question 4: Is there a possibility that multiple firms will be awarded the contract concurrently?

Answer 4: The contract will be awarded to one firm, however, it is permissible for that firm to subcontract different aspects of the requested work to other firms with approval by the City.

Question 5: It sounds like the contract amount is not yet officially determined. When would this be finalized for each upcoming year?

Answer 5: RFP No. 25-09 is entirely grant-funded. Funding for the activities and services described in RFP No. 25-09 is provided by the USDA Forest Service, Urban and Community Forestry Program. While the City may choose to proceed to contracting with the successful Proposer, the City's approval of work will be contingent upon the availability of these federal grant funds. If these grant funds remain available, the City intends to utilize up to $375,000.00 of these grant funds

for the activities described in the RFP. The estimated budget for services is $125,000 per fiscal year, not to exceed $375,000 through March 31, 2028

Question 6: Is there any sense as to how the contracted amount would be used seasonally over the course of a year?
Answer 6: See Answers 7 and 8.

Question 7: When would the volume of work be determined for each year, or is it purely on an as-needed basis?
Answer 7: The volume of work has largely been pre-determined, but individual projects or portions of projects could be added, modified, or removed based on responsiveness of given areas to different restoration techniques, priority of remaining needs as funds draw down, and other factors. The City has an approximate timeline in mind for completion of each project, but anticipates working closely with the chosen contractor to develop mutually agreed upon project timelines. The City will work closely with the selected contractor to ensure project timelines and lead times align with contractor's staffing capacities and seasonality.

Question 8: How much lead-time would the city provide for completing various projects?
Answer 8: As part of initial discussions with the chosen contractor, the City will provide the full scope of projects anticipated across the 3-year grant cycle, as well as envisioned timelines for the completion of each task.

Question 9: Could you please provide the City's Parks & Recreation Services Unit standards for herbicide application, signage and record keeping, as well as prescribed fire and smoke management standards, procedures, and policies?
Answer 9: Please see Attachment A to this Addendum No. 1.

Question 10: Can we add line items to the price sheet for equipment that might be used for spray or prescribed burn work?
Answer 10: No. All proposals must conform to the fee proposal form and no additional line items or categories can be added.

Question 11: Do you anticipate that you'll have the winning contractor working throughout the park system, or only in certain parks? If work will occur only in certain parks/natural areas, could you provide a list of what those are?
Answer 11: The work proposed within the RFP is restricted to the following parks: Argo Nature Area, Black Pond Woods Nature Area, Cedar Bend Nature Area, Furstenberg Nature Area, Hansen Nature Area, and Oakwoods Nature Area.

Question 12: Which sites you anticipate would be targeted for prescribed burning.
Answer 12: The specific locations of the prescribed burns will depend on several factors, such as the current status of restoration, available ground-level fuel, etc. We expect each park listed in Answer 11 to see one contracted burn during the 2027/28 timeframe, for a total of six contracted burns, if circumstances allow for it.

Question 13: From the rubric, it looks like award won't be based solely on cost?
Answer 13: This is correct. Cost only accounts for 10% of the total proposal evaluation points.

Question 14: Do you think you'll be looking for a larger firm for this? Or a smaller firm?
Answer 14: The City will consider any firm that has relevant experience/expertise. We are more concerned with a firm's depth of experience with all the proposed activities, and less concerned with a firm's size.

Question 15: Should proposed rates/fees take prevailing wage/living wage requirements into account?

Answer 15: See Section I of this Addendum No. 1 where a correction on Prevailing Wage is made.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

RFP No. 24-09 Addendum No. 1 Attachment A

CITY OF ANN ARBOR

GUIDELINES FOR PRESCRIBED FIRE, SMOKE MANAGEMENT AND PESTICIDE/HERBICIDE USE

Last Revised January 2025

Introduction to Prescribed Fire and Smoke Management in Ann Arbor City Parks

Controlled burning, or prescribed fire, is a tool used in the management and restoration of plant communities to improve habitat for plants and animals. Long-term, controlled burning can contribute to improving the ecosystem services provided by these systems and make the parks and natural areas a more enjoyable place to be in nature. The smoke generated by controlled burning, however, may have immediate impacts to human health and safety. The goal of this document is to outline and describe these potential smoke-related issues and document our guidelines for minimizing their impacts.

Since 1994, the City of Ann Arbor has implemented controlled burning on approximately 125 acres of City parkland per year in a variety of habitat types and completely within an urban context. The sites vary in size from 100 square feet to 15 acres. Within any single burn season, the City is burning 15 to 30 sites on average throughout the park system. In addition to altering controlled burning to meet individual burn site objectives, every burn conducted has an element of smoke management that limits the ways in which the site can be burned. All natural areas managed within the City of Ann Arbor are adjacent to or upwind of a potential smoke sensitive receptor. When burning in this urban context, it is typical that the ability to appropriately manage or minimize smoke generated by a controlled burn dictates the location chosen to burn on a given day.

It is the attention to smoke management and the ability to adaptively choose burn sites on a given day that has allowed the City's controlled burn activities to remain active and minimize the impacts of smoke on City residents. It is the goal of the City's controlled burn program to reduce, to the greatest extent possible, the negative impacts of smoke while maintaining the use of this vital land management tool.

Controlled Burn Plan Requirements

Before conducting any controlled burn, a burn plan is developed for that specific site. In part, the burn plan documents the specific steps taken to increase the public's awareness of controlled burning and to minimize smoke emissions before, during, and after the controlled burn. Controlled burn plans are essential to understanding and managing smoke generated by a controlled burn and minimizing smoke impacts. At a minimum, burn plans should document the items below and comply with all site-specific and species-specific fire and smoke management guidelines provided by City staff, to be determined on a case-by-case basis by the appropriate City staff.

In general, italicized items are the City's sole responsibility even when prescribed fire activities are contracted with external firms.

- Location and Township, Range, Section of the area to be burned, including ownership with an area map and burn unit map
- Personnel and/or burn boss responsible for managing the fire with on-site cell phone numbers
- Emergency Assistance contact phone number(s)
- Fire Department jurisdiction and contact phone number(s)
- Type of vegetation and fuel model to be burned
- Area in acres to be burned
- Smoke management components and weather limitations
- Smoke-sensitive receptors list
- *Public notification plan*
- Go/No-Go decision criteria for the site and fuel model
- Safety and contingency planning

When prescribed fire activities are contracted with external firms, a contractor's burn plan for a given site must be approved by authorized City staff prior to the controlled burn taking place.

Guidelines to Reduce Smoke Impacts from Prescribed Fire

In general, italicized items are the City's sole responsibility even when prescribed fire activities are contracted with external firms.

1. Secure all necessary permits for the jurisdiction in which the controlled burn is being conducted.

2. Identify and inform potential smoke-sensitive receptors of intent and timing of controlled burn.
    a. *Mail notification to burn unit's immediate neighboring community 1-3 weeks before the start of any burn season. Include a recommendation for facilities with a centralized HVAC system to close fresh air intakes during the burn. Questions, comments or needs related to controlled burning may be directed to the appropriate City staff.*
    b. *Where appropriate, post notification at park entrances or other strategic locations within the park, at least one week before burning at the location.*
    c. *Notify identified smoke-sensitive individuals ASAP on the morning of the burn*
    d. Post roadside and trail notification signs.
    e. Inform local fire agencies before beginning burn activities and after concluding mop-up activities.

3. Time site-specific burns to reduce potential impacts to smoke-sensitive receptors.
    a. If a school lies within the area typically notified for a particular burn, that burn should not be conducted when school is in session, unless smoke modeling software (e.g. VSmoke) indicates smoke dispersal will not impact the school in any way, or unless the burn has been previously coordinated with the school to be an educational activity.
    b. Avoid sending smoke across roadways, airports, high-density developments, or areas where livestock are confined.

4. Evenly distribute burn units throughout the landscape and the season to reduce frequency of smoke to any one specific area.
    a. Size of unit and fuel type influence distribution of selected burn units.

5. Conduct the controlled burn when atmospheric conditions maximize rise and dispersal of smoke.
    a. Confine burn to that portion of the day when atmospheric conditions are best for smoke dispersal.

