

**Integrated Pest Management Plan  
Ornamental & Turf Program  
7/1/19**

Brooklyn Middle School  
119 Gorman Road  
**Brooklyn, CT 06234**  
**860-774-9153**

Brooklyn Middle School will be inspected by L & C Park Consultant Richard Calarco, who is contracted by the Town of Brooklyn Parks and Recreation. Richard Calarco commercial supervisor license is S-5331 (hereby, Consultant) The Consultant will be identifying areas of pest infestation (weed, insect, disease, animal & invasive) on the grounds of Brooklyn Middle School. The consultant would make recommendations for corrective measures that should be implemented and developing a comprehensive integrated pest management (IPM) plan. The consultant will utilize this integrated pest management plan which

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Methods used for pest control include:

- Maintain the site history
- Identification of the source of any problem
- Soil samples will be collected by the Director and analyzed
- Identify the pest problem and what is the cause (i.e., disease, insect, weed)
- Determination of the tolerance level for pest
- Regular Scouting
- Determination what other means are available other than pesticides to address the problem
- Identification and implementation of cultural techniques to manage pest problems
- Select the proper tactic, cultural, biological or chemical in accordance to state law
- Evaluate the control measure used

In accordance to Chapter 170 section 10-231 State Statutes as noted in the IPM plan pesticides may need to be used as a tool to maintain pest/animal populations at or below an acceptable level while maintaining plant aesthetic quality. The selection of these pesticides that may be used will be based on a predetermined hierarchy that will utilize volume, effective, length which would have the least toxic listed as fertilizer option. Whenever, practicable, biological controls such as predatory insects, beneficial nematodes or microbial will be used. "Lawn care pesticide" means a pesticide registered by the United States Environmental Protection Agency and labeled pursuant to federal Insecticide, Fungicide and Rodenticide Act for use in lawn, garden and ornamental sites or areas. "Lawn care pesticide" does not include (A) a microbial pesticide or biochemical

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Proper implementation of this program will reduce toxicity and frequency of application of permitted pesticides and other chemicals, thereby reducing negative environmental impact and risk of potential exposure of the user to the grounds who may be sensitive to use. Only permitted pesticides for turf/ornamental shall be used in accordance to State Statute.

### **For emergency applications**

Applications of pesticides may be allowed to eliminate a threat to human health as determined by; local health director, commissioner of public health, commissioner of environmental protection, or for public schools, Patricia L. Buell Superintendent of Schools, Brooklyn CT (hereby Superintendent).

Superintendents, local health directors and pest control professionals will use “Guidance on Determination of Threats to Human Health, Allowing Application of Lawn Care Pesticides at Schools” (“Laws” section in binder) developed by the Department of Environmental Protection and Department of Public Health regarding the determination and treatment of health threats. IPM approach will be followed as outline above.

### **Overall Plan For emergency applications**

The pest listed on the guidance documents are considered to be the most common ones for which a decision will likely need to be made. Nuisance pests, such as biting flies or mosquitoes in the absence of indications they are carrying disease, are not considered a threat to human health sufficient to justify control with lawn care pesticides. Integrated pest management (IPM) recommendations are also made for each pest, which should reduce the amount of pesticide used and increased the effectiveness of an application, if needed.

The selection of permitted per State Statutes pesticides that may be used will be based on a predetermined hierarchy that will utilize least toxic products as first choice. Whenever practicable, biological controls such as predatory insects, beneficial nematodes or microbial pesticides will be used. Proper implementation of this program will reduce the volume, toxicity and frequency of application of pesticides and other chemicals, thereby reducing negative environmental impact and the risk of potential exposure of building occupants and visitors to the grounds who may be sensitive to their use.

The Consultant will recommend to the Director of Parks and Recreation (hereby Director) who shall meet with the Superintendent to discuss areas that have been problematic or sensitive. (e.g.; wet, shady and/or high traffic areas or areas where there is a history of high pest pressure) Areas that are sensitive to pesticide use will also be discussed. (e.g.; daycare areas, elderly residence, work area of sensitive employees, etc.)

Once these areas have been identified, the Consultant, the Superintendent and the Director shall discuss various pest control options and determine the speed of control necessary as well as threshold/action levels based on pest population, species, plant health and aesthetic considerations.

The Consultant will submit recommendations for corrective measures in writing to the Director, and Superintendent specifying action that should be taken by the facility (e.g.; correct rainage/runoff problems). The Director is responsible for scheduling and coordinating maintenance activities at the facility and will act on the recommendations as soon as possible. The Consultant will report in writing which recommendations have not be followed and state the reasons if no action is to be taken as required by CSR Sec.22a-66l-1(c). Otherwise, all IPM methods that are recommended will be followed.

