



MONTGOMERY PARKS

The Maryland-National Capital Park and Planning Commission
2425 Reedie Drive | Wheaton, MD 20902
MontgomeryParks.org

July 14, 2023

Mr. Evan Glass
Council President
Montgomery County Council
Council Office Building
100 Maryland Avenue, 6th Floor
Rockville, MD 20850

Re: Montgomery Parks Pesticide Use Report, January 1 – June 30, 2023

Dear Council President Glass,

I am submitting to you the Montgomery Parks Pesticide Use Report for January 1 – June 30, 2023, as required by Montgomery County Code Section 33B-14: Pesticide Use in County Parks.

During this reporting period, parks staff have recorded 15,987 labor hours using alternatives to pesticides to remove pests and are testing products compatible with Montgomery County's Pesticide Law in many areas, including athletic fields. Among many other strategies, this report highlights new opportunities for use of hot foam for weed control, advanced use of cover crops, use of landscape fabric to manage and suppress unwanted vegetation, and strategies to support plant health so the wider community can continue to receive the benefits and ecosystem services they provide. This report also provides information on the department's awareness and response to the invasive spotted lanternfly, and we provide detailed information on the status of our athletic field pilot.

Montgomery Parks remains committed to utilizing integrated pest management principles which combine multiple strategies and techniques to manage pests. This includes evaluating and using alternative tools, products, and methods to manage pests and protect our natural resources while meeting the needs of the community, and we appreciate the council's ongoing support of these efforts.

Please feel free to contact me with any questions.

Sincerely,

Michael F. Riley

Michael F. Riley
Director, Montgomery Parks

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Semi-Annual Report of Pesticide Use & Alternative Practices



Reporting Period: January 1, 2023 – June 30, 2023

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Overview

In 2015, the Montgomery County Council adopted County Code Sec. 33B – Pesticide Use. Montgomery Parks began implementing sections of the regulation on July 1, 2016.

As required under the regulation, Montgomery Parks must submit semi-annual reports to the County Executive and County Council on or before January 15 and July 15 of each year.

This report covers the period of January 1, 2023, through June 30, 2023, and is available to the public in a manner consistent with the Montgomery County Open Data Act. This report contains the following information:

1. Registered pesticide usage details, including products compatible with Montgomery County's pesticide law*, in County parks during the preceding period, including:
 - the common name of each registered and Montgomery County-approved pesticide used,
 - the location of each application,
 - the date and time of each application, and
 - the reason for each pesticide use of a registered pesticide or Montgomery County-approved pesticide.
2. Status of the pesticide-free park program implemented under the regulation.

Montgomery Parks provides up-to-date information about the department's Integrated Pest Management Program to the public through multiple channels including a dedicated webpage, social media, press releases, and a customer service department.

The webpage (MontgomeryParks.org/pesticides) includes information about the Pesticide Reduction and Integrated Pest Management (IPM) program, frequently-asked-questions and answers, semi-annual pesticide use and alternative practices reports, information on pesticide-free parks, and weekly-updated schedule of planned pesticide applications including the location, date, time, product and reason for the application.

*Products allowed under Montgomery County's pesticide law must be listed by the National Organics Standards Board or designated as a minimum risk pesticide under FIFRA 25(b).

Montgomery Parks Integrated Pest Management Program

The department follows IPM principles to steward resources and protect them from pests (weeds, insects, animals, and disease) that may harm people or plants, impair function, and deteriorate infrastructure.

IPM principles combine multiple strategies and techniques to manage pests such as mechanical removal of pests, cultural methods to improve soil and plant health, conserving and introducing beneficial biological controls, and using organic as well as conventional pesticides.

Montgomery Parks manages more than 37,220 acres of parkland including 420 parks, 276 playgrounds, 290 athletic fields, 297 tennis outdoor courts, 227 basketball courts, and many other amenities.

Montgomery Parks is committed to balancing the demand for recreation while protecting and conserving our valuable natural and cultural resources to meet the needs of current and future generations. As such:

- Montgomery Parks does not use pesticides for cosmetic purposes.
- Pesticides are only used when necessary to protect amenities and park users.

Alternative Maintenance Practices

The department’s IPM strategy reduces or eliminates pesticide use through prioritization of alternative pest management practices.

Parks’ Enterprise Asset Management System (EAM) tracks labor hours of staff managing weeds and other pests without the use of pesticides.

Alternative methods utilized by parks staff include biological control (using beneficial organisms to control a pest), cutting and/or digging weeds with equipment, additional field dragging, use of hot foam or hot water to kill weeds and other pests, playground surface grooming beyond the maintenance standards, hand tool weeding, propane flaming, string trimming, and weed suppression with mulch or landscape fabric.

Below is a table detailing all the primary alternative maintenance practices staff utilized during the period of January 1, 2023, through June 30, 2023, including a column for labor hours and associated labor cost for each alternative maintenance practice.

Alternative Maintenance Practice	Labor Hours	Labor Cost
Cut/dig weeds with equipment	209	\$8,036
Drag athletic field (additional)	1,072	\$33,767
Hand tool weeding	2,042	\$64,747
Hot foam/Hot water	1,126	\$44,038
Playground surface grooming	510	\$14,895
Propane flaming	8	\$337
String trim	10,747	\$390,548
Weed suppression	273	\$11,319
Total:	15,987	\$567,687

Total labor hours for alternative maintenance practices to control pests during the reporting period was 15,987 hours at a labor cost of \$567,687. During this same period for the previous year, alternative practices were utilized for 13,059 hours at a labor cost of \$493,577.

Expanding Application of Hot Foam for Weed Control

Montgomery Parks is beginning to expand its use of hot foam technology and equipment as a pesticide alternative for maintenance of unwanted vegetation in parks. In 2023, the Horticulture, Forestry, and Environmental Education Division was approved to add hot foam equipment to the inventory for use by the Horticulture Section. The use of hot foam has been a valuable tool and critical alternative practice for the department in controlling weeds in wood fiber playground surfacing. Horticulture staff intends to expand the use of hot foam to control weeds and unwanted vegetation along fence lines at community gardens, in landscape areas, and mulched tree rings. The below pictures show a broad view and a close-up view of a staff person utilizing the hot foam equipment to control unwanted vegetation along the fence line of the Fenton Street Park community garden. Controlling the weeds in this bed took three hours to complete with two staff at total labor cost of approximately \$200.



Prior to the introduction of the hot foam equipment, staff were expending significant labor to control vegetation in these spaces, mainly by hand or through a string trimmer or similar equipment. Hand pulling can successfully remove plant root systems, but string trimmers are only able to remove surface vegetation. The use of hot foam can more directly target and cause damage to all parts of a plant, providing longer-lasting control of unwanted vegetation.

Crimson Clover Cover Crop at Pope Farm Nursery

Pope Farm Nursery, Montgomery Parks plant production facility, continues experimenting with the use of a variety of ground covers and management methods on both tree nursery rows, as well as in resting field lots. The use of ground covers and cover crops on resting lots in the nursery is an important practice for land stewardship and conservation. Growing lots are periodically rested at Pope Farm Nursery for at least one year at a time. Resting a growing lot with a beneficial cover crop promotes soil health and reduces pest/disease cycles.



Over the last three years, staff have been planting crimson clover (*Trifolium incarnatum*) in resting lots at the nursery. Crimson clover is an ideal cover crop for resting nursery lots as it offers vigorous growth, erosion control, and since it is a legume, it offers soil enrichment through nitrogen fixation. Pictures show crimson clover, a red flowering legume, interplanted with another cover crop, the white flowering daikon radish. The daikon radish, as a cover crop, is beneficial in aerating the soil. In total, about 6-7 acres (~10%) of Pope Farm is currently under crimson clover cover.



Propane Flame Weeding in Stormwater Management Facilities

Another alternative practice being used for vegetation control is flame weeding with a propane torch. In these applications, the flame weeder is comprised of a wand that is hooked up to a propane tank by a hose. Recently, this strategy has been an effective tool to control weeds in stormwater management infrastructure. Pictured below are staff persons utilizing a propane torch to burn weeds in a sand filter stormwater management facility at New Hampshire Estates Neighborhood Park and Glenmont Local Park, both located in Silver Spring. Typically, propane flame weeding in a sand filter takes about two hours to complete, with two staff members. Since January 1, 2023, Montgomery Parks has spent about \$165 in propane to support these efforts at stormwater management facilities. This is conducted as a best practice alongside other strategies like hand pulling and using equipment to remove unwanted vegetation that would impact the functionality of these facilities.



