



Tree Health Assessment Report
Kenney Park

Somerville Parks Tree Health Program

IFB #23-26

Prepared by Alden Johnson, MCA, ISA, TRAQ

January 31, 2023

Overview:

Kenney Park is a recreation-focused park in the busy Davis Square commercial district. In addition to a basketball court it contains a water fountain/splash pad and playground. The park is home to 43 mature trees- predominantly Ash and Eastern Hemlock, with a more diverse planting of deciduous trees (Honeylocust, Tree Lilac, Katsura and Elm) around the playground area on the south side of the park.

General tree health

The trees in the park consist of three major tree groupings outlined in the attached map:

- 1. Mature Ash trees along the northern, central and western sidewalks. The main concern of these trees will be Emerald Ash Borer infestation in the coming decade. Treatment and monitoring should be prioritized going forward to preserve these trees.
- 2. Row of Hemlocks along the eastern border of the park. The Ash and Hemlock trees are in fair health, but both species are host to major invasive insect pests and will be under pest pressure and risk of infestation for the coming decade. (more in Pest section below). A few of the Hemlocks are already dead/declining or need root pruning.
- 3. Grouping of deciduous trees in the southern playground area (Honeylocust, Katsura, Tree Lilac and Elm). These trees are largely young-mature, durable species that have good overall vigor despite a challenging urban site. Given the crowded side these trees are encroaching on each other and surrounding structures which can be mitigated through pruning. Limited root area and poor soil are the main stress factors these trees in the third grouping.

Soil Health

Trees within the park are largely restricted to tree wells and small planting beds. The majority of the soil in the park is typical urban soil, medium-heavily compacted, more compacted along the edge of the pathways and high-traffic areas. Soil throughout the park is pale colored sandy-gravel with some organic matter in the top 3-6 inches. Soil does not stick together. No odor noted. A soil-sample probe could be submerged about 8 inches deep in low traffic areas, while in the high traffic areas it was impossible to insert below 3". I do not believe airspading would be practical at this site, so instead I recommend subsurface liquid bio stimulant injections on these trees to encourage root health by adding organic matter, increasing moisture absorption and retention, nutrient uptake and soil vitality. Subsurface injections will have the added benefit of providing some aerating and mixing of soil layers. Soil sample has been sent to lab for further analysis to be included in final report.

Pests and Diseases

Ash trees will be inspected for evidence of Emerald Ash Borer (*Agilus planipennis*) or "EAB" damage in high canopy. EAB is an invasive boring insect that infest host ash trees burrows into their vascular cambium, leading to decreased vascular transport and tree mortality within a short period of time. No evidence of borer presence from the ground at the time of this report. These trees are currently included the cities prophylactic EAB treatment program, which I advise be

continued. Hemlock Wooley Adelgid (*Adelges tsugae*) and Hemlock Elongate Scale (*Fiorinia externa*) are present on the Hemlocks. Unlike the EAB these pests are not on a control program at this time. Left uncontrolled these small pests will feed from sap in the twigs and needles of these trees and will lead to the decline of these trees over the next 5 years. I recommend treatment with 3 annual foliar applications of organic horticultural oil applied as a smothering agent for the next several years.

Other correction of adverse conditions

I recommend deep-root biostimulant injections to preserve and encourage vigor and longevity in the Ash trees along the sidewalk, Hemlocks, and Katsura in restricted planting bed. One Hemlock needs root pruning due to gridling root. My Level 1 TRAQ assessment of all the trees in this park results in a “low” risk rating, with the exception of the declining Hemlock over the sidewalk and dead Hemlock near the playground area that have been designated as Moderate risk and recommended for removal (see below).

Removal Needs:

Hemlock trees #41181 and #41183 are dead and should be removed and stumps ground to prevent them from falling into the park or neighboring properties. Hemlock #40900 is in advanced decline- the entire top over the sidewalk is dead. This tree should be removed to prevent it to fall onto the sidewalk and street.

