

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 ¹

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

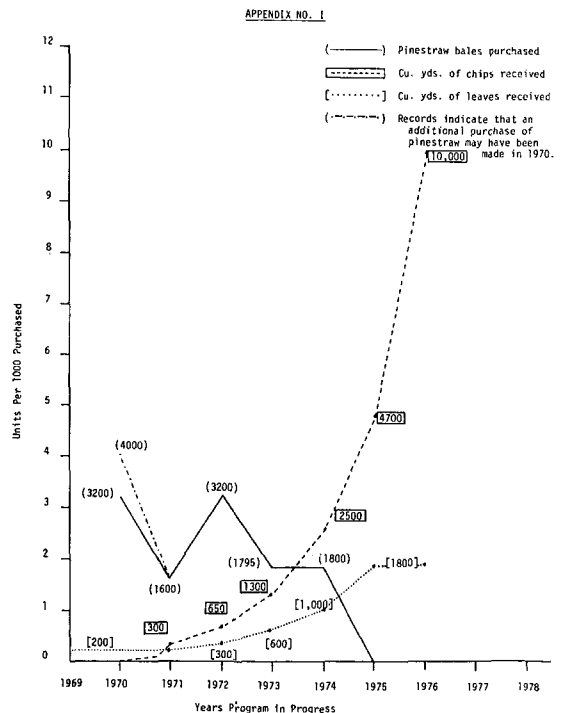
the curb side and the following spring these same people went to the store to buy peat moss and fertilizer. How many times have you passed by a construction site and seen trees piled up which with the help of a few tires and some diesel fuel, turned into ashes? What do we do with trees that are diseased or damaged by lightning? These are just a few of the questions and considerations that caused Georgia Tech to seriously evaluate and actively pursue the organic mulch program.

Any time a new program is implemented, one must give careful thought toward the cost and availability of the resources to be used. In our case, we also had to consider delivery. At some point a decision had to be made either to make a change or continue battling the same old problems. For us it was an ice storm and the converting of fallen limbs and trees to chips. This gave me the chance to see first hand and on a small scale that this was an answer to our long distance hauling of brush and a good way to recycle what I truly felt was a valuable material. For years I had seen the nursery industry grab up any sawdust piles they could find and the chips were simply the same material in a larger size.

Our next problem was supply and delivery. How could we get chips in a large enough quantity without it costing us a small fortune. This problem was solved a year later while at a Shade Tree workshop. The tree service companies were having a hard time finding places close to their job sites to dump and the dumping fee was an added burden. At the same time, the landfill operators (mostly city and county owned) were complaining about having to handle these wood products. (The leaves and chips were both a compaction headache and a fire hazard.) As I sat in the meeting, I wondered if I could get this material relocated for our use? Not knowing how much we would receive nor what other problems we might run into, I was really walking out on a limb when I stood and suggested that Georgia Tech would be glad to offer a free place to dump if we could receive the tree material for free.

As I look back on the results of that action five years ago, I can honestly say it was one of the smartest moves we ever made. Where we at one time were paying as much as \$5000 per year for

pinestraw, we no longer order any as a stock item. (Purchases of pinestraw in quantity were discontinued in 1975 and the only straw bought during the last two years has amounted to about \$100 worth per year by special request.) During 1971 we received only 300 yards of chip material, however, last year our estimated volume was 10,000 yards. As for delivery, the contractors are very cooperative about hauling the chips to us at no charge. They are realizing a sizeable advantage by being able to spend more time on the job due to coming to us when they are working in our area. The "no dumping" fee and a hard surface, all weather receiving area are added conveniences and incentives that are hard to turn down. At present we now have seven different companies hauling their loads to our facility.



In the past we had received leaves in small quantity from the City of Atlanta during their annual pick-up program. This year, however, we started a large scale on-site leaf mulching project

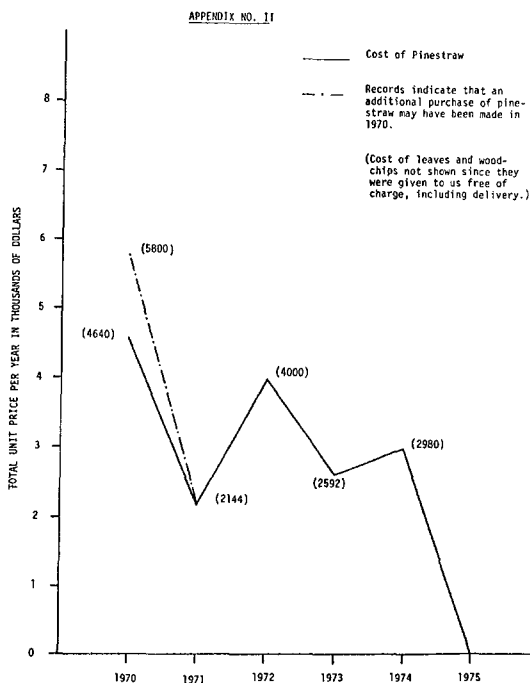
which we hope will eliminate a problem spot for us. We had tried to grow grass on a median strip that divides two four lane streets on the southwestern boundary line of the campus. During the construction of this system, all of the trees were taken out and the soil was moved around so that the contractor got great compaction, but we were left with primarily sandstone, clay and rock. Needless to say the grass has done a poor job of growing and the trees we had planted on the median have barely existed. A further problem had developed in that poor access and curb side parking increased the time required for maintenance. It is our hope that we can greatly reduce our maintenance load in this area by covering the median with leaves and top dressing with wood chips. The mulch will also help to hold additional moisture in the soil and yield some fertilizing qualities that will help the trees to grow. At the present time the leaves and their delivery cost us nothing and they are being delivered right to the site. (These leaves would have normally been disposed of in the city landfill.)