Propane flame weeding disrupts aboveground plant tissue causing it to wilt and die back. This practice is more effective for annual weeds which are less established as compared to perennial weeds which have a more established root system and therefore are more difficult to control. Regardless, flame weeding generally requires multiple site visits and applications to achieve full control of the undesirable vegetation.



Controlling Unwanted Vegetation at Brookside Gardens

At Brookside Gardens, one way staff manage weeds and undesirable vegetation in landscape beds is through utilization of strategic tarping with landscape fabric in a process known as solarization. This is a practice that removes unwanted vegetation without the use of pesticides or tilling the ground. An added benefit of solarization is improved soil quality and reduction in fungal and bacterial pathogens that may exist in the soil.

For this project, two staff were able to install over 1,000 square feet of landscape fabric in about two hours. Once set, the landscape fabric is left in place for approximately six weeks before being removed and the landscape bed is then ready for installation of new plantings. Pictured here is a staff member kneeling on the ground to secure a black landscape fabric within a planting bed while taking care to protect a valuable shrub.



Brookside Gardens is supported by a dedicated team of volunteers who assist staff with upkeep and maintenance in the gardens. Over the last three months, volunteers have provided 180 hours of labor to weeding the parking garden, which features beautiful landscape installations in and around the parking lot of the Visitors Center. These volunteer hours equate to a total labor cost of \$5,908. Volunteers focus on hand weeding strategies and, in some areas, have begun cutting weeds prior to going to seed instead of pulling them. The parking garden provides a beautiful entry for guests visiting the gardens, but also serves as an important feature for stormwater management. By cutting weeds, disturbance is minimized, and erosion is reduced. Pictured is a volunteer walking through the parking garden assessing the work they are going to do for the day.



Pesticide-Free Parks and Pesticide-Free Playgrounds

Montgomery Parks maintains all 276 playgrounds without the use of pesticides. In addition to playgrounds, Montgomery Parks manages 55 parks without the use of any pesticides. Playgrounds across Montgomery Parks system and amenities within these 55 designated pesticide-free parks are maintained utilizing alternative methods, such as hot foam, string trimming, mechanical weed removal, and use of products approved by Montgomery County Code Sec. 33B.

A list and map of the pesticide-free parks are included in the Appendix and on Montgomery Parks' website at MontgomeryParks.org/pesticides.

Pesticide-Free Park Program Review

Pesticide-free parks are located across different regions of the county to ensure all residents have access to them. At this stage in the program, the Department is developing a strategy to review and assess successes and challenges to ensure maintenance standards are being met at these 55 pesticide-free parks sites. By doing this, the department hopes to optimize maintenance strategies across park types and amenities.

Wood Fiber Replenishment Strategies at Playgrounds

The majority of playground surfaces are a mulch-based product called engineered wood fiber which provides a cushioned play surface for users and meets playground safety standards. Park maintenance staff replace wood fiber for safety, as well as a means for weed suppression on playground surfaces. Engineered wood fiber can be applied through a variety of strategies and can be applied in an efficient manner through use of specialized bulk material blowing equipment. As pictured, staff replenished the surface at Clearspring Local Park's playground, also a pesticide-free park, located in Germantown. Utilizing specialized equipment saves the Department time and labor over traditional mechanical strategies. In addition to its main function of providing a cushioned play surface for playground users, new wood fiber added to playgrounds at the proper depth helps suppress weed growth. Compared to hand-spreading, use of specialized equipment allows for more uniform coverage across the surface which, per the manufacturer, can provide material savings of 25% or more and increases productivity up to 700%. Pictured is a panoramic view of a bulk material blower with an extensive hose attached to transport the material to the playground from the parking lot.



In certain instances, where specialized bulk material blowing equipment is unavailable, site constraints limit access for such equipment, or staff need to do a more intensive dig out and replenishment of playground surfacing, hand tools and other equipment are used to complete these tasks.



Pictured in this three-panel series, is the action playlot at Cabin John Regional Park under a more significant renovation of the playground surfacing. Initially, the playground is dug out mechanically with a specialized piece of digging equipment which helps to remove unwanted vegetation and disrupts any seed banks that might be present in the old wood fiber. This is followed by installation of black woven weed barrier landscape fabric placed across the entire playground surface. Utilizing specialized equipment, staff can transport large loads of wood fiber to supply a fresh layer of engineered wood fiber material, that meets safety standards for playground surfacing.

Since the beginning of 2023, staff have spent over 2,600 hours replenishing wood fiber on playgrounds countywide at a labor cost of nearly \$320,000.

Alternative Practices at Playgrounds



Staff continue to rely on the use of hot foam for controlling weeds and unwanted vegetation in wood fiber playground surfacing. The hot foam is applied to the unwanted vegetation resulting in wilting and dieback of the plant. Pictured is a staff person applying hot foam to weeds in the playground at Tanglewood Neighborhood Park in Colesville. The hot foam is supplied by a specialized piece of equipment through a metal wand that is held by the applicator over the unwanted vegetation.

Since the beginning of the year, staff spent 299 labor hours at a labor cost of \$11,992 utilizing hot foam as an alternative practice for weed control at playgrounds.

Other alternative strategies continue to be widely employed for management of these spaces including digging weeds with shovels and other hand tools. Pictured below is a staff person digging out weeds at McKnew Local Park in Burtonsville. String trimming is also utilized in these spaces

and pictured below is a staff person utilizing a battery-operated string trimmer to address playground edge vegetation issues along the wooden barriers between the turfgrass and the playground surface at Big Pines Local Park in Gaithersburg.



During the reporting period, staff spent over 882 labor hours at a labor cost of nearly \$26,202 utilizing various weed control strategies other than hot foam in playgrounds.

Pest & Disease Management of Trees

Conservation of natural resources is critical to Montgomery Parks' mission and values. Natural resources can be significantly altered by environmental and other stressors that can deplete the health and diversity of native plants and wildlife. These may impact delivery of essential ecological services that we all rely upon. Park staff work diligently to steward resources utilizing the best available science, tools, and techniques to reduce harm while managing and protecting valuable natural resources.

Chitin-based Products to Boost Tree Immunity

The Montgomery Parks Urban Forestry team is beginning to field-test opportunities to enhance tree disease immunity through the application of natural chitin-based products which can be derived directly from crab shells that are ground into a dry powdery final product. Pictured is an urban forester applying chitin-based products to the ground surface below the tree canopy. Research has shown that chitin and chitosan products can provide antiviral, antibacterial, and antifungal properties, which can boost immunity and provide protection against a variety of diseases impacting trees.



This strategy is currently being implemented and assessed at Nike Missile Local Park in Gaithersburg. In March 2023, five flowering dogwood trees (*Cornus florida*) were treated with a crab meal chitin-based fertilizer as a potential preventative disease control product. The dry crab meal was measured according to the label and applied directly to the soil under the tree canopy, followed by a layer of mulch. To serve as a control, four flowering dogwood trees in this park were not treated with the crab meal but received the same application of mulch.

The treated trees and untreated control trees in this field study are being periodically assessed by an urban forester to collect information on growth character, canopy condition, and observations for defects, diseases, or pests. The dogwoods were first assessed at leaf out and will be assessed again later in the summer when disease symptoms would typically be visible. Flowering dogwood can be susceptible to a range of diseases including powdery mildew, leaf spot, dogwood anthracnose etc. In this field study, since the crab meal offers a broad capability to boosting immune response in the trees, no single disease is being targeted for suppression/control. Rather, the urban forester will be assessing the overall health of the treated trees versus the untreated control trees.

Montgomery Parks continually seeks opportunities to protect and preserve natural resources utilizing effective and least-toxic methods. Trees are valuable resources that provide significant environmental benefits and ecological services. Conventional methods of treating diseases in trees often involve reliance on fungicidal sprays. These often require repeat applications and are typically more effective when used preventatively. Depending on the results of this field-research, urban forestry staff may increase incorporation of these chitin-based products to support the health of targeted trees on parkland.

