

The Case for Oaks in Residential Land Development

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The impact on the natural world of people living in community has been well described and adjustments have been made to mitigate many deleterious environmental effects, especially those brought on by economic growth and increasing population. The primary manifestation in our times is found at the perimeter of communities, where commercial and residential activity spreads to land that was previously used for agricultural purposes.

Although not in an undisturbed state, farm and ranch land close to the edge of town retains many more natural features than are left after commercial and residential development. If the land were naturally wooded, conversion to agricultural use typically results in greater loss of trees than would have resulted from development, if that use had occurred instead. Even so, it has been estimated that ninety-percent or more of native forest is lost when land is used either for agriculture or developed for commercial and residential purposes.

Several business strategies are followed by the residential real estate development industry. Most are essentially opportunistic and short-term, that is, based upon exploiting a discrete and limited economic opportunity, in contrast to an ongoing businesses operated from one or more established locations, such as manufacturing, banking, hospitality, communications, transportation, etc. The vulnerability of residential real estate development to business cycles is especially acute. In fact, because it is heavily reliant on debt, from time to time, homebuilding bears a disproportionate burden placed on it by interest rate policy of the Federal Reserve Board of Governors in slowing an overly robust U.S. economy. Similarly, the Federal Reserve may seek to stimulate the U.S. economy through the effect of lower interest rates on homebuilding. Consequently, the homebuilding industry has historically been comprised of small businesses, often undercapitalized, thinly staffed, focused on short-term goals, and paying little attention to secondary elements of the new home product, such as landscaping -- in particular, planting of attractive and long-lived trees.

Developers of residential subdivisions and homebuilders have long understood and met the homebuyer expectation of trees planted in their yards. For many years, the Federal Housing Administration has required the planting of trees on lots in neighborhoods that are qualified for its mortgage subsidy. In general, however, homebuyers, developers and builders lack information about trees and conditions conducive to their health. Furthermore, there is a preference for fast growing trees for planting in yards of new homes. These factors, along with budgetary constraints in new homebuilding, often result in tree selections and planting practices that fail to achieve the best aesthetic and restoration outcome in new home subdivisions and commercial developments.

Because most home buyers appreciate the aesthetic contribution of trees, if not also their economic benefits, builders and developers may differentiate their product, provide customers added value, and achieve greater investment security

by preserving native trees and by planting high quality trees for homebuyers and in neighborhood common areas according to an comprehensive, artful and well-explained plan. The subdivision development business strategy of the David Bagwell Company is guided by these considerations.

The David Bagwell Company is a developer of residential subdivisions active in the Northeast Tarrant County new home market of Dallas and Fort Worth. This area falls within the Eastern Cross Timbers, which experienced substantial conversion to agricultural use prior to encroachment by the growth of Fort Worth and Dallas. Native woods remain in floodplains and waterways, while significant stands of undisturbed forest are rare.

The predominant trees of the Eastern Cross Timbers are Post Oak (*Quercus stellata*), including the Margaret's Post Oak (*Quercus margaretta*), and Blackjack Oak (*Quercus marilandica*). Other oaks of the Eastern Cross Timbers found in riparian zones are Bur Oak (*Quercus macrocarpa*) and Shumard Oak (*Quercus shumardii*). American Elm, Cedar Elm, Chittamwood, Pecan, Eastern Cottonwood, Eastern Red Cedar, and Black Hickory are also native trees of the Eastern Cross Timbers.

Preservation of Trees - Site Selection

Notwithstanding that trees are a renewable resource, several generations will pass before an acorn becomes a tree of the size and character potential to many species. No amount of tree planting can overcome the loss of stalwart forest trees when wooded land is cleared of trees for streets, utilities, floodway reclamation, and building sites. In evaluating sites for new developments, the David Bagwell Company passes over wooded sites, unless early in the feasibility analysis it can be determined that land use and zoning laws can be reconciled both to market demand and to a site plan that will preserve native trees.

Avoiding development in naturally wooded areas serves three business objectives. First, if controlling factors permit a partially wooded site to be developed and the native trees preserved, a more aesthetically pleasing and, thus, more valuable and financially secure neighborhood investment results. Second, by avoiding homebuilding among sensitive trees -- post oak and blackjack oak are very intolerant of development activities -- the company ensures against homebuyer reluctance toward the conclusion of lot and house sales when prospective buyers observe moribund trees in yards of homes built earlier. Third, the developer is able to demonstrate to elected officials the community wide value in natural area preservation, which was obtained by zoning and platting tradeoffs. The good will that accrues to the developer is likely to affect future development entitlement applications in the same community, as well as nearby communities.

