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Administrator
Town of Arlington Conservation Commission
730 Massachusetts Ave.
Arlington, MA 02476

30 June 2016

re: Magnolia Park N.O.I. Amendment
Arlington, MA

This Amendment to the Magnolia Park Notice of Intent describes intended uses for the area excluded from the Conservation Commission permit for Magnolia Park – the area to the west of the current garden. This amendment proposes the expansion of the Magnolia Park Community Garden to the west, the removal of trees associated with this expansion, and the planting of additional trees to make up for these tree losses.

A key program element of the redesign of Magnolia Park is the community garden. During public meetings in the fall of 2015 and winter of 2015-2016, community gardeners noted that the existing garden is too shady, too wet, and too small. A large 30" Dawn Redwood adjacent to the current garden impacts the viability of the current garden. Shade from this 65-70' tree shadows the garden, and the roots of this tree have spread into garden plots. Keeping this tree would require reducing the size of the community garden so that continued root growth and shade are less intrusive to the garden, or perhaps even eliminating the garden altogether. There has been a waiting list for garden plots for several years.

Taking this input into account, the design team studied several locations for the new garden in Magnolia Park, and the consensus from the Park and Recreation Commission was to keep the garden in its current location, to expand the garden to the west, to upgrade garden drainage, and to remove some trees adjacent to the garden or in the area designated for garden expansion.

I. Garden Expansion

This garden expansion is the focus of this Amendment. The existing garden has 26 plots, several of which are impacted by shade and wet conditions. The proposed new garden will have 48 garden beds and 6 raised beds for a total of 54 total garden beds. Currently, none of the existing garden beds are ADA accessible. In the new garden, 10 garden beds and all 6 raised beds will be accessible. The proposed garden will be improved with new drainage, fencing, compost bins, storage sheds, and 4 new water sources for gardeners. It is important to note that the expanded community garden will provide significant ecological and habitat value for the park in addition to the many health, educational and community benefits of local food production.

According to Greenleaf Communities, a nonprofit dedicated to conduct primary research on the environment and human health, "community gardens:

- Help improve air and soil quality
- Increase biodiversity of plants and animals
- Reduce "food miles" that are required to transport nutritious food

- Improve water filtration
- Can reduce neighborhood waste through composting
- Positively impact the urban micro-climate”

(<http://greenleafcommunities.org/the-many-benefits-of-community-gardens/>)

II. Trees to be removed

The expansion of the garden will require the removal of three additional trees which are inside the area for garden expansion, and one tree outside of the garden expansion. Two other trees have already been approved for removal by the Conservation Commission. A total of six trees are proposed to be removed as part of this project.

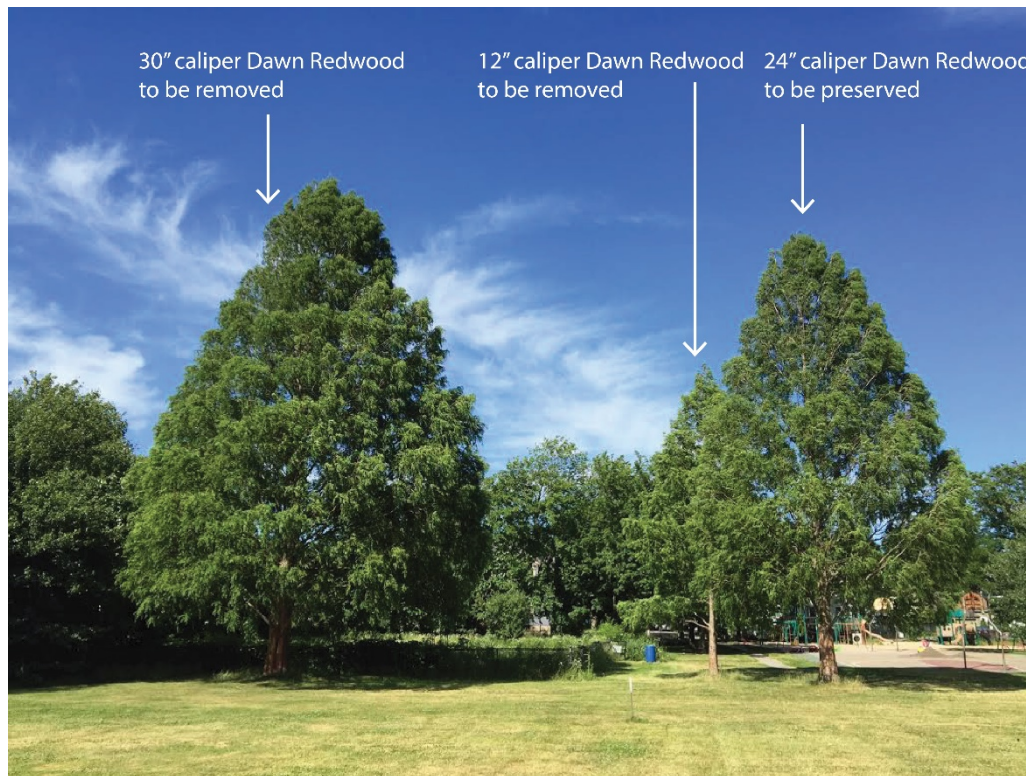
The trees inside the area for garden expansion to be removed include two Red Maples and one Dawn Redwood. One of the Red Maples to be removed has three 8” trunks and is in poor condition. It is leaning, has significant die-back, and has been recommended for removal by the Town Tree Warden. It is shown in the foreground of the photo below.



