



Florence Playground Work Plan

Somerville, MA

April 2021

Prepared for:

City of Somerville, MA
93 Highland Ave.
Somerville, MA 02143

Prepared by:

Davey Resource Group, Inc.
1500 North Mantua Street
Kent, Ohio 44240
800-828-8312



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Purpose

In an effort to promote the health of existing trees within Florence Playground, all trees and soils within the park were assessed and the following maintenance recommendations are provided.

Key Recommendations

- 10 Trees recommended for pruning
- Mulching recommended for 11 trees
- Soil Amendments recommended for 11 trees
- Pavement Removal and tree pit expansion recommended for four trees
- Soil Decomaction recommended for five trees
- Root Pruning recommended for one tree

Pruning

All pruning activities shall adhere to the following specifications:

1. All pruning work will conform to the latest revision of the American National Standards Institute (ANSI): Standard A300, developed by the Tree Care Industry Association.
2. Tree pruning work may include any or all of the following:
 - a. **Young Tree Training:** pruning of young trees to correct or eliminate wraak, interfering, or objectionable branches to improve structure. These trees can be up to 20 feet tall and can be worked with a pole pruner by a person standing on the ground.
 - b. **Crown Cleaning:** selective removal of dead, dying, damaged, diseased, and broken branches from the tree crown. Shall include removal of all deadwood >2" diameter.
 - c. **Canopy Thinning:** selective removal of live branches to provide light or air penetration through the tree or to lighten the weight of the remaining branches.
 - d. **Clearance Pruning:** The heading back or removal of specific limbs to provide clearance from buildings, wires, lights, etc.
 - e. **Crown Raising:** selective removal of lower branches from a tree crown to provide clearance. Trees impeding vehicle or pedestrian traffic should be raised up at least 13 feet over streets and 8 feet over sidewalks. Tree obstructing control devices should be trimmed for adequate visibility.
 - f. **Structural Pruning:** pruning to develop strong tree structure. This includes maintaining a dominant leader by reducing the length or removing any competing leaders, suppressing growth on branches with bark inclusions, ensuring appropriate spacing of main branches along a dominant trunk, and keeping all branches less than one-half the trunk diameter.
 - g. **Aesthetic pruning:** selective removal of downward growing limbs, limbs growing backwards toward the trunk, and other limbs that are making the tree unsightly.
 - h. **Pruning of crossing or rubbing limbs.**
3. All pruning cuts shall be made as close as possible to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub. Bark at the edge of all pruning cuts should remain firmly attached. Sharp tools shall be used so that clean cuts will be made at all times.
4. All branches too large to support with one hand shall be precut to avoid splitting or tearing of the bark. Where necessary, ropes or other equipment should be used to lower branches or stubs to the ground.

5. Treatment of cuts and wounds with wound dressing or paints is prohibited.
6. Equipment that will damage the bark and cambium layer shall NOT be used on or in the trees. For example, the use of climbing spurs (hooks or irons) is not an acceptable work practice for pruning operations on live trees.
7. All cut limbs shall be removed from the crown upon completion of the pruning. Clean-up of branches, logs, or any other debris resulting from any tree pruning shall be promptly and properly accomplished.
8. The work area shall be kept safe at all times until the clean-up operation is completed. Under no condition shall the accumulation of brush, branches, logs, or other debris be allowed upon a public property in such a manner as to result in public hazard.

The following trees are recommended for Crown Cleaning and Crown Raising:

#42459, #42467 - 33" and 23" pin oak, respectively. Good condition. Some of the lower limbs are growing down toward the picnic tables in the park.



#42484 - 23" pin oak. Good condition. Some of the lower limbs are growing down toward the walkway in the park.



The following trees are recommended for Pruning of Crossing/Rubbing Branches:

#42440 - 10" cherry spp. Fair condition. This tree has some old wounds but they appear to have healed well.



The following trees are recommended for Crown Cleaning:

#42475 - 26" pin oak. Good condition.