Pest control services will be supervised by L & C Park Consultant Richard Calarco S-5331 and performed by Consultant and /or commercial operator list attached will begin on July 1, 2019 with weekly visits in order to start the program. (Monitoring Form

Attached) The visits will be between sunrise to sunset Sunday through Saturday. Subsequent visits will be performed weekly or as needed depending upon pest pressure. Service calls will be scheduled each week and involve a visual inspection of potential problem areas, with the assistance of monitoring devices where appropriate and application of pesticides where pest populations exceed threshold levels. Records will be completed at the conclusion of each visit and will include written recommendations of corrective measures that need to be made by the Consultant.

The Consultant will monitor/scout the grounds of the facility at least weekly April through October. Additional monitoring may be required during peak periods (June-August) to monitor for weeds and diseases. Off-season (November-March) monitoring may also be scheduled on an as needed basis. The Consultant will utilize growing degree day. Ground temperature and notification from universities and co-op extension centers or similar agencies.

All pest problem areas and written recommendations for structural, sanitary or procedural modifications will be recorded on "Supervisor Field Condition Assessment tool" forms or substantially similar substitute. These forms will be kept in a file that will be maintained in the Brooklyn Parks and Recreation office, Middle School office and the Superintendent's office. Additional records that will be maintained in this file will include a copy of this plan, copies of all soil sample analysis reports, a diagram indicating the placement of all pest monitoring devices. Director will act as a liaison between Consultant and the school superintendent will be responsible for notifying the appropriate personnel of corrective actions that are needed (e.g.; correct drainage and/or runoff problems).

\*\*\*The Consultant shall conduct a follow up inspection to confirm the presence of the pest(s) and verify damage level. \*\*\* Prior to any widespread application of Permitted Pesticide.

Pest sighting report logs provided by the Consultant. The log will be maintained in Parks and Recreation office, Brooklyn MS School office and the Superintendent's office and will serve as a tool to facilitate communication between all personnel and the landscape/pest control technician. All pest sightings should be reported in the logs and should include specific information as to the location and type of pest, if known. Whenever possible, a sample will be provided to UMASS, UConn, or Connecticut Experiment Station and/or other certified labs.

### **Turf Plan**

Best management practices will be implemented at all times in an effort to maintain turf health and appearance. Turf will be mowed to a 2 1/2 to 2-3/4 inch height on a weekly basis. Mowing should be done when the grass is dry and not frozen to avoid spread of turf diseases or damage. Mower blades should be maintained with sharp cutting edges to avoid excessive wounding and stress of the turf-grass. Mowing must be done as frequent as require to meet these HOC standards per week.

Upon implementation of the IPM program and prior to the application of any fertilizer, soil samples will be collected by the Consultant and analyzed by certified labs. Soil samples will also be collected and analyzed annually to assess soil fertility and PH. Annual sampling will be performed in late fall or early spring after the frost has left the ground. Amendments will be made to the soil as recommended by the analysis reports. Proper soil PH, fertility and cation exchange will help to prevent many turf-grass diseases and promote plant vigor, thereby reducing the occurrence of insect and weed invasion. Soil temperature and growing degree dates shall be utilized.

When practicable fertilizer with slow release nitrogen shall be utilized. Fertilizer should be applied no later than November 15th. Fall applications of lime will be no later than Nov. 15<sup>th</sup> to reduce the risk of disease. Over fertilization may result in an increase of some plant diseases, more frequent mowing, increased thatch layer and risk of leachate into groundwater in some circumstances.

Proper management of grass clippings is an important part of maintaining the lawn. Grass clippings will remain on the lawn and allowed to degrade, returning 50% of available nitrogen back to the lawn or about 1 pound. This will help to increase the soil organic matter and promote beneficial earthworm activity.

Watering may be done not to exceed a depth of 1" per week between the hours of 3:00 am and 8:00 pm. Watering in the evening is not recommended on hot, humid nights because it may increase the occurrence of diseases.

A thatch layer up to 1/2 inches thick is beneficial. An excessive layer is undesirable because it will block moisture, fertilizers and/or permitted per State Statute pesticides from reaching the root zone of the turf. Over-development of thatch can be prevented by reducing fertilizer applications and maintaining proper soil PH. De-thatching is necessary, it will be done mechanically during the spring, late summer or early fall when grasses are actively growing and can recover faster as well as aeration.

Fertilizer applications should be performed when grasses are actively growing, usually April to November 15th. Fertilizer applications will not exceed 5 pounds of nitrogen per 1000 square feet per year unless soil sample analysis reports indicate a necessity to further amend the soil.

