Five Year Vegetation Management Plan for Springfield, MA (2019-2023)

prepared by

ReGreen Springfield, Inc., Invasive Plant Program

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A) General Statement of Goals and Objectives

ReGreen Springfield, Inc., is an IRS recognized 501(c)3 non-profit, environmentally focused community education, advocacy and greenspace enhancement organization located in Springfield, MA. ReGreen Springfield is committed to control of hazardous, nuisance, and invasive plants throughout the city of Springfield, through its ReGreen Springfield, Inc. Invasive Plant Program (IPP), including all of Springfield's parks and open spaces, as well as Rights-of-Ways (ROW). All work to be undertaken by ReGreen Springfield, Inc. will be reviewed and authorized by appropriate City of Springfield Department, not limited to Dept. of Facilities, Parks and Recreation, Dept. of Public Works, Dept. of Health and Human Services, and the Conservation Commission. ReGreen will follow best practices to effectively manage the invasive plants, while minimizing pesticide exposure to the environment and follow all rules and regulations established by the Massachusetts Department of Agricultural Resources Pesticide Program (MDAR) and the US Dept. Environmental Protection.

The Integrated Pesticide Management Plan (IPM) will use selective treatment to target invasive plants (see Massachusetts Prohibited Plant List located at https://www.mass.gov/service-details/massachusetts-prohibited-plant-list). We will record the sites with invasive plants using the Early Detection and Distribution Mapping System (EDDMapS) national database of invasive plants, administered in Western Massachusetts by the Trustees of the Reservations. The long-term goal of the Regreen Springfield, Inc. IPP is to control invasive species throughout Springfield. In early years we will focus on high priority areas such as Forest Park, other parks, and sites that have the highest potential to spread. ReGreen's efforts are aimed at slowing the spread, and ultimate manageable control of invasive plants, management of ROW, and not control of any native or desirable vegetation.

B) Identification of Target Vegetation

Invasive plants, primarily Japanese knotweed, threaten many of Springfield's parks, open spaces, and trails. Invasive plants have already taken over large stretches along the Connecticut RiverWalk and the proposed McKnight trail, with many smaller numerous infestations in other parks and open spaces, as well as other ROW and non-ROW, public and private property. We have consulted with the Conservation Commission to identify sensitive areas, some ROW and some not ROW. Over the past year, ReGreen Springfield, Inc. has documented hundreds of sites in Springfield that contain Japanese knotweed and phragmites, and will continue to expand the documentation, using OutSmart and EDDMapS database program, which includes GPS mapping, providing an opportunity to analyze and document the largest, and most threatening outbreaks of invasive plants growing in Springfield.

C) Intended Methods of Vegetation Management and Rationale for Use

The primary invasive plants in Springfield's ROWs are Japanese knotweed and phragmites, which require the use of herbicides for full and effective control. Measures will be taken to prevent spread of the invasive plants (e.g. not spread root materials, canes or seeds). If invasive plants (such as garlic mustard) can be well controlled without the use of herbicides, then non-chemical measures, such as mechanical or physical methods, will be used.

MECHANICAL METHODS:

Mechanical control of knotweed and phragmites include grubbing or hand-pulling seedlings, rhizomes, mature plants, and repeated clipping of knotweed and phragmites. When using mechanical control, precautions will be taken since any live plant part (1/2 inch or larger) may sprout causing unwanted spread of the plants. Plant parts will be disposed of properly and will not be allowed to enter waterways. Stems and roots will be contained or dried with little or no soil. Plant parts will not be composted.

PHYSICAL METHODS:

Physical methods may be employed where mechanical or chemical control is determined to be impractical. These techniques will be utilized as an alternative method only in areas where more conventional methods might be undesirable or impossible. Covering of invasive plants with heavy plastics and geotextile fabrics may be employed in these locations, to lessen the physiological capability of the plants, and to reduce gas exchange via the soil, thereby reducing the viability of the invasive plants. Grazing by cattle, sheep or goats may be used for control in some situations. This method will only be used while the shoots are young before they become woody, and grazing will not be allowed after any herbicide treatments.

HERBICIDE APPLICATIONS:

Only general use pesticides will be used. Herbicides will be used in a very selective manner that will minimize pesticide exposure to the environment and limit pesticides application to only the targeted invasive plants. Japanese knotweed control will be accomplished by treating knotweed with stem injection (using JK injection tool, or other injection guns) of 2 ml of concentrated glyphosate (e.g. Roundup, Rodeo) to canes that are large enough to inject, and foliar spray using a back pack sprayer with 5% glyphosate and surfactant (e.g. Roundup with chemsurf-90 or Accord XRT II) to leaves. The timing of the treatments will be done when the plants are taking nutrients/pesticide to the rhizomes – from late July through early October, a few weeks prior to first hard frost. Mechanical control may also be employed in some areas, consisting of a series of programmed cutting of stems throughout the growing season.