Montgomery Parks Response to Spotted Lanternfly

The spotted lanternfly (*Lycorma delicatula*) is a non-native invasive insect that originates from Southeast Asia and is now found in the United States. It was first discovered in the US in southeastern Pennsylvania in 2014 where it is believed to have arrived in a shipment of stone.

Pictured is an adult lanternfly. Since its introduction, the spotted lanternfly has spread to 14 states, including Maryland, where it was first detected in Cecil County in 2018. Given the current spread,

populations of this pest may be higher in Montgomery County starting this year. Per the Maryland Department of Agriculture (MDA), an infestation has been found in Clarksburg.



Spotted lanternflies preferred host plant for feeding and reproduction is Tree of Heaven (*Ailanthus altissima*), an aggressive non-native invasive tree. In the absence of Tree of Heaven, spotted lanternflies will feed on over 70 other plant species, including fruit, ornamental and woody trees, vegetables, herbs, grains, and vines. Reduction in crop yields and the associated economic damage, especially to vineyards, plant nurseries, and orchards are significant concerns with spotted lanternfly invasion.

Each active life stage of spotted lanternfly, including juvenile through adult, can damage vegetation via feeding. Egg masses are laid in late fall/early winter. Juveniles (nymphs) begin to emerge in late April – early May and have a jet-black body with white spots. Over the next few months, they will continue feeding, molting, and growing. During the last juvenile stage, the insect develops scarlet red coloration on its body. Adults emerge beginning in mid-July and are very flashy, as pictured, with light brown forewings with black spots. The hindwings are scarlet red with black spots and white and black striping. The abdomen appears black with yellow stripes. The adult spotted lanternfly will continue feeding, begin mating, and eggs will be laid in the fall for emergence the following spring.

Unlike the emerald ash borer, a non-native invasive insect that has decimated ash tree populations in our country, spotted lanternfly is considered a plant stressor. This does not mean that it cannot cause considerable damage, and the impacts of spotted lanternfly can be amplified in combination with plant stressors like other pests, diseases, or even weather impacts. This is particularly concerning for economically important crops.

Given what is known about the damage characteristics of this pest, Montgomery Parks is not planning to conduct any widespread treatment or control for spotted lanternfly. The department views this pest as an ecological and recreational nuisance and not a threat. In accordance with the MDA quarantine requirements, all parks staff have been trained on identifying the various life stages of spotted lanternfly, preventing the spread of the insect, and how to report sightings utilizing MDA's reporting protocol. Montgomery Parks is working closely with MDA to support the setting of insect traps for further study on the presence and spread of this pest in Montgomery County. Staff will continue to assess the situation as it unfolds through the seasons and may modify the current approach.

Integrated Pest Management on Athletic Fields

Staff in all management areas continue to invest in versatile athletic field maintenance equipment to increase opportunities to remove weeds without the use of pesticides on skinned areas such as warning tracks and infields.

Staff also integrate use of products approved by Montgomery County Code Sec. 33B to promote healthy turf and safe, playable surfaces for park users.

During this reporting period, staff utilized numerous alternative practices to manage weeds on athletic fields. These include the use of hand tools as well as specialized equipment to physically remove weeds rather than applying synthetic pesticides to the playing surface. A variety of attachments are used with specialized equipment such as rakes, weed bars to cut weeds, and athletic field groomer/renovator attachments to remove or damage undesirable plants from playable surfaces.



Beyond use of specialized equipment, staff conducting maintenance on athletic fields continue to expand use of approved weed control products. These products include corn gluten, which is primarily used as a crabgrass preventer, and iron-based products for broadleaf weed control. Montgomery Parks has experienced some successes in combining alternative practices and products into the overall integrated pest management strategy for athletic field maintenance. It should be noted, however, that use of alternative products like corn gluten and iron-based products come at 25 times the cost and require multiple applications, increasing labor costs over conventional strategies. Pictured in this section is the rectangular natural turfgrass athletic field at Bowie Mill Local Park in Derwood.

Integrated Pest Management Plan



Staff are developing and refining an Integrated Pest Management (IPM) Plan for athletic field maintenance on parkland that details processes and protocols for implementing an effective IPM program for these amenities. The cover of the IPM plan is pictured in this section, showcasing a photo of a ballfield diamond. This IPM Plan is a science-based, human-health focused, and environmentally sensitive approach to pest management. It considers preventative and active management strategies for pest management and adheres to regulatory requirements regarding pesticide use on parkland (County Code Section 33B).

Montgomery Parks staff manage 285 natural turf athletic fields on parkland countywide. Of these, 227 fields, comprising approximately 80% of the total inventory, are in local, neighborhood, or stream valley parks. Approximately 16% of athletic fields, or 45 fields, are in designated recreational parks and 13 fields, comprising about 4% of the total inventory, are in regional parks.

Parks staff work diligently to meet the standards/goals of the athletic field program in ensuring safe, playable surfaces, elimination of field loss while striving to extend the life-cycle replacement period for individual fields and ensuring on-field consistency for predictable ball bounce and enhanced play.

The IPM Plan draws from regulatory requirements and best practices documented by industry and academia. This includes technical bulletins from the University of Maryland, such as "Recommended Turfgrass Cultivars for Certified Sod Production and Seed Mixtures in Maryland (TT-77)" and "Nutrient Management Guidelines for Athletic Fields in Maryland (TT-119)," "A Professional Guide for Sports Field Management: Best Management Practices for the Sports Field Manager," published by the Mid-Atlantic Sports Turf Managers Association (2021). Staff are also continuously trying new techniques and strategies to achieve programmatic goals and these efforts are also documented in this plan.

This IPM plan will be updated as emerging technology and products become available in support of athletic field management and maintenance.

Reclaiming the Warning Track at Owens Local Park

Challenges posed by the pandemic, as well as on-going staffing shortages led to the warning track at Owens Local Park becoming inundated with unwanted vegetation. Recently, the athletic field team spent about 320 hours to reclaim this warning track without the use of pesticides. Highlighted in the photo is a three-image progression of the work completed on this warning track. In the first image, the existing site conditions showed excessive vegetation encroaching into the warning track. A skid-steer

was used to dip up and remove approximately four inches of stone dust and weed material from the warning track. In the second image, a black fabric weed barrier was rolled out on the surface of the warning track to help reduce future encroachment of vegetation. This was followed by a new layer of stone dust installed over the surface of the warning track, which is shown in the third image. The removal of the material was necessary to not only remove actively growing vegetation, but also to remove the seed bank stored in the existing stone dust medium when staffing resources were in short supply to employ other types of alternative practices.

While this was a more extreme case that required the removal of the stone dust medium, it is important to note that Montgomery Parks no longer utilizes pesticides to manage unwanted vegetation on warning tracks, infields, or in player's bench areas. Pest management conducted in these spaces utilizes alternative practices – largely the use of specialized field grooming equipment and hand tools.



Athletic Field Pilot Results and Program Continuation

Background

In 2015, Montgomery County Council enacted Montgomery County Code Sec. 33B (Pesticide Law), which prohibits the use of certain pesticides in specific areas of parkland and requires, through unfunded mandate, Montgomery Parks to develop a pilot program for athletic field maintenance to assess conventional (synthetic) versus organic turf management. In compliance with the legislation, the parks department consulted with independent turfgrass experts to develop a plan and specifications for the pilot program and issued a Request for Proposal (RFP) in the fall of 2018. The pilot concept was to include ten fields, where five would be maintained utilizing organic-based methods and five would be maintained utilizing conventional methods. Following the release of the RFP, and outreach to several vendors to generate interest and competition, only one proposal was received for \$650,000 annually to manage the ten fields in the pilot. While the Department expected that the pilot cost might be higher than what is typical to maintain athletic fields, this figure was significantly higher than the cost to maintain a field by either parks staff or a contractor. Parks determined that this was not a good use of financial resources and developed a scaled-back, modified alternative that would meet the intent of the legislation.



