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### **Tree Ordinances: Preserving our Community Forest**

Trees are the most visible presence of nature in our communities, shaping the aesthetic quality of each place. Whether in the public right-of-way, parks and open spaces or on private property, trees and vegetation are a vital part of the built environment, often overlooked and undervalued. With increasing concerns about the environmental effect of urban development, climate change, and quality of life, trees have been gaining greater attention in communities across the country. Trees have become symbolic of “greening” the built environment, an essential part of many government and community efforts to shape development to take advantage of the many benefits trees can provide.

Typical urban development has resulted in several consequences that affect both the environment and human health. The concrete urban environment traps heat and creates a heat-island effect, making it several degrees warmer in the inner city; in places that reach high temperatures, it can negatively affect human health. Where there are excessively paved, impermeable surfaces, stormwater runoff can cause flooding, often carrying with it several pollutants that contaminate watersheds, degrading water quality and threatening aquatic life. Urban air pollution from fossil fuel combustion poses a health risk for communities, while also causing a greater threat on a global scale with greenhouse gases exacerbating climate change and its potential impacts. Many communities in urban areas have been developed in a way that has isolated them from open spaces and greenery, which can have negative psychological effects and diminish the overall quality of life of a community by making it aesthetically displeasing.

These issues have spurred greater awareness of urban sustainability, with the urban tree stock now seen as more of an integrated ecosystem that provides many vital contributions. Tree ordinances are a mechanism to regulate and improve the urban forest, specifically through directing how new, private development occurs and through improving the public right-of-way. Since a large portion of a city’s trees lies on private property, they are now viewed as part of the larger ecosystem and so are being considered as part of any regulation. Homeowners and developers often find these tree ordinances a hindrance to designing their property the way they would like to, imposing costs or preventing some activities; but these ordinances aim to strengthen the urban forest ecosystem by focusing on the individual property as part of the broader the community and regional scale.

#### **Benefits of treed cities**

The renewed importance of the urban forest ecosystem has gained momentum across the country, as the benefits they bring have become increasingly valued by both homeowners and communities. Trees provide the necessary shade to keep buildings and paved areas cooler during hotter seasons and block cold winds

during the winter, thus lowering energy consumption for buildings, controlling local climate and creating a more pleasant living environment. The lowered energy expenditures help abate greenhouse gas emissions related to space heating and cooling, proving a useful mechanism in urban sustainability, as well as lowering utility costs for residents. Urban forests also help improve local air quality through sequestering carbon dioxide, the best local tool in mitigating large scale climate change.

They are an important part of improved stormwater management and help reduce runoff and mitigate flooding as well as filter runoff to minimize urban pollutants from entering the watershed. Tree roots and vegetation also help retain soil and prevent erosion that can affect infrastructure and watersheds. This reduced runoff can help alleviate the strain on water treatment systems and infrastructure, thus providing several more long-term benefits. The urban forest ecosystem also provides a critical habitat for birds and other animals, bringing wildlife to the built environment and helping preserve species diversity. Aside from beautifying neighborhoods and giving them greater identity and curb appeal, trees and good landscape design also increase resale value by as much as 15 percent, proving a valuable return on investment and increasing value over time as the trees grow<sup>1</sup>. Long-term landscape plans that consider tree size, type, layout and other vegetation will pay off with maturity in the future value of the home, making it more attractive to potential buyers than non-landscaped homes, often time more so than redone interior decoration.

## **Tree Ordinances**

The development community is often viewed as being responsible for removing or destroying trees for construction activity, although the public sector is also involved with facility, utility and agricultural operations that damage and remove trees as well. Given the numerous benefits of having treed communities, local governments have commonly focused on ordinances that protect and plant street trees on public property; however, there is greater attention today on more complex tree ordinances that protect trees from construction activity on private property.

Despite their good intentions, stricter tree ordinances are often seen as too prescriptive and inflexible, restricting what both a developer and a homeowner can do on a property. Saving trees in a community involves more than just greater compliance with standards, requiring collaboration between different parties to consider the individual sites' opportunities and challenges. This kind of flexibility and communication is necessary in order to successfully protect trees in a manner that is feasible.

### *Protecting Trees*

Preserving the existing tree stock is the top priority of most tree ordinances, typically protecting all trees in the public right-of-way. This means that neither developers nor homeowners can damage or remove trees, though in most cases, they may apply for permits or be allowed to do so if the trees are endangering them or their property or are in the way of some public utility line.

Communities often also define a list of trees with certain characteristics that must be protected, such as specimen trees, both on public and private property. These more specialized ordinances seek to protect trees that have a certain value to those communities for a variety of reasons ranging from historic and native trees to those that are valuable for stormwater management. The City of Orinda, California, upholds its residential, forested hillside aesthetic

as well through its strict tree ordinances governing trees on private property. Protected trees cannot be removed without a permit if they are: 1) on vacant property and are 6 inches or more in diameter as measured at 4.5 feet above grade (diameter breast height or DBH), regardless of species; 2) on developed property and are 12 inches or more DBH and are an oak species; or 3) a riparian tree 4.5 inches DBH within 30 feet of a water course<sup>ii</sup>. Although they may impede on private property development, these ordinances have been essential in preserving the beauty of Orinda and helping prevent soil erosion and maintain cleaner streams.