For phragmites, pesticide use to the environment will be minimized by cutting the stems, then injecting glyphosate into each cut stem. For phragmites, we will use a cut and drip technique, in which each phragmites stem is cut with a hand pruner or lopping shears, followed by dripping a herbicide into the hollow stem, with a foliar spray applied to any reemergent plants, or if needed to create a path in very large sites to allow cut and drip technique. See Adirondack Park Invasive Plant Program (APIPP)s video control phragmites which details the technique http://bit.ly/2yswd8R.

Alternative control measures may be used for specific other invasive plants. If wild parsnip is found, the primary control method will be mowing or cutting the plant close to the ground when it is flowering, prior to going to seed. Garlic mustard can be controlled by mechanical methods. Should invasive plants be found other than those described above, the yearly operating plan would detail management of those plants.

All pesticide applications will be performed by Massachusetts licensed pesticide applicators, and ROW treatments will be done by licensed pesticide applicators, with an on-site ROW certified pesticide applicator.

(D) DISCUSSION OF JUSTIFICATION FOR PROPOSED HERBICIDE APPLICATIONS

Certain invasive plants including Japanese knotweed and phragmites cannot be effectively and realistically controlled without the use of pesticides. Cutting knotweed or digging knotweed are not effective as tiny fragments of roots can start new plants. Since knotweed root fragments and the nodes of stems can start new plants, cutting and digging knotweed risks spreading knotweed from plant material. Cut-stem pesticide application and foliar spray of large plants methods are ineffective, as they will not fully kill the rhizomes. The methods we will use (stem injection and foliar spray with glyphosate at the proper time) are very effective to control knotweed.

If certain other invasive plants such as giant hogweed, bohemian knotweed, or giant knotweed are found in Springfield ROWs, these also would require the use of pesticides and the attention of proper authorities/departments. Some invasive plants such as garlic mustard can be managed with mechanical means (pulling out plants by hand, clipping, or mowing), so herbicides would not be used.

(E) METHODS, REFERENCES AND SOURCES FOR IDENTIFYING SENSITIVE AREAS AND CONTROL STRATEGIES PROPOSED FOR SENSITIVE AREAS.

ReGreen Springfield, Inc. will continue to assess locations in Springfield that contain invasive plants, and determine, at each location, whether they are ROW or non-ROW, sensitive or non-sensitive, public or private, and publicly owned lands or private property. ReGreen Springfield, Inc. will collaborate with the Springfield Conservation Commission to determine which locations are sensitive (and which category) and develop a GIS database and maps which designates sensitive areas, to ensure that proper regulations are followed for those locations. Invasive plants requiring pesticide treatment in sensitive areas that allow pesticides to be used will be treated with glyphosate (e.g. Rodeo), which is on the Massachusetts Rights of Way Sensitive Areas Materials List. Prior to each yearly operational plan the Sensitive Areas Material list will be checked to ensure that any pesticide proposed for use remains on the List. Pesticide labels will be followed for all herbicide applications, using the lowest labeled rate. As for all treatments, stem injection of knotweed and instillation into cut phragmites plants will be used to minimize pesticide exposure beyond the invasive plants.

SENSITIVE AREAS BASEMAP SOURCES AND REFERENCES

There are several readily available sources of information that can be used to develop a draft sensitive areas basemap. These sources include:

- Massachusetts Department of Environmental Protection (MassDEP) Water Supply Maps (1:25,000).
- Aerial Photographs.
- MassDEP Wetlands Conservancy Maps (scale 1:1,000).
- City of Springfield GIS Mapping Office (Dept of Planning).
- City of Springfield Conservation Commission maps and records.
- Pioneer Valley Planning Commission maps and records.
- U.S. Fish and Wildlife Service National Wetlands Inventory Maps.
- Massachusetts Division of Fisheries and Wildlife Natural Heritage and

Endangered Species Program (NHESP).