Pruning needs

All mature Ash trees in the park should be pruned to remove large deadwood, inspect for borer, and clear from the street and utilities. The large mature Honeylocust #40821 in the playground is encroaching on the play structures as well as adjacent street light and ornamental trees, which should be corrected through clearance pruning. All trees in play areas and along sidewalks should be pruned provide 8-10’ off the walkways and playing surface, as well as 3-4 off fences, lights, and structures. Canopy clean to remove dead and broken branches, and declining sections 2” and larger, improper stubbed pruning cuts in trees throughout the park with the exception of the Hemlocks. The large Siberian Elm (#41185) at the south end of the park should be cleaned to remove deadwood and raise 8-10’ off the surrounding buildings and 3-4’ off utilities.

2023 Priorities:

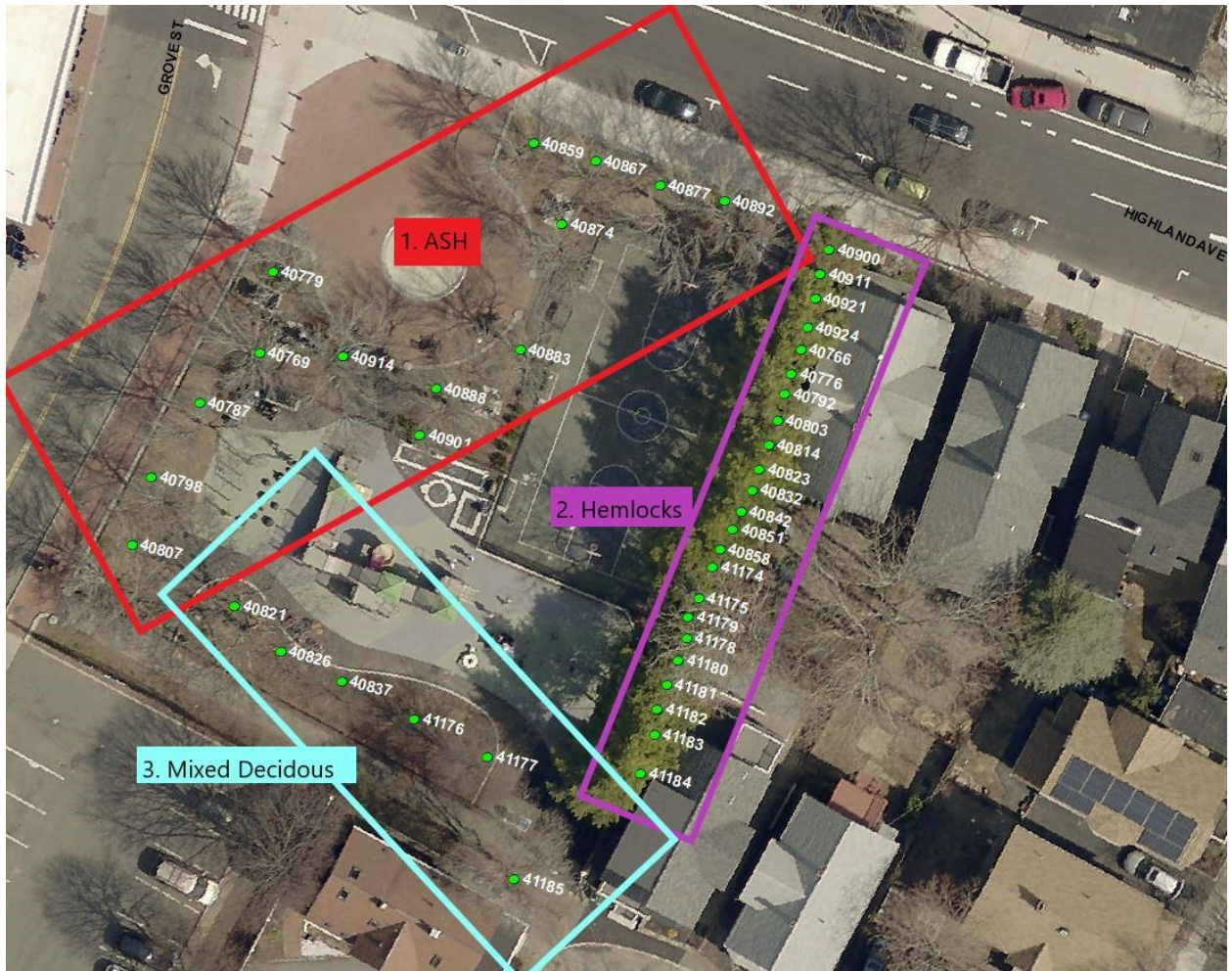
- -Pruning: Canopy cleaning, raising, inspecting for borer.
- -Declining/hazard tree removal
- -Biostimulant injections for Ash trees along sidewalks, Hemlocks and select other trees.
- -Adelgid and Scale insect control on Hemlocks