Existing Red Maples at Magnolia Park to be removed for garden expansion.

The second Red Maple has two 16” trunks. This tree is not deemed a current hazard by the Tree Warden. However it is being overcrowded by neighboring trees, is described as a “borderline” tree by the Tree Warden. It is in the way of the garden expansion and shades the current garden. It is shown in the background of the photo above.

The third tree to be removed is a 30" Dawn Redwood. This tree is structurally sound with good root flare and is a "beautiful tree" as noted by the Tree Warden. This tree was planted in 1985 or 1986 as the original planting plan dates to August of 1985. So the presumed age of the tree is 30 or 31 years old. This tree has public support and has been part of an online petition to preserve it. However, this tree is in the way of the expansion of the garden, and the shade and roots from this tree interfere significantly with the current garden. For the success and expansion of the garden this tree would need to be removed. This tree is shown to the left on the image below.



Existing Dawn Redwoods at Magnolia Park – all planted in 1985 or 1986. Photo taken June 21 at 4:15pm.

This is a large, 30" caliper, 30 to 31 year-old shade tree that is native to China. Originally thought to be extinct, the Dawn Redwood was only known through fossil evidence until it was rediscovered in the early 1940s in China. The Arnold Arboretum organized an expedition to collect seeds, and the tree was reintroduced to the United States and planted in the following decades, aided by Donald Wyman, the former managing horticulturalist at the Arnold Arboretum. The tree is a deciduous evergreen, losing its needles in the winter. It is a rapid grower with a wide, shallow, aggressive root system. The tree needs plenty of room for growth, and becomes very large over time. Many trees planted in the late 1940s and 1950s are now over 100' tall. This 30" caliper tree is approximately 65-70' tall and was planted as a 7-8' tall tree approximately thirty years ago according to the original planting plans. So it has grown about 1" in caliper and 2' in vertical growth per year. At this growth rate and given the species type, in another thirty years the trunk could be over 5' wide and the tree could be 120-130' tall. This size tree is out of scale next to a community garden.

Of note is the opinion of the species by Donald Wyman (the man who helped to reintroduce it to the United States):

“Wyman was a close observer of the species, but not a great fan. In 1970 he wrote, ‘Although very fast growing, it is not a distinguished ornamental and it is definitely too large for the small garden.’ (Madsen, Karen. “A Guide to Metasequoia at the Arnold Arboretum.” Arnoldia, 1998: p. 82)

It is also interesting to note that the same 1998 article on Dawn Redwoods in Arnoldia states that (emphasis added):

“Half a century after Elmer Merrill received the first seed shipment from China, concerns about genetic variations have been put to rest; **hardiness has been established across a broad geographical range; propagation has been ensured; the threat of extinction is past:** We are free to concentrate on the Dawn Redwood’s very ornamental features.” (Madsen, Karen. “A Guide to Metasequoia at the Arnold Arboretum.” Arnoldia, 1998: p. 83)

Also of note on the *Save the Redwoods* webpage:

“We recommend **planting trees that are native to your area.** Native plants are always preferable because they are adapted to an area’s climatic and soil conditions.
<http://www.savetheredwoods.org/about-us/faqs/>

It is the opinion of the Park and Recreation Commission that, while a large and beautiful tree, the 30” Dawn Redwood is a 30 or 31 year-old non-native tree that is not compatible with the adjacent community garden because of its size, because of the shade it creates, and because of its aggressive root system. It will be only more of a problem over time for the garden.