- Available MassGIS maps (MassGIS Oliver)

Prior to commencement of any herbicide application operations, applicator staff will be provided with a map, and associated documentation, which denotes sensitive areas, and applicators will survey the area to be treated for any sensitive areas

Restrictions for sensitive area treatments as described in 333 CMR 11.04 will be followed. These include:

Sensitive Area Restriction Guide (333 CMR 11.04)

Sensitive Area	Limited Spray or No-Spray Areas (feet)	Control Method	Time Between Treatment(s)
Public Ground Water Supplies	400'	Mechanical Only	None
Primary Recharge Area Designated Zone II	Designated buffer zone	Mechanical, Approved Herbicides*	24 months
Public Surface Water Supplies (Class A & Class B)	100'	Mechanical Only	None
	100'-400'	Approved Herbicides	24 months
Tributary to Class A Water Source, within 400' upstream of water source	100'	Mechanical Only	None
	100'-400'	Approved Herbicides	24 months
Tributary to Class A Water Source, greater than 400' upstream of water source	10'	Mechanical Only	None
	10'-200'	Approved Herbicides	24 months
Class B Drinking Water Intake, within 400' upstream of intake	100'	Mechanical Only	None
	100'-200'	Approved Herbicides	24 months
Private Drinking Water Supplies	50'	Mechanical Only	None
	50'-100'	Approved Herbicides	24 months
Surface Waters	10'	Mechanical Only	None
	10'-100'	Approved Herbicides	12 months
Rivers	10' from mean annual high water line	Mechanical Only	None
	10'-200'	Approved Herbicides	12 months
Wetlands	10'	Mechanical Only	None
	100' or with approved Wetlands Determination 10'-100' [per 310 CMR 0.05(3)(a) & 310 CMR 0.03(6)(b)]	Low-pressure Foliar, CST, Basal, Approved Herbicides	24 months
Inhabited Areas	100'	Approved Herbicides	12 months
Agricultural Area(Crops, Fruits, Pastures)	100'	Approved Herbicides	12 months
Certified Vernal Pools	10'	Mechanical Only when water is present	None
Certified Vernal Pool Habitat	10'-outer boundary of habitat	No treatment without approval	
Priority Habitat	No treatment outside the 4 foot paved road exemption without approval of the Natural Heritage Endangered Species Program (NHESP)		

*Massachusetts Approved herbicides for sensitive sites

(F) OPERATIONAL GUIDELINES FOR APPLICATORS RELATIVE TO HERBICIDE USE.

Known Location – For any site being treated, the applicator must know that permission has been obtained to treat that site, whether it is a sensitive area (and if so which kind), and whether it is a ROW.

Calibration – Foliar application equipment (back-pack sprayers with hand lever) will have applicator nozzles adjusted to apply a coarse spray to minimize drift. Injection tools will have the injection volume adjusted to 2 ml at the start of the season.

Foliar applications will not be performed during rainy (or forecasted rain within a few hours) or very windy conditions which could take the herbicide beyond the targeted area. If the applicator sees the herbicide moving off target related to wind, the application will stop until the wind has subsided enough to permit further application. Foliar application should apply the spray to the leaves, but not so much as it is dripping off the leaves. Foliar spray for knotweed will be 5% glyphosate with surfactant (e.g. for sensitive areas diluted glyphosate with 5 ml ChemSurf 90 per gallon), and for non-sensitive areas either glyphosate with ChemSurf 90, or a general-purpose glyphosate with surfactant (e.g. Accord XRT II).

Stem injection of knotweed will be performed with 2 ml injection of concentrated glyphosate (e.g. Rodeo) between nodes of each cane large enough to inject, using a calibrated injection gun (e.g. JK Injection Tool). Each cane injected will be marked with an indelible marker to indicate that the cane has been injected. For JK Injection Tools, the marker will be positioned above the needle. Stem injections can be performed even if rainy or windy.

Sensitive Area Restrictions – In defined sensitive areas, there exists a no-spray area where herbicide use is prohibited and a limited spray area where herbicide use is allowed under certain conditions. In areas around sensitive areas where herbicide use is allowed, only the minimum labeled rate of application for the control of target species can be applied. Regreen Springfield, Inc. expects to limit it primary work to non-sensitive areas, but if critically necessary (as determined by the Springfield Conservation Commission), will use only stem injection methods as prescribed above.

Documents carried by applicator – Applicators will carry on site their pesticide license, herbicide label, fact sheet, VMP, current YOP, Safety Data Sheet, spill kit (plastic bag, absorbent material, shovel), and Herbicide Spill Check List.

On-site Certified ROW applicator – For treatments in ROW, a certified ROW applicator must be on-site to supervise licensed (but not ROW-certified) applicators.