The modified pilot included two irrigated bermudagrass fields at Laytonia Recreational Park (hereafter referred as Laytonia RP). As pictured in the aerial image, the conventionally managed field is to the left of the football field and the organically managed field is to the right of the football field. The fields at this location were chosen to provide a side-by-side comparison of athletic field maintenance utilizing integrated pest management strategies while comparing conventional and organic methods for turf management. A team of turfgrass experts from the University of Maryland were engaged to oversee program implementation. These experts made independent assessments for

consistency and field quality. Industry professionals were consulted and assisted in the development of the organic and conventional maintenance programs. A contractor was retained to implement the program as defined by these consultants. This pilot was developed to span a three-year period, beginning in the fall of 2019.

Project Cost

The unfunded pilot began in the fall of 2019 and continued through 2022. The table below represents the cost of conventional maintenance, organic maintenance, and University of Maryland (UMD) costs to oversee and report on the project.

CY 2019*- 2022	Conventional Maintenance	Organic Maintenance	UMD Contract	Total
Cost	\$284,415	\$298,124	\$224,263	\$806,802

*Maintenance and data collection for 2019 represents partial year (fall)

Over the three-and-a-half-year period, the cost of the conventionally maintained field was \$284,415 and the organically maintained field was \$298,124. The UMD contract cost was \$224,263. The pilot was intentionally designed so that there was not a significant difference between the two management strategies, although the organic cost was \$13,709 higher than the conventional program, largely due to the higher cost of organic products. The overall cost of the pilot was \$806,802.

Methodology

Two multi-purpose athletic fields at Laytonia RP were assessed in this pilot along with eight field plots at the University of Maryland Paint Branch Turfgrass Research Facility (PBTRF). Treatment schedules for both fields were set annually by two turf management experts consulting on this pilot and implemented by the contractor.

Field cultivation practices were consistently employed, and hours of play were managed by the Montgomery Parks Permit office with efforts made to ensure reservation hours remained similar across the two fields.

To ensure a consistent starting point for each field, both fields were renovated prior to the pilot's implementation. This included grading, draining installation, sprigging with bermudagrass, and a treatment with a post-emergent broadleaf conventional herbicide to remove weed growth in August 2019.

Data Collection and Parameters Assessed

Data were collected from the two Laytonia RP fields across an evenly spaced grid. At the PBTRF, data were collected from four replicate plots for each management program.

The University of Maryland team assessed the following parameters:

- **Surface Hardness** has a direct correlation to player safety, and measures how much impact a surface can take from a falling object. It was measured using both a Clegg Impact Hammer and a TruFirm Meter.

- **Shear Strength** measures the amount of side pressure turfgrass can take before it shears at the root crowns and is an indicator of turf rooting and traction on the field. It was quantitatively measured using a shear vane tool.
- **Visual Appearance** is assessed using a qualitative measure of turfgrass appearance and quantitatively via the Normalized Difference Vegetative Index (NDVI).
- **Weed Presence** is quantified via a count of clover or crabgrass patches within six feet of a pre-determined measurement location and summed across the field.

The University of Maryland team collected, analyzed, and reported these data via progress reports to Montgomery Parks staff throughout the pilot.

Results and Discussion

In 2020, the COVID-19 pandemic led to an unanticipated lack of play on the fields due to health/safety restrictions and closures. There was no significant play or wear on the fields during this time, allowing both the conventionally and organically maintained fields at Laytonia RP to recover from the previous fall. When sports resumed in the fall of 2020, play was limited and permitted hours remained lower than normal. Throughout 2021, hours of play slowly increased, and it was not until 2022 that play reached pre-pandemic levels. It should be noted that through the COVID-19 closures, the University of Maryland team continued the pilot study on the two fields at Laytonia RP, as well as on their in-house test plots at the PBTRF.

Surface hardness measurements revealed that both fields at Laytonia RP were consistently harder compared to the plots at PBTRF which may be due to difference in simulated traffic at PBTRF versus actual play at Laytonia RP. Over the duration of the pilot, there was no consistent difference identified in surface hardness between the conventional and organically managed fields at Laytonia RP.

In 2020 at Laytonia RP, shear strength measurements showed exceptional resistance to tearing and creation of divots, meaning good traction and rooting was present on both fields. This could be a result of early sprigging and lower hours of play which may have provided for greater development of the turfgrass root system. In the fall of 2020, shear strength values decreased on both fields, likely due to increased field use. In 2021 and 2022, the fields at Laytonia RP showed declines in shear strength which are likely due to the increased play on both fields as COVID-19 restrictions were lifted, and play became more frequent. These shear strength declines resulted in reduced turf density in many locations across both fields. The data from 2021 and 2022 show no discernable pattern that would support either strategy, conventional or organic, as being preferable for field management.

Regarding turf visual appearance, throughout the duration of the pilot, the data shows that turfgrass visual quality was higher in June compared to April, which would be expected given the growth of bermudagrass in warmer temperatures.

Encroachment of weeds (specifically smooth crabgrass and white clover) was not determined to be an issue on any of the fields in 2020 and 2021. This is likely due to lack of consistent traffic on the fields during both years. In 2022, smooth crabgrass and white clover encroachment was observed on the

organically managed field at and received three applications of an organic weed-control product. The conventionally managed field showed no smooth crabgrass or white clover encroachment. This field received an application of two synthetic weed-control products, each applied once per year.

Conclusion

Montgomery Parks currently maintains irrigation systems on 28 athletic fields (10%) in the inventory and only 22 fields (7%) in the inventory are bermudagrass, like the fields at Laytonia RP. The majority of the athletic fields are not fenced (secured) like at Laytonia RP, which, given the use of these spaces for permitted and unpermitted traffic, makes it challenging to rest fields between significant periods of play. Additionally, the Laytonia RP fields were newly renovated at the onset of the pilot study and received less than typical play for upwards of two years because of the COVID-19 pandemic. Given this, the fields included in this pilot study represent a better-case scenario regarding resources and site control versus most athletic fields in the Montgomery Parks inventory.

The turfgrass experts at the University of Maryland note that the research conducted on surface hardness, shear strength, turfgrass quality, and weed encroachment are all important characteristics that factor into the safety and playability of a turfgrass athletic surface. These experts concluded that, under the parameters of this study, the data did not show an obvious trend that either management strategy provides a better playing surface over the other. However, the experts noted that weed encroachment seen in the organically managed program was high enough in year three of this study to expect increasing weed pressure in successive years. This will result in greater variability in the playing surface and will begin to impact turf quality, playability, and safety. Under the organic management program, Montgomery Parks can expect less control and encroachment of weeds over time. The experts at the University of Maryland conclude that, given available organic weed control products on the market, conversion to an organic management program for bermudagrass fields would necessitate establishment of a greater tolerance for weeds.

The University of Maryland experts noted a lack of significant variance between the conventional and organic management programs is likely due to proper timing and execution of cultivation practices (e.g., aeration, overseeding, fertilization etc.) which are critical components to improving soil health and improved turfgrass health/durability. The cultivation practices implemented in this study are of a higher frequency than what Montgomery Parks can currently achieve given available resources, including staff and equipment.

It is important to note that the assessment of other pest problems including insects or fungal diseases were not included in this pilot as pressure from insects (typically white grub) and disease were not experienced during the pilot on either field. Like weed pests, insects and disease can rapidly disrupt the safety and playability of an athletic field surface. Damage from white grubs can severely damage a field within two to three weeks, and some diseases can result in field loss in as quick as 48 hours. Currently there are no organic products on the market that have shown promise during athletic field-specific university studies to effectively combat these pest issues. To manage these types of pest situations, staff will need to rely on a conventional (synthetic) product to prevent significant field damage or loss.

Next Steps

Montgomery Parks has determined that, given the conclusions of the University of Maryland experts, and understanding the constraints of this study, the work of the pilot will be continued for an additional two years. In-house resources and contracted support will be used to provide continuation of conventional and organic management on these fields. Both fields will receive the same elevated levels of cultivation practices. Data will be collected on surface hardness, shear strength, and visual assessment of turf quality. Throughout the next two years, staff will assess the progress with both field treatments and will update this report with the overall findings.

