

C. In-house Markets: Viable Options for Municipalities

Today's portable sawmill technology allows municipalities to produce products from street tree removals for their own use. These portable mills are relatively easy to operate and maintain and are usually priced in the \$12,000 to \$25,000 range. These mills can produce landscape ties, truck bed material, and a broad range of lumber products to satisfy municipal needs. The portable sawmill manufacturers listed on pages 22 and 23 can provide detailed information about costs, production rates, maintenance, and use of these machines.

Some municipalities may want to consider purchasing a portable sawmill for processing their own street tree logs.

Many of today's portable sawmills are small-scale bandmills. This type of mill is more tolerant of occasionally hitting a nail or piece of metal than a conventional mill is. If a blade is ruined because of hitting metal, it can be replaced with a new blade. The cost is normally less than \$30 for a portable bandmill blade.

V. CASE STUDIES

Case Study A. M&A Tree Service, Garwood, NJ

Following is an example of how a tree service company began utilizing municipal street tree removals profitably.

M&A Tree Service started business seven years ago by providing a standard array of tree service activities, including tree removal and tree maintenance work for both private and public customers. Typically, a tree removal job involved taking the diseased, dead, or hazardous tree down in sections and then cutting the limbs and trunk into short "firewood-size chunks." One by one, these chunks were loaded into trucks for transport to the company's storage yard firewood pile.

This hard labor was followed by more, including handling, splitting, and repiling the wood as firewood for sale. After the wood air dried enough for sale, it was loaded onto a truck for delivery and stacking at the customer's location.

Mike Tomaiio, owner of M&A Tree Service, got very tired of the strenuous labor of processing, lifting, and hand-loading firewood.



Typically, log rounds that will be cut into firewood are piled prior to splitting. This work can be very hard and hazardous.

"In particular, the back-breaking work of firewood was never really economically worth all the effort, especially since the price for firewood around here has dropped significantly," Mr. Tomaio said.

Three years ago, New Jersey Forestry Services contacted M&A Tree Service to explain the "Municipal Forest Products Marketing Service" program the state was undertaking. Mr. Tomaio was visited and introduced to the idea of producing and marketing tree removals to local sawmill markets. Particular specifications of species, size, and length were provided in addition to a list of potential customers for these products. All the considerations for log production, transportation, storage, and quality control were discussed.

After visiting a few sawmills to get a look at the kind of material they were using, Mr. Tomaio realized that many of the trees he was sawing into firewood from his tree removals were every bit as good, and some a lot better, than the logs in the mills' sawlog storage yards. It was then that he decided that the idea was worth a try.

Although the mills seemed interested in working with him, Mike found that the best way for him to operate was to provide the logs for full load mill pick up at his own storage yards in northern New Jersey. With the purchase of a cab-mounted, knuckleboom log loader, the plan turned into reality.

Most of the logs that in the past went into the firewood pile or were taken to the dump now get boom loaded and delivered to M&A's sawlog yard. Firewood is still produced from the upper sections and large branches, but the good logs don't get cut into firewood anymore. The company's work force, which varies from 5 to 15 people depending on the time of year, spends less time working a tree down and a lot less back-breaking work loading big log chunks into trucks.

**Producing and marketing
sawlogs is good for business
and the environment.**

Mr. Tomaio has been able to sell as much sawlog material as his crews can produce. In fact, he's now picking up and marketing sawlogs produced by other tree service businesses and municipalities, as well. He works with about a dozen private businesses and municipalities in the area by hauling logs they generate from their tree removal work.

About 2-3 tractor trailer loads of logs per week are produced during the busy season. These logs come from city streets, local parks, and residential areas.

Mr. Tomaio has found that oak, ash, walnut, hickory, and pine are the best movers for him. Logs that are too rotten for use or those that appear to have metal too deep to remove get cut into firewood or worked into mulch at stump grinding facilities located throughout the state.

Mr. Tomaio gets a strong sense of satisfaction knowing that these trees are being put to good use. He's seen these logs being sawn into high-quality furniture lumber, truck bed stock, landscape ties, fireplace mantels, and many other kinds of products. In most cases, his tree removal work involves trees that are already dead. For every log he markets from the urban resource, it means one less that has to be cut out of the forest.