333 CMR 11.00 - ReGreen Springfield, Inc. shall notify the City of Springfield Mayor, Board of Health, Conservation Commission, Dept of Parks, Recreation and Public Buildings, and the Department of Public Works, and Massachusetts Department of Agricultural Resources (MDAR) at least 21 days in advance of the application of herbicides to City ROW. The notice shall include but not be limited to the approximate date on which such spraying shall occur, provided however that said spraying shall not conclude more than ten days after said approximate date; a copy of an MDAR approved Herbicide Fact Sheet on the active ingredient(s) of the herbicide(s) used; and the name and license numbers of the certified applicators and name of the company (if appropriate) who will be making the applications.

(G) IDENTIFICATION AND QUALIFICATIONS OF INDIVIDUALS DEVELOPING AND SUBMITTING A PLAN.

ReGreen Springfield, Inc., with David V. Bloniarz, Ph.D. as President, has extensive experience managing nearly $2 million in efforts to plant trees in Springfield following the June, 2011 tornado, and looks forward to being involved with this important effort at invasive plant control. ReGreen Springfield, Inc. has successfully recruited community residents, student interns for its current projects, and plans to recruit additional interns who will become licensed/certified applicators at a much lower cost than that of outside contractors. ReGreen Springfield, Inc. also has much experience using outside contractors, with as they are currently overseeing a $200,000 contract with Davey Resource Group, one of the country's leading vegetation managers. ReGreen's collaborations with businesses, community organizations, educational partners and government agencies will continue, and be enhanced, through the ReGreen Invasive Plant Program. Dr. Bloniarz is a licensed pesticide applicator in Massachusetts (2018). David has a Ph.D. in Urban Forestry from the University of Massachusetts/Amherst, and is an Urban Forest Research Scientist at the USDA Forest Service Northern Research Station in Amherst. David is also on the faculty of the University of Massachusetts/Amherst Department of Environmental Conservation, and teaches undergraduate and graduate courses that focus on urban forest sustainability and management. David was a member of the City of Springfield Conservation Commission for six years, leaving the commission to establish Regreen Springfield, Inc. in 2011, immediately following a devastating EF-3 tornado which severely impacted Springfield tree canopy and natural systems.

Douglas Johnson, M.D., a Springfield resident, who is helping ReGreen Springfield, Inc. with this plan, has 10 years of experience developing and helping lead a successful invasive plant program (primarily treating Japanese knotweed, also wild parsnip and phragmites) in the Adirondacks of New York (see www.noknotweed.org). His expertise brings practical approaches to the planning and delivery of this program. He is a licensed pesticide applicator in Massachusetts (2018) and certified category 3A pesticide applicator in New York (2008-2018).

(H) A DETAILED DESCRIPTION OF THE IPM PROGRAM, SHOWING HOW IT WILL MINIMIZE THE AMOUNT AND FREQUENCY OF HERBICIDE APPLICATION.

The primary invasive plants in Springfield's ROWs are Japanese knotweed and phragmites, which require the use of pesticides for effective and successful control. Regreen Springfield, Inc. will take all appropriate measures to prevent the spread of identified invasive plants (e.g. not spread root material or canes). If invasive plants (such as garlic mustard) can be well controlled without pesticide, then non-pesticide measures (such as pulling plants) will be used. The control methods selected will be chosen based on a variety of factors and with the goal to achieve a long-term, low maintenance vegetation management program.

Stem injection of knotweed correctly timed provides excellent results, killing the entire rhizome, so that there will be markedly fewer plants and markedly less pesticide required treatment the following year. To ensure effective treatment, we will work to ensure that the treated plants are not cut soon after. Other techniques, such as cut-stem application or foliar spray to large knotweed plants, will not be used in most management settings, as those techniques may not fully kill the rhizome and could lead to the need for further pesticide treatment in subsequent years.

Pesticides will be used in a very selective manner that will minimize pesticide exposure to the environment and limit pesticides just to the invasive plants. This will be accomplished by treating knotweed with stem injection (using JK injection tool, or other injection gun) of 2 ml of concentrated glyphosate (e.g. Roundup) to canes that are

large enough to inject, and foliar spray using a back pack sprayer with 5% glyphosate + surfactant (e.g. Roundup with chemsurf-90 or Accord XRT II) to leaves of plants, that are primarily too small to inject.

Marking canes that have been injects with permanent paint will minimize having more than one injection per cane, reducing excess pesticide from being applied, and help to ensure that all canes are injected.

For phragmites, pesticide use will be minimized by cutting the stems, then injecting glyphosate into each cut stem, providing the most effective control, while reducing any environmental impact to surrounding vegetation or natural systems.