Outside of this pilot study, Montgomery Parks staff have already begun researching and implementing strategies to improve turfgrass health on athletic fields that aligns with the intent of Montgomery County Code Sec. 33B. Organic turfgrass management products are actively being incorporated into the overall IPM program and general strategy for athletic field maintenance. Staff have begun integrating organic products like corn gluten and iron-based products for weed suppression on athletic field turf. Corn gluten can be used as a pre-emergent herbicide for crabgrass but is a source of nitrogen and must be considered in the overall nutrient inputs for a site. Iron-based products can be utilized as a post-emergent herbicide treatment for broadleaf weeds. Both treatments require two applications to be effective.

As part of the department's IPM program, the integration of specialized tools and equipment for suppression and control of weeds and other pests continues to expand as staff are increasingly adopting alternative practices into maintenance protocols. These tools and equipment can increase efficiency when compared to manual weed control processes and help reduce the need for pesticide inputs for athletic field maintenance. Currently, staff no longer use synthetic pesticides on infields, warning tracks, or players' bench areas of athletic field diamonds.

This study highlighted the importance of cultivation practices in ensuring optimal soil and turfgrass health, and staff will continue maximizing these strategies within available staffing and equipment resources.

Appendix: List of Pesticide-Free Parks

The parks in the Pesticide-Free Parks Program are listed in alphabetical order by park name below. Park designations included here include Local Park (LP), Neighborhood Conservation Area (NCA), Neighborhood Park (NP), and Urban Park (UP). Parks receive different designations to support budgeting and planning purposes and to reflect the types of amenities typically found within that type of park.

Pesticide Free Park Name	Address
Aquarius LP	14451 Connecticut Ave, Aspen Hill, MD 20906
Bauer Drive LP	14625 Bauer Dr, Aspen Hill, MD 20853
Berryville Park NCA	14004 Berryville Rd, Darnestown, MD 20874
Big Pines LP	13900 Travilah Rd, Gaithersburg, MD 20878
Bonifant NCA	14618 Woonsocket Dr, Norwood, MD 20905
Bowie Mill LP	17311 Bowie Mill Rd, Derwood, MD 20855
Browns Corner NCA	15916 New Hampshire Ave, Silver Spring, MD 20905
Calverton NCA	2510 Shannandale Dr, Fairland, MD 20904
Cannon Road LP	921 Cannon Rd, Colesville, MD 20904
Caroline Freeland UP	7200 Arlington Rd, Bethesda, MD 20814
Cedar Creek LP	13513 Richter Farm Rd, Germantown, MD 20874
Cindy Lane NP	8038 Cindy Ln, Potomac, MD 20817
Clarksburg Village North LP	12520 Blue Sky Dr, Clarksburg, MD 20871
Clearspring LP	20101 Scenery Dr, Germantown, MD 20876
College View NP	11730 College View Dr, Wheaton, MD 20902
Countryside NP	2150 Countryside Dr, Fairland, MD 20905
Damascus NP	10030 Locust Dr, Damascus, MD 20872
Dickerson LP	22121 Dickerson School Rd, Dickerson, MD 20842
Duvall Road NCA	2806 Duvall Rd, Burtonsville, MD 20866
East Silver Spring UP	631 Silver Spring Ave, Silver Spring, MD 20910
Edgewood NP	13900 Robey Rd, Silver Spring, MD 20904
Edith Throckmorton NP	3925 Hampden St, Kensington, MD 20895
Emory Grove Hills NCA	8500 Emory Grove Rd, Gaithersburg, MD 20877
English Court NCA	5700 English Ct, Bethesda, MD 20817
Evans Parkway NP	2001 Evans Pky, Silver Spring, MD 20902
Fairdale Road NCA	14201 Fairdale Rd, Silver Spring, MD 20905
Flower Avenue UP	8746 Flower Ave, Silver Spring, MD 20910

Fox Chapel NP	19129 Staleybridge Rd, Germantown, MD 20876
General Getty NP	10000 Woodland Ave, Wheaton, MD 20902
Glenmont Greenway UP	12400 Georgia Ave, Wheaton, MD 20906
Highland Stone NP	8716 Postoak Rd, Potomac, MD 20854
Hopefield NP	1712 Hopefield Rd, Spencerville, MD 20905
Hoyles Mill Village LP	14040 Tatani Dr, Boyds, MD 20841
Hunters Woods NCA	8910 Snouffer School Rd, Gaithersburg, MD 20879
John Haines NP	25000 Oak Dr, Damascus, MD 20872
Kemp Mill Estates LP	120 Claybrook Dr, Wheaton, MD 20902
Kings Crossing LP	14221 Kings Crossing Blvd, Boyds, MD 20841
Maiden Lane UP	7522 Oldchester Road, Bethesda, MD 20817-6163
Manor Park NCA	14262 Carrollton Rd, Rockville, MD 20853
Miles Road NCA	2902 Miles Road, Burtonsville, MD 20866
Moyer Road LP	10000 Moyer Rd, Damascus, MD 20872
Norbeck Meadows NP	4630 Valley Forge Dr, Rockville, MD 20853
Norwood LP	4700 Norwood Dr, Bethesda, MD 20815
Norwood Village NCA	1911 Chapel Hill Rd, Norwood, MD 20906
Olney Acres NP	17912 Overwood Dr, Olney, MD 20832
Peach Orchard NCA	14800 Peach Orchard Rd, Cloverly, MD 20905
Pennyfield Lock NCA	12420 Pennyfield Lock Rd, Tobytown, MD 20854
Rosemary Hills-Lyttonsville LP	2450 Lyttonsville Rd, Chevy Chase, MD 20910
Saddlebrook LP	12751 Layhill Rd, Silver Spring, MD 20906
Spencerville LP	15701 Good Hope Rd, Spencerville, MD 20905
Stonehedge LP	12121 Old Columbia Pike, White Oak, MD 20904
Twinponds NCA	1715 Rainbow Dr, Cloverly, MD 20905
Valleywood NP	13115 Valleywood Dr, Wheaton, MD 20906
Wembrough NP	15400 Wembrough St, Cloverly, MD 20905
Wood LP	14601 Bauer Dr, Norbeck, MD 20853