"Since I've started doing this, I guess I've shipped several thousand logs to sawmills around the state. It's good for business, good for the sawmills, and good for the environment, too," said Mr. Tomaio.

These street tree logs are ready for the trip to the sawmill where they will be used as raw material for a broad range of industrial and consumer products.



Case Study B. Willard's Sawmill, Trenton, NJ

Following is an example of how a tree service company began utilizing sawlog-size street trees profitably. Today, the tree service company also operates a sawmill.

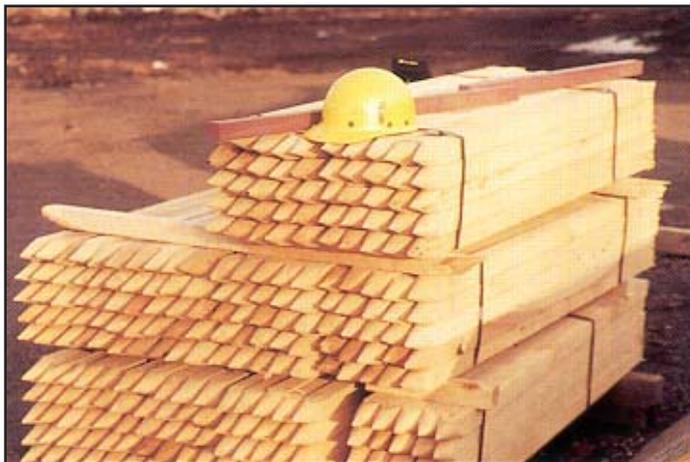
Sam Willard started Shearer Tree Service Company in 1949. Employing approximately 40 people, his company is involved in normal arboreal services such as pruning, planting, spraying, removal and maintenance.



Much of the wood in this photo was once destined for a landfill. Now, most of it is processed into usable products.

In 1974, the company was paying about \$20,000 a year in landfill fees to dispose of tree removals. Because the wood waste was non-compactible and bulky in nature, and because landfill rates were expected to steadily increase, Mr. Willard began to explore other options for his wood waste.

Mr. Willard began his effort with the purchase of a used Frick circular sawmill along with an edger, crosscut saw, planer, stake pointer, and metal detector. Instead of hauling his tree removal material to landfills, he began processing the sawlogs through the mill and converting the tops to firewood. Lumber, timbers, and nursery and survey stakes were the original products manufactured.



Nursery and survey stakes were some of the first products manufactured by Mr. Willard from street tree logs.

The mill has evolved since its first days of operation and now includes a dry kiln and the capability to make free-form furniture, clocks, planters, and decorative plaques.

These products are made possible with the use of an “Alaskan Mill” sawing system. This specialized machinery basically consists of a metal frame with guide rollers, two chainsaw power drives, and a large ripping chain.

The logs are first scanned with a metal detector before any processing is attempted. Metal in the form of nails, spikes, or barbed wire is a common component of logs acquired in tree service work. Once located by the metal detector, the metal is removed. This can be a time-consuming process. However, this particular mill does not concern itself with high production, so the extra time taken to remove metal from logs is well spent. Logs are processed on a lumber order basis, and only high-grade lumber is kept in inventory.

Logs suitable for processing through the Alaskan Mill are elevated at one end and diagonally cut with the rip chain which results in thick, matched slabs. Large stumps and abnormal tree butts are also sawn in this fashion, creating unique and decorative patterns. This type of sawing accentuates the wood grain in such a way that the pattern normally produced is quite unlike that shown in standard-sawn lumber.

The cut slabs are used as the raw material for free-form furniture styles: tables of all kinds and sizes, bar and counter tops, plaques, clocks, and many other highly decorative items. Variations in species, grain pattern, color and figure greatly enhance the free-form product’s marketability. Mr. Willard’s suburban location has proved to be a good site for marketing such specialty products to homeowners in the area.