5-10 year Priorities:

- Continued improvement of soil conditions for all young trees in the park:
- Monitoring and treatment of Emerald Ash Borer, select replacement

- Treatment (or replacement/succession) of Hemlocks

Kenney Park With Tree Zones



Site ID	Species	DBH	Park	TRAQ	Recommendations	Pruning Units	Pruning Cost
40892	ash: green (Fraxinus pennsylvanica)	15.9	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs	█	█
40766	hemlock: eastern (Tsuga candensis)	8.2	KENNEY PARK	Low	Treat for HWA	█	█
40769	ash: green (Fraxinus pennsylvanica)	12.8	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs	█	█
40776	hemlock: eastern (Tsuga candensis)	10.6	KENNEY PARK	Low	Treat for HWA	█	█
40779	ash: green (Fraxinus pennsylvanica)	14.4	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs	█	█
40787	ash: green (Fraxinus pennsylvanica)	14.1	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs	█	█
40792	hemlock: eastern (Tsuga candensis)	10.6	KENNEY PARK	Low	Treat for HWA	█	█
40798	ash: green (Fraxinus pennsylvanica)	12.2	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 3hrs	█	█
40803	hemlock: eastern (Tsuga candensis)	10.2	KENNEY PARK	Low	Treat for HWA	█	█
40807	ash: green (Fraxinus pennsylvanica)	16.8	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs	█	█
40814	hemlock: eastern (Tsuga candensis)	11.3	KENNEY PARK	Low	Treat for HWA	█	█

40821	honeylocust: thornless (Gleditsia triacanthos inermis)	17.6	KENNEY PARK	Low	Prune to remove deadwood, fix stubs, raise 4-6' off play structures. Includes removing 5" limb hitting the lightpost and 4 " limb over the playset, raise 2-3 out of the tree lilac		
40823	hemlock: eastern (Tsuga candensis)	10.4	KENNEY PARK	Low	Treat for HWA		
40826	lilac: Japanese tree (Syringa reticulata)	4.4	KENNEY PARK	Low	Prune to remove deadwood, fix stubs. .5hrs		5
40832	hemlock: eastern (Tsuga candensis)	10.3	KENNEY PARK	Low	Treat for HWA		
40837	lilac: Japanese tree (Syringa reticulata)	5.5	KENNEY PARK	Low	Prune to remove deadwood, fix stubs. Raise 8' off ground .5hrs		
40842	hemlock: eastern (Tsuga candensis)	8	KENNEY PARK	Low	Treat for HWA		
40851	hemlock: eastern (Tsuga candensis)	9.8	KENNEY PARK	Low	Treat for HWA		
40858	hemlock: eastern (Tsuga candensis)	9.1	KENNEY PARK	Low	Treat for HWA		
40859	ash: green (Fraxinus pennsylvanica)	15.7	KENNEY PARK	Low	Prune to remove dead, disesed, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs		
40867	ash: green (Fraxinus pennsylvanica)	12.4	KENNEY PARK	Low	Prune to remove dead, disesed, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 3hrs		
40874	ash: green (Fraxinus pennsylvanica)	15	KENNEY PARK	Low	Prune to remove dead, disesed, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs		