Products Applied by Montgomery Parks Staff from January 1, 2023 - June 30, 2023

Date	Location	Area Treated	Product	Problem	Reason for treatment	Start time
02/14/23	Cabin John Regional Park	Forested area between ballfields and stream	Aquaneat	Lesser celandine	Restore habitat/Protect ecosystem	12:55 PM
02/15/23	Brookside Gardens	Fragrance Garden pods	Deer Stopper	Deer	Protect plantings	8:00 AM
02/21/23	Brookside Gardens	Fern Gate	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	9:30 AM
02/24/23	Little Falls Stream Valley Unit 1	Perimeter of two deer enclosure fences with floodplain	Aquaneat	Lesser celandine	Restore habitat/Protect ecosystem	11:45 AM
02/27/23	Germantown Town Center Urban Park	Landscape beds	Snapshot	Annual weeds	Protect plantings/Protect amenities and infrastructure	8:00 AM
02/28/23	Germantown Town Center Urban Park	Landscape beds	Snapshot	Annual weeds	Protect plantings	8:00 AM
03/01/23	Germantown Town Center Urban Park	Landscape beds	Snapshot	Annual weeds	Protect plantings	7:00 AM
03/01/23	Brookside Gardens	Ornamental beds (Glennallen Ave.) peninsula, 40th Grove	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	8:00 AM
03/01/23	Brookside Gardens	Woodland Walk	Aquaneat, Cide-Kick II	Lesser celandine	Restore habitat/Protect ecosystem	9:15 AM
03/01/23	Brookside Gardens	Lower Garden, fence line	Aquaneat	Lesser celandine, weeds	Protect plantings	12:00 PM
03/02/23	Brookside Gardens	Fragrance Garden pods	Deer Stopper	Deer	Protect plantings	8:00 AM
03/03/23	Brookside Gardens	Lower Garden, Gude Garden, fence line	Aquaneat	Lesser celadine, other weeds	Protect plantings	11:00 AM
03/06/23	Brookside Gardens	Ornamental beds (Glennallen Ave.) fence line	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	8:00 AM
03/08/23	Locust Grove Nature Center	East side of meadow between parking lot and Democrcy Blvd.	Transline	Mugwort	Restore habitat/Protect ecosystem	11:20 AM
03/09/23	Brookside Gardens	Beds surrounding Conservatory parking lot	Aquaneat	Ficaria verna	Protect plntings/Restore habitat and protect ecosystem	1:00 PM
03/16/23	Brookside Gardens	Upper and Lower Aquatic Ponds, 1500 gate, fence line	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	1:00 PM
03/16/23	Brookside Gardens	Fragrance Garden pods	Deer Stopper	Deer	Protect plantings	8:30 AM
03/16/23	Locust Grove Nature Center	Meadow restoration area	Transline	Mugwort	Restore habitat/Protect ecosystem	8:05 AM
03/16/23	Bowie Mill Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	8:00 AM
03/16/23	Bowie Mill Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	8:15 AM
03/16/23	Cherrywood Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	9:00 AM
03/16/23	Flower Valley Neighborhood Park	Open grassy area used for soccer	Safer Play 10-0-2	Crabgrass	Player safety	12:30 PM
03/16/23	Laytonia Recreational Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	1:00 PM
03/16/23	Laytonia Recreational Park	Athletic field 2	Safer Play 10-0-2	Crabgrass	Player safety	1:30 PM
03/16/23	Laytonsville Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	10:30 AM
03/16/23	Laytonsville Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass	Player safety	10:45 AM
03/16/23	Mt. Zion Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	9:45 AM
03/16/23	Sundown Road Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	11:15 AM
03/16/23	Sundown Road Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	11:30 AM
03/22/23	Brookside Gardens	General areas in the park	Stonewall 13-0-0	Pennisetum. Ground ivy, white clover, annual grasses	Protect amenities and infrastructure	8:00 AM
03/23/23	Brookside Gardens	Upper and Lower Aquatic Ponds	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	8:00 AM
03/28/23	Brookside Gardens	Upper and Lower Ponds, natural area by Conservatory parking lot	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	8:00 AM
03/28/23	Cabin John Regional Park	Train tracks	Ranger Pro	Non-native invasive weeds	Protect amenities and infrastructure	8:00 AM
03/28/23	Cabin John Regional Park	Fenced in light pole	Ranger Pro	Non-native invasive weeds	Protect amenities and infrastructure	10:00 AM
03/30/23	Little Bennett Regional Park	Floodplain along Hyattstown Mill Trail	Aquaneat	Lesser celandine	Restore habitat/Protect ecosystem	10:10 AM
03/31/23	Brookside Gardens	Woodland Walk	Aquaneat, Cide-Kick	Lesser celandine	Restore habitat/Protect ecosystem	7:30 AM
04/06/23	Bowie Mill Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	8:00 AM
04/06/23	Bowie Mill Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	8:15 AM
04/06/23	Flower Valley Neighborhood Park	Open grassy area used for soccer	Safer Play 10-0-2	Crabgrass	Player safety	7:30 AM
04/06/23	Laytonia Recreational Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	1:00 PM
04/06/23	Laytonsville Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	9:45 AM
04/06/23	Laytonsville Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass	Player safety	10:00 AM
04/06/23	Mt. Zion Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	9:00 AM
04/06/23	Sundown Road Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	11:15 AM
04/06/23	Sundown Road Local Park	Athletic field 2	Safer Play 10-0-2	Crabgrass, broadleaf weeds	Player safety	11:30 AM
04/07/23	Brookside Gardens	Seasonal display plant beds	Natria Snail and Slug Killer bait	Snails and slugs	Protect plantings	9:00 AM
04/07/23	Cherrywood Local Park	Athletic field 1	Safer Play 10-0-2	Crabgrass	Player safety	7:30 AM
04/11/23	Locust Grove Nature Center	Meadow restoration area	Transline	Mugwort	Restore habitat/Protect ecosystem	11:35 AM
04/11/23	Little Falls Stream Valley Unit 1	Stream valley/Floodplain	Aquaneat	Lesser celandine	Restore habitat/Protect ecosystem	10:50 AM

Products Applied by Montgomery Parks Staff from January 1, 2023 - June 30, 2023

Date	Location	Area Treated	Product	Problem	Reason for treatment	Start time
04/13/23	Germantown Town Center Urban Park	Landscape beds, stone walkway	Prosecutor	Picky lettuce, plantain, Henbit dandelion	Protect plantings/Protect amenities and infrastructure	7:00 AM
04/14/23	Clarkmont Local Park	Landscape beds	Prosecutor	Thistle, lettuce, brass button	Protect plantings	12:30 PM
04/14/23	Germantown Town Center Urban Park	Landscape beds, stone walkway	Prosecutor	Ground ivy, thistle, lettuce, brass button	Protect plantings/Protect amenities and infrastructure	7:00 AM
04/14/23	Woodlawn Manor Cultural Park	Landscape beds	Prosecutor	Multiple NNI plants	Protect plantings	8:00 AM
04/18/23	Locust Grove Nature Center	Meadow restoration area	Transline	Mugwort	Restore habitat/Protect ecosystem	10:05 AM
04/19/23	Brookside Gardens	Fence line, mulched and gravel areas	Prosecutor Pro	porcelain berry, climbing vines	Protect amenities and infrastructure	8:00 AM
04/20/23	Germantown Town Center Urban Park	Landscape beds	Surflan	Weed seed	Protect plantings	12:30 PM
04/21/23	Germantown Town Center Urban Park	Landscape beds	Surflan	Seeds	Protect plantings	7:00 AM
04/24/23	Cabin John Regional Park	Fenced in light pole	Ranger Pro	Non-native invasive weeds	Protect amenities and infrastructure	10:00 AM
04/25/23	Camp Seneca Special Park	Landscape beds	Prosecutor	Ground ivy, mile a minute, annual grasses	Protect amenities and infrastructure	7:00 AM
04/26/23	Germantown Town Center Urban Park	Landscape beds	Surflan	Weed seed	Protect plantings	12:30 PM
04/26/23	South Gunners Branch Local Park	Landscape beds	Prosecutor	Annual grasses, weeds	Protect amenities and infrastructure	7:30 AM
04/26/23	Laytonia Recreational Park	Athletic field 4	Oxadiazon 2G	Crabgrass, goosegrass	Player safety	7:30 AM
04/27/23	Brookside Gardens	Upper and Lower Ponds, peninsula	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	9:00 AM
05/03/23	Brookside Gardens	Yew Garden, wedding gazebo, VC lawn, bulb lawn	Fiesta	Annual/perennial broadleaf weeds	Protect amenities and infrastructure	9:00 AM
05/03/23	Bowie Mill Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	7:30 AM
05/03/23	Bowie Mill Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	8:00 AM
05/03/23	Cherrywood Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	9:15 AM
05/03/23	Flower Valley Neighborhood Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	10:00 AM
05/03/23	Laytonia Recreational Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	11:00 AM
05/03/23	Laytonia Recreational Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	12:30 PM
05/03/23	Laytonia Recreational Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	11:00 AM
05/04/23	Germantown Town Center Urban Park	Landscape beds	Prosecutor, Surflan	Mile-a-minute, pineapple weed, crabgrass	Protect plantings	9:00 AM
05/04/23	Laytonsville Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	9:30 AM
05/04/23	Laytonsville Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	9:50 AM
05/04/23	Mt. Zion Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	11:00 AM
05/04/23	Sundown Road Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	7:30 AM
05/04/23	Sundown Road Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	8:00 AM
05/05/23	Brookside Gardens	Gude Garden	Aquaneat	Houttuynia, Canada thistle	Protect plantings	1:15 PM
05/07/23	Black Hill Regional Park	Area next to Northern Parks office	Prosecutor Pro	Pineapple weed, mile a minute, annual blue horseweed	Protect amenities and infrastructure	10:00 AM
05/08/23	Germantown Town Center Urban Park	Landscape beds	Fusilade	Unwanted grasses	Protect plantings	8:30 AM
05/10/23	Germantown Town Center Urban Park	Landscape beds, paver walkway	Surflan	Seeds	Protect plantings/Protect amenities and infrastructure	1:30 PM
05/10/23	Brookside Gardens	Fern Gate, 1500 Gate	Aquaneat	Houttuynia cordata	Protect plantings/Restore habitat and protect ecosystem	9:00 AM
05/10/23	Wheaton Local Park	Elm tree near Georgia Avenue	Arbortect 20-S	Dutch elm disease	Protect plantings	8:00 AM
05/10/23	Brookside Gardens	Fern Gate, 1500 Gate	Aquaneat	Houttuynia cordata	Protect plantings/Restore habitat and protect ecosystem	9:00 AM
05/11/23	Brookside Gardens	Area around Conservatory	Prosecutor, Cide-Kick II	Canadian thistle, Hawkweed, grasses	Protect plantings/Protect amenities and infrastructure	10:45 AM
05/11/23	Cabin John Regional Park	Train tracks	Oxadiazon 2G	Non-native invasive weeds	Protect amenities and infrastructure	8:00 AM
05/12/23	Woodstock Equestrian Special Park	Along Big Woods Loop Trail	Aquaneat	Jetbead	Restore habitat/Protect ecosystem	10:43 AM
05/12/23	Brookside Gardens	Service Hill bio-swales	Prosecutor Pro	All weeds, invasives	Restore habitat/Protect ecosystem	9:00 AM
05/12/23	Brookside Gardens	Reflection Terrace, Gude Garden Island	Chlorothalonil 720 SFT	Dothistroma	Protect plantings	7:00 AM
05/14/23	Black Hill Regional Park	Tree beds	Prosecutor	Ground ivy, thistle, annual blue horseweed	Protect plantings	9:00 AM
05/14/23	Black Hill Regional Park	Tree ring beds	Prosecutor	Ground ivy, mile a minute, bittersweet	Protect plantings	9:00 AM
05/15/23	Germantown Town Center Urban Park	Paved walkway, ribbon walk, landscape beds	Prosecutor	Prickly lettuce, ground ivy	Protect plantings/Protect amenities and infrastructure	12:30 PM
05/16/23	Germantown Town Center Urban Park	Landscape beds	Three-way	Prickly lettuce, horseweed, mint	Protect plantings	10:00 AM
05/16/23	Germantown Town Center Urban Park	Landscape beds	Three-way	Bittersweet, thistle, honeysuckle, Virginia creeper	Protect plantings	6:30 AM
05/17/23	Brookside Gardens	Park turf areas	Stonewall 13-0-0	Annual/perennial broadleaf weeds	Protect amenities and infrastructure	8:00 AM