These diagonally cut slabs could easily be turned into beautiful clocks or plaques by a hobbyist or a crafter.



The diagonally cut slabs that are produced are stickered and air dried before kiln drying. The operator

uses a small West Air kiln system for drying these thick slabs. Kiln schedules are a very important facet of the operation because the product must be free of any drying defects such as checks or splits if it is to bring the maximum price.



The logs, once cut into slabs, are stacked and air dried. Eventually, they will be placed in a kiln for the final drying process.

Normal kiln schedules had to be adapted to fit this particular type of material. After kiln drying, the slabs are sanded and sold "as is" or are processed into finished free-form furniture items.

Willard's Sawmill is a classic example of how urban tree removal material can be processed and marketed. His products are a response to the specific and somewhat unique type of raw material handled.

Mr. Willard's operation utilizes every part of a municipal street tree. Logs are processed either through the sawmill or Alaskan Mill into usable lumber, large topwood is marketed as firewood, branches are chipped and sold as mulch, and the sawdust from the mill is sold to local horse owners for use as bedding. This unique urban sawmill is one answer to the problem of municipal street tree utilization.



This coffee table was made from slabs of walnut lumber and is an example of the kind of free-form furniture that can be produced from street trees. The piece is both functional and unique.

Case Study C. CitiLog, Ewing, NJ

It was after watching a 100-year old oak street tree be cut up for firewood that Stubby Warmbold realized the opportunity existed to capture more value from urban tree removals. In 1992, Mr. Warmbold started a company in Ewing, New Jersey, to pursue this opportunity. The company would later be named CitiLog.

“I look at a log and see revenue, someone in the tree service business looks at the same log and sees disposal costs,” explained Stubby Warmbold.

Tree service companies drop off their logs at CitiLog’s yard to reduce their costs. Disposing of their logs for free improves their bottom line.



The company’s logs are primarily procured through the collection of “municipal wood.” The trees are removed by independent tree removal services and are gathered at a central log yard facility in Irvington, New Jersey. Here they are sorted, stacked, and inspected for quality. Logs that do not make the grade are sold to cogeneration plants for fuel. The higher quality logs are scanned with a metal detector and any metal discovered is removed.

The higher quality logs are loaded on railroad cars and transported by train to Central Pennsylvania for further processing. The logs are sent to one of three Amish sawmills, two of which are band mills and the other a circular mill. Prior to being sawn, the logs are once again scanned to locate and remove any metal objects.

Logs are loaded onto railroad cars at CitiLog’s New Jersey yard to be transported to Pennsylvania where they will be made into a variety of products. The railroad provides an economical way to transport logs.



The wood is sent to various Amish businesses and craftsmen. The low-grade material is used for pallet stock and cross ties. The high-grade material is used to create custom cabinets, doors, flooring, furniture, moulding, and a variety of other wood products. Orders have ranged in size from a single book cabinet to providing the wood needed for a new addition to the Woods Hole Research Institute headquarters building in Woods Hole, Massachusetts.

It was not until 1998 that Mr. Warmbold began to focus on the production of higher value-added products. Up to this time, most of his wood went into the production of pallet stock and cross ties. He realized the importance of finding the best application for his material that would reap the greatest return. To do this, he began channeling his higher-grade material into higher-value products. At the same time, he stresses the importance of developing a good market to absorb the low-grade material.



Stubby Warmbold inspects ginkgo logs that came from the University of Pennsylvania. The logs will be used to make a reception desk for the University.

In 2001, with financial assistance from the USDA Forest Service Rural Development through Forestry Program, CitiLog had its wood and wood products certified by SmartWood's Rediscovered Wood Program

(www.smartwood.org).

This particular certification program is designed to encourage the reuse of wood and wood products that have been reclaimed, recovered, salvaged, or recycled, by assuring consumers that the company's products come from sustainable sources.



These are just some of the high quality hand crafted products produced from CitiLog's wood. If not for the efforts of CitiLog and other companies like it, urban logs like the ones that produced these products would have most likely been buried, burned, or chipped.

Mr. Warmbold believes his company's certification has