

# AN ANALYSIS OF TREE ORDINANCES: THE EXAMPLE OF NEW JERSEY

by Robert Gutman and Jean Landry<sup>1</sup>

This paper analyzes selected tree planting, preservation, and removal ordinances in New Jersey. Through these ordinances, municipalities attempt to control the landscapes of their communities. These ordinances can regulate the removal, siting, and planting of specific shade trees. They can also be used to develop broader landscape designs for entire developments, for example, by regulating the amount of open space or requiring trees for buffers. Many ordinances state explicitly that their purpose is to improve the aesthetic quality of the community and to increase property values through the planting, preservation and regulation of the removal of trees. These ordinances further state that they are intended to improve soil fertility and decrease the dust and erosion caused by the indiscriminate removal of trees or the lack of trees in new residential developments.

It is important to study these ordinances, since they are the dominant means of control that New Jersey municipalities have over the use of trees in residential areas. When these ordinances are effective, they can have a major impact on landscape design. Our purpose in examining them, however, was not to determine their effectiveness, but rather to analyze their provisions and characteristics by ordinance type. We were particularly interested in discovering the target of these ordinances (homeowner, developer, small builder) and the activities required to comply with these ordinances. In this report, tree removal ordinances, site plan reviews, subdivision ordinances, open space zoning ordinances, and general zoning ordinances will be examined.

The ordinances analyzed were extracted from the files of the New Jersey State League of Municipalities, Trenton, New Jersey. The League is a semi-public organization comprised of New

Jersey municipalities, which provides information on request to town officials. The League's file of ordinances regulating the use of trees on residential property was built up by collecting information from municipalities seeking aid in the development of their own tree ordinances and from public notices of ordinances being adopted in New Jersey municipalities.

## Type of Ordinance

One hundred eleven ordinances were examined. Of these, 6 site plans and 6 subdivisions ordinances had no section dealing with trees or other vegetation and so were omitted from the study. The remaining 99 are shown by type in table 1.

**Tree removal ordinances** control the removal of individual trees on private property. They specify the characteristics of the property (size and type) and of the trees (size, location, species, health) that are subject to the ordinance.

**Zoning ordinances** establish criteria for the development of large tracts of land within municipalities. The criteria state what types of housing can be built (single family detached, apartments) and the lot sizes required in particular zones. There were few zoning ordinances in our sample compared to the other types. Three of the 7 were similar to tree removal ordinances, specifying procedures for tree removal and differing from removal ordinances only in their legal placement: they constitute chapters within the general zoning ordinance of a municipality. The other 4 zoning ordinances more closely resembled subdivision ordinances. Like subdivision ordinances, they established engineering and topographical criteria that apply to residential developments and devoted limited space to tree regulations. These 4 zoning ordinances also

<sup>1</sup> Robert Gutman is Class of 1913 Lecturer in Architecture and Urban Planning at Princeton University and Professor of Sociology at Rutgers University. Jean Landry is Research Assistant in the School of Architecture and Urban Planning at Princeton University.

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outlined requirements for site plan reviews.

**Subdivision ordinances** usually established specific engineering and topographical criteria for the building of houses and the development of large tracts of land. Like zoning ordinances, they also contained specific zoning regulations as well as site plan requirements.

**Site plan reviews** may comprise separate regulations or be placed within other ordinances; they require the developer of a large tract to submit plans *prior* to any land clearing or building. These requirements differ from zoning or subdivision ordinances, since approval of the development must take place before the land can be cleared, whereas zoning and subdivision ordinances allow land to be cleared by not requiring approval of a developer's plans until he decides to build. Under zoning and subdivision regulations, a developer can thus alter the topographical or ecological characteristics of a tract without permission, since he is not required to submit his plans for approval until he actually decides to build.

**Open space zoning ordinances** attempt to regulate the landscaping of entire developments by allowing the developer to reduce lot sizes, and to preserve the remaining land for recreational and aesthetic purposes. The land is either donated to the municipality or managed by a homeowners' association.