Products Applied by Montgomery Parks Staff from January 1, 2023 - June 30, 2023

Date	Location	Area Treated	Product	Problem	Reason for treatment	Start time
05/18/23	Black Hill Regional Park	Tree beds	Prosecutor	Annual grasses, weeds	Protect plantings	12:00 PM
05/18/23	Black Hill Regional Park	Tree beds	Prosecutor	Ground ivy, horseweed, annual bluegrass	Protect plantings	8:00 AM
05/18/23	McCrillis Gardens	Ash trees	Mectinite	Emerald ash borer	Protect plantings	9:30 AM
05/22/23	Darby Store Cultural Park	Landscape beds	Prosecutor	Prickly lettuce, plantain, stiltgrass, goosegrass	Protect amenities and infrastructure	7:30 AM
05/22/23	Germantown Town Center Urban Park	Along wall adjacent to meadow	Element 3A	Bush honey suckle, unwanted trees, stumps	Protect amenities and infrastructure	1:00 PM
05/22/23	Brookside Gardens	State Fair zinnias, verbenas (Conservatory)	Milstop	Powdery mildew	Protect plantings	6:30 PM
05/24/23	Sundown Road Local Park	White ash tree	Mectinite	Emerald ash borer	Protect plantings	9:30 AM
05/24/23	Flower Valley Neighborhood Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	8:00 AM
05/24/23	Laytonsville Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	9:15 AM
05/24/23	Laytonsville Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	9:45 AM
05/24/23	Mt. Zion Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	11:00 AM
05/24/23	Sundown Road Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	12:30 PM
05/24/23	Sundown Road Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	1:00 PM
05/25/23	Brookside Gardens	Gude Garden, Lower Garden	Aquaneat	Houttuynia cordata, Aegopodium	Protect plantings	7:00 AM
05/25/23	Bowie Mill Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	7:30 AM
05/25/23	Bowie Mill Local Park	Athletic field 2	Fiesta	Clover, chickweed, plantain	Player safety	8:00 AM
05/25/23	Cherrywood Local Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	7:30 AM
05/25/23	Laytonia Recreational Park	Athletic field 1	Fiesta	Clover, chickweed, plantain	Player safety	10:00 AM
05/26/23	Brookside Gardens	Reflection Terrace, Gude Garden Island (Japanese black pines)	Phyton 27	Dothistroma	Support plant/turf health	6:30 AM
05/30/23	Germantown Town Center Urban Park	Gravel bed, walkway pavers	Prosecutor	Horseweed, plantain, thistle, poa	Protect amenities and infrastructure	8:00 AM
06/01/23	Brookside Gardens	Fence line, ornamental bed (north side of Upper Aquatic Pond)	Aquaneat	Ficaria verna	Protect plantings/Restore habitat and protect ecosystem	9:00 AM
06/02/23	Glenmont Greenway Urban Park	Ash trees near path	Treeage, Mectinite	Emerald ash borer	Protect plantings	10:45 AM
06/05/23	Woodstock Equestrian Special Park	Fence line	Prosecutor	Goose grass, prickly lettuce, brass buttons	Protect amenities and infrastructure	7:30 AM
06/07/23	Germantown Town Center Urban Park	Landscape beds	Sedge Hammer	Sedge	Protect plantings	7:00 AM
06/07/23	Brookside Gardens	Fire lane, exit land Visitor Center parking lot	Aquaneat	Ground ivy, broadleaf weeds	Restore habitat/Protect ecosystem	6:00 AM
06/07/23	Ridge Road Recreational Park	Athletic fields 1, 2, 3	4-Speed XT	Broadleaf weeds	Support plant/turf health	9:30 AM
06/08/23	Black Hill Regional Park	Hillside near Nature Center	Transline	Mugwort	Restore habitat/Protect ecosystem	1:40 PM
06/08/23	Locust Grove Nature Center	Meadow path and edges between parking lot and Democracy Blvd.	Garlon 3A	Poison ivy	Prevent harm/Safety	12:30 PM
06/08/23	Laytonia Recreational Park	Athletic field 4	Tribute Total	Grassy and broadleaf weeds	Player safety	9:00 AM
06/13/23	Brookside Gardens	Service Hill bio-swales	Prosecutor Pro	Non-native invasive weeds	Protect amenities and infrastructure	9:30 AM
06/14/23	Brookside Gardens	Service Hill bio-swales	Prosecutor Pro	Non-native invasive weeds	Protect amenities and infrastructure	8:00 AM
06/15/23	Brookside Gardens	Reflection Terrace, Gude Garden Island	Zyban	Dothistroma	Protect plantings	7:00 AM
06/20/23	Camp Seneca Special Park	Tree bed	Element 3A	Poison ivy, oriental bittersweet	Prevent harm/Safety	2:30 AM
06/20/23	Rickman Farm Horse Special Park	Around steps and side of wall	Element 3A	English ivy	Protect amenities and infrastructure	1:00 PM
06/20/23	Briggs Chaney Community Garden	Garden bed	PT Wasp Freeze	Wasps	Prevent harm/Safety	2:30 PM
06/26/23	Clarkmont Local Park	Landscape beds, patio	Prosecutor	Thistle, crabgrass, ground ivy, horseweed, brass button	Protect plantings	6:30 AM
06/26/23	Brookside Nature Center	Wood chip path	PT Wasp Freeze	Wasps	Prevent harm	10:00 AM
06/27/23	Germantown Town Center Urban Park	Landscape beds, paver walkway	Prosecutor, SureGuard	Annual grasses, prickly lettuce, spurge, speedwell	Protect plantings	7:00 AM

