



MEMORANDUM

To: **Honorable Mayor & City Council**

From: Howard Koontz, City Arborist

Date: October 15, 2012

Subject **Dunwoody Village Parkway Median Trees Transplanting**

Staff has been directed to evaluate the efficacy of transplanting trees -that would otherwise be removed- as a function of the Dunwoody Village Parkway road improvement project.

Staff identified and evaluated the following criteria to determine whether or not there is any utility to be had from transplanting the existing street median trees along the Dunwoody Village Parkway:

1. Type of tree – Arborguard completed a tree inventory and analysis in February 2011 which was later incorporated into construction plans for the proposed roadway project. There are 74 trees present in the Dunwoody Village Parkway median island, all but 13 are deciduous. The trees range in condition from Good (excellent condition and actively thriving) to Dead. The tree types include Crape Myrtles, Maples, Sawtooth, Willow and Shumard Oaks, Crab Apples, Bradford Pears and a few short needle Black Pines.
2. Size of tree – The trees in the Dunwoody Village Parkway median range in diameter from 3 inches (Crape Myrtle) to 27 inches (Shumard Oak – specimen sized, good condition). It is common in nursery propagation for trees under ½” caliper to be transplanted as a bare root tree, meaning no soil is attached to the root zone. They are very lightweight and can often be shipped by U.S. Mail, FedEx or UPS. Once a tree reaches a size larger than ½”, the tree needs to be transplanted with a soil ball attached to protect the tree roots. Trees from ½” to roughly 2 ½” caliper can most commonly be moved and transplanted by hand, as the size of the tree and root ball combined can still be managed for weight and bulk by one or two men. Once a tree grows larger than 2 ½” in caliper, the size of the plant itself -in conjunction with the tree ball- attains such a weight and girth as to require mechanical assistance from a tractor or fork lift. Finally, trees in excess of approximately 6” to 8” DBH require cranes to lift and move, as their weight often exceeds a ton.
3. Soil condition – The soil present in the median is of a poor quality. It is compacted and visually deficient in organic materials, consisting of mostly sand-heavy loam. Permeability of the soil media is low, and the absence of mulch cover to retain moisture and organic material is adding to the soil compaction problem.



4. Season to transplant – the best time of year to transplant nursery stock is late winter, just after the ground thaws but before the trees begin pushing out new roots and buds. Late autumn, after the trees have dropped their leaves but before the ground freezes is also an acceptable time to transplant trees. Spring and Summer are arguably the worst times of year to dig, because the stresses on dug trees are high, in a time when root growth should be prolific to prevent decline or even death. The Dunwoody Village Parkway median project is slated to be started in July 2013.

5. Preparation for transplanting – nursery stock is often root-pruned and fertilized in the root zone to ensure the best root health, in anticipation of transplanting. The trees in the Dunwoody Village Parkway median have had no such care. In preparation for any transplanting, staff would suggest an immediate investment in preparation before undertaking any transplanting activities.

6. Cost/benefit versus buying new replacements – the cost to have a tree spade on site to dig the trees selected for transplanting, followed by moving those trees to an adequately prepared site and the continued maintenance on those trees after-transplanting will greatly outweigh selecting new trees to replace those removed during construction. However, the replacement trees will be noticeably smaller in size, as the trees present today are mature and have been growing in their current location for years.

ANALYSIS

There are a total of 74 trees in the Dunwoody Village Parkway median. Of these trees, 27 are in the ‘best fit’ category for successful transplanting (size < 10”, in good health and vitality). Their numbers break down as follows:

Quantity	Name	Size	Vitality
14	Crape Myrtle	var. 2” - 6”	Good
6	Long Needle Pine*	var. 5” – 8”	Good
5	Maple	var. 6” – 9”	Good
1	Chinese Elm	9”	Good
1	Redbud	6”	Good



**The long needle pines are growing in a clustered stand of trees in front of the Ace Hardware site, and are not suitable for digging en masse. If any trees from that stand are to be saved, it would be at the peril of the remaining trees' survivability.*

Staff research indicates that contractor equipment suitable for digging these trees in the required root ball sizes will cost approximately \$225/hour for a tree spade capable of digging up to an 80" root ball, and approximately \$135/hour for a spade that can dig a root ball of only 42". Trees in excess of 3 ½" inches caliper will require a tree ball in excess of 42", depending on soil type and condition.

Trees over 10" DBH were not considered for transplanting, as their removal would require (1) hand-dug root balls and specialty equipment to raise, move and lower into a new environment, and (2) coordination with Police for traffic control during the move and Utility contractors to remove and replace overhead utility cables while the tree canopy passes their location.

The expectation is that between 3-5 trees can be dug and transplanted per eight (8) hour day, provided the receiving site:

- (1) is located within 3 miles of the Dunwoody Village Parkway median,
- (2) is adequately prepped, and
- (3) has sufficient manpower on hand to facilitate the transplanting.

<u>Description</u>	<u>Amount</u>	<u>Unit cost</u>	<u>Extended price</u>	<u>5.25 days</u>
Truck-mounted tree spade	8 hrs.	\$225.00/hr.	\$1,800.00	\$9,450.00
Labor (3 men)	10 hrs.	\$120.00/hr.	\$1,200.00	\$6,300.00
Supplies (burlap, stakes, wire, hoses, etc.)	21 unit	\$50.00/ea.	\$1,050.00	\$1,050.00
			Total	\$16,800.00

Staff estimates that each tree's prorated share of costs will total no less than \$600-\$800, once factoring in the costs for labor and consumable materials involved in moving the trees, not inclusive of maintenance activities after the move. For five and a half (5 ½) days work, staff would budget a total of no less than \$17,000 for all 21 trees noted in this review, as well as additional funds to pay for any required on-going maintenance after the fact until the trees establish themselves.



RECOMENDATION

The expense of digging 21 trees -of which 2/3 are Crape Myrtles- does not justify the effort of transplanting those trees. The trees are growing in a “field” environment, and have not been prepped for transplanting as nursery-grown stock would be. The height of the summer heat is the worst time of year to transplant trees, and this project is slated to begin on July 1, 2013. Instead of transplanting the median trees, suitable replacements should be sourced from local nursery stock in smaller, more manageable sizes which have a greater likelihood of survival with a reduced maintenance requirement.

If the decision is made to transplant the trees, adequate site preparation should begin as soon as possible. This includes fertilizing the soil in the root zone of those trees identified for transplanting, as well as root pruning where feasible to condition the tree for the eventual move. If at all possible, the tree moving process should begin in late November, or around late February, and should not be delayed until the actual median construction is taking place. At this same time, it would be prudent to remove any and all dead trees found in the median, during the same mobilization to reduce labor and overhead costs. Finally, a plan for after-care should be developed prior to any action taking place, so manpower and materials (and their associated expenses) can be known beforehand.