#42481 - 13" pin oak. Good condition.

#42450 - 19" Norway maple. Fair condition.

The following trees are recommended for Young Tree Training:

#42339 - 3" Japanese tree lilac. Fair condition.

#42344 - 3" Japanese tree lilac. Fair condition.

#42348 - 3" Japanese tree lilac. Fair condition.

Root Pruning

Root pruning shall adhere to the following specifications:

1. Pruning of girdling or circling roots that have the potential to become girdling may be considered. Only roots less than two (<2) inches in diameter should be cut. Cutting larger roots is only possible after explicit approval from the City Urban Forester.
2. The removal of any girdling root will be completed in a manner that will minimize injury to the trunk cambium located beneath the root.
 - a. First, soil will be excavated from around the girdling root, uncovering the entire length to be removed. Using a chisel or saw, roots will be cut at a point 6"-12" out from the trunk. The final cut will be made where the root attaches to the trunk. This prevents the root from being pulled violently away from the embedded area, causing extensive cambium injury if the root happens to be under tension. It is important to note that occasionally it is best to leave the girdled root where it is after it has been cut as the trunk cambium would be damaged severely by gouging out the deeply embedded roots. Roots will be detached and removed if they are not embedded very deeply or roots will be allowed to decay away over time.
3. All root pruning will be completed with sharp, clean tools.
4. Structural roots will NEVER be pruned.

The following trees are recommended for Root Pruning:

#42450 - 19" Norway maple. Fair condition. Tree has some small girdling roots that can be removed.



Pavement Removal

Pavement Removal shall adhere to the following specifications:

1. Certain locations may require the removal of pavement surrounding the trunks of trees to allow for the expansion of planting holes. Pavement types may include bituminous concrete, cement, brick or stone, and other similar substances.
2. All areas where pavement will be removed will be marked in the field by white marking paint. Dimensions of each cut will be provided by the City Urban Forester. All edges will be cut with straight, clean cuts. Special care will be taken to avoid cutting any surface roots under the pavement. Pavement may be cut using a saw, but only if the blade is shallower than the depth of the pavement, to avoid cutting any roots. Water will be used during the saw cutting to reduce dust. Pavement will be removed by hand. Heavy machinery will NOT be used as it is likely to damage the tree trunks or roots.
3. The contractor will be responsible for the legal disposal of all excavated pavement off site, at the contractor's expense.
4. All dust, debris and deposits (including any residue from wet-saw cutting) left behind from the cutting and excavating operations will be cleaned up immediately and removed from the site following the installation of the tree. Dust, debris, and deposits will NEVER be left in the newly created tree well.

The following tree sites are recommended for Pavement Removal:

#42484 - 23" pin oak. Good condition. This tree has become too large for its tree pit and the pavement is heaving.



#42475 - 25" pin oak. Good condition. This tree has become too large for its tree pit and the pavement is heaving.



#42467 - 23" pin oak. Good condition. This tree has become too large for its tree pit and the pavement is heaving.



#42459 - 3" pin oak. Good condition. This tree has become too large for its tree pit and the pavement is heaving.



Mulching

Mulching is recommended for all trees in Florence Playground. Mulch shall be applied according to the following procedures:

1. Mulch shall be applied to trees for moisture retention in soil abatement of dust and weeds, and for nutrient enrichment of the soil.
2. Mulched area shall be six feet in diameter around the trunk of the tree unless otherwise specified by the City Urban Forester. A three inch layer of mulch (after settlement) will be applied around the tree, tapering towards the trunk. Mulch shall NOT come in contact with the trunk of the plant or the root flare. No mulch shall be placed within 2 to 3 inches of the trunk. "Volcano" mulching is strictly prohibited.
3. Mulch shall be high quality, premium course-grade bark mulch, 15 mm minimum length, consisting of clean organic plant material. Mulch shall conform to the following:
 - a. Must be uniform, natural wood color, without dyes, which shall not exhibit a noticeable degree of color change characteristic when wet.
 - b. Must not have an unpleasant odor.
 - c. Must be free of dirt, insects, disease, and extraneous debris that would be harmful to the trees being planted.
 - d. pH: between 4.0 and 8.0
 - e. Particle size: 100% passing through a 50 mm (2 inch) screen
 - f. Soluble salt content: less than 4.0 mmhos/cm