**Table 1.**

Type of ordinance	Number examined
Tree removal ordinances	21
General zoning ordinances	7
Subdivision ordinances	21
Site plan reviews	32
Open space zoning ordinances	17
Special planting ordinance (appropriating money for the planting of 125 shade trees on public land)	1
Total	99

Tree removal, zoning, subdivision, site plan, and open space zoning ordinances varied greatly in their treatment of tree preservation, planting, and removal. Subdivision, zoning, and site plan or-

dinances generally included little about trees, since their main intent was to guide the structural and technical aspects of development. Many of these ordinances provided only general guidelines on the use of trees. For example, rather than specifying the number, size and species of trees that should be planted, many site plans stated that the developer should follow the directives of a shade tree commission.

Open space zoning ordinances attempt to preserve large tracts of land in their natural state. However, these ordinances rarely focused specifically on trees. Rather, they established guidelines for the preservation of green space (which can take the form of grass or shrubs as well as trees) and "spaces for people" instead of attempting to preserve single trees or specific tree masses. These ordinances were also the least detailed in spelling out how the developer or builder was to meet the objectives of the ordinance. They tended to direct the developer to preserve natural areas, woods, for example, and to incorporate them into the landscaping of the development. However, no ordinance outlined the technical ways this could be accomplished, nor were the value judgments underlying the ordinance ever made explicit.

Tree removal ordinances were the most specific, detailed, and "objective" of the tree ordinances. Unlike other ordinances regulating tree use, removal ordinances were devoted entirely to the subject of trees and dealt with the conditions under which trees may be removed from a community.

Tree removal was generally regulated through removal ordinances, tree planting through zoning, subdivision, and site plan ordinances, and tree preservation through open space zoning ordinances. While the removal ordinances were extremely detailed, the other ordinances regulating tree use were much more general. This may be because municipalities were less concerned with planting shade trees and preserving tree masses than they were with preserving specific single trees, which would be incorporated into the landscaping of a single lot or an entire development. Municipalities may also have found it easy to establish criteria for the removal of specific,

existing trees, but difficult to determine criteria for "good" landscaping. Many municipal officials stated that they "knew good land when they saw it" (this is, they can visually determine if the landscape of a neighborhood is pleasing), but they could not establish general criteria for the adequacy of landscape designs.

Another interpretation is that open space zoning ordinances did not attempt to establish specific criteria for tree preservation, since these ordinances were supplemented by other ordinances regulating removal. In our study, seven municipalities with open space zoning ordinances also had other ordinances regulating the use of trees. Five of these seven municipalities had removal ordinances, one had a site plan review that regulated removal, and one had a zoning ordinance that regulated planting. We expected to find many more municipalities with multiple tree ordinances. Once a municipality has developed an ordinance regulating trees, it is more likely to pass additional ordinances, simply because it has a commitment to the appearance of the community.

### Specification of Ordinances

Table 2 presents information on the specification of ordinances in our sample. Clearly these ordinances were concerned with a number of aspects of tree use. They attempted to

**Table 2. Ordinance Specifications**

Specification	Type of Ordinance				
	Removal	Zoning	Subdiv.	Site plan	Open space
Regulate planting	—	1	15	1	3
Regulate removal	20	2	—	—	—
Regulate both	1	1	—	—	—
Location of wooded areas					
on plot or site plan	—	2	15	12	—
Location of single trees					
on plot or site plan	—	1	1	9	—
Preserve existing trees	—	—	1	4	5
Siting of proposed landscaping	—	—	—	24	—

regulate removal and planting of trees in residential areas, as well as to protect and preserve existing trees on a site being developed. In ad-

dition, many ordinances required that trees be sited on a plan that must be approved before building can begin. However, the use or importance of this information was unclear. Municipalities may evaluate each site plan in terms of how skillfully it attempts to incorporate trees into the landscape. On the other hand, municipalities may require this information as a matter of form and not pass on the acceptability of the plan. Municipalities that do use this information when evaluating site plans may depend on local technical expertise to interpret and evaluate landscape information. Municipalities, however, differ in their ability to utilize landscape talent. For some, this information allows them to be flexible and evaluate each development as a separate entity. For others, the information may be useless, and destruction of a site may occur because local authorities lack the ability to evaluate landscape information and make rational decisions based on this information.