Tree Planting - Restoration, Replacement, and Experimentation

In the planning process for each development, landscape architects are employed to prepare a tree planting plan that encompasses lots, open space areas, entryways, boulevards and residential streets. The business objectives of the plan are both short term and long term. Immediately upon completion of excavation, utility installation and street paving, tree planting begins where homebuilding will not conflict. As each home is completed, trees are planted generally according to the plan. Particular attention is given to maintaining the species called for,

but locations of trees may vary somewhat from plan. This work serves the short term objective of the company to differentiate its product -- an attractively planted homesite in a neighborhood heavily planted with trees -- and to demonstrate the added value that homebuyers receive in the company's neighborhoods.

In the long term, tree planting serves the company's business objectives of tree planting by demonstrating the benefits to the community of neighborhood tree planting. The good will is useful to the developer in the same way as tree preservation described above. It also serves the developer's brand building and identification efforts.

Trees Employed in Neighborhood Planting

Oaks are the primary species of trees planted by the David Bagwell Company. The sandy loam, slightly acidic soils of the Eastern Cross Timbers support a wider variety of oaks than the alkaline soils that comprise most of the Fort Worth - Dallas area. Many oak trees used extensively through the company's developments are unseen elsewhere in North Texas, e.g. Scarlet Oak (*Quercus coccinea*), Bluff Oak (*Quercus austrina*), Stone Mountain Oak (*Quercus georgiana*), Swamp Chestnut Oak (*Quercus michauxii*), Compton Oak (*Quercus lyrata* x *Q. virginiana*), English Oak (*Quercus robur*), and Swamp White Oak (*Quercus bicolor*). Other oaks that the company uses are rarely seen elsewhere in North Texas, e.g. Eastern White Oak (*Quercus alba*), Overcup Oak (*Quercus lyrata*), and Nuttall's Oak (*Quercus nuttallii*, syn. *Q. texana*). Some oaks used are uncommon in North Texas, e.g. Water Oak (*Quercus nigra*). The company has planted two demonstration areas with seldom seen oak hybrids, e.g. Saul's Oak, Schuettes Oak, etc., and rarely seen species like Willow Oak (*Quercus phellos*), Darlington Oak (*Quercus hemispherica*), Laurel Oak (*Quercus laurifolia*), Shingle Oak (*Quercus imbricaria*), and Cherrybark Oak (*Quercus pagoda*). Native and common non-native varieties of oaks are also used, e.g. Bur Oak (*Quercus macrocarpa*), Shumard Oak (*Quercus shumardii*), Texas Oak (*Quercus buckleyi*), and Chinkapin Oak (*Quercus muhlenbergii*). The company prohibits Southern Live Oak (*Quercus virginiana*) and Escarpment Oak (*Quercus fusiformis*), as these trees tend to have a broad canopy relatively low to the ground that provides too much shade for smaller yards typical of the company's lots.

Nuttall Oak, Swamp White Oak, Bluff Oak, and Overcup Oak are the most commonly planted oaks. The former is considered a more reliable fall coloring tree than its kin, the native Shumard Oak and is otherwise indistinguishable by homebuyers from Shumard Oak, with which many North Texans are vaguely familiar. Swamp white oak and Overcup Oak are considered good substitutes for the native post oak, and Swamp White Oak is preferred to bur oak because its autumn color is more attractive and because it produces less litter. The company also plants large numbers of American Elm and Urbanite Ash (*Fraxinus pennsylvanica* 'Urbanite').

Nurseries of landscape trees are maintained from which trees are planted throughout the neighborhoods. A full time landscape crew is employed by the company to maintain trees in the nurseries, to plant trees, to receive newly purchased trees into the nurseries, and to water, prune, and fertilize trees. The landscape crew also grows trees from seed, particularly hard to find non-native trees, e.g. Loquatleaf Oak (*Quercus rhysophylla*), native trees that are hard to find, e.g.

Quercus stellata and *Quercus marilandica*, and trees with especially attractive attributes, e.g. late fall color and leaf shape.

Virtually all trees planted by the developer are field dug and purchased from wholesale nurseries in Texas, Oklahoma, Alabama, Florida, and Georgia. They range in size from 2" caliper to 6" caliper.

Landed costs of landscape trees are around \$135.00 per caliper inch. Handling, storage, planting, related equipment, and direct overhead come to about \$300.00 per tree. (No cost allocation is included for land on which trees are stored until planting.) All together, the cost of a typical 3-1/2" caliper, 14'-16' Nuttall Oak purchased as part of a truckload of other trees from a southern nursery and planted within 12 months in the yard of a new homebuyer amounts to about \$735.00. A smaller oak tree (e.g., a 2" caliper, 8'-10' Nuttall Oak) would cost the developer about two thirds of that. Four landscape trees per homeowner's yard cost the developer between about \$2,100.00 and \$3,100.00 or roughly two percent of the retail price of the lot on which each size of tree would be planted. The company believes its per lot revenue more than covers the cost of such planted trees.