Soil Recommendations

Three soil samples were taken at Florence Playground. One was taken in the planting bed containing Japanese tree lilacs. One was taken from the tree well containing a cherry spp. The third was taken from the pin oak planting pits. The following recommendations are given:

1. The soil pH of the planting bed sample was determined to be 6.1 and is considered outside of the desirable range (too acidic). Soil aeration and the incorporation of dolomitic lime is recommended for the planting bed within Florence Playground. This will help correct soil pH by adding magnesium. Phosphorus and Nitrogen levels were in the Good or Greater range and the addition of fertilizer is not recommended at this time. The texture of the planting bed sample was determined to be sandy loam.
2. The soil pH of the tree well sample was determined to be 5.9 and is considered outside of the desirable range (too acidic). The incorporation of dolomitic lime is recommended for the tree well within Florence Playground. This will help correct soil pH by adding magnesium. Phosphorus and Nitrogen levels were in the Medium range and the addition of Arbor Green Pro fertilizer is recommended to maintain optimum levels of soil nutrients. The texture of the tree well sample was determined to be sandy loam.
3. The soil pH of the tree pit sample was determined to be 5.5 and is considered outside of the desirable range (too acidic). The incorporation of dolomitic lime is recommended for the tree pits within Florence. This will help correct soil pH by adding magnesium. Phosphorus and Nitrogen levels were in the Medium range and the addition of Arbor Green Pro fertilizer is recommended to maintain optimum levels of soil nutrients. The texture of the tree pit sample was determined to be loamy sand

Soil Decompaction will adhere to the following specifications:

1. Heavily compacted soil may require decompaction to promote health. Particular consideration will be given to the soil within the critical root zone.
2. Soil decompaction will be done in such a way as to promote a healthy soil development without damaging roots.
3. Soil decompaction will be accomplished through soil aeration (using an air spade) and the addition of compost to the soil.

The following trees are recommended for Soil Aeration due to compacted soils:

#42484 - 23" pin oak. Good condition

#42481 - 13" pin oak. Good condition

#42475 - 25" pin oak. Good condition

#42467 - 23" pin oak. Good condition

#42459 - 33" pin oak. Good condition

Park Closure, Traffic Management, and Sequence of Events

Work will likely take a little over one day and will require the park to be closed during operations. Police detail will not be required for this work. However, pedestrian/bicycle traffic and parking will need to be restricted in front of the park during operations.

Tree pruning will take place first. Once the tree work is complete pavement removal will take place. Following pavement removal, compacted soil will be aerated, any root pruning will be done, and soil amendments and fertilizer will be incorporated to the soil. Finally, mulch will be added to all trees.

Crew and Equipment

Access to the park will be via Florence St. Work crew will consist of 3 individuals and will require the following heavy equipment:

- Bucket Truck
- Chipper

All wood material removed from trees will be chipped on site and removed. All effort will be made to protect city and playground infrastructure. All playground equipment will be protected with plywood and moving blankets to prevent damage.