The effectiveness of these regulations was unclear. As mentioned earlier, removal ordinances were the most detailed and specific. It seems that they were effective in satisfying their intent. Planting regulations tended not to be specific. They often required the developer to follow guidelines established by a municipal commission. It is unclear whether these commissions had specific, objective guidelines of their own

concerning tree planting. Most of the planting requirements were found within subdivision ordinances, which suggested that most

municipalities directed their major planting efforts toward new, large-scale developments. Evidently no municipality tried to coerce older, more established sections of its community to plant trees.

Eleven tree removal ordinances specified tree protection, which is usually defined as the prohibition against placing any soil, machinery, or material within 6 feet of a tree during construction. Several of these ordinances required the builder to replace trees if they died because of construction activity. Trees are also protected through other requirements. For example, the removal of topsoil can damage trees by exposing their root systems, and 4 ordinances prohibited the removal of topsoil from a developed site. Changes in drainage affect the amount of water a tree receives and can also cause a tree to die, and 2 ordinances prohibited radical changes in drainage patterns in new developments.

A distinction should be made between ordinances requiring planting or prohibiting removal and ordinances encouraging tree preservation through the use of open space zoning ordinances. While planting and removal directives are binding on a builder, "encouragement" to preserve vegetation does not appear to be so.

### **Type of Property**

Most ordinances (site plans, subdivisions, open space zoning and tree removal ordinances) specified the owners that are exempt from the ordinance in terms of the size of their property. Municipalities are primarily concerned with controlling developers' activities, and since the average size of a private homeowner's property is small, while the tract being developed is usually large, the use of land size allows municipalities to control developers without explicitly citing them as the target of the ordinance.

Few ordinances specified which property owners must follow the ordinance; rather, they specified who was exempt from compliance. Obviously, it is much easier for the municipality to specify exemptions from the ordinance than it is to list all possible property owners who would have to comply. It may also be the case that the specification of exemptions appears less restric-

tive to property owners, thereby muting potential opposition to the ordinance.

### **Type of Material**

The specification of tree caliper required for planting or prohibited from removal varied greatly from municipality to municipality. In some cases the requirements are clearly ineffectual: by preserving trees above a 15" caliper at one foot, for example, a municipality may be allowing the removal of large trees that simply do not yet meet the specifications. We do not know how municipalities developed criteria for the removal of trees nor the source of their information. In New Jersey, for example, an officer in the state forestry department is available in an unofficial capacity as a consultant to municipalities that wish to develop removal ordinances. However, it is not known how municipalities search out and identify this forestry employee as a possible consultant.

Variations in specifications for tree removal may result from the differential use of tree experts. Municipalities with seemingly unrealistic specifications (such as the prohibition against removing trees of 15" caliper at one foot) may not have consulted tree experts when they developed their specifications. On the other hand, these municipalities may actually be attempting to preserve specific, historic trees of a large caliper. Furthermore, some municipalities may have found that only really large caliper trees exist in great number in their community and may have chosen specifications that would protect their existing stock of trees. It would be interesting to find out what difference these differences in specification make to the landscaping of a community.

Planting specifications did not vary as much as removal requirements. This may be because planting specifications were kept in check by nursery costs, while no dollar value could easily be assigned to established trees. However, most nurserymen interviewed agreed that preservation is much more desirable than replanting barren areas because well established trees have a greater impact on the aesthetic quality and comfort of an area. Even though the impact of large

trees is greater, specifications governing the removal of existing trees were the most varied of all ordinance requirements.