## **Turf** **Insects**

Visual inspection of the turf areas will be done monthly April through October by The Consultant to monitor for evidence of chinch bug, sod webworm, billbug and/or other destructive turf pests. Additional sampling may be performed to confirm the presence of these pests and/or White Grubs. The Consultant will also utilize growing degree days and soil temperature.

Application will be considered if monitoring indicates the following pest populations or up to 10-15% damage can be anticipated.

- 1) White Grubs 8-10 Larvae/square foot
- 2) Chinch Bug 30 - 50 Nymphs & adults/square foot or when damage is evident
- 3) Sod Webworms/Cutworms Areas will be treated only when damage is evident
- 4) Hyperodes weevil (annual bluegrass weevil) tolerance when damage is evident
- 5) Black turfgrass atenioides tolerance when damage is evident

Nematodes, parasitic wasps or biological controls permitted pesticide per State Statute (see Application Plan section 2b) can be applied to control Japanese beetle, European chafer, masked chafer, Oriental beetle and/or Asiatic garden beetle or other beetle species during late August/early September when larvae are present. Soil amend will be applied to control chinch bug, billbug and sod webworm when damage is evident. (Damage periods normally occur during hot, dry weather - late June/July/early August). Over seeding using endophyte enhanced seed or seed resistant variety as outlined in NTEP will be used as financially available.

### **Weed Control**

A lawn area that is properly managed should produce dense, thick turf-grass, which ideally will help to prevent weed species from getting established. Some weed growth should be anticipated, and tolerated to some degree. Threshold shall be 10-15% of turf.

Over seeding at a rate of 10-20 lbs. per 1000. Seed selected will be taken from NTEP as financially available. Soil Amend and permitted pesticides per State Statute (see Application Plan section 1a & 1b) will be used in weed management, as well as, manual pulling, propane, steam or freezing. Permitted per State Statute products per option list may be applied as a spot application to control invasive annual and bi-annual grasses and broad leaf weeds as deemed necessary.

A complete re-evaluation of any area will be performed by the Director to assess and re-implement proper cultural practices to maintain turf density and vigor.

### **Disease Management**

Proper cultural management, physical controls, fertilization, bio-stimulus, compost Tea, and/or compost will be added to soil. Disease management use of permitted pesticide per State Statute (see Application Plan section 5a & 5b) will be performed only if evidence of disease has been found and significant area (15% of surface). The Director will employ the least toxic pest control options per plan.

### **Flower Beds & Formal Landscaping**

Best management practices will also be followed for the care and management of all flowerbeds and ornamental plantings. Insect and disease resistant plant varieties will be selected for planting in any flowerbeds and/or formal landscaping areas whenever possible. The Director will visually inspect plants for insect and/or disease infestation prior to planting. Plants found to have any infestation will be injected only permitted pesticide per State Statute (see Application Plan sections 2a, 3a & 4a) or compost tea, compost, fertilization, or bio-stimulus in an effort to eliminate damage on a large scale.

Plants will be planted at the proper depth to avoid plant stress. Mulch will be placed in all garden areas and around individual trees and shrubs. Mulch materials will be placed at sufficient depth to reduce weed growth and help to retain moisture. Mulch placement will also be placed to provide a buffer area to eliminate mechanical damage that may result from use of string trimmers or mechanical edges. Foundation plantings and vines will be trimmed at least 12" away from the building to eliminate rodent harborage and access to the building and allow for monitoring of rodent activity. We will keep all bushes free of windows for security purposes.

The Director will remove and dispose of dead and dying vegetation from plants and plant beds monthly to prevent spread of disease. Leaves will also be raked away to prevent accumulation and development of rodent harborage. Branches and plant material will be properly disposed of at the end of each day that work has been performed.

### **Ornamental Insect Control**

Visual inspections will be conducted during routine maintenance activities and pest monitoring traps will be utilized, where appropriate, to indicate the presence of harmful pests. Wherever pest activity is found and if practicable, infested plants(s) or branches will be washed off using a strong stream of water or removed and properly disposed of.

In an effort to preserve beneficial and predatory insects, pesticides will be applied only on an as needed basis. Application of permitted pesticide may be considered if it is anticipated that pest activity will result in unacceptable levels of damage to ornamental plants. For this facility, up to 15% damage or defoliation to ornamental plants will be considered acceptable.

Pesticides application using permitted pesticide per State Statute (see Application Plan section 2a) will be limited to only the infested area(s). The timing of each application will be based first on whether the pest is present and causing damage, the pest life cycle and utilizing growing degree days at what stage the pest is most vulnerable to pesticides.