Maintenance Schedule

Tree Number	Species	DBH	Maintenance Recommendation	Priority
42459	pin oak	33	Crown Cleaning and Crown Raising	Medium
42467	pin oak	23	Crown Cleaning and Crown Raising	Medium
42484	pin oak	23	Crown Cleaning and Crown raising	Medium
42440	cherry spp.	10	Pruning of Crossing/Rubbing Branches	Low
42475	pin oak	26	Crown Cleaning	Low
42481	pin oak	13	Crown Cleaning	Low
42450	Norway maple	19	Crown Cleaning	Low
42339	Japanese tree lilac	3	Young Tree Training	Low
42344	Japanese tree lilac	3	Young Tree Training	Low
42348	Japanese tree lilac	3	Young Tree Training	Low
42450	Norway maple	19	Root Pruning	Medium
4 Trees	pin oak		Pavement Removal	Medium
5 Trees	pin oak		Soil Aeration	Low
8 Trees			Lime and Fertilizer soil amendments	
11 Trees			Mulch	Low
			Posting of No Parking Signs	
				Total:

APPENDIX I

Tree Location Map



Ortho Imagery from MASS GIS.

APPENDIX II

Soil Test Results

Planting Bed Sample

Turf and Ornamental Soil Analysis Report

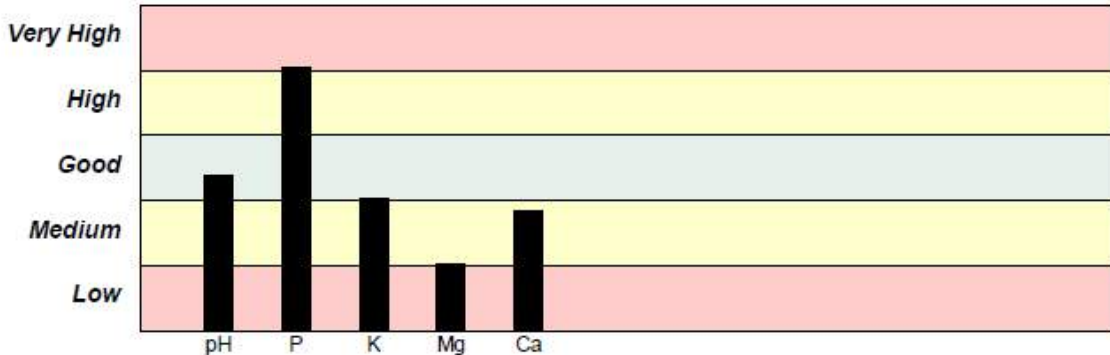
Spectrum Analytic
 1087 Jamison Road NW
 Washington Court House, OH 43160-8748
 www.spectrumanalytic.com

THE DAVEY TREE EXPERT CO-SOIL LAB
 PO BOX 5193
 KENT, OH 44240

Prepared For
SOMMERVILLE-104550 SOMMERVILLE, MA

Sample Information			
Sample	175	Sampled	03-23-2021
Lab Number	G19931	Tested	03-26-2021

Analysis	Result	Optimal	Analysis	Result	Optimal
Soil pH	6.1	5.8-6.6	Clay	% 14	
Buffer pH	6.7		Sand	% 74	
Organic Matter	% 4.1		Silt	% 12	
CEC	7.5		Texture	Sandy Loam	
K Saturation	% 3.9	2.0-4.0			
Mg Saturation	% 7.2	10-20			
Ca Saturation	% 40.8	50-70			
K/Mg Ratio	1.9				
Ca/Mg Ratio	11.1				
Phosphorus	m3-ppm 154	50-80			
Potassium	m3-ppm 136	130-220			
Magnesium	m3-ppm 73	140-280			
Calcium	m3-ppm 813	900-1500			



Recommendations		Nutrients expressed in broadcast lbs/1000 sqft, except Fe (foliar) and Mn (row)										
Yr	Crop	CaCO3	N	P2O5	K2O	Mg	S	B	Cu	Fe	Mn	Zn
21	Trees, Deciduous-Undefined	25D	3.0	0.0	2.4	0.6						

Lime expressed in 100% pure CaCO3. Adjust accordingly. D=Dolomitic. C=Calcitic.

Trees, Deciduous-Undefined: Limit N to 1 lb./1000 sq. ft. within dripline in year 1. Split N 50% early spring and 50% late summer. Fertilized area under tree starts 2 ft. from trunk, to 3 ft. outside of dripline. Adjust future fertilizer rates based on annual leaf analysis.