### **Material in Relation to Property Type**

The fact that many ordinances required the siting of vegetation suggests that some criterion (possibly subjective) is employed by municipal officials in determining how well a development meets the human need for a certain number of trees (tree density). Whether this criterion is composed of landscape judgments of experts or of some commonly accepted notion of tree density (based on human needs or costs of planting and removal) is not known. Tree removal ordinances contained a number of considerations that regulate tree removal. They are the only ordinances that specified criteria based on location. While all removal ordinances mentioned that human, ecological, and physical conditions were all important, the relative importance assigned to each kind of consideration is not clear from our material. Our hypothesis is that municipalities weighed human and physical considerations more heavily than ecological ones. Developers who did not meet human considerations for tree preservation were probably penalized more heavily than those who adversely affected the soil or drainage conditions of a site. This difference may be partly due to knowledge or lack of it. Many municipalities do not have the technical expertise to study the impact of removal on an area's ecosystem, but they have an intuitive sense of density of trees desirable for human comfort and visual enjoyment. It would be important to find out how strictly municipalities hold developers to these requirements. Several landscape architects we have spoken to suggested that municipalities rarely stop a development because vegetation is being disturbed. Rather, municipalities are primarily concerned with building quality and esthetics.

Most removal ordinances specified conditions that require or allow trees to be removed rather than those that prohibit removal. Included among the conditions are such considerations as whether the trees are diseased or dead, whether removal will enhance forest fire control, or whether they interfere with proposed drainage

systems. Municipalities are probably cautious about arousing public disapproval by passing highly restrictive ordinances. In addition, many town fathers may be individualistic in philosophy and wish to allow citizens the right to decide about the trees on their lots.

Finally, while removal ordinances specified the considerations used for removal, no planting regulation specified the location of trees to be planted in terms of ecological, human, or physical considerations. One possible reason for this lack of specificity was that planting directives applied only to developers and not to private homeowners (who make up the bulk of municipal residents and voters), so municipal officials felt less need to be explicit about the considerations that affect municipal planting decisions. It is also possible that planting considerations were more difficult to specify since each residential development has different soil conditions, topography, and design. Municipalities may use more flexible criteria in evaluating landscaping than in evaluating removal.

### **Dates of Ordinances**

Only the 22 tree removal ordinances are examined in this section because not enough information was available for the other types. Tree removal ordinances appeared to be relatively recent additions to municipal regulations. The earliest removal ordinance in our sample was passed in 1959, the most recent in 1975. Most ordinances in our sample were passed in the 1970s. If our sample is representative, then widespread concern with indiscriminate tree removal is very recent.

### **Supervisory Agency**

There are many agencies that regulate tree removal but only a few that regulate planting and preservation. It would be important to find out how qualified these agents are. It is unclear, for example, whether or not these agents seek expert advice from ecologists, landscape architects, or foresters in making decisions about trees. Several nurserymen claimed that members of environmental and shade tree commissions are unqualified to oversee planting and removal. The nurserymen argued that members of these com-

missions are emotionally involved with conservation issues, but often lack technical knowledge about planting, preservation, or removal techniques.

### **Applicant Requirements**

Removal ordinances in general required information about the applicant for a permit, the location of the trees to be destroyed, and the identification of the site where the trees are located. Few ordinances required any additional information about the trees or the site. Tree planting ordinances did not generally specify requirements. Our guess is that municipalities did not specify requirements for planting because such local agencies as the shade tree commission have already developed criteria for planting.

### **Exemptions**

Tree removal ordinances were the only ordinances that specified exemptions from the regulations contained within the ordinance. For example, lots with owners living on the premises, orchards, nurseries and tree farms, as well as single lots of three acres or less were often exempt. Through the use of property exemptions (and specifications of owners, size, and use of property) municipalities were attempting to control the activities of developers rather than those of private homeowners or commercial land owners. Two tree removal ordinances specifically stated that the purpose of the ordinance was to regulate the development of vacant land which had traditionally suffered from indiscriminate tree removal.

### **Costs**

Tree removal ordinances were the only ordinances requiring the payment of permit fees. Twelve specified either flat fees ranging from \$5 to \$25 or fees based on lot sizes or number of trees to be removed. Seventeen municipalities specified penalties, which range from \$100 to \$500. Accompanying these fines were jail sentences ranging from thirty to ninety days.