6. Monitor fire weather through forecasting and on-site measurement.
    a. Wind Direction, speed, and smoke dispersal determine the right site for the day.
    b. If burn unit size is greater than 5 acres, then these conditions should be met during the time of the burn:
        i. The Mixing Height is at least 3000 feet as forecasted by the National Weather Service.
        ii. The Ventilation Rate is "Good" or "Excellent," as forecasted by the National Weather Service (greater than 300 knot-feet/100).
    c. Should conditions not meet these standards, that burn should not be conducted unless authorized City staff gives explicit permission for a burn to be conducted, and City staff or City contractors can provide sufficient justification for why that burn may safely occur and how it will be done without impacting adjacent smoke-sensitive receptors.

7. Reduce fuel loads by mechanical means or by using frequent, low-intensity, controlled burning to gradually reduce fuel loads.

8. Alter timing of controlled burn to reduce impact to smoke-sensitive receptors that vary based on daily use (trails, pathways, roads, and/or highways).

9. Check burn units for potential combustibles or unusual accumulations of fuel and exclude from the burn unit.
    a. Remove materials that might produce toxic fumes (tires, asbestos, or solvents).
    b. Avoid dense thickets of poison ivy, if practical, as its oils can be mobilized in heat and transported with smoke.
    c. Burn when large non-target fuel moistures and duff moistures are higher than target fuels.

10. Use test fire to evaluate on-site smoke dispersal and fire behavior consistent with expectations.

11. Use most appropriate and efficient ignition technique to achieve ideal combustion of fuel and management of smoke.

12. Assign a Smoke Monitor to evaluate potential effects on all smoke receptors.
    a. Smoke Monitor needs reliable mobility that can make frequent stops and cover a large area.
    b. Provide sufficient devices (e.g. burn radio + cell phone for if/when out of radio range) to communicate with Burn Boss.
    c. Smoke Monitor will be highly visible and available to communicate verbally with community members in smoke-affected areas, if necessary.

13. Traffic control as needed, in compliance with local right-of-way permit conditions.

14. Monitor on-site conditions to determine if changing conditions merit modification of burn unit or burn plan or discontinuation of the controlled burn to reduce smoke impacts. Weather readings taken every hour by Smoke Monitor and reported to Burn Boss.

15. Utilize the Smoke Scale in Appendix A to evaluate the amount of smoke a smoke receptor is receiving.

16. 100% mop-up of burn unit before leaving site and leave staff member on site to monitor smoke output until smoke is no longer a potential threat.

17. Document smoke complaints issued to local fire authorities and evaluate smoke management in relation to weather and fuels burned the day of the complaint.

18. City staff and City contractors should be familiar with Prescribed Fire in Michigan – Best Management Practices issued by the Michigan Prescribed Fire Council (attached as Appendix B)

Appendix A: City of Ann Arbor Smoke Scale for Smoke Monitoring

These readings only pertain to the exact site where City staff or contractors are located in real time and is not meant to evaluate smoke conditions that are at a distance from the smoke monitor.

Level	**If you are along a road**	**If you are in a residential area**
0 - Not detectable	----	-----
1 - Light	Motorists can begin to see it in the roadway, or smell it, but it poses no safety hazard.	Residents can begin to see or smell it, but it should pose no problem unless someone is highly sensitive.
2 - Moderate	There is definitely smoke in the roadway, but motorists should be able to see through it and continue safely.	Smoke is quite noticeable, like being next to a campfire. But most residents would not find this level of smoke irritating for a short period
3 - Heavy	Smoke is beginning to reduce visibility and create unsafe driving conditions (This will depend on traffic speed and volume).	Smoke is beginning to create uncomfortable conditions for people outside.
4 - Dense	Very unsafe - motorists cannot see to drive. Like driving in dense fog.	Smoke has created very uncomfortable conditions. It hurts to breathe.

Appendix B: Copy of Michigan Prescribed Fire Council's 'Prescribed Fire in Michigan – Best Management Practices'

Michigan Prescribed Fire Council
www.firecouncil.org
info@firecouncil.org

Prescribed Fire in Michigan – Best Management Practices

Objectives

The objectives of this paper are to:

- expose the reader to the state of the art, science, and practice of prescribed burning;
- identify the best management practices (BMP) for prescribed burning;
- guide the reader through the safe and prudent application of prescribed burning; and
- connect the reader to related resources to aid in understanding prescribed burning.

Ultimately, this paper is intended to increase the comfort level of the reader regarding prescribed burning. This paper is targeted toward land managers and interested individuals in both the public and private sector, particularly those with an interest in but limited experience with prescribed burning. The information included in this paper is intended for application in Michigan but certainly has application as well in other similar ecosystems with similar urban development. The glossary at the end of this document is useful in clarifying terms.

This document was developed by the Michigan Prescribed Fire Council, drawing from experienced practitioners in the field and from a systematic review of the literature. It notes references to other resources, where applicable. It was reviewed and is endorsed by experienced practitioners. The Council has a mission to protect, conserve, and expand the safe use of prescribed fire in the Michigan landscape. This Council was formed in 1999 on the recommendation of the Michigan Wild Land Fire Protection Association which is composed of all the agencies dealing with wild land fires with the State. The Council includes partners from all levels of government as well as partners from non-governmental organizations and interested private sector individuals.

Introduction

Prescribed burning has been used as a tool by people for hundreds of years. Native Americans are credited with using fire to maintain clearings in which to base their encampments, to encourage growth of plants for later harvest, to rally game as an aid in hunting, to aid in attacking enemies, and to aid in defense from enemy attack. Farmers have used fire to revitalize pastures, to prepare fields for planting, to maintain fence rows and ditches in an herbaceous state, to reduce numbers of undesirable insects, and to reduce fuel loads around buildings susceptible to fire. Forest managers have used prescribed fire to discourage growth of fire-intolerant plants and to encourage growth and reproduction of fire-tolerant plants.

However, there is a well-understood danger when fires are allowed to escape and burn materials that were not intended to burn. The risk of harm associated with unintended burning increases as more people build homes, report to work, recreate on the landscape, and otherwise place themselves and valued possessions in harm's way. Such is the case in Michigan. Unfortunately too often, people's opinions on burning are formed by the harm caused when fire escapes from burn barrels, discarded cigarettes, or campfires. While not prescribed burning, the public often fears a similar outcome whenever fires are set.

Prescribed burning has long been recognized by land managers as a management tool capable of bringing about a complex array of outcomes, depending on how it is applied. These include both encouraging and discouraging plant growth, reducing thatch and duff, increasing nutrient availability, increasing rates of solar soil warming, and exposing mineral soils for better seed germination. More recently, land managers have come to understand the ecological outcomes of burning, particularly increases in biological diversity. When a site is burned, nutrients, metals, and minerals are mobilized both directly and indirectly by the process of fire. These leach through the soil horizons and are chemically or physically trapped by soil particles thereby restructuring the soil. Changes in soil site conditions, especially changes in nutrient availability, moisture retention, and shading, change the competitive balance among plants. Fire-adapted species are favored, and fire-intolerant species are discouraged. Commensal relationships between organisms are also often temporarily interrupted, changing the competitive relationships between them.

Given the great potential of prescribed burning as a land management tool, it is essential that prescribed burning continue to be allowed for use by qualified people. However if the use of this tool is to be preserved in a landscape where there is increasing risk

when fire is applied to the land, then prescribed burning must be conducted in ways so that escapes and other negative impacts are avoided. People must come to appreciate that the benefits from application of this ecological management tool outweigh the risks and embrace its use.

Prescribed Burning Defined

Prescribed burning has been defined as any fire ignited by management action under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. Alternatively, prescribed burning can only occur when, at a minimum, there is a goal, the presence of natural fuels, artificial ignition, combustion, control/ suppression, and a burn plan that addresses these elements plus an evaluation. These definitions assume that naturally occurring fuels are present in a quantity and character so that they continue to combust, once ignited, until they are exhausted or extinguished. (For instance, this would exclude from the prescribed burn definition the technique of applying heat with a propane torch to individual actively growing plants to kill them or set back their growth.)