Preventive pesticide applications may be performed only to areas where the previous year's monitoring has shown evidence of insect's pests that may over-winter on ornamental plants. The Director will utilize growing degree days, as well as, notification from universities or extension centers.

Only products permitted under State Statutes Chapter 170 will be used.

### **Weed Control**

Only permitted pesticides per State Statute (see Application Plan section 1a & 1b) may be applied as a pre/post-emergent weed control annual flower beds and ornamental shrub gardens. Pre-emergent permitted per State Statute weed control may also be used in perennial flower gardens where labeling allows. Where practicable, hand weeding will be performed in flower gardens and areas of ornamental plantings on a limited basis due to

labor expenses. Borders and walkways will be edged using items listed in section 1a of Application Plan when using a 15% weed threshold.

### **Disease Management**

Pesticide applications for control of ornamental diseases will be performed if evidence of disease has been found and significant areas (15% or greater) of permanent damage can be anticipated and all proper cultural practices have been employed.

Preventive permitted pesticides per State Statute (see Application Plan section 5a & 5b) may only be performed when the previous year's monitoring has indicated a likelihood of disease or if certain plant species, prone to disease problems, are present. Preventive applications should be made only to specific problem areas.

The Consultant will review and utilize the least toxic pest control permitted pesticide per State Statute. (see Application Plan section 5a & 5b) The Consultant will utilize growing degree days, ground temperature, as well as, notification from universities or extension centers.

### **Pesticide Plan**

Only items permitted Under Chapter 170 of the State Statute (per Application Plan) will be used. In accordance to the IPM guidelines listed at the beginning of report.

Permitted pesticides per State Statute (see Application Plan) may be applied if pest populations exceed the acceptable level. Applications will be performed regular business hours. Priority is given to those pesticides having the lowest toxicity, taking into consideration the method and frequency of application and the risk of exposure to building occupants. Whenever practicable, biological pest control such as predatory insects, beneficial nematodes or microbial pesticides will be utilized.

### **Animal Controls**

There are many animals that can be very detrimental to the health of Lawns and Turf. Lawn problems from foraging animals are on the rise. As more habitats are converted to development, wildlife is left with fewer places to find food. The beautiful hostas you planted in the garden are no longer ornamental, but a tasty treat for a foraging rabbit. Likewise, the expensive shrubbery you bought is now foraging for passing deer. The eradication of predators like wolves and coyotes removes a natural means of animal control. When we come out to inspect, we will be able to tell you exactly which animal is causing the problem. We are able to solve all of these animal problems quickly and efficiently. See section 4a & b of application plan.

**Moles** create series of raised tunnels and dirt mounds that can completely destroy your lawn. Mole damage can be very extensive. In some cases, moles can damage underground irrigation systems and above ground swimming pool liners.

**Voles** dig snake-like trails through the lawns and landscaping. They also make little round holes the size of a quarter under concrete steps/decks/air conditioning units, etc. They eat the roots of plants, often killing plants and destroying landscaping.

**Raccoons** can completely tear apart a lawn looking for grubs, especially in the fall. Raccoon's damage can be recognized as large chunks of turf torn apart and strewn about.

**Skunks** Dig looking for grubs, worm, and insects and can fill your yard with divots and holes. You can identify skunk damage as small holes the size of a quarter to a half dollar.

**Ground Squirrels** make a series of tunnels and trails all throughout large open area of lawn. You may see holes about the size of a silver dollar where they enter and exit. They love to eat your flowers and vegetation!

**Chipmunks** also make series of tunnels and trails through yards and especially landscaping. They typically like shady areas.

**Groundhogs** (aka Woodchucks) like to eat flowers, shrubs, yards and garden vegetation. They also dig large tunnels under decks, sheds, berms, and hillsides. The burrow entrances are usually soccer ball to basketball size.

**Deer** can be especially destructive to lawns and gardens; including rutting bucks that can permanently damage ornamental trees by stripping bark and extensive grazing from which plant cannot recover.

**Rabbits** damage is readily identified by the angled cuts on plants, with fences or removing productive cover such as brush piles, being the best forms of deterrent.