The Dawn Redwoods in the park were planted in 1985 or 1986. A 1982 plan of Magnolia Park shows “Garden Plots” at Magnolia Park. Also, there is a long historic precedent of gardening and farming in East Arlington. East Arlington by the 1870’s had become an important center of market garden farming.

“For over two hundred years, however, the loam-rich bottomland east of Spy Pond had been used by subsistence farmers willing to endure intermittent flooding. Long before it became famous for ice blocks and hearty varieties of vegetables, Indian corn had been the principal crop.” (American Landmarks, Inc. 1981. Ice, Crops and Commuters: South and East Arlington’s Historical and Architectural Heritage. Arlington, MA: Arlington Historical Commission, p. 75)

The fourth tree to be removed is a 12” Dawn Redwood to the south of the garden. This tree is planted to the north of a 24” caliper Dawn Redwood which will be preserved. All three Dawn Redwoods were planted at the same time in 1985 or 1986, yet they are different sizes. The Tree Warden stated that while the 12” Dawn Redwood is a relatively healthy tree, there could have been some issues with the root ball when planted or it may be competing for light and nutrients with the larger 24” Dawn Redwood next to it. A proposed path is close to the 12” Dawn Redwood, and the

proposal to remove the 12" Dawn Redwood would eliminate this path conflict. It would also allow this path to be diverted further away from the 24" Dawn Redwood, allowing it to have better success and thrive over time.

While the 30" and the 12" caliper Dawn Redwoods would be removed, the 24" Dawn Redwood would be preserved. Even given its past growth rate (presumably compromised somewhat by the 12" Dawn Redwood next to it) it is estimated that in 5-8 years the 24" Dawn Redwood will be as large as the 30" Dawn Redwood currently is.

The fifth and sixth trees to be removed include a 4" Apple Tree in the current garden and a 14" Sweet Gum in front of the garden. The Conservation Commission has already approved the removal of these trees.

Overall, there are 47 existing trees on site. The proposed Amended Plan preserves 41 trees, removes 6 trees, and plants 39 new trees for a total of 80 trees. All of the trees to be removed are adjacent to or inside of the community garden and are creating shade issues in the garden. The trees to be removed are listed below. See L2 Site Preparation and Demolition Plan– NOI Amendment for more information.

<u>Tree to be removed</u>	<u>Caliper</u>	<u>Canopy</u>	
1 Sweet Gum	14"	700 sq.ft.	(already approved for removal)
1 Apple Tree	4" (8' tall)	30 sq.ft.	(already approved for removal)
1 Red Maple	two 16" trunks	1,250 sq.ft.	
1 Red Maple	three 8" trunks	700 sq.ft.	
1 Dawn Redwood	30"	1,250 sq.ft.	
<u>1 Dawn Redwood</u>	<u>12"</u>	<u>700 sq.ft.</u>	
6 total	116" total	4,630 sq.ft. total	

III. Proposed Planting & Habitat Value

There are 47 existing trees on site. The proposed Amended Plan preserves 41 trees, removes 6 trees, and plants 39 new trees for a total of 80 trees. The proposed Amended Plan has increased the number of trees to be planted so that the number of caliper inches of trees to be replaced is equal to the caliper inches of removed trees. This increase is made up in the Meadow Planting area, as outlined below.

<u>Replacement Trees</u>	<u>Caliper</u>	<u>Canopy after 15 years</u>
5 Red Maple	2.5 – 3" (each)	315 sq.ft. (each)
6 Honey Locust	2.5 – 3" (each)	315 sq.ft. (each)
1 Sweet Gum	2.5 – 3" (each)	315 sq.ft. (each)
1 Weeping Willow	3 – 3.5" (each)	315 sq.ft. (each)
5 American Elm	2.5 – 3" (each)	315 sq.ft. (each)
1 Dawn Redwood	2.5 – 3" (each)	315 sq.ft. (each)
3 Magnolia	2 – 2.5" (each)	175 sq.ft. (each)
<u>2 Black Gum</u>	<u>2.5 – 3" (each)</u>	<u>315 sq.ft. (each)</u>
24 subtotal	71"	7,140 sq.ft.