Many cities have less strict protected tree ordinances and grant permits if the tree prevents reasonable access or use to the property, poses an imminent hazard, or disrupts public utilities. In Atlanta, Georgia, trees cannot be destroyed during demolition of a building unless it is within 3 feet of the structure and/or it is impossible to remove the structure without damaging/destroying the tree. Furthermore, during the demolition and construction process, some communities may require the builder to submit a landscape plan detailing the number, type, and location of trees and how the construction will plan around the trees, and if some need to be removed, where the replacement trees will be located.

Like many other communities that value their existing tree stock, Portland, OR, has a tree ordinance that designates the protection of "heritage trees," typically for their historical association or horticultural value. Property owners with trees that meet the criteria can choose to have them designated, and thus protected. This kind of status on a property can add value to a property or community that hosts several of these. Similar ordinances also aim to protect native species of trees and shrubbery by promoting a variety of vegetation better suited to the local environment and preserving the natural species diversity of the region.

### *Tree Replacements and Planting*

In many instances, existing trees create an obstacle to developers and can hinder some of their preferred site plans. Aside from requiring landscape plans that outline the trees on a property and what they plan to do with them, many communities offer some flexibility in removing trees to accommodate development in instances where protection is unfeasible. Tree replacement ordinances require developers to plant new trees based on a certain set of criteria. For example, in Portland, Oregon, developers are required to do a simple tree-for-tree replacement for most permits involving smaller trees, while it can be up to inch-for-inch mitigation for removing large healthy trees<sup>iii</sup>. Though the first component seems reasonable enough, the second can pose an issue because the tree planted is expected to grow to the size of the originally removed tree, something unknown until full maturity. Further, trees require space in order to grow.

Other replacement requirements are much more detailed, such as that of Annapolis, Maryland, which uses a sliding replacement scale, based on the size of the existing trees. For example, for 4 trees removed from 5 to 8 inches at DBH, they must be replaced with 1 tree, and the replacement ratio increases with the size of the tree, up to 3-to-1 for trees greater than 24 inches<sup>iv</sup>. The Atlanta, Georgia, tree ordinance requires that all replacement trees be overstory (typically reach a DBH and height of 25 inches and 60 feet at maturity, respectively) or mid-story trees (typically reach a DBH and height of 10 - 25 inches and 30 - 60 feet respectively). The ordinance goes further to recommend native trees to the Piedmont region, giving a list of tree species, and recommends planting certain species based on location, such as narrow spaces, wetlands, and road frontage.

Although the more detailed and stringent ordinances may seem like an added burden to developers and homeowners, their purpose is typically to uphold a certain aesthetic and vital functionality. Through the conformity and diversity of trees, the tree replacement ordinances add value not only to the individual properties, but the community as a whole.

Many tree ordinances specifically focus on street trees alongside private properties, requiring developers to either plant them or submit a street tree plan. Denver, Colorado, requires a Street Tree Plan Review Checklist for all development plans. The Plan must meet a species diversity requirement that limits a particularly overplanted species in the area and directs the planting of related trees within a certain area on the street<sup>v</sup>. It also details the tree spacing on many features of the public right-of-way abutting properties. In New York City, one street tree is required for every 25 feet of street frontage for almost all zoning lots where enlargements greater than 20 percent of the floor area occur, which the property owner is responsible for planting<sup>vi</sup>. If there are certain immediate constraints to planting, then street trees can be planted in an alternative off-site location that must be within the community district or within one-half mile of the development site. These ordinances show the varying levels of flexibility that different cities have regarding development and tree requirements. Communities face different constraints and opportunities with their urban forest, so their ordinances must be detailed enough to achieve their goals while also being realistic so they do not hinder developmental potential.

### *Planning for Trees*

Builders and developers increasingly see the existing natural resources on a site as an opportunity rather than a constraint, voluntarily integrating them into the construction planning process. Developing a site that makes the best use of trees requires professional expertise at multiple steps of the process. Landscape architects and natural resource experts can get involved early on to develop a tree conservation plan for construction, which includes a holistic site survey and analysis that determines the existing resources and conditions that could affect development feasibility. This usually includes an inventory of site features such as trees, soil type, slope, and surrounding context, all of which can affect the construction process and the conditions of the trees.