# Application Plan

## 1a. Ornamental Herbicides

### Non-Pesticide

- a) Mulch
- a) Compost
- b) Compost Tea
- d) Soil Amendments
- e) Manual
- f) Steam
- g) Mechanical
- h) Propane
- i) Freezing
- j) Watering

### Pesticide

#### 25B Exempt Products

- Bonide BurnOut II Weed and Grass Control
- Adios
- Bonide Maize Weed Preventer
- Preen Garden Weed Preventer
- Pure Defense Weed Shield
- Microbial Control
- Biological Control
- Dr. Earth Weed and Grass Herbicide
- EcoLogic Weed and Grass Killer

## 1b. Turf Herbicide

### Non-Pesticide

- a) Compost
- b) Compost Tea
- c) Soil Amendments
- d) Manual
- e) Propane
- f) Freezing
- g) Mechanical
- h) Watering

## **Pesticide**

### 25B Exempt Products

- Bonide BurnOut II Weed and Grass control
- Microbial Control
- Biological Control
- Pure Defense Weed Shield Preventer
- Pure Defense Crab Grass Preventer

## **2a. Ornamental Insecticides**

### **Non-Pesticide**

- a) Manual
- b) Steam
- c) Water
- d) Soap mix
- e) Mechanical
- f) Compost
- g) Nematodes
- g) Bio-stimulus
- h) Compost Tea

### **Pesticide**

#### 25B Exempt Products

- Garlic Barrier
- Grub Be Gone
- Cedar Cure
- Microbial Control
- Biological Control
- Dr. Earth Final Stop Yard and Garden Killer

## **2b. Turf Insecticides**

### **Non-Pesticide**

- a) Manual
- b) Steam
- c) Mechanical
- d) Soapy water
- e) Water
- f) Compost
- g) Compost Tea
- h) Soil Amendments
- i) Bio-Stimulus
- j) Nematodes

## **Pesticides**

### 25B Exempt Products

- Grub Be Gone
- Cedar Cure
- Tick Free
- Microbial Control
- Biological Control
- Dr. Earth Final Stop Yard and Garden Killer

## **3a. Ornamental Miticides'**

### **Non-Pesticide**

- Manual
- Mechanical
- Water
- Biological control

### **Pesticide**

#### 25B Exempt Products

- Dr. Earth Pest Control
- Liquid Ladybug
- Microbial Control
- Biological Control
- Eco Mite Plus Botanical Insecticide Miticide

## **4a. Ornamental Animals**

### **Non-Pesticide**

- a) Manual
- b) Mole solar
- c) Tin Foil/Steel Wool
- d) Water
- f) Traps

### **Pesticides**

#### 25 B Exempt Products

- Deer out
- Bobbex Animal Repellent
- Bonide MoleMax Mole and Vole Repellent
- Fert-Lome Molego
- Tick Free
- Liquid Fence Animal Repellent
- Microbial Control
- Biological Control

#### **4b. Turf Animals**

##### **Non-Pesticides**

- a) Manual
- b) Mole solar
- c) Tin Foil/Steel Wool
- d) Water
- e) Traps

##### **Pesticide**

###### 25 B Exempt Products

- Bobbex Animal Repellent
- Bonide Mole and Vole Repellent
- Liquid Fence Repellent
- Tick Free
- Microbial Control
- Biological Control

#### **5a. Ornamental Fungicides**

##### **Non-Pesticide**

- Water
- Manual
- Mechanical

##### **Pesticide**

###### 25 B Exempt Products

- Mr. Earth Final Stop Disease Control Fungicide
- Eco-PM Botanical Fungicide
- Microbial Control
- Biological Control

#### **5b. Turf Fungicides**

##### **Non-Pesticide**

- Water
- Manual
- Mechanical

##### **Pesticide**

###### 25 B Exempt Products

- Microbial Control
- Biological Control

## **6a. Emergency Application**

### **Non-Pesticide**

- Water
- Manual
- Mechanical
- Freezing
- Burning
- Blowing
- Traps
- Mulch

### **Pesticide**

#### 25 B Exempt

- Tick Free
- Burn Out II

### **Pesticide**

- Talstar
- Tempo
- Roundup
- Pro Duece

An appraisal of this IPM program will be conducted monthly by the Director. (Supervisory Pesticide Certificate Number S-5331) A determination will be made as to the effectiveness of the program and revisions will be made to correct potential problems.

An evaluation of the potential to contaminate water will be made. Maps will be copied from the "Atlas of the Public Water Supply Sources and Drainage Basins of Connecticut" which identify the location of any public water supply, watershed or well field and will be attached to this plan as required by CSR Section 22a-66l-1(6)(F).

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## **History and Site observation**

This July 2019 is the first year that the Consultant has been hired to oversee the IPM program. In observation the consultant has added reports on the fields and pictures regarding the conditions. In general observation the game fields consist of 60-70 weed growth with crab grass as the main weed at about 60% of the cover however broadleaf , clover being the other most dominant weed. The consultant has begun to develop a turf program which will include cultural, plant and soil enrichment programs and seed application.