<u>Meadow Trees</u>	<u>Caliper</u>	<u>Canopy after 15 years</u>
5 Shadblow Serviceberry	3 trunks at 1" each	80 sq.ft. (each)
5 Swamp White Oak	2-3"	315 sq.ft. (each)
<u>5 Eastern Redbud</u>	<u>3 trunks at 1" each</u>	<u>80 sq.ft. (each)</u>
15 subtotal	45"	2,375 sq.ft.
39 total	116" total	9,515 sq.ft. total

Feedback during the public meetings for Magnolia Park emphasized that children enjoy experiencing nature at the park and desire more and varied plantings. The proposed park plantings will add habitat value and beauty to Magnolia Park. Five new Red Maples (*Acer rubrum* 'October Glory') will add screening to neighbors at the south and north edges of the park. These native trees have wonderful fall color, are adapted to wet conditions found at the park, and provides cover for many types of bird species. Five new Princeton American Elms (*Ulmus americana* 'Princeton') are proposed for the lawn area to the north of the playground. This cultivar of the American Elm is resistant to Dutch Elm Disease and planting this native tree in the park will help to reestablish this historic tree species in the United States.

One Sweet Gum (*Liquidambar styraciflua* 'Moraine') tree will be planted to replace the one being removed at the garden's edge, and six Honey Locust (*Gleditsia triacanthos* 'Shademaster') trees will be planted to add to the existing Honey Locust trees to be preserved. Both of these native species will add to the existing tree canopy and help create shade for the park. The seeds of Sweetgum are eaten by birds, squirrels and chipmunks.

A bioretention area is being proposed in a low point of the park where water currently accumulates. This area will have a new drain as well as riverstone groundcover and salvaged granite blocks for aesthetic interest. The planting selected for this area is tolerant of these wet conditions. It includes two Black Gum (*Nyssa sylvatica*) trees. This native tree prospers in wet soils and can be found in the wild in swampy conditions. This pyramidal tree has flowers that are a valuable source of honey for birds, especially the American Robin. It produces a dark blue fruit that is also popular with small bird species.

One Weeping Willow (*Salix Alba* 'Tristis') will be planted at the edge of the bioretention area overlooking the lawn. Recent microburst storms have caused other large, old weeping willows at the park to fall over. This tree enjoys moist soils and the new tree is intended as a replacement for these trees that were lost and for the enjoyment of children.

One new Dawn Redwood (*Metasequoia glyptostroboides*) will be planted at the edge of the lawn over 100' feet away from the garden. The species is a rapid grower, and while not a native tree, hopefully it will thrive and provide a companion to the 24" Dawn Redwood that is being preserved.

A layer of wet-tolerant shrubs and grasses are proposed in the bioretention area to add to the ecological and aesthetic value of this area. These include Switchgrass (*Panicum virgatum*), Lowbush Blueberry (*Vaccinium angustifolium*), Swamp Rose (*Rosa palustris*) and Northern Blue Flag Iris (*Iris versicolor*). All of these are native species and will add a low-level plant habitat between

lawn and trees that is important for habitat creation for birds and insects. The flowers and fruit of these species will add to the ecological value of the park.

IV. Meadow Planting

A separate area of planting is the Meadow, proposed on a current open lawn to the south-west of the site. A curved path in the area defines an area for a seeded meadow. This seed specification is Low-Growing Wildflower & Grass Seed Mix ERNMX-156 from Ernst Seeds. This is a specifically designated Conservation Seed Mix for meadow sites and will create a low-growing meadow of grasses and small flowers to provide a meadow habitat for birds and insects. The makeup of the seed mix includes Sheep Fescue, Ryegrass, Blue Flax, Blackeyed Susan, Coreopsis, Oxeye Daisy, Aster, Butterfly Milkweed and other flower and grass varieties.

Behind the Meadow, smaller native understory trees are proposed including five Serviceberry (*Amelanchier canadensis*) and five Eastern Redbud (*Cercis canadensis*). These small flowering native trees will provide a resting and transition point for birds between the Meadow and the trees beyond. Serviceberry attracts many bird species that feed on its fruit, and its spring flowers attract pollinators and other insects which in turn provide food for native birds. Eastern Redbud seeds are eaten by birds including Goldfinch. Behind these understory trees, a backdrop of five Swamp White Oaks (*Quercus bicolor*) is proposed. The Swamp White Oak is a lowland tree that produces acorns, and wildlife including birds and small mammals are attracted to this tree when acorns are dropping in the fall.

The Meadow Planting listed above was included as an Add Alternate in the original Bid Documents. The Park and Recreation Commission is committed to make this planting a top priority and to make every effort to complete this planting.