Tree Well Sample

Turf and Ornamental Soil Analysis Report

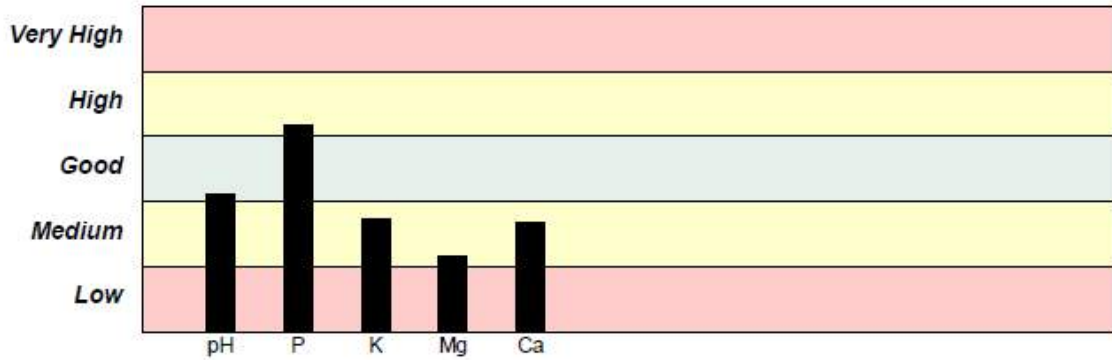
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Prepared For
SOMMERVILLE-104550 SOMMERVILLE, MA

Sample Information			
Sample	176	Sampled	03-23-2021
Lab Number	G19932	Tested	03-26-2021

Analysis	Result	Optimal	Analysis	Result	Optimal
Soil pH	5.9	5.8-6.6	Clay	% 18	
Buffer pH	6.6		Sand	% 58	
Organic Matter	% 3.9		Silt	% 24	
CEC	9.9		Texture	Sandy Loam	
K Saturation	% 2.7	2.0-4.0			
Mg Saturation	% 6.7	10-20			
Ca Saturation	% 42.1	50-70			
K/Mg Ratio	1.4				
Ca/Mg Ratio	12.4				
Phosphorus	m3-ppm 91	50-80			
Potassium	m3-ppm 126	140-240			
Magnesium	m3-ppm 90	160-300			
Calcium	m3-ppm 1112	1300-1900			



Recommendations		Nutrients expressed in broadcast lbs/1000 sqft, except Fe (foliar) and Mn (row)										
Yr	Crop	CaCO3	N	P2O5	K2O	Mg	S	B	Cu	Fe	Mn	Zn
21	Trees, Deciduous-Undefined	56D	3.0	0.2	2.6	0.4						

Lime expressed in 100% pure CaCO3. Adjust accordingly. D=Dolomitic. C=Calcitic.

Trees, Deciduous-Undefined: Limit N to 1 lb./1000 sq. ft. within dripline in year 1. Split N 50% early spring and 50% late summer. Fertilized area under tree starts 2 ft. from trunk, to 3 ft. outside of dripline. Adjust future fertilizer rates based on annual leaf analysis.

Tree Pit Sample

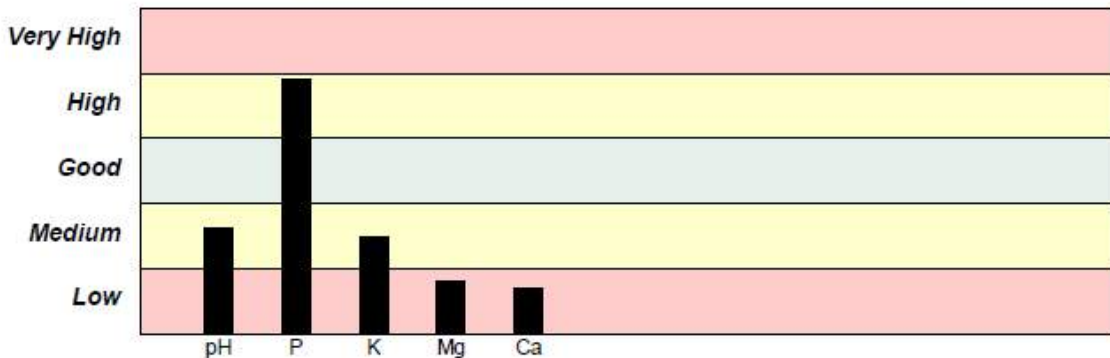
Turf and Ornamental Soil Analysis Report