40877	ash: green (Fraxinus pennsylvanica)	13.2	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 3hrs		
40883	ash: green (Fraxinus pennsylvanica)	12.6	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 3hrs		
40888	ash: green (Fraxinus pennsylvanica)	16.2	KENNEY PARK	Low	Prune to remove dead, diseased, broken branches greater than 2" in diameter. Prune to raise 14-16' off the street and 8-10' off of the park surface and sidewalk, 4-6' from structures, utilities, signs. Inspect canopy for EAB damage. 4hrs		
40900	hemlock: eastern (Tsuga canadensis)	11.2	KENNEY PARK	Moderate	Advanced decline, dead top over street/sidewalk. Remove. Grind Stump		
40901	mulberry: white (Morus alba)	1.5	KENNEY PARK	Low	Remove		
40911	hemlock: eastern (Tsuga canadensis)	7.5	KENNEY PARK	Low	Treat for HWA		
40914	ash: green (Fraxinus pennsylvanica)	16.4	KENNEY PARK	Low	Treat for HWA		
40921	hemlock: eastern (Tsuga canadensis)	6.5	KENNEY PARK	Moderate	Dead. Remove, grind stump		
40924	hemlock: eastern (Tsuga canadensis)	11.9	KENNEY PARK	Low	Gridling root. Root prune. Treat for HWA		
41174	hemlock: eastern (Tsuga canadensis)	8.1	KENNEY PARK	Low	Treat for HWA		
41175	hemlock: eastern (Tsuga canadensis)	6.8	KENNEY PARK	Low	Treat for HWA		

41176	lilac: Japanese tree (Syringa reticulata)	5.8	KENNEY PARK	Low	Prune to remove deadwood, fix stubs. .5hrs		
41177	katsuratree (Cercidiphyllum japonicum)	14.7	KENNEY PARK	Low	Prune to remove deadwood, fix stubs.		
41178	hemlock: eastern (Tsuga canadensis)	8.8	KENNEY PARK	Low	Treat for HWA		
41179	hemlock: eastern (Tsuga canadensis)	8.5	KENNEY PARK	Low	Treat for HWA		
41180	hemlock: eastern (Tsuga canadensis)	10.3	KENNEY PARK	Low	Treat for HWA		
41181	hemlock: eastern (Tsuga canadensis)	7.1	KENNEY PARK	Moderate	Dead. Remove, grind stump		
41182	hemlock: eastern (Tsuga canadensis)	10.6	KENNEY PARK	Low	Treat for HWA		
41183	hemlock: eastern (Tsuga canadensis)	9.7	KENNEY PARK	Low	Dead. Remove, grind stump		
41184	hemlock: eastern (Tsuga canadensis)	11	KENNEY PARK	Low	Treat for HWA		
41185	elm: Siberian (Ulmus pumila)	19.4	KENNEY PARK	Low	Prune to provide 8-10' clearance off of surrounding structures, utilities. Prune to remove dead, diseased, broken branches 2" in diameter and larger. 6.5 hrs		
Total pruning					2 days large crew.		
Removals							

Ash and
Hemlock Soil
Area

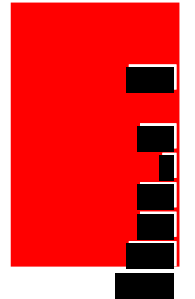
Root pruning
19 Hemlocks
Detail
Permits
Reports
Total

Biostim. 6500 ft sq at .5/ft

1 tree

2days

Reports: Before and After





Accredited Tree Care by Certified Arborists

Malik Drayton
City of Somerville
93 Highland Ave
Somerville, MA 02145

Home:
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Alt e-mail: Jhoward@somervillema.gov

February 17, 2023
Proposal #: 66484

Job Site: 23
Malik Drayton
IFB 23-26 Parks Tree Health Program
Kenney Park
Somerville, MA 02143

Phone:
Email:
Alt Phone:

Tree and Shrub Care Recommendations on 2/13/2023

Description of Services

***- Work Plan for Kenney Park Pruning/Removal March 6-7, 2023.
Soil Work April 2023***

Park will need to be closed from 7AM- 4PM Monday March 6 and Tuesday March 7 for the pruning and removal work. We schedule detail and post permits as needed on public streets. Equipment access will be limited to sidewalk /street and paved surfaces within park.