The municipalities in our sample had strict legal means for insuring compliance with removal ordinances. It is unclear if these fines and jail sen-

tences are ever applied to violators. We doubt that developers were often fined or jailed because municipalities have other more subtle means of insuring compliance. They can, for example, slow down the issuance of a building permit. The permit fees, on the other hand, were probably too low to discourage removal. A fee of 1 to 2 dollars per tree does not place an economic burden on most developers. The fees were probably meant to cover the processing costs of the permits rather than acting as a means of discouraging removal.

### **Appeals**

Removal ordinances were the only ordinances that specify appeal procedures. Seventeen allowed the applicant to appeal a decision to the township committee, the mayor, or the planning board.

### **Conclusions**

This report has presented an analysis of ninety-nine ordinances in New Jersey that regulate tree planting, preservation, and removal on private property in residential developments. We have no way of knowing whether or not our sample is representative of the population of such ordinances, so that any statements about the number of ordinances having a particular characteristic should not be taken to mean anything about the actual frequency of such characteristics. Our sample does, however, indicate the type of ordinances and the type of specifications found within ordinances that regulate tree use in New Jersey.

These ordinances were concerned with planting, preservation, and removal; their specifications ranged from detailed planting and removal requirements to general directives that encourage the preservation of open space in residential areas. An example of these general directives was the requirement contained within many ordinances to show existing trees or tree masses, as well as proposed planting or landscaping in a residential development. This information is potentially useful to municipalities attempting to evaluate a developer's plans, but whether the information is actually used cannot be determined from examining the ordinances.

These ordinances were clearly directed at developers; even removal ordinances, which can easily apply to private homeowners, were most frequently directed at developers. Most ordinances regulated their activities by exempting private homeowners and commercial land holders and specifying large land sizes.

Planting directives, which were usually contained within subdivision ordinances, tended to include information on acceptable plant species, while tree removal ordinances do not specify which trees should be saved. Planting directives required a very narrow range of tree caliper, while removal ordinances showed wide variation in the caliper of trees to be retained. Finally, a small number of agencies were responsible for administering planting directives, while a large number of agencies are responsible for administering removal ordinances.

Many questions suggested by the ordinances warrant closer examination. Do the number or type of ordinances passed by a municipality affect the landscaping of the community? Do the specificity and detail of these ordinances make a difference? Are these ordinances effective in controlling developers? And what about the stan-

dards adopted by a community? Just how poor must landscaping be for municipalities to reject a site plan? How do municipalities differ in their evaluation of landscaping quality? Are their criteria entirely subjective or are they based on quantitative density standards? How do the municipalities develop these criteria? Where do they go for their information? What kind of expert help do they seek? Does expert advice make any difference? It may be that the landscaping of a community depends more on the type and cost of developments being built than on the existing regulations about trees. Are municipal officials in fact qualified to pass on tree use? We have mentioned that nurserymen have argued they are not, and we have heard this same judgment from developers and landscape architects.

And finally, another question that must be asked is how strictly municipalities hold developers to the ordinance specifications. Do municipalities enforce their ordinances or do they resort to other techniques to insure compliance? Perhaps this modest study will help pave the way for an investigation of some of these questions about the way in which ordinances operate in practice.

## TURNING LIABILITIES INTO ASSETS: ORGANIC MULCHING <sup>1</sup>

by David K. Walker

When I was a child, we were taught the expression — haste makes waste! Unfortunately, by the time most of us realize that we have wasted our resources, we find ourselves in a hole with no way out. Compared to the rest of the world, America has had life pretty easy, however in fairness to our society, much of what we have enjoyed has been due to our ability to not be satisfied with the norm if there was something better over the horizon. Modern technology has for far too long been the whipping boy of a nation that has lost the will to say no. It is not right that

we should blame the good life and modern technology for our own lack of personal discipline. With this background in mind, I would like to approach the common problem of organic disposal and how we can turn it into a profitable asset.

Now that we have environmental laws that prevent wasteful burning and increased costs to the taxpayer for operating landfills, it is time that we begin to consider whether or not we are making the best use of the tree material we are throwing away. For years leaves were burned at