(I) DESCRIPTION OF ALTERNATIVE LAND USE PROVISIONS OR AGREEMENTS

ReGreen will work with Springfield Dept. Facilities, Parks and Recreation, and the Dept. of Public Works (who mow some ROWs) to ensure that knotweed is not mowed for at least 2-weeks after pesticide treatment to allow the herbicide to be taken throughout the rhizomes. For invasive plants which can be controlled by mechanical means, we will encourage mowing (e.g. of garlic mustard and wild parsnip) prior to the plants going to seed. Since knotweed can be treated with much less pesticide exposure to the environment with stem injection (compared to foliar spray), ReGreen will encourage not mowing knotweed (unless needed for safety reasons) prior to stem injection. ReGreen will encourage City agencies that use fill in construction projects to only use clean fill that is not contaminated with invasive plant material. An education program for this purpose is currently being developed by Regreen Springfield, Inc., with delivery expected in early 2019.

(J) DESCRIPTION OF A REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS.

The only pesticides which ReGreen will be using is glyphosate (Rodeo or Accord XRT II). This is a general use pesticide, and is less hazardous than restricted pesticides. A clipboard log of herbicides in the vehicle will be kept in the vehicle. Herbicide labels and fact sheets will be carried on-site by the applicator. The vehicle carrying the 2.5 gallon containers with glyphosate pesticide and injection guns/backpack sprayers will be equipped with a bag of absorbent, leak-proof containers, and a broom and shovel in case of minor spills. Personal Protective Equipment (PPE) will be used by all applicators, including eye protection, chemical resistant gloves, long pants and shirts and high visibility safety vests.

If any spill is observed, immediate action will take place to contain the spill and protect the spill area, as per recommendations prescribed in the MDAR Pesticide Applicator Exam Manual, and noted below. The cause of the spill must be identified. The City of Springfield, or the property owner, and MA DAR, Division of Crop & Pest Services will be notified of the spill immediately, and written documentation of the control measures will be provided within 24 hours. The largest container that will be used for storage of the herbicides noted in this Plan, will be 2.5 gallons, and backpack sprayers contain 4 gallons of diluted chemical, so those would be the largest spill expected while transporting or working in the field.

Minor spills of liquid herbicide will be remedied by soaking up the spill with adsorption clay or other adsorptive material and placing it in leak proof containers, removed from the site and disposed of properly. Minor spills involving dry herbicides, such as granulars, will be swept up or shoveled up directly in leak proof containers, removed from the site and disposed of properly. All contaminated soil will be placed in leak proof containers, removed from the site and disposed of properly.

In the event of a spill, information on safety precautions and clean up procedures may be gathered from the following sources:

SAFETY CONTACTS

- Herbicide label
- Herbicide Material Safety Data Sheet (MSDS)
- Herbicide Manufacturer
    - DOW AgroSciences Division… (800) 992-5994
- MDAR, Division of Crop & Pest Services… (617) 626-1720
- Massachusetts DEP Emergency Response… (888) 304-1133
- Massachusetts DPH Environmental Toxicology Program…(617) 339-8351
- City of Springfield Dept of Public Parks…(413) 787-6434
- City of Springfield Police Dept…(413) 787-6302
- City of Springfield Fire Dept…(413) 787-6400
- City of Springfield Dept of Public Health…(413) 787-6740
- Chem-Trec… (800)-424-9300
- National Pesticide Information Center… (800)-858-7378
- National Animal Poison Control Center… (888)-426-4435
- Clean Harbors…(800) OIL-TANK
- Massachusetts Poison Information Centers…(800)-682-9211

(K) FOR STATE AGENCIES AND AUTHORITIES AS DEFINED IN M.G.L. C. 3, § 39

Not Applicable

ADDITIONAL ITEMS

MONITORING PLAN

On an annual basis, the Regreen Springfield, Inc. will evaluate the success of its Vegetation Management Program (VMP). The goal of this monitoring plan is to evaluate the relative success of vegetation control efforts. Following application after an appropriate period of time, treatment areas will be revisited. The survivorship or regrowth of nuisance vegetation will be recorded and evaluated at a meeting with City officials in late fall to determine whether the program is meeting its goals. Discussion items at this annual meeting will include where the herbicide was used, where it worked and the amount of herbicide used in the application period. A written report will be submitted to the City of Springfield departments identified below.

PERMISSIONS

Prior to any application of herbicide, written confirmation and permission will be obtained in writing from the appropriate City of Springfield municipal department, on whose land is under their jurisdiction the application will occur. This includes the following Departments:

- Parks, Recreation and Buildings
- Parks Commission
- Engineering Department
- Department of Public Works
- Conservation Commission
- Springfield Public Schools
- Springfield Housing Authority
- Community Preservation Act Commission
- Springfield Water and Sewer Commission

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