Retirement Community's Arboretum Uses ArbNet Grant to Advance Best Practices in Tree Care

OBERLIN, OH — The John Bartram Arboretum at Kendal at Oberlin, located on the 100+ acre campus of Kendal at Oberlin, a life plan retirement community in northeast Ohio, has used a recent grant from ArbNet, the global community of tree-focused institutions, to address a vexing problem with ailing trees. The grant provided partial funding for a year-long Pilot Test for Remediation of Suffocating Tree Root Crowns to remediate and revitalize a sample of trees and to develop an improved tree care regimen to ensure a healthier tree collection.

Founded in the summer of 2015, The John Bartram Arboretum aims to responsibly steward its urban forest of over 1,000 trees to ensure a healthy, diverse woody plant ecosystem, with an aspirational vision to be a showcase of sustainable arboriculture. The arboretum was certified by ArbNet in December 2015, and was one of six member arboretums awarded an ArbNet 5th Anniversary Capacity-Building Grant a year later. Kendal at Oberlin resident Larry Dunn, who chairs the Arboretum Committee which serves as the governing board of the arboretum, described the background of the project. "Many of our trees were showing signs of stress and failure to thrive and we needed to get to the root of the problem," says Mr. Dunn. "With the help of this ArbNet grant, we were able to determine that the root of the problem was indeed the trees' roots — we were suffocating them by planting too deep and mulching too high."

Tree root suffocation occurs when the root collar of the tree, the area of transition from trunk tissue to root tissue, is buried too deep at planting time or is subsequently buried by excessive piling of mulch against the trunk. As a result, the tree roots are deprived of air. The tree responds by sprouting adventitious roots from the buried trunk tissue. These ineffective roots tend to girdle the trunk, exacerbating the problem and leading to early decline. The arboretum selected twelve 20-to-25-year-old Red Maple (Acer rubrum) tree specimens which were clearly suffering from root collar suffocation as the

focus for the pilot test. Six trees were selected for treatment and six trees in similar sites and circumstances were selected as control trees (to receive no treatment).

In November, 2016, the arboretum contracted with Organic Air Tree and Shrub Care of Norwalk, Ohio, who are experts in remediating suffocating tree roots. Organic Air first excavated the buried tree root collars using a Supersonic Air Knife tool to remove layers of built-up soil and mulch and a variety of hand and power tools to remove layers of stem-girdling roots that had built up over the years. Next, they applied a bioactive aeration soak out to the drip line of each tree to loosen the soil in the root zone and stimulate new root growth. The excavation and aeration process was followed by a series of liquid organic feeding treatments applied to the root zone and canopy foliage during the 2017 growing season.

Also in the fall of 2016, the arboretum hosted a workshop by the Ohio Independent Arborists Association on the use of supersonic air tools to remediate tree root suffocation. About twenty professional arborists from northeast Ohio and ten Kendal residents and staff participated.

“Tree root collar suffocation is an all-too-common problem in home and institutional landscapes,” says Alan Siewert of Ohio Department of Natural Resources Urban Forestry, who consulted on the project. “Even trained professionals are insufficiently aware of the proper techniques for planting and mulching to ensure a long healthy life for urban trees. I commend ArbNet and The John Bartram Arboretum for tackling this problem head-on.”

The critical measures of efficacy of the treatment regimen are changes in the rate of growth in trunk diameter and terminal branch growth in the treated trees, as compared to the control trees. So far, the quantitative results are inconclusive, which is not too surprising only one year after treatment. However, qualitative observations of the two groups of trees during the growing season showed the treated trees to have healthier foliage with a deeper green color and less incidence of leaf curl and premature fall Coloring.

The most important near-term outcome from the project is an advancement in the arboretum’s tree care practices. With assistance from Mr. Siewert, the arboretum and the Facility Services department at Kendal adopted a new standard protocol for the planting and after-care of new trees. The new protocol is based on the latest guidance from the International Society of Arboriculture and the Ohio DNR. It ensures that trees will not be planted too deep and that mulch will be used beneficially, but not excessively.

The arboretum is now on confident footing to know that new trees they invest in will not be suffering from root collar suffocation. “The John Bartram Arboretum is one of the most important initiatives we’ve undertaken during my time here, because our trees are

such a vital asset” says Barbara Thomas, who has been CEO of Kendal at Oberlin since its founding. “The ArbNet grant has been instrumental in getting us on the fast track to improving our tree care, which will have long-term benefits to the quality of life for our community. We are exceedingly grateful for their assistance.”