Products Applied by Contractors from January 1, 2023 - June 30, 2023

Date	Location	Area Treated	Product	Problem	Reason for treatment	Start time
12/08/22	Rachel Carson Conservation Park	Fern Valley Trail	Roundup Custom	Japanese barberry, multiflora rose, autumn olive, etc	Restore habitat/Protect ecosystem	6:45 AM
12/09/22	Rachel Carson Conservation Park	Fern Valley Trail	Roundup Custom	Japanese barberry, multiflora rose, autumn olive, etc	Restore habitat/Protect ecosystem	6:45 AM
12/12/22	Rachel Carson Conservation Park	Fern Valley Trail	Roundup Custom	Japanese barberry, multiflora rose, autumn olive, etc.	Restore habitat/Protect ecosystem	6:45 AM
12/13/22	Rachel Carson Conservation Park	Fern Valley Trail	Roundup Custom	Japanese barberry, multiflora rose, autumn olive, etc	Restore habitat/Protect ecosystem	6:45 AM
12/14/22	Rock Creek Regional Park	Floodplain (north of Southlawn-east side of paved trail)	Roundup Custom	Privet, multiflora rose, Japanese barberry	Restore habitat/Protect ecosystem	8:00 AM
01/26/23	River Road Shale Barrens	Hillside north of River Road	Garlon 3A	Tree of heaven, autumn olive, highbrush honeysuckle	Restore habitat/Protect ecosystem	8:45 AM
01/27/23	River Road Shale Barrens	Hillside north of River Road	Garlon 3A, Pathfinder II	Tree of heaven, highbrush honeysuckle, etc.	Restore habitat/Protect ecosystem	8:45 AM
01/30/23	Hoyles Mill Conservation Park	Floodplain (south of River Rd./west of Hoyles Mill Rd.)	Roundup Custom	Japanese barberry, autumn olive, English ivy	Restore habitat/Protect ecosystem	8:00 AM
02/06/23	Little Bennett Regional Park	Floodplain (between Piedmont Trail and stream)	Roundup Custom	Japanese honeysuckle, multiflora rose	Restore habitat/Protect ecosystem	7:45 AM
02/07/23	Little Bennett Regional Park	Floodplain	Roundup Custom	Japanese barberry, Japanese honeysuckle, multiflora rose	Restore habitat/Protect ecosystem	7:45 AM
02/20/23	Rock Creek Regional Park	Hillside above floodplain	Roundup Custom	Japanese barberry	Restore habitat/Protect ecosystem	8:00 AM
03/01/23	Meadowside Nature Center	Meadow (due west of nature center)	Pendulum AquaCap	Stiltgrass, carpet grass, mile-a-minute	Restore habitat/Protect ecosystem	9:00 AM
03/06/23	Sligo Creek Parkway	Sligo/Washington Gas meadow (across from Sligo Golf course)	Pendulum AquaCap	Non-native invasive weeds	Restore habitat/Protect ecosystem	12:15 PM
03/06/23	Sligo Creek Stream Valley Unit 4	Hillside meadow northbound side, between University Blvd. and Dennis Ave.	Pendulum AquaCap	Non-native invasive weeds	Restore habitat/Protect ecosystem	1:45 PM
03/06/23	Locust Grove Nature Center	Meadow restoration site	Pendulum AquaCap	Non-native invasive weeds	Restore habitat/Protect ecosystem	10:00 AM
03/27/23	Rachel Carson Conservation Park	Meadow restoration site	Pendulum AquaCap	Japanese stiltgrass, mile-a-minute	Restore habitat/Protect ecosystem	7:30 AM
03/31/23	Westmoreland Hills Local Park	Forest/planting areas	Garlon 3A	English ivy	Restore habitat/Protect ecosystem	8:00 AM
04/20/23	Rock Creek Stream Valley Unit 4	Wooded slope (behind Palisades Ct.)	Roundup Custom	Non-native invasive weeds	Restore habitat/Protect ecosystem	10:57 AM
04/27/23	Bennett Creek Conservation Park	Meadow (off Rt. 27)	Roundup Custom, Garlon 3A	Japanese barberry, asiatic bittersweet, Canada thistle, etc.	Restore habitat/Protect ecosystem	7:45 AM
04/28/23	Bennett Creek Conservation Park	Meadow (off Rt. 27)	Roundup Custom, Garlon 3A	Japanese barberry, asiatic bittersweet, Canada thistle, etc.	Restore habitat/Protect ecosystem	7:45 AM
05/04/23	Black Hill Regional Park	Cabin Branch floodplain	Roundup Custom	Japanese barberry, multiflora rose, wineberry, etc.	Restore habitat/Protect ecosystem	8:30 AM
05/11/23	Little Bennett Regional Park	Lewisdale meadow	Garlon 3A	Porcelain berry, Greater burdock, Japanese berry, etc	Restore habitat/Protect ecosystem	8:00 AM
05/11/23	Rachel Carson Conservation Park	Meadow restoration site	Gly Star K-Plus, Pendulum Aquacap	Non-native invasive weeds	Restore habitat/Protect ecosystem	11:15 AM
05/12/23	Little Bennett Regional Park	Lewisdale meadow	Garlon 3A	Porcelainberry, Japanese barberry, autumn olive, etc.	Restore habitat/Protect ecosystem	7:30 AM
05/15/23	Rachel Carson Conservation Park	Meadow restoration site	Transline, Garlon 3A	Mugwort, Canada thistle	Restore habitat/Protect ecosystem	7:00 AM
05/15/23	Rachel Carson Conservation Park	22201 Zion Road, Brookeville	Garlon 3A	Porcelain berry, asiatic bittersweet, Canada thistle. etc.	Restore habitat/Protect ecosystem	7:15 AM
05/15/23	North Branch Stream Valley Unit 3	Meadow between gasline right-of-way and SVU 2	Garlon 3A	Japanese barberry, asiatic bittersweet, autumn olive, etc.	Restore habitat/Protect ecosystem	7:45 AM
05/17/23	North Branch Stream Valley Unit 3	Meadow between gasline right-of-way and SVU 2	Garlon 3A	Japanese barberry, asiatic bittersweet, autumn olive, etc.	Restore habitat/Protect ecosystem	7:45 AM
05/18/23	North Branch Stream Valley Unit 3	Meadow between gasline right-of-way and SVU 2	Garlon 3A	Japanese barberry, asiatic bittersweet, autumn olive, etc.	Restore habitat/Protect ecosystem	7:45 AM

Products Applied by Contractors from January 1, 2023 - June 30, 2023

Date	Location	Area Treated	Product	Problem	Reason for treatment	Start time
05/19/23	North Branch Stream Valley Unit 3	Meadow between gasline right-of-way and SVU 2	Garlon 3A	Japanese barberry, asiatic bittersweet, autumn olive, etc.	Restore habitat/Protect ecosystem	7:45 AM
05/24/23	River Road Shale Barrens	Forested hill north of River Road	Roundup Custom	Tree of heaven, Japanese barberry, Asiatic bittersweet, etc.	Restore habitat/Protect ecosystem	8:00 AM
05/24/23	Muddy Branch Stream Valley Unit 2	Floodplain restoration site	Garlon 3A	Garlic mustard, Canada thistle, bull thistle, etc.	Restore habitat/Protect ecosystem	7:15 AM
05/25/23	River Road Shale Barrens	Forest	Roundup Custom	Japanese barberry, autumn olive, highbrush honeysuckle, etc.	Restore habitat/Protect ecosystem	8:00 AM
05/26/23	River Road Shale Barrens	Forest	Roundup Custom	Tree of heaven, Japanese barberry, Asiatic bittersweet, etc.	Restore habitat/Protect ecosystem	8:00 AM
05/30/23	Capital Crescent Trail	Forested area between Bethesda Pool and Capital Crescent Trail	Roundup Custom	Highbrush honeysuckle, multiflora rose, wineberry	Restore habitat/Protect ecosystem	7:45 AM
05/30/23	North Germantown Greenway Stream Valley Park	Meadow along Fox Field Circle and Red Admiral Way	Garlon 3A	Asiatic bittersweet, autumn olive, Japanese honeysuckle	Restore habitat/Protect ecosystem	7:30 AM
06/06/23	Martin Luther King, Jr. Recreational Park	Pond	Flumigard	Duckweed, algae	Restore habitat/Protect ecosystem	9:30 AM
06/06/23	Kemp Mill Urban Park	Ponds	Flumigard, Aquaneat	Duckweed, algae, cattail	Restore habitat/Protect ecosystem	11:45 AM

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