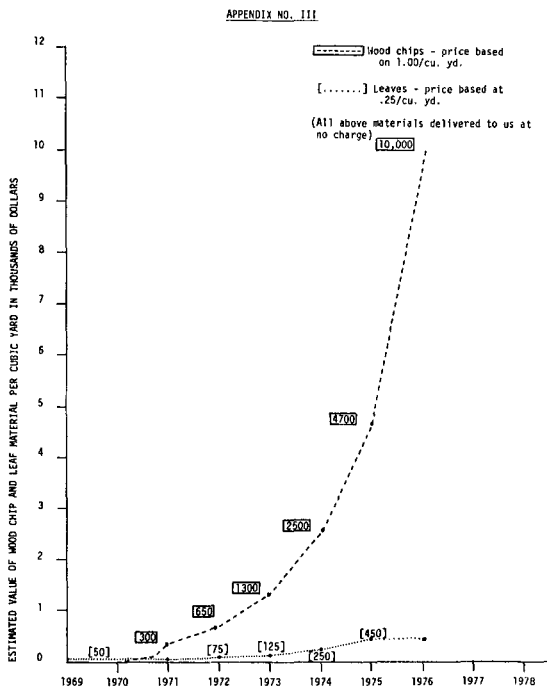
You may ask the question — what are our obligations? In the case of both the chips and the leaves we provide a free place to dump, keep the receiving facility orderly and allow easy maneuvering for the dump trucks, and pass the word to new operators who may not be aware of our facility. The leaves usually require some handling either to pile them up or, in the case of the median, to keep them pushed to the back side of the median so that the trucks can dump at the curb. We also may be called on once in a while to assist in pulling a unit free if they should get stuck.

What about the obligations to the contractor? To those who haul us chips we require that they bring us a load that is 75% chips. (We will accept some chunks of wood and minor trash, but no brush.) We ask that they help us to keep the receiving facility orderly by dumping their loads in as compact a pattern as possible.

As a side benefit from the chips, we generate a waste problem in the form of the minor trash (lunch bags and drink cans from the tree crews) and the chunks of wood. The wood is usually hauled away for us by people who are looking for free fire wood. To give you some idea as to the amount of waste, we worked on a project at our Coliseum during the winter of 1976. The slope required approximately 250 cubic yards of chips to cover it with a six (6) inch layer of mulch. Of the total amount required, we had to dispose of only 10 yards of waste and most of that was useable fire wood.

Trees that have been damaged by fire, lightning, or disease are of little use to the lumber or furniture industry. However, if we throw these trees into the landfill, the expensive problem of labor and equipment to handle this material is still a factor. What are our alternatives? We can't burn the material openly because of the environmental laws and the sheer wasteful aspect of the problem. We could turn it into firewood, but this demand is usually slow during the warmer months. The idea of converting it into chips is still the best solution. Convenience in handling and the disposal of the chips either as soil conditioner, mulch, or organic supplement make this by far the most productive approach.





One major question and possible drawback to this system that we had to answer was what about the danger of fire. Today's public never really intend to cause problems, but one of our continual maintenance headaches comes from those who act before they think. Such is the case with many who smoke and become careless with matches or cigarette butts. For this reason the finer textured mulches such as pine straw, peanut hulls, and leaves are considered high risk materials. However, while the wood chips have the potential to burn, they usually will not be as quick to catch on fire as the other mulches due to their larger particle size. When you add to this the fact that they tend to hold moisture, the chance of them being a hazard is decreased even more. On the median project we are intending to apply a layer of wood chips on top of the leaves to increase the moisture holding capacity and decrease the potential fire hazard during the dry periods.

Another question that one might consider important is the ability to keep the leaves from being blown about. We have only been working with the median project for the past six months, however, we have been pleasantly surprised to find that both the natural wind and that generated from passing traffic have not shown any significant problems. The leaves, once they have settled down, have stayed in place and the resulting natural appearance has been quite appealing.

Some have stated that they have had a problem with bark mulch floating out of place. While anything will move when it gets enough force behind it, we have found over the past five (5) years that the interlocking ability and irregular particle size have given the wood chips an advantage on this problem. We have used the chips in an average layer of mulch (4 to 6 inches) on slopes up to 75% and found that there has been little or no problem of erosion.

With the above reasons and results stated, we simply feel that we can no longer call wood chips and leaves a resource worthy of a fate such as the local landfill. I have often wondered if today's local dump might not become tomorrow's richest strip mine.

In closing, I think the question is evident . . . what is garbage or waste? Does our castaway truly meet the standard to be considered such or are we just passing the buck by refusing to re-program, re-process, and/or recycle. The answer isn't in building a bigger mouse trap until we are sure that we have used the present one to its fullest potential. We have never yet found an end to the creative road; most of us have just quit trying.

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