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THE DAVEY TREE EXPERT CO-SOIL LAB
 PO BOX 5193
 KENT, OH 44240

Prepared For		Sample Information			
SOMMERVILLE-104550 SOMMERVILLE, MA		Sample	177	Sampled	03-23-2021
		Lab Number	G19933	Tested	03-26-2021

Analysis	Result	Optimal	Analysis	Result	Optimal
Soil pH	5.5	5.8-6.6	Clay	% 8	
Buffer pH	6.4		Sand	% 78	
Organic Matter	% 4.4		Silt	% 14	
CEC	9.6		Texture	Loamy Sand	
K Saturation	% 2.4	2.0-4.0			
Mg Saturation	% 4.7	10-20			
Ca Saturation	% 17.7	50-70			
K/Mg Ratio	1.8				
Ca/Mg Ratio	7.4				
Phosphorus	m3-ppm 140	50-80			
Potassium	m3-ppm 107	140-240			
Magnesium	m3-ppm 61	150-300			
Calcium	m3-ppm 451	1200-1800			



Recommendations		Nutrients expressed in broadcast lbs/1000 sqft, except Fe (foliar) and Mn (row)										
Yr	Crop	CaCO3	N	P2O5	K2O	Mg	S	B	Cu	Fe	Mn	Zn
21	Trees, Deciduous-Undefined	116D	3.0	0.0	2.7	0.7						

Lime expressed in 100% pure CaCO3. Adjust accordingly. D=Dolomitic. C=Calitic.

Trees, Deciduous-Undefined: Limit N to 1 lb./1000 sq. ft. within dripline in year 1. Split N 50% early spring and 50% late summer. Fertilized area under tree starts 2 ft. from trunk, to 3 ft. outside of dripline. Adjust future fertilizer rates based on annual leaf analysis.

Analyzed by Spectrum Analytic Inc.
 www.spectrumanalytic.com

HID:0561-0939-2671-0006

APPENDIX III

Tree Condition Definitions

Condition: Condition indicates the current state of a tree's health and structural soundness. As adapted from the Council of Tree and Landscape Appraiser's "Guide for Plant Appraisal", condition is determined through a visual evaluation of the roots, trunk, and scaffold branches, as well as branches, twigs, foliage and buds. The overall health of any given tree is essentially the sum of the condition for all of these woody and vegetative components. The Council's condition rating system returns a numerical value (1-4) that can then be characterized as "Dead", "Poor", "Fair", and "Good", respectively, as represented in i-Tree Streets v5. General characteristics of overall health are provided below; however, it is important to remember that these ratings account for the sum of a tree's parts. Also, condition may change at any time for any number of factors including exacerbation of known and unknown defects, introduction or advancement of insects and disease, environmental stress, and adverse site factors, among others.

Good

The tree has no major structural problems, no significant mechanical damage, no insect or disease issues of concern, and minimal to no signs of stress.

Fair

The tree may exhibit minor structural problems; mechanical damage that decreases the stability of a tree's roots, trunk, or scaffold branches; presence of and/or damage from harmful insects and diseases; and general signs of stress such as wilting or minor twig dieback.

Poor

The tree may have major structural defects, extensive wounds or decay (localized or widespread), mechanical damage that increases the likelihood of failure, significant crown dieback, and insect or disease issues that result in a noticeable decline in tree health.

Dead

Trees in this category are dead.