The expert team should then come up with alternative development scenarios based on the site analysis. These should include options for saving and transplanting existing or old trees and obtaining variances to avoid unnecessary tree removal<sup>vii</sup>. Innovative site planning and layout design can mitigate the potential tree removal and maximize the current conditions to preserve the current trees. The alternative design concepts can incorporate the trees proposed for saving, other site-specific conditions, existing regulatory constraints, and the budget to produce a development that can reap the benefits of careful planning. Some of these options not only include retaining existing trees but also selective clearing of undesirable trees, planting new trees, transplanting trees to the site, or following through with tree-banking on other sites.

Ordinances and zoning codes established by communities do not always succeed in protecting trees as envisioned, as they can contain contradictory provisions that can make it more difficult for developers to do so. Some overemphasize the protection of larger trees without considering that they may already be declining or inevitably suffer from damage during development. These fail to consider the benefits of some smaller trees in the long run. As previously mentioned, tree banking may be a good prescription for the community, but it can be a hindrance when the replacement requirements are too strict, having developers impractically replace trees in developments that simply cannot accommodate those trees. Certain regulatory

requirements can also hamper tree protection, such as local zoning and subdivision standards for road, grading, lot clearing and utility and setback minimums that result in developers having to remove mature trees and then come back later to replant with nursery-sized stock<sup>viii</sup>. In these instances, developers must comply with the ordinances, limiting the flexibility of the design to incorporate existing natural features that could immediately benefit the property. Furthermore, conventional zoning typically requires lots of approximately equal sizes, restricting the potential to save green space and grouping of trees.

Aside from taking the initiative to incorporate trees in the site planning process, developers can take a step further to work with communities to gain greater flexibility with tree-saving techniques. Communities can grant zoning and subdivision ordinance waivers when the developer can prove the benefits of preserving trees and natural features on the development. These arguments in favor of preservation can include the benefits of improved storm water drainage, decreased landscaping costs, improved aesthetic, and increased property value.

For smart site-planning, cluster development can preserve trees and open space through grouping lots and structures on one portion of the site, leaving the rest undeveloped. This also achieves cost savings from utility installation. Since many local governments have been reluctant to allow cluster development, developers can communicate their benefits in preserving open space and still achieving allowable densities to gain approval. With utility installation, developers should work closely with utility companies to develop innovative and alternative installation techniques that can minimally disturb greenery and natural features. Though it may take extra burdensome coordination with the utility companies, but the benefits of this collaboration for the sake of preserving features can accrue in the long term with easier accessibility to utilities without having to remove trees and creating a more comprehensively designed landscape.

Builders and developers have the opportunity to capitalize on the value that tree conservation can bring to a community and work together with governments and local communities to bring about the shared vision. Developers are often seen as the ones responsible for tree removal, yet when development regulations can actually be in conflict with tree preservation. In these instances, developers can engage in innovative and integrative planning, cooperation and communication with development teams, communities, and officials to develop alternative plans that can successfully preserve trees on newly developed properties. The benefits of a vibrant community forest are not only a more desirable place with better storm water mitigation and higher property values, but recognition for the builders' and developers' efforts that helped create it. The ICC 700 National Green Building Standard (NGBS) rewards site design, development, and construction practices that conserve existing natural resources, develop comprehensive landscape plans, and support wildlife habitat. Incorporating many of these practices that protect trees and enhance the landscape can earn a development many points towards a NGBS certification for sustainable construction practices. This certification can add value to the property, increase the appeal of the home to buyers, and improve the reputation of a home builder.

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<sup>i</sup> *Does Landscaping Increase Home Value? Is it a Good Investment?* <http://www.plant-care.com/landscaping-investment.html>

<sup>ii</sup> *Building Code Enforcement*. Orinda, California.

[http://www.cityoforinda.org/index.asp?Type=B\\_BASIC&SEC={12B1FFA6-0600-4B41-8E2F-48173E43E67F}](http://www.cityoforinda.org/index.asp?Type=B_BASIC&SEC={12B1FFA6-0600-4B41-8E2F-48173E43E67F})

<sup>iii</sup> *Tree Permit Requirements*. <http://www.portlandoregon.gov/parks/39712>

<sup>iv</sup> Bassert, Debra. *Tree Preservation Ordinances*. National Association of Home Builders

<sup>v</sup> *Street Tree Plan Review Checklist*.

<http://www.denvergov.org/Portals/747/documents/Plan%20Review%20Checklist%2004.28.14.pdf>

<sup>vi</sup> *Street Trees Text Amendment*. New York City Planning Commission.

[http://www.nyc.gov/html/dcp/pdf/street\\_tree\\_planting/tree\\_adopied\\_cc\\_043008.pdf](http://www.nyc.gov/html/dcp/pdf/street_tree_planting/tree_adopied_cc_043008.pdf)

<sup>vii</sup> National Association of Home Builders. *Building Greener Neighborhoods: Trees as Part of the Plan*. 1998

<sup>viii</sup> National Association of Home Builders. *Building Greener Neighborhoods: Trees as Part of the Plan*. 1998