The company's business strategy is dependent upon prospective homebuyers perceiving a significant difference between developments with extensive tree planting and those without. The challenges of this effort are not insignificant. Most relate to resources. Foremost are knowledge of where to find top quality landscape trees that will thrive in the North Texas area, in particular the Eastern Cross Timbers -- trees that are well-grown, well-dug, and properly loaded and shipped. Northern Red Oak (*Quercus rubra*) and Chestnut Oak (*Quercus montana*), for example, have not proven viable in the area. Originally, the company provided trees to builders' landscapers to plant in yards of new homes, but most landscape installers that serve the homebuilding industry lack the knowledge, management systems and equipment to properly handle and plant the trees the company provides, so the company now installs trees it provides. The costs of equipment, labor and tree inventory is also substantial. Knowledgeable staff is also difficult to recruit and retain.

Local government can encourage tree preservation and extensive tree planting, by providing liberal property entitlements, i.e. value enhancing zoning and platting approvals, and accommodation, e.g. allowing fire hydrant use for supplemental tree watering. Not only does tree preservation and extensive tree planting offer all stakeholders an enriched environment, but it also creates a reference point for future developments to emulate and improve upon.

It also increases local tax rolls in the short and long term. When local government enables tree planting, there is a marginal increase in taxable value and thus tax receipts and also an undergirding of long term taxable value of homes and neighborhoods. This is achieved without local government having to make a financial investment in this outcome through tax abatement, as businesses often seek to help underwrite the cost of a new business ventures that are claimed will eventually return the investment and pay employment and local tax dividends thereon. If, for example, lots without tree enhancement in an area sell for \$80,000.00, then, without overextending government services, local government could enable a developer to pay for all the above-described trees in a development simply by entitling property with additional density of 0.075 unit per acre over and above its ordinance density cap of, say, 2.0 units per acre. Applied to a 100 acre residen-

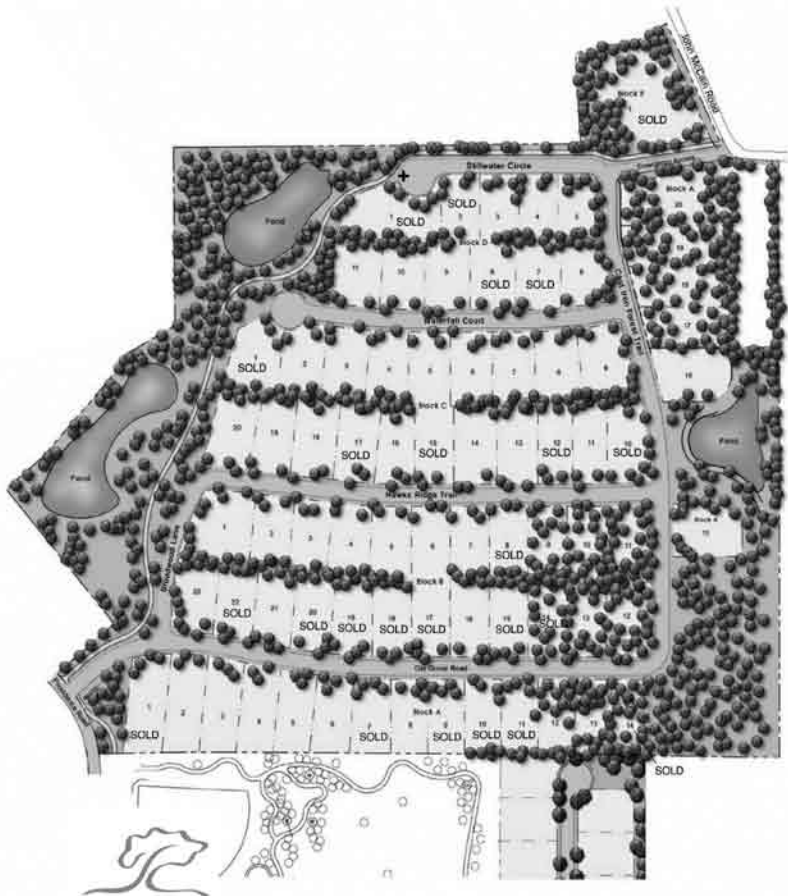
tial development, this would result in just 7.5 households above the hypothetical density cap but 830 high quality, well-planted oak trees contributing more each year to the financial well-being of the community and to sustaining a picturesque neighborhood environment for those living there. Tree preservation and extensive planting offer all stakeholders an enriched environment.

Editor's Note: Figures 1 and 2 are examples of David Bagwell Company's landscape plans utilizing placement of trees and woodlands within two residential developments.



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Figure 1



OLD GROVE
AT WHITTIER
HEIGHTS

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Figure 2