Prescribed Burning in Application

As already explained, prescribed burning has a history dating back at least to Native American use. However, contemporary prescribed burning probably has its roots more in the traditions of the European peoples that colonized the Americas. While most Colonists were exposed to Native American customs and practices, most continued their own heritage where it had application in the New World. Many Colonists had experience with prescribed burning in the Old World and were comfortable with its application. Others were more influenced by the potential harm from fire and avoided its use. Continuing today, there are communities within Michigan who make significantly greater use of prescribed burning than other communities.

Governmental and non-governmental organizations with a mission to manage lands often apply prescribed burning as a tool. Many ecosystems are fire-adapted (increase in biological diversity when burning is done) and respond best, given ecological objectives, when managed with prescribed burning. Oak and jack pine forest systems and prairies are examples of these ecosystems. Prescribed burning is often chosen as an extensive management tool because it accomplishes many ecological objectives, and its application cost is usually low compared with other tools available. The ecological effects of prescribed burning often cannot be duplicated in the application of other management tools.

Prescribed Burn Plan

BMP No. 1 – Prescribed burns must be done according to a burn plan.

A prescribed burn plan is a document that includes a description of the site to be burned, the objectives of the burn, and a description of how and by whom the burn is going to be accomplished and evaluated. The plan also acts as process documentation for coordination, burn objectives, burn site preparation, burn accomplishment, and burn evaluation. Because of the complexity of this process, prescribed burn contractors are often enlisted to develop the prescribed burn plan and conduct the prescribed burn.

BMP No. 2 – Prescribed burns plans will clearly identify the objective of the burn and the expected ecological results of the burn.

A number of applications or objectives are commonly associated with prescribed burning. These applications include those with a single desired outcome or a combination of desired outcomes to produce a proposed site condition. Those with a single outcome (cultural applications/objectives) include:

- Reduction of Wildfire Fuel Buildup---Reducing fuel (combustible leaves, twigs, grasses, branches, logs, etc.) buildup, by burning under pre-selected conditions that are controllable, reduces the risk of fire occurrence and intensity when conditions are more extreme.
- Site Preparation---Many sites can be improved, using burning, for better seed germination or better survival of transplanted stock.
- Control of Undesirable Vegetation---Burning can be timed to harm actively growing plants while avoiding harm to dormant plants or to selectively harm fire-intolerant plants when growing together with fire-tolerant plants.
- Disease Control---Burning can be used directly to impact plant diseases or indirectly to impact plants that host diseases.
- Insect Control---Burning can be used directly to impact undesirable insects or indirectly to impact plants or organic matter that host or support these insects.
- Reduction of Plant Monocultures---Burning can be used to diversify sites such as cattail-dominated wetlands.
- Improve Aesthetics---Burning can be used to remove dead vegetation and stimulate new plant growth.

Those applications or objectives with a combination of desired outcomes to produce a proposed ecological site condition include:

- Forest Management---Burning can be used to modify sites to:
  - regenerate woody plants
  - favor growth of fire-tolerant plants
  - discourage growth of fire-intolerant plants
  - increase biodiversity
  - control disease and undesirable insects
  - reduce competition to larger trees
  - mobilize nutrients
- Grassland (Forage) Management---Burning can be used to modify sites to:
  - mobilize nutrients
  - stimulate grass growth
  - favor fire-tolerant (warm-season) grasses
  - increase biodiversity especially through increased presence of forbs
  - increase forage biomass
  - increase forage nutrition
  - encourage distribution of grazing animals

- Wildlife Management---Burning can be used to modify sites to:
  - increase biodiversity
  - increase browse and browse nutrition
  - increase soft and hard mast production
  - modify wildlife habitats
  - modify natural (biological) communities
  - increase plant regeneration
  - favor growth of native plants in fire-adapted systems
  - increase seed and nectar production

BMP No.3 – Prescribed burn plans will identify all necessary permits that shall be obtained before conducting the burn.

The completed prescribed burn plan can also serve as document support for any permits that may be necessary. Burn permits (either general or blanket) are almost always required, and they are generally administered by local units of government. Local ordinances may also be applicable to these plans. Where burn sites are located near water or on slopes, soils may be disturbed during burn site preparation or during fire control, and this activity is often covered under the Soil erosion and Sedimentation Control Act. If this should occur, a Soil Erosion and Sedimentation Control Plan and Permit will be needed. Also, where burn site preparation and control activities occur in wetlands, permits are often needed that can require site stabilization and recovery plans. This permitting function is administered by the Department of Environmental Quality, Geologic and Land Management Division.

The completed prescribed burn plan can serve as a public disclosure document. The public is entitled to see plans and other documents relating to prescribed burns on public lands. The public may also be entitled to see documentation relating to prescribed burns on private lands, especially when these efforts are publicly funded. These plans can also be used to demonstrate a responsible approach to the use of fire and thereby gain public support.

BMP No. 4 – The burn plan shall include a description of the parcel to be burned and the objective of the burn.

The burn plan includes a description of the land to be treated and the objectives to be met through this treatment. Restrictions or limitations that bear upon the accomplishment of these objectives are also listed. The proposal typically includes a site evaluation process that reflects on how effectively the prescribed burn objective contributes to the overall management goals for the area.

The prescribed burn objective must be clearly specified. The rest of the plan hinges around this single Plan attribute so the objective must be carefully considered and precisely stated. Desired prescribed burn outcomes can more easily be maximized when a single cultural objective is the focus of the Plan. Where a more complex mix of outcomes is desired, as reflected in ecological objectives, the expected outcomes are more often an optimization and balance across the various outcome elements implied from the ecological objectives.

BMP No. 5 – The burn plan describes the conditions and prescription for the burn to safely meet the objectives of the burn.

The Plan also provides a prescription for precisely how the prescribed burn objective is to be accomplished. This part includes information on the acceptable ranges of fuel condition, acceptable ranges of wind speed and direction, minimum personnel and equipment needed, ignition plan, containment/suppression plan, and contingency plan. This part also includes an evaluation process that focuses on how effective these prescription elements were in accomplishing the prescribed burn objective.

BMP No. 6 – The burn plan will identify the landowner of the parcel to be burned along with the adjacent landowners.

The landowner must be identified for the land on which the prescribed fire is to take place. Land ownership records should be consulted to confirm this ownership. The landowner should sign the completed prescribed fire plan indicating acceptance of the document, including the prescribed fire objective. Identifying and gathering contact information on adjacent landowners will facilitate interaction during the planning of the burn.

Often, restrictions are placed on the manner in which prescribed burns are planned and conducted. These restrictions stem from a number of considerations. The occurrence of sensitive plant and animal species on or close to the burn site often prompt modifications to the Plan to protect these species. In like manner, the presence of sensitive habitats also can prompt Plan modification. Neighboring landowner and local government concerns are also often addressed through Plan restrictions or modifications. These might include restriction to weekday-only burning, burning only with certain wind directions or wind speeds, burning only when local government representatives can be present, or burning when local government representatives can attend training.

Sometimes in the process of planning and sharing plans for a prescribed burn with other interested parties, opportunities come available to include adjacent land parcels in the burn. In this way, burn acreage is sometimes expanded with inclusions in the prescribed burn project, and provision for this opportunity places an emphasis on early completion of the initial planning process.

BMP No. 7 – The burn plan will include considerations for smoke management.

Smoke management is an element of the Plan that often functions as a Plan restriction. However because of its importance in the burning process, it is usually considered separately. Major considerations in smoke management typically include potential impacts on people and the human environment. Generally, smoke management becomes more critical as the burn sites are located closer to the human environment. Smoke can also impact other living things like honey bees, other insects, and certain plants. Smoke can also scare or rally other animals like cattle and birds.

Smoke management typically includes consideration of wind speed and direction, the nature of the burn fuels, expected burn intensity, potential for temperature and air-mass inversions, and humidity. These considerations are often reflected against such smoke targets as homes, highways, office complexes, and recreation areas. The sophistication of the information used in formulating a smoke management plan and the difficulty in predicting potential smoke outcomes strongly suggest the involvement of a trained, experienced planner for burn sites where smoke management is a significant concern.

BMP No. 8 – The prescribed burn plan will identify all individuals and organizations which need to be notified of the burn, including the day of the burn.

Notification to interested parties of intent to burn is an essential part of any burn plan. These interested parties are often divided into those who have a need to know for regulatory reasons or to further a government function and those who have a personal interest in the activity. Regulators are typically involved at least twice: during application for a burn permit and when the burn is conducted. Those in charge of the burn should ensure that at a minimum Central Dispatch, Fire, Police/Public Safety and Local Unit of Government are notified immediately prior to conducting the burn.
Other interested parties include neighbors, people who may also wish to use prescribed fire, and those who are simply curious about the process or the fire itself. These parties are often more difficult to reach. Depending on the nature of the burn site, contacting neighbors may be sufficient in this regard. Where more extensive communication is desired, print media can sometimes be solicited. County, township, or city governmental entities may also be enlisted in hosting public meetings.

The safe and effective execution of prescribed burning results from a carefully planned, highly coordinated approach. Execution of this approach is the application to the land of the prescribed burn objective formulated for this Plan. This strategy includes a number of elements directly related to fire.

- Assignment of burn prescription windows needed to attain the objective as modified by site restrictions and smoke management considerations.
- Assessment of the amount and combustibility of the fire fuels available to be burned (Fuel Model).
- Assessment of hazards that may complicate burn execution or make burn conditions more extreme (extreme slopes, exposed pitch on pine trees, fuels that easily become airborne when ignited, fuels that roll when ignited).
- Assessment of the range of weather conditions acceptable in attaining the objective.
- Assessment of topography especially as it contributes to fire behavior.
- Assessment of air quality considerations (Air Quality Notification requirement).
- Prediction of fire behavior (flame height/length, spread rate, residence time).

BMP No. 9 – The prescribed burn plan will identify the location and specifications for all fire breaks.

The provision of a fire control line for fire containment (fire break) involves the removal of burnable fuels from an area, the use of an area that contains no burnable fuels, or the treatment of fuels so they are non-burnable. Fire control lines are typically constructed using mechanical means, chemical, water. Often a combination is used. Mechanical control includes soil exposure by scalping, plowing, disking, or tilling. Chemical line employs chemicals that either act directly to retard combustion or act indirectly as surfactants or wetting agents, extending the value and effectiveness of the water. Water, by itself, can be used to build control line, either prior to ignition or once the fire is progressing. Natural barriers such as roads, water courses or green belts are all effective containment options.

BMP No. 10 – The prescribed burn plan will identify the method and specifications for ignition of the burn.

Burn ignition patterns include a number of considerations. There are a number of ignition strategies that can be used depending on the burn objectives. Head fires (ignited on the up-wind side of the burn area) typically move quickly over the landscape. Residence time is short, heat intensity is high, and flame lengths are often longer. Backing fires (ignited on the down-wind side of the burn area) have a relatively longer residence time, lower heat intensity, and shorter flame lengths. Strip fires (ignited in a manner so they burn for only a short distance before encountering a fire break) combine the characters of head and backing fires but limit the area to be burned at any instant so intensity is controlled. It should be noted that using head fires is a relatively high risk ignition technique whereas using backing fires is a relatively low risk ignition technique.

Fire ignition strategy is also dependent of the nature of the fuels, the burn objective, and the character of the burn desired. Perimeter ignition provides a high degree of fire control. Concentric ignition promotes strong development of smoke columns and increases the amount of heat generated on the center of the burn area. Spot ignition allows for simultaneous ignition of the burn area and reduced burn time.

BMP No. 11 – The burn plan will identify the fire containment strategy or strategies to be followed for the burn.

Fire containment strategies include an understanding of the fire fuels (fuel model) as modified by fuel moisture and local weather conditions, fire control line of a nature and scope to address expected fire intensity, firing and ignition strategies that are coordinated with the containment strategy, and equipment and trained staff sufficient to safely and effectively carry out the prescribed burn.

BMP No. 12 – The burn plan will identify the crew requirements for the burn including the number of personnel, duties and responsibilities, safety equipment and training needs.

Crew needs include training, personal protective gear, orientation, and contact information. Training for crew members minimally includes training on burning, training on equipment to be used in managing the burn, and training in fire line safety and first aid.

Training and safety considerations are a major part of any prescribed burning program. The need for training generally increases as involvement in the program shifts from helping to conduct the burn to planning the burn. Training needs also increase as the complexity of the equipment being used (hand tools to bulldozers) increases. An emphasis on proficiency with the use of equipment increases as the complexity of the equipment increases.

Basic training for individuals wishing to participate in prescribed burns must include training in fire behavior. This, coupled with training in safety and first aid and training in the safe and effective use of hand tools, prepares the individual to work under direct supervision on burns. A necessary prerequisite for this training and for participation on a burn is a health physical. The strenuous nature of the work coupled with an inherently dangerous work site demand that individuals participating in the burns be in good physical condition and free from the effects of alcohol and controlled substances. Most agencies and organizations that conduct burns establish minimum requirements for individual physical condition.

Planning prescribed burns and taking charge of conducting burns, as Burn Planner, requires considerably more training. The planning function assumes a thorough understanding of fire behavior, ecology, smoke management along with the laws and regulations relating to burning; permitting and related permit processes. The mechanics of conducting a burn; and the health/safety considerations involved in planning and conducting a burn. Assistance is available from the Natural Resources Conservation Service. Consulting contractors are also available to help with both planning and conducting prescribed burns.

The Burn Boss must have a thorough understanding of the mechanics and safety considerations involved in conducting a burn, the ability to comprehend and implement a prescribed burn plan, and the ability to effectively supervise a burn control crew. This advanced training is typically offered by a sanctioning organization and is highly structured to instill a thorough understanding of management using fire. Most agencies that conduct burns insist on this level of training for employees that have a significant portion of their job function focused on fire. Increasingly, local fire departments are insisting that prescribed burn plans, written for application on private lands, must be prepared by experienced planners before Burning Permits are issued.

Often overlooked safety considerations are environmental factors that can come into play as burns are conducted. Climate concerns such as heat and dry air can stress fire crew members and render them less effective in their assignments. Heat can make insects and ticks more active. Poisonous plants can be rendered more toxic as the heat mobilizes irritating oils. Heat and moving air (updrafts and convection currents) can also mobilize introduced on-site contaminants asbestos, PCBs, and solvents.

BMP No. 13 – An orientation meeting will be conducted for all crew members before the burn is ignited.

Immediately prior to initiating the burn, crews need an orientation to the prescribed burn, how it is to be carried out, and the individual assignments needed to get it done. On-site communication, coordination, and safety are also covered. This orientation is usually conducted by the Burn Boss, often on the burn site. Communication is critical from this point forward in effectively and safely completing the burn. Burn bosses usually adopt a communication style at this point that involves direct orders enabled through a recognized chain of command within the burn team.

BMP No. 14 – The burn plan will include a complete list of the equipment needed to conduct the burn.

Equipment needs in conducting a prescribed fire are dependent on and are an integral part of the Prescribed Fire Plan. Most prescribed fires can be planned to be completed in different ways that use different compliments of fire equipment and personnel. Personal gear includes both appropriate clothing and hand tools to be employed in burn management. Clothing serves to protect against the effects of radiant heat and resists combustion and melting. Clothing that has been used in this regard varies from shirts and pants made of special flame-resistant apparel such as Nomex®, to a minimum of pants and shirts made of cotton. Hand tools often categorized as personal gear include axes, shovels, fire brooms, backpack pumps, drip torches, and fire rakes. Tracked or wheeled tractors, pump trucks, and fire trucks, are also employed on some prescribed burns, and are classified as equipment. Contact information for individual crew members is necessary to provide a means for dependably contacting them, often with short lead times. However, personnel must be trained and proficient in the use of the equipment identified in the Plan. Once the Plan has been written to identify the compliments of equipment and personnel needed to complete the burn, different equipment should not be substituted to complete the burn without a complete review and modification of the Plan. In short, the prescribed fire must be conducted as prescribed in the Plan.

BMP No. 15 – The burn plan will identify a contingency plan to follow if the burn does not progress as expected.

Contingency plans are a part of every prescribed fire plan. Contingency plans are alternatives available to the Burn Boss that can be implemented when something unexpected occurs or something goes contrary to the prescribed fire plan. Contingency plans are written to make use of both existing equipment and personnel resources and expanded resources like local Fire Departments and additional burn crews. Often, multiple contingency plan levels are formulated with plans for sequential implementation. Contingency plans that utilize existing resources can often be implemented more quickly. These may include developing new control lines outside original lines, burning out from new control lines, and attacking the fire itself. Contingency plans that make use of expanded resources may include calling on the services of fire departments or other burn crews to compliment existing resources

after initial efforts, such as with new control lines, have been attempted. These plans also include contact information for first aid and medical emergency services.

Prescribed burn plans and the contingency plans that are a part of the fire plans are built on the assumption of redundancy in burn control. This is a major distinction separating prescribed burns from wildfires or fires burning in an uncontrolled manner. Redundancy in burn control is the recognition and application of separate systems, often interacting with each other, that operate to either place bounds on burn scope and intensity or contain and control the burn. Recognizing the nature and amount of fuels available to be burned (fuel model) allows prediction of maximum burn potential and how intense the burn is likely to be. Knowledge of fuels on adjacent sites helps to assess risk and plan contingencies. Monitoring of adjacent sites during the burn provides a mechanism to trigger implementation of these contingencies. Knowledge of local site atmospheric conditions and weather projections allows prediction of how these weather effects will change the manner in which the available fuels burn. Dividing the burn site into subunits often places bounds on burn intensity. Selection of burn ignition pattern and manner of completion can also place bounds on burn intensity. For example, burns conducted through the use of a backing fire will generally have much lower intensity than burns completed through the use of a head fire. Building burn control lines that are a combination of mechanical line and black line are often more effective in containing the burn.

BMP No. 16 – The burn plan will identify the communication requirements for the crew and interested parties involved in the burn.

A communications plan is an essential element of the prescribed burn plan. Communications among the crew conducting the burn are vital to safe and successful completion. Most communications plans are built around a simple structure with the designation of a Burn Boss in a command role in charge of safely completing the plan. Communications flow between the Boss and each member of the crew with the crew receiving orders and the Boss receiving progress information on the burn and progress on crew member assignments. On large projects with large crews or more complex plans, the Burn Boss may have subordinates direct elements of the project, with their respective crew, and report back to the Burn Boss.

BMP No. 17 - The burn plan will identify any requirements needed to restore the site after the burn.

Site recovery is a consideration within any prescribed fire plan. Soil stabilization may be required on slopes and in areas where the site has been reduced to mineral soil. This action may be required as a part of a Soil Erosion and Sedimentation Control Permit. It may include water bars on slopes and seeding and covering on denuded areas or areas like plow furrows and disk lines where soil was disturbed in preparation for the burn. Site recovery may also include access control like closure of roads and posting of signs to reduce disturbance and promote recovery.

BMP No. 18 – The burn plan will identify the procedure to be used to evaluate the burn to determine if the objectives of the burn are met.

Any effective prescribed fire plan has an evaluations phase where the results of the burn are reflected against the plan objectives. This evaluation typically includes a review of the results of the burn on both plants and plant response and dead organic matter on-site. It includes an assessment of whether the cost of the burn was in line with expectations. It also assesses whether the burn was executed within safety expectations. Plan evaluation may occur over a period of time depending on the nature of the change effects being evaluated. For instance, evaluation of fire impact on woody vegetation within a burn site may require site review in year 1, 3, 5, and 10 after the burn.

BMP No. 19 – The burn plan will identify media considerations for the burn.

Development of a media plan, typically inserted within the prescribed burn plan, is often a valuable exercise whenever there is opportunity for contact from the media or the public as a result of the prescribed burn. This process allows for anticipation of and advance preparation to deal with issues and concerns that may arise from the burn. The plan provides for notification to those with an interest in the project. The plan also provides a mechanism to present the project in its entirety so interested individuals can fully understand the project. Pre-fire activities under this plan include notification to adjacent landowners, press releases, Public Safety notification, and local government notification. Burn day activities include provision of an on-site Information Officer, identification of safe and restricted areas, and provision of media fact sheets and fire brochures. Post-burn activities include the posting of information and the evaluation of the media plan.

Conclusion

This document serves as a broad introductory overview of the application of prescribed burning on the landscape and suggests minimum application standards in the embedded BMPs. In so doing, it reflects on why burning remains an essential tool in contemporary land management and supports the importance of the related BMPs. It is hoped that the detail in this document will raise the comfort level of the reader regarding prescribed burning as it increases awareness of the process and the recognition of the need to apply these BMPs when conducting prescribed burns. The information presented here is not comprehensive, and the reader is encouraged to consult other references for a more in-depth understanding of this management technique. The Michigan Prescribed Fire Council maintains a website (www.firecouncil.org) that is useful in this regard.

The mission of the Michigan Prescribed Fire Council is to protect, conserve, and expand the safe use of prescribed fire in the Michigan landscape.

Glossary

This glossary contains working definitions that are intended to clarify technical terms and to provide a context in which words with multiple connotations are used in relation to prescribed burning.

Aerial Fuels: All live and dead vegetation above surface fuels including tree branches, twigs, cones, snags, moss, and high brush.

Aerial Ignition: Ignition of fuels by dropping incendiary devices or materials from aircraft.

Aspect: The direction a slope faces.

Backfire: A fire set along the inner edge of a fireline to consume the fuel in the path of an existing fire and/or change the direction of force of the existing fire's convection column.

Backpack Pump: A portable sprayer with hand-pump, fed from a liquid-filled container fitted with straps, used mainly in fire and pest control.

Biological Diversity: Simplified; the number or richness of living organisms occurring at a genetic, species, ecosystem, or landscape scale.

Blow-up: A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or upset control plans.

Burn Boss: (Fire Boss) A person assigned to direct and control all aspects of a prescribed burn.

Burn Evaluation: An evaluation of the results of a prescribed burn as reflected against the objectives for that action.

Burn Out: Setting fire inside a control line to widen it or consume fuel between the edge of the fire and the control line.

Combustibility: The propensity of a fuel to ignite; often expressed in terms of the minimum temperature required for ignition.

Commensal Relationship: (Commensalism) A relationship where two or more organisms interact in ways that benefit all of the involved organisms.

Concentric Ignition: Setting fire simultaneously to the center and perimeter of a burn area.

Contingency Plan: A plan that is implemented on the occasion where conditions change to fall outside the range of conditions included as assumptions in a base or original plan.

Control line: All built or natural fire barriers and treated fire edge used to control a fire.

Creeping Fire: A fire burning with a low flame and spreading slowly.

Crown Fire: (Crowning) The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

Dead Fuels: Fuels with no living tissue; fuels in which moisture content is governed by atmospheric moisture (relative humidity and precipitation), temperature, and solar radiation.

Debris Burning: A fire spreading from a fire originally set for the purpose of clearing land of unwanted plant materials or for rubbish, garbage, or refuse removal.
Drip Torch: A hand-held device consisting of a fuel fount, burner arm, and igniter used for igniting fires by dripping burning liquid fuel onto materials to be burned.

Duff: The layer of decomposing organic materials lying immediately above the mineral soil but below the litter layer of freshly fallen twigs, needles, and leaves; the fermentation layer.

Ecological Integrity: Simplified; the degree to which the function of a natural community or ecosystem is complete, unimpaired, and sound; especially as it relates to the biological diversity appropriate to achieve this functionality.

Ecological Management: Management directed to ecological rather than cultural objectives.

Escaped Fire: A fire which has exceeded prescription.

Fine Fuels: Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than ¼ inch in diameter and have a time lag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Fire Behavior: The manner is which fire reacts to the influences of fuel, weather, and topography.

Fire Break: A natural or constructed barrier used to stop or check fires that may occur; to provide a control line from which to work.

Fire Intensity: A general term relating to the heat energy released by a fire.

Fire-intolerant Plant: A plant that is killed or more severely set back in its growth by thee action of fire than other plants growing with it.

Fire Line: A linear fire barrier that is scraped or dug to mineral soil or otherwise rendered non-burnable.

Fire Perimeter: The entire outer edge or boundary of a fire.

Fire-tolerant Plant: A plant that is less severely set back in its growth by the action of fire than other plants growing with it.

Fire Weather: Weather conditions that influence fore ignition, behavior and suppression.

Flame Height: The average maximum vertical extension of flames at the leading edge of the fire front.

Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

Flare-up: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

Flash Fuels: (Fine Fuels) Fuels such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash, that ignite readily and are consumed rapidly when dry.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Type: An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or difficulty of control under specified weather conditions.

Fusee: A colored flare designed as a railway warning device and widely used to ignite suppression and prescription activities.

Hand Line: A fire line built with hand tools.

Hotspot: A particularly active part of a fire.

Litter: The top layer of fuels on the ground, directly above the fermentation or duff layer; composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Mop-up: To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags, or moving logs so they will not roll down hill.

Nomex®: Trade name for a fire resistant synthetic material used in the manufacturing of flight suits and pants and shirts used by firefighters.

Nutrient Mobilization: The physical or chemical modification of nutrients that facilitates transport from site, especially through water and air.

Prescribed Burn: (Prescribed Fire) Any fire ignited by management actions under certain, predetermined conditions, to meet specific objectives related to hazardous materials or habitat improvement.

Prescribed burn Plan: (Prescribed Fire Plan) A document that provides the information needed to implement an individual prescribed burn project; a documentation of the process involved in implementing a prescribed burn project.

Prescription: Measurable criteria that define conditions under which a prescribed burn may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Prevention: Activities directed at reducing the incidence of fires including public education, law enforcement, personal contact, and reduction or fuel hazards.

Retardant: A substance or chemical agent which reduces the flammability of combustibles.

Running Fire: A rapidly spreading surface fire with a well-defined head.

Slash: Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps, and broken under story trees or brush.
Smoke Management: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed burning.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spot Fire: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Strip Fire: A fire ignited in a pattern so that the fire travels only a short distance before encountering a fire break; indirect control of fire intensity.

Structure Fire: A fire originating in and burning any part or all of any building, shelter, or constructed entity.

Test Fire: A small fire ignited within the planned burn unit to determine the characteristic of he prescribed fire, such as fire behavior, detection performance, and control measures.

Topography: The configuration of the ground surface including its relief and the relative position of natural and cultural features.

Torching: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

Uncontrolled Fire: (Wildfire) Any fire which threatens to destroy life, property, or natural resources and is not prescribed.

Wet Line: A line of water, or water and chemical retardant, applied along the ground that serves as a temporary control line from which to ignite or stop a low intensity fire.

Wildland Fire: Any non-structure fire, other than a prescribed burn, that occurs in wildland.

Appendix C: City of Ann Arbor Pesticide & Herbicide Use Policies

ADMINISTRATIVE POLICY

RE: PESTICIDE USE

POLICY: #601

ORIGINAL DATE: 9/92

APPROVED BY:

REVISION DATES: 7/93

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1. **Purpose**

   To establish guidelines and insure implementation of effective and proper procedures concerning the use of pesticides by all city departments on city property.

2. **Policy**

   2.1 No department shall use pesticides which are on the Michigan Restricted Use Products (RUP) list.

   2.2 All city employees who apply pesticides shall be properly licensed to do so.

   2.3 In the event that pesticides are applied indoors, advance notification shall be provided.

   2.4 Integrated pest management including an emphasis on preventive action and annual record keeping shall be undertaken.

3. **Procedures**

   3.1 The Superintendent of Parks and Recreation shall annually distribute the updated RUP list to all department heads.

   3.2 Each department head shall formulate a plan to follow integrated pest management principles for buildings or properties controlled by that department. The plan shall be reviewed annually and updated as necessary. All department plans shall be reviewed by the Risk Manager and Superintendent of Parks and Recreation for consistency.

   3.3 Department heads who share common space or have areas of common responsibility shall, of their own accord, determine who will be the responsible party and report this information to the City Administrator.

   3.4 The Parks and Recreation Department shall annually train and update training for those individuals who need to be Certified or Registered to apply pesticides in accordance with city policy.

3.5 Each department shall be responsible for ensuring that contracts for pesticide application by private contractors meet the requirements of city policy.

3.6 Each department head shall retain annual records as required by city policy in such a manner that the records may be made available in a unified form if requested by Council. This shall be on a fiscal year basis.

R-160-3-87

RESOLUTION CONCERNING PESTICIDE USE BY CITY DEPARTMENTS

The following statement of principles and restrictions applies to the use of pesticides on city parklands, golf course, rights-of-way and easements and all other city property, and to interior application in fire stations, city hall, city garages, and the Water Department.

Whereas, The City of Ann Arbor should safeguard the health of its citizens and its employees in the process of conducting operations of its departments;

Whereas, The City of Ann Arbor should, in the course of its operations, present a model of good practice in all functions affecting the health of citizens and employees;

Whereas, pesticides are a class of toxic chemicals used by necessity in certain City operations;

Whereas, citizens have a right to know when they may be exposed to these chemicals;

Whereas, certain principles, known as Integrated Pest Management, are well established as good practice in the use of pesticides;

RESOLVED; That the City of Ann Arbor will not use pesticides which are on the Michigan Restricted Use Products List.

Exceptions to this rule will be granted under special circumstances, when a formal proposal with justification for use of a RUP will be prepared by the department. The department will submit the proposal to an appropriate professional outside city administration (for example, a faculty member at a university, a public health official from the county or state, or Cooperative Extension personnel) for review. A public notice will at the same time be published in the newspaper, and there will be a reading of this proposal to City Council. At least one week after this public notice, the City Administrator will rule on the exception, based on the justification by the department, the outside review, and any comment from the public or the Council.

RESOLVED, That the City will safeguard the health of employees applying pesticides as follows:

A. All employees who apply pesticides will be given a course of training which will include methods of pesticide application, hazards of pesticide use and procedures for safe use of pesticides, and symptoms of acute poisoning by pesticides. This training will be given by a State of Michigan Certified Pesticide Applicator or other person with formal qualifications to present such training.

B. All employees will wear appropriate protective clothing and protective equipment while applying pesticides.

3/16/87

F-3

RESOLVED, That the City will notify the public of spraying for pests in parks, rights-of-way, the golf course, or other city property, as follows:

A. The Parks and Recreation Department will publish informational articles in the newspaper before beginning an extensive program city-wide of spraying or otherwise applying pesticides. The articles will specify the pesticide to be applied, explain the purpose of the pesticide application, and notify the public of any hazards involved.

B. Signs will be posted at the time of application of pesticides in parks and rights-of-way, and will remain for a minimum of two business days after the application.

i. Signs will be at least 10 x 14 inches, and will be a bright yellow in color with black lettering. They will be headed "Notice of Pesticide Application". Signs will have spaces for the following information: the name of the pesticide; the date of application; and the appropriate warning term for the EPA toxicity category. These terms are, for toxicity category I, DANGER -- POISON; II, WARNING; III & IV, CAUTION. A telephone number which can be called for more information will also be printed on them.

ii. Signs will be posted at all entrances of parks.

iii. Signs will be posted at the right-hand corner of all intersections along rights-of-way, where they are easily visible from an automobile. However, when individual trees are treated along a right-of-way, or a small group of trees (up to 3), the sign will be posted at the tree rather than at the intersection.

iv. Notices will be posted in the clubroom at the golf course, and at the Number 1 and Number 10 tees. Signs will be posted at intervals of 100 yards along property lines abutting residential areas.

C. Citizens of Ann Arbor who wish to be informed personally about the application of pesticides by the City in their vicinity may enter their names on a registry with payment of a one-time fee of $10. These individuals will be notified within 24 hours before application of pesticides within 100 yards of the property line of their personal residence. The City will also make this list of registry available to commercial pesticide applicators free of charge.

D. The City shall notify the Administration of the Ann Arbor Public Schools District of its intention to apply pesticides within 100 yards of a school property or school grounds.

E. Exceptions to the three previous sections of this notification requirement:

i. When insecticides or fungicides are applied to trees or shrubs via injection or application of a paste, one sign will be attached to a tree so treated at the time of the treatment.

ii. Application in cool weather of "dormant oils" which do not contain insecticides with active toxic ingredients will be exempt from the posting of signs; however, an informational article will be published before the application of these oils citywide.

iii. When a situation presents a threat to the public health and requires immediate action, such as the presence of nests of hornets or other hymenopteran insects, no prior notification will be required, although a sign will be posted where application is made.

RESOLVED, That it will be the policy of the City of Ann Arbor to apply pesticides according to the principles of Integrated Pest Management. Each division will formulate a policy to follow these principles, which will include the following:

A. Pesticides will not be applied according to regularly scheduled spraying schedules.

B. Biological control measures will be used where feasible.

C. Management of turf and trees or shrubs will be such as to minimize the need for pest control. This includes maintenance of healthy plant through proper watering, fertilizing, pruning, and mowing practices, to minimize stress and reduce susceptibility to insects, disease and weeds.

D. Each division of Parks and Recreation will develop a policy to determine when pesticides should be applied in a particular situation. These policies will include the following considerations:

i. Noxious weeds will be treated as needed according to Section 3:16, Chapter 40, Title III of the City Code.

ii. The percentage of area or density of broadleaf or grassy weeds which is acceptable for Class A, B, C, or D turf areas and for use areas in the golf course will be determined. Application of herbicides will be made only when an area passes this "trigger density" of broadleaf or grassy weeds.

iii. Pest control on trees or shrubs may be implemented under any combination of the following circumstances:

a. Damage from pests is influencing the overall, long-term health of the tree;

b. Pests are causing significant esthetic damage to the tree;

c. Population dynamics are such that significant increases in pest levels are inevitable.

Definition:

"Pesticide" as used in this resolution is defined as a substance or mixture of substances intended to prevent, destroy, repel, or mitigate pests, or used as a plant growth regulator. This includes insecticides directed against insects, herbicides directed against weedy plants, fungicides directed against fungi, and antibiotics or bactericides used against bacteria.

(Councilman Seth Hirshorn)

As Amended
March 16, 1987

R-705-12-91
16 Council - December 2, 1991
RESOLUTION CONCERNING PESTICIDE USE
BY CITY DEPARTMENTS
(Amendments to Resolution No. R-160-3-87)

The following statement of principles and restrictions applies to the use of pesticides on city parklands, golf courseS, rights-of-way and easements and all other city property, and to interior application in fire stations, city hall, city garages, <and the Water Department> THE WATER TREATMENT PLANT, THE WASTEWATER TREATMENT PLANT, AND LANDFILL OFFICES.

Whereas, The City of Ann Arbor should safeguard the health of its citizens and its employees in the process of conducting operations of its departments;

Whereas, The City of Ann Arbor should, in the course of its operations, present a model of good practice in all functions affecting the health of citizens and employees;

Whereas, Pesticides are a class of toxic chemicals used by necessity in certain City operations;

Whereas, Citizens AND EMPLOYEES have a right to know when they may be exposed to these chemicals; and

Whereas, Certain principles, known as Integrated Pest Management, are well established as good practice in the use of pesticides;

RESOLVED, That the City of Ann Arbor will not use pesticides which are on the Michigan Restricted Use Products (RUP) List.

Exceptions to this rule will be granted under special circumstances, when a formal proposal with justification for use of a RUP will be prepared by the department. The department will submit the proposal to an appropriate professional outside city

administration (for example, a faculty member at a university, a public health official from the county or state, or Cooperative Extension personnel) for review. A public notice will at the same time be published in the newspaper, and there will be a reading of this proposal to City Council. At least one week after this public notice, the City Administrator will rule on the exception, based on the justification by the department, the outside review, and any comment from the public or the Council.
THE CITY ADMINISTRATOR WILL DESIGNATE A PERSON RESPONSIBLE FOR OBTAINING THE UPDATED RUP LIST EACH YEAR AND
Council - December 2, 1991 17
DISSEMINATING THE LIST TO HEADS OF ALL DEPARTMENTS.
RESOLVED, That the City will safeguard the health of employees applying pesticides as follows:
<A. All employees who apply pesticides will be given a course of training which will include methods of pesticide application, hazards of pesticide use and procedures for safe use of pesticides, and symptoms of acute poisoning by pesticides. This training will be given by a State of Michigan Certified Pesticide Applicator or other person with formal qualifications to present such training.>
A. ALL EMPLOYEES WHO APPLY PESTICIDES WILL BE CERTIFIED APPLICATORS OR REGISTERED APPLICATORS AS DEFINED BY THE STATE OF MICHIGAN DEPARTMENT OF AGRICULTURE REGULATION NO. 636.
B. All employees will wear appropriate protective clothing and protective equipment while applying pesticides.
RESOLVED, That the City will notify the public of <spraying for pests> EXTERIOR PESTICIDE APPLICATIONS in parks, rights-of-way, the golf courses, or other city property, as follows:
A. The Parks and Recreation Department will publish informational articles in the newspaper before beginning an extensive program citywide of spraying or otherwise applying pesticides. The articles will specify the pesticide to be applied, explain the purpose of the pesticide application, and notify the public of any hazards involved.
B. Signs will be post at the time of application of pesticides in parks and rights-ofway, and will remain for a minimum of two business days after the application.
i. Signs will be at least 10 x 14 inches, and will be a bright yellow in color with black lettering. They will be headed "Notice of Pesticide Application". Signs will have spaces for the following information: the name of the pesticide; the date of application; and the appropriate warning term for the EPA toxicity category. These terms are, for toxicity category I, DANGER -- POISON; II, WARNING; III & IV, CAUTION. A telephone number which can be called for more information will also be printed on them.
ii. Signs will be posted at all entrances of parks.
18 Council - December 2, 1991
iii. Signs will be posted at the right-hand corner of all intersections along rights-of-way, where they are easily visible from an automobile. However, when individual trees are treated along a right-of-way, or a small group of trees (up to 3), the sign will be posted at the tree rather than at the intersection.
iv. Notices will be posted in the clubroom of the golf courses, and at the Number 1 and Number 10 tees. Signs will be posted at intervals of 100 yards along property lines abutting residential areas.
C. Citizens of Ann Arbor who wish to be informed personally about the EXTERIOR application of pesticides by the city in their vicinity may enter their names on a registry with payment of a none-time fee of $10. These individuals will be notified within 24 hours before EXTERIOR application of pesticides within 100 yards of the property line of their personal residence. The City will also make this list or registry available to commercial pesticide applicators free of charge.
D. The City shall notify the Administration of the Ann Arbor Public Schools District of its intention to apply pesticides within 100 yards of a school property or school grounds.
E. Exceptions to the three previous sections of this notification requirement:

i. When insecticides or fungicides are applied to trees or shrubs via injection or application of a paste, one sign will be attached to a tree so treated at the time of the treatment.
ii. Application in cool weather of "dormant oils" which do not contain insecticides with active toxic ingredients will be exempt from the posting of signs; however, an informational article will be published before the application of these oils citywide. APPLICATION OF BIOLOGICAL CONTROL PRODUCTS CONTAINING BACILLUS THURINGENSIS WILL ALSO BE EXEMPT FROM POSTING.
iii. When a situation presents a threat to the public health and requires immediate action, such as the presence of nests of hornets or other hymenopteran insects, no prior notification will be required, although a sign will be posted where application is made.
RESOLVED, That it will be the policy of the City of Ann Arbor to apply pesticides according to the principles of Integrated Pest Management. Each <division> DEPARTMENT will formulate a policy to follow these principles, which will include the
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following:
A. Pesticides will not be applied according to regularly scheduled spraying schedules.
B. Biological control AND/OR LEAST-TOXIC CONTROL measures will be used where feasible.
C. Management of turf and trees or shrubs will e such as to minimize the need for pest control. This includes maintenance of healthy plants through proper watering, fertilizing, pruning, and mowing practices, to minimize stress and reduce susceptibility to insects, disease and weeds.
D. Each division of Parks and Recreation will develop a policy to determine when pesticides should be applied in a particular situation. These policies will include the following considerations:
i. Noxious weeds will be treated as needed according to Section 3:16, Chapter 40, Title II of the City Code.
ii. The percentage of area or density of broadleaf or grassy weeds which is acceptable for Class A, B, C, or D turf areas and for use areas in the golf course will be determined. Application of herbicides will be made only when an area passes this "trigger density" of broadleaf or grassy weeds.
iii. Pest control on trees or shrubs may be implemented under any combination of the following circumstances:
a. Damage from pests in influencing the overall, long-term health of the tree;
b. Pests are causing significant esthetic damage to the tree;
c. Population dynamics are such that significant increases in pest levels are inevitable.
E. FOR INDOOR APPLICATIONS, EACH BUILDING WILL HAVE A PEST MANAGEMENT PLAN. WHERE A BUILDING IS SHARED AMONG DEPARTMENTS, THE CITY ADMINISTRATOR WILL DESIGNATE A RESPONSIBLE PERSON TO DEVELOP A PEST MANAGEMENT PLAN FOR THAT FACILITY.
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I. EACH PLAN WILL INCLUDE PERIODIC INSPECTION OF MONITORING (USING DEVICES SUCH AS NON-TOXIC STICKY TRAPS) TO DETERMINE THE EXTENT OF THE PROBLEM. A POPULATION LEVEL AT WHICH ACTION IS NECESSARY WILL BE DETERMINED FOR EACH COMMON PEST.
II. EACH PLAN WILL EMPHASIZE ACTION. FOR EXAMPLE, BUILDING MANAGEMENT WILL EMPHASIZE MECHANICAL EXCLUSION (SUCH AS CAULKING CREVICES AND OTHER OPENINGS) AND IMPROVE SANITATION (SUCH AS REMOVING PEST ACCESS TO FOOD AND WATER). A SITE EVALUATION TO DETERMINE APPROPRIATE PREVENTATIVE ACTION FOR LIKELY PESTS WILL BE PART OF THE PEST MANAGEMENT PLAN.

III. APPLICATIONS WILL BE MADE IN SUCH A WAY AS TO MINIMIZE HUMAN EXPOSURE. FOR EXAMPLE, CRACK AND CREVICE APPLICATION WILL BE USED WHEN APPROPRIATE, IN PREFERENCE TO SPRAYING OF AEROSOLS.

RESOLVED, THAT THE CITY WILL NOTIFY EMPLOYEES, THE PUBLIC, AND PUBLIC HOUSING TENANTS OF INTERIOR PESTICIDES APPLICATIONS IN CITY BUILDINGS AS FOLLOWS:

A. SIGNS WILL BE POSED AT THE TIME APPLICATION IS MADE IN CITY BUILDINGS AND WILL REMAIN FOR A MINIMUM OF TWO BUSINESS DAYS AFTER APPLICATION. THE SIGNS WILL BE THE SAME SIZE AS THOSE REQUIRED FOR EXTERIOR USE, AND WILL CONTAIN THE SAME INFORMATION.

THE SIGNS WILL BE AT THE MAIN ENTRANCE(S) OF THE BUILDING, AND AT THE DOOR OF ROOMS WHERE PESTICIDES HAVE BEEN APPLIED. THE SIGN AT THE MAIN ENTRANCE WILL INDICATE WHICH ROOMS HAVE BEEN TREATED.

B. WRITTEN NOTICES WILL BE DISTRIBUTED PRIOR TO APPLICATION. THE NOTICES WILL INCLUDE THE NAME OF THE PESTICIDE(S) TO BE USED, THE TOXICITY RATING OF THE PESTICIDE, THE METHOD OF APPLICATION, AND THE DATE AND APPROXIMATE TIME OF APPLICATION. EMPLOYEES IN CITY OFFICES WILL RECEIVE THIS WRITTEN NOTIFICATION AT LEAST TWO WORKING DAYS BEFORE APPLICATION OF PESTICIDE IN THEIR BUILDING.

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C. THE FOLLOWING ARE EXEMPT FROM THESE POSTING REQUIREMENTS: BORIC ACID IN A CRACK AND CREVICE APPLICATION; AND USE OF SMALL PORTABLE BAITED COCKROACH TRAPS.

RESOLVED, THAT THE CITY OF ANN ARBOR WILL DEVELOP A RECORDKEEPING SYSTEM FOR PESTICIDE APPLICATIONS. THE RECORD WILL INCLUDE THE NAME OF THE PESTICIDE, THE REASON FOR APPLICATION (INCLUDING THE NAMES OF TARGET ORGANISMS), THE EMPLOYEE OR CONTRACTOR WHO APPLIES THE PESTICIDE, AND THE DATE, TIME AND PLACE OF APPLICATION. THE RECORD WILL ALSO INDICATE WHETHER IPM WAS FOLLOWED, AND NOTE PEST POPULATION LEVELS AT WHICH THE ACTION LEVEL WAS REACHED. THESE RECORDS WILL BE MAINTAINED WITHIN CITY HALL FOR AT LEAST ONE YEAR;

RESOLVED, THAT NO PESTICIDE APPLICATIONS WILL BE MADE IN OFFICE BUILDINGS OR OFFICES OF OTHER FACILITIES DURING STANDARD WORKING HOURS OF THAT OFFICE.

RESOLVED, THAT THESE REQUIREMENTS AND RESTRICTIONS ARE TO BE FOLLOWED BY ALL CITY DEPARTMENTS WHEN PESTICIDES ARE APPLIED, WHETHER BY EMPLOYEES OR BY CONTRACTORS. CONTRACT BETWEEN THE CITY AND COMMERCIAL PESTICIDE APPLICATORS WILL INCLUDE THESE REQUIREMENTS IN EXPLICIT LANGUAGE; AND

RESOLVED, THAT THIS RESOLUTION BE FORWARDED TO THE HOUSING COMMISSION TO REQUEST THEIR CONSIDERATION AND ADOPTION OF THIS POLICY FOR PUBLIC HOUSING PROPERTIES.

Definition:

"Pesticide" as used in this resolution is defined as a substance or mixture of substances intended to prevent, destroy, repel, or mitigate pests, or used as a plant growth regulator. This includes insecticides directed against insects, herbicides directed against weedy plants, fungicides directed against fungi, and antibiotics or bactericides used against bacteria.

"BIOLOGICAL CONTROLS" ARE DEFINED AS THE USE OF PREDATORS OR PARASITES, OR THEIR PRODUCTS, OF A SPECIFIC PEST, IN ELIMINATING OR REDUCING POPULATIONS OF THAT PEST; OR THE USE OF PEST-SPECIFIC COMPOUNDS OF BIOLOGICAL ORIGIN OR SYNTHESIZED IN IMITATION OF COMPOUNDS OF BIOLOGICAL ORIGIN, AIMED AT DISRUPTING THE LIFE-CYCLE

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OF THE PEST. EXAMPLES INCLUDE THE USE OF BACILLUS THURINGENSIS FOR

CERTAIN LANDSCAPE INSECT PESTS, AND JUVENILE HORMONES OR ANALOGS FOR INTERIOR PESTS.
"LEAST-TOXIC CONTROLS" ARE DEFINED AS CHEMICAL COMPOUNDS OR SUBSTANCES OF LOW TOXICITY, USED IN ELIMINATING OR REDUCING POPULATIONS OF PESTS; OR APPLICATION OF CONVENTIONAL CHEMICAL PESTICIDES IN FORMS CONSIDERED TO REDUCE THE RELEASE OF THESE COMPOUNDS INTO THE ENVIRONMENT. EXAMPLES OF THE FIRST CATEGORY INCLUDE HORTICULTURAL OILS FOR EXTERIOR PLANT APPLICATIONS, AND BORIC ACID FOR INTERIOR APPLICATIONS. EXAMPLES OF THE SECOND CATEGORY INCLUDE PESTICIDES INJECTED INTO TREES, AND ENCAPSULATED PRODUCTS FOR INTERIOR APPLICATIONS.
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