

# What can you do with a STRATUM analysis?

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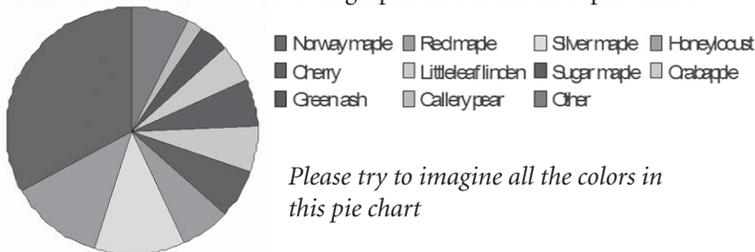
*Editor's note: i-Tree is a free software suite from the USDA Forest Service that provides urban and community forestry analysis and benefits assessment tools. i-Tree can be used by communities of all sizes to strengthen their urban and community forest management efforts. For more information about STRATUM, go to: <http://www.itreetools.org/>.*

Among the large and small applications included under the i-Tree (www.itreetools.org) umbrella is STRATUM (i-Tree Streets), a computer application that uses tree inventory data to quantify the structure, function, value and management needs of any street tree population. It combines a sample inventory--highly recommended for communities without an inventory--with the ability to calculate benefits provided by the trees. Having now carried out as a consultant a number of projects using STRATUM, I would like sketch out some of the utility and limitations of its results in order to encourage its use by communities.

## Shovel-ready results

When you finally get all your data into STRATUM, you're left looking at a big brown empty screen, and you will have little idea where to start. Instantly usable output, both in terms of what it says and how it says it, starts for me with these: species profile, top 10 species size-classes, stocking rate and benefit/cost ratio. The following is a pie chart of species distribution taken directly from a recent analysis:

I find I usually have to redo all graphs and tables in a spreadsheet

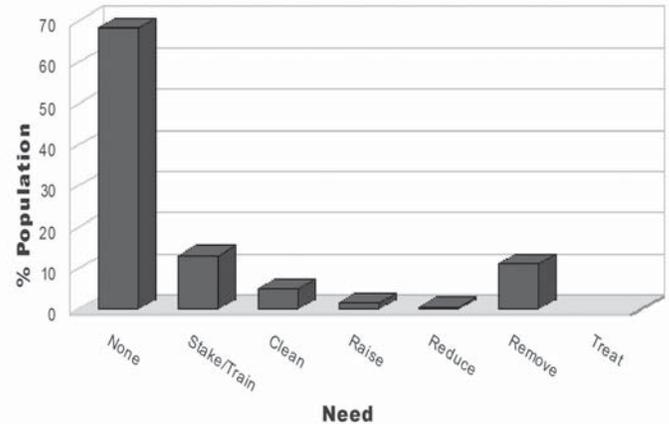


when I produce reports if I want something that looks decent and will make sense to the average reader. Once recreated in that way, this pie chart is instantly comprehensible and useful: it reveals a domination by maples (about 2/3 of the population) that urges a change in species selection.

## Pickaxe-ready results

Sometimes you have to dig around a bit to find useful results and interpret them. A good example is provided by STRATUM's estimate of maintenance needs. When you run the maintenance report for priority tasks, you get two tables: one on top for one particular task, and one below for all tasks broken down into DBH classes. The lower one is actually what you usually want to see, but it does not get its message across easily to people who don't have the time, patience or inclination to read tables with 12 columns. You can retype the summary data (there is no data export function) into a spreadsheet, however, to produce a highly readable bar graph. The graph below is from a recent analysis:

In this form, it becomes immediately clear that an estimated 10% of the street tree population needs to be removed, flagging



this important result for the local tree manager.

## Backhoe-ready results

There are some great things you can do with STRATUM results if you have the time. As an example, let's look at energy benefits. If you collected your data by some kind of zone (neighborhood, garbage collection area, ward, etc.), then you can see how those benefits are distributed spatially. But with some extra GIS work, you can get an estimate of how those benefits affect population, as noted in the following table:

## Distribution of Total Energy Benefits by Zone

Zone	Total	Per Capita*
1	\$26,500	\$2.15
2	\$32,200	\$2.30
3	\$62,300	\$5.70
4	\$227,700	\$18.60
5	\$121,700	\$10.10

\*Assuming uniform population distribution

The environmental injustice is highlighted by the nearly ten-fold difference in the per-capita benefits between the highest and lowest areas.

## Conclusions

Designed by researchers, STRATUM results often need to be reworked for real-world use, but the rewards make it worth your time and will greatly enhance your urban forestry planning.