**- Pruning on Maturing-Mature deciduous Shade trees throughout the park.
individual tree specs listed on the attached spreadsheet.**

Structural Pruning - Selective pruning to improve branch architecture; select, develop and maintain strong, properly spaced scaffold branches by reducing or removing interfering, overextended, defective and poorly attached limbs as specified

Canopy Cleaning - Selective pruning to remove declining, dead and broken branches as specified

Canopy Raising - Selective pruning to provide and envelope of clearance of walkways, roadways, utilities, structures, as specified.



This proposal is valid for 45 days, assuming there are no changes to the site (driveway, plantings, buildings etc. remain unchanged).
All work performed in accordance with ANSI A300 Standards.

Payment due upon completion of work. 1 ½% per month, 18% per year on unpaid balances.



Tree and Shrub Care Recommendations on 2/13/2023

Description of Services

- **11.2" diameter Declining Hemlock (#40900) leaning over the sidewalk and Highland Ave**

Tree Removal & Stump Grinding - Take down, dispose of brush, logs and chipped debris generated from removal operations. Grind stump and exposed flare deep for replant; backfill and remove excess grinding debris. Machine will grind up to 4-6" from adjacent immobile objects. We will not remove other inorganic debris, nor are we responsible for damage to unmarked irrigation and underground non-utility services.

- **7.1" diameter dead Hemlock (#41181) and 9.7" dead Hemlock (41183) Removal & Stump Grinding**

- Take down, dispose of brush, logs and chipped debris generated from removal operations. Grind stump and exposed flare deep for replant; backfill and remove excess grinding debris. Machine will grind up to 4-6" from adjacent immobile objects. We will not remove other inorganic debris, nor are we responsible for damage to unmarked irrigation and underground non-utility services.

- **2" diameter Mulberry #40901**

Tree Removal - Take down and cut stump low to grade as equipment allows, dispose of brush, logs and chipped debris generated from removal operations.

- **11.9" Hemlock (40924) with Girdling Root:**

Root Pruning: prune visible girdling roots smaller than 2" in diameter, etc.

- **Ash and Hemlock trees, Katusura within Park Boundaries**

Bio-stimulant Application - Early season. Treat soils within the critical root zone (typically within the dripline) with an organic liquid blend of humic acids, kelp extract and natural compounds to enhance soil structure, microbial activity and nutrient availability.

- **Posting No Parking Permits.**

- **Police Detail**



This proposal is valid for 45 days, assuming there are no changes to the site (driveway, plantings, buildings etc. remain unchanged). All work performed in accordance with ANSI A300 Standards.

Payment due upon completion of work. 1 ½% per month, 18% per year on unpaid balances.



Tree and Shrub Care Recommendations on 2/13/2023

Description of Services

- **Debris Disposal:** Costs include removal and disposal of brush, logs and chipped debris generated from tree care operations.



Thank you for considering Barrett Tree Service East, Inc. Sincerely,

Alden Johnson
Certified Arborist



This proposal is valid for 45 days, assuming there are no changes to the site (driveway, plantings, buildings etc. remain unchanged). All work performed in accordance with ANSI A300 Standards.

Payment due upon completion of work. 1 ½% per month, 18% per year on unpaid balances.



Soil Test Report

Prepared For:

Sonia Vivas
Barrett Tree Service East Inc
340 Middlesex Ave
Medford, MA 02155

svivas@barrettreeseast.com
617-616-5281

Sample Information:

Sample ID: H8135

Order Number: 64152

Lab Number: S230221-110

Area Sampled:

Received: 2/21/2023

Reported: 3/3/2023

Results

<i>Analysis</i>	<i>Value Found</i>	<i>Optimum Range</i>	<i>Analysis</i>	<i>Value Found</i>	<i>Optimum Range</i>
Soil pH (1:1, H ₂ O)	5.7		Cation Exch. Capacity, meq/100g	16.5	
Modified Morgan extractable, ppm			Exch. Acidity, meq/100g	7.5	
<i>Macronutrients</i>			Base Saturation, %		
Phosphorus (P)	4.2	4-14	Calcium Base Saturation	44	50-80
Potassium (K)	164	100-160	Magnesium Base Saturation	8	10-30
Calcium (Ca)	1442	1000-1500	Potassium Base Saturation	3	2.0-7.0
Magnesium (Mg)	167	50-120	Scoop Density, g/cc	0.90	
Sulfur (S)	13.7	>10	Optional tests		
<i>Micronutrients *</i>			Soil Organic Matter (LOI), %	9.4	
Boron (B)	0.2	0.1-0.5			
Manganese (Mn)	10.5	1.1-6.3			
Zinc (Zn)	19.1	1.0-7.6			
Copper (Cu)	0.4	0.3-0.6			
Iron (Fe)	7.5	2.7-9.4			
Aluminum (Al)	58	<75			
Lead (Pb)	11.5	<22			

* Micronutrient deficiencies rarely occur in New England soils; therefore, an Optimum Range has never been defined. Values provided represent the normal range found in soils and are for reference only.

Soil Test Interpretation

Nutrient	Very Low	Low	Optimum	Above Optimum
Phosphorus (P):	[Progress bar: ~10% in Very Low]			
Potassium (K):	[Progress bar: ~80% in Above Optimum]			
Calcium (Ca):	[Progress bar: ~70% in Optimum]			
Magnesium (Mg):	[Progress bar: ~85% in Above Optimum]			

Recommendations for Deciduous Trees, Shrubs & Vines-Maintenance

Limestone (Target pH of 6.0)	Nitrogen, N	Phosphorus, P2O5	Potassium, K2O
10	.1 - .2	0.1	0

Comments:

-Do not topdress with more than 5 lb limestone per 100 sq ft at one time. Split the above application between early spring and mid-autumn.

*To supply Nitrogen, apply EITHER 1 - 1.5 lbs. Dried Blood (12-0-0) OR 0.2 - 0.4 lbs. Urea (45-0-0) per 100 square feet. Application should be split between early spring and mid-June.

*To supply Phosphorus, apply EITHER 0.8 lbs. Bone Meal (4-12-0) OR 0.2 lb. Triple Phosphate (0-45-0) per 100 square feet.

*Soil test value for potassium is above optimum. Do not add additional potassium at this time.

-For instructions on converting nutrient recommendations to fertilizer applications in home gardens and landscapes, see Reference "Step-by-Step Fertilizer Guide for Home Grounds and Gardening" (listed below).

-Avoid over-fertilization. In addition to threatening water quality, excessive nutrient applications can compromise plant health and contribute to insect and disease problems. For details, see Reference "Corrective Measures and Management of Over-Fertilized Soils" (listed below).

-The lead level in this soil is less than 22 ppm, which falls below the listed optimum level. However, many variables affect this result, and safety thresholds vary by location and soil use. There is still a potential risk of lead exposure for soils used for growing food or as play areas for children. Our Total Sorbed Metals test provides an accurate measurement of soil lead. For more information about lead levels in soil, see the fact sheet entitled "Soil Lead: Testing, Interpretation, & Recommendations," listed under General References at the end of this report. ATTN: The Total Sorbed Metals Test is currently unavailable. We apologize for any inconvenience.

References:

Home Lawn and Garden Information

<http://ag.umass.edu/resources/home-lawn-garden>

Step-by-Step Fertilizer Guide for Home Grounds and Gardening

<https://ag.umass.edu/SPNTL-4>

Corrective Measures and Management of Over-Fertilized Soils

<https://ag.umass.edu/SPNTL-13>

General References:

Interpreting Your Soil Test Results

<http://soiltest.umass.edu/fact-sheets/interpreting-your-soil-test-results>

Soil Lead: Testing, Interpretation & Recommendations

<http://ag.umass.edu/soil-plant-nutrient-testing-laboratory/fact-sheets/soil-lead-fact-sheet>

For current information and order forms, please visit

<http://soiltest.umass.edu/>

UMass Extension Nutrient Management

<http://ag.umass.edu/agriculture-resources/nutrient-management>