

7. Pesticide, Herbicide and Fertilizer Application

7.1. Detailed Program Overview

The primary objective of the City’s Pesticide, Herbicide, and Fertilizer Application Program is to implement controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied, by the city employees or its contractors, in the public right of ways, parks, and other municipal property. The measurable goals of the program include:

1. Continue to review the City’s Pesticide, Herbicide and Fertilizer Application Program to assess the current program and determine what, if any, changes need to be implemented.
2. Update the list of certified chemical applicators employed by the City of Birmingham in the Horticulture and Urban Forestry Division of the Department of Public Works and Parks and Recreation Department, and continue to encourage City employees to become certified landscaping chemical applicators.
3. Maintain records on the dates and quantities of landscaping chemicals applied.
4. Develop and make available public education materials about landscaping chemical storage, use, and disposal to City residents, commercial chemical applicators, and landscaping professionals.
5. Maintain maps of all areas in the City that are determined to be environmentally sensitive to landscaping chemicals.
6. Maintain maps of City-owned landscaping chemical storage areas in the City.
7. Continued compliance with the vegetation management plan for the protection of the watercress darter at Roebuck Springs (**Appendix D**).

The Department of Public Works (DPW) is responsible for landscaping, beautification, maintenance of ROW, public spaces and vacant lots, as well as for the application of herbicides, fertilizers, and mosquito abatement.

7.2. Storage and Application Areas

The “no spray” as well as “restricted spray” (environmentally sensitive) areas and PHF storage area(s) have been mapped. They can be found in **Appendix D**. The City’s pesticides, herbicides, and fertilizers are primarily stored at 4901 Avenue I Ensley. All mapped information have been provided to the Department of Public Works and the Fire Department for spill response related as well as routine PHF application operations related purposes.



7.3. PHF Application Records

Table 7-1 contains the herbicide application activity for this reporting period as part of the City’s vegetation management program. In **Appendix D** the information on the amounts of PHF applied, areas of application, and PHF type and inventory information is provided.

Table 7-1: City of Birmingham’s Non-Structural Activities in the Permit 2015 - 16

BMP Activity	Quantity*
Vegetation Management:	
Street R.O.W. mowing (blks.)	
Alleys, cut and clean (blks.)	
Interstate ramps (# acres)	
City lots, cut & clean (# lots)	
Private Lots	
Ditches & creek banks (# acres)	
Herbicide spray-truck (# acres)	
Herbicide spray-hand (# acres)	
Misc Activities:	
Mosquito spraying (blks.)	

*The City is compiling data from public works department and is reported in the end-table in the annual report.

7.4. PHF Program Best Management Practices

A general description of the best management practices implemented by the DPW staff to minimize the impact of the use of pesticides, herbicides, and fertilizers on the City’s MS4 and waterways is provided below.

Objectives

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings; and educating employees and the public.



7.4.1. Approach

7.4.1.1. Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcovers.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.
- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clipping on the lawn when mowing. Grass clipping decompose quickly and release valuable nutrient back in the lawn).
- Eliminate noxious, non-native vegetative species to reduce the number of cutting cycles and the amount of biomass to be processed. Use of selective herbicide products eliminating weed growth while releasing native grasses to grow and flourish is preferred. Native grasses act as a filter for pollutants in storm water runoff.

7.4.1.2. Protocols

Mowing, Trimming and Weeding

- Avoid loosening the soil when conducting mechanical or manual weed control; this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Mulching mowers may be recommended for certain areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clipping, pruning waste, tree trimmings and weeds. Chip if necessary, and compost or dispose of at one of the City's landfills.
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpile to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, and importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.

- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Dispose compost leaves, sticks or other collected vegetation at a permitted landfill. Do not dispose collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.
- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkle heads if broken.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
 - ✓ Mulching can be used to prevent weeds where turf is absent or fencing installed to keep rodents out.
 - ✓ Visible insects can be removed by hand and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water.
 - ✓ Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
 - ✓ Beneficial organisms, such as bats, birds, ladybugs, praying mantis that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators.
- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule.)

- Only Certified Pesticide Applicators will be allowed to make any pesticide applications. Exceptions will be made for training purposes under the direct supervision of a Certified Pesticide Applicator.
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low.
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques. Use additives to reduce spray drift and reduce being washed off foliage by rain.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep/blow pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigations water or before rainfall.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

7.4.1.3. Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.
- Inspect pesticide/fertilizer storage areas daily.

7.4.1.4. Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of an Alabama qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the departments IPM Policy, SOPs and BMPs and the latest IPM techniques.



- Use a training log or similar method to document training.

7.4.1.5. Spill Response and Prevention

- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup materials.

7.5. Public Education and Applicator Training

The City has updated its website with the information regarding the proper use, application and disposal of PHFs for all existing or potential users including commercial landscaping applicators. Also the City maintains and updates this content from time to time as new information related to PHFs is discovered. In addition, the City develops and makes available public education material on the PHFs application and management, as part of the City’s MS4 Public Education program. Although commercial landscaping chemical applicators have to obtain the same state certifications that the municipal applicators have to obtain, they are included in the City’s public education efforts associated with PHF application. Table 7-2 summarizes the City’s training efforts for the reporting period for Department of Public Works (DPW), which includes staff from the City Forestry and Horticulture divisions who are responsible for managing PHFs and their application. During these training sessions, an overview of the stormwater pollution and control measures was provided to the employees. PowerPoint presentations of the information presented during the training sessions are included in **Appendix D**.

Table 7-2: The City DPW Stormwater Pollution Training Information

DPW Division	Training Date	Number of Employees
North Birmingham Street Cleaning	June 24, 2011	14
Forestry	March 3, 2011	21
Horticulture North	March 31, 2011	42
Horticulture East	March 31, 2011	35
Horticulture South	March 31, 2011	43
Horticulture West	March 31, 2011	68



7.6. Program Assessment and Planned Activities

The City continues to assess its PHF application program and implement changes as may be necessary. For example, the City has modified its storage mapping to better assist Fire Department staff in case of a spill at the storage facility. Similarly, the City has modified the applicator's worksheet to better document equipment calibration and usage. The City has also identified those responsible for PHF application, and the City will continue explore training and certification programs for them. The City will also continue to track PHF inventory and application and will report in upcoming permit year annual reports.

Currently the City is reviewing ADEM's NPDES Pesticide Permit for its applicability to the City and as well the permit application process. If required, the City will apply for the Pesticide Permit in the next reporting year per the requirements established by ADEM. The City will also revise its current PHF program as necessary to comply with the requirements of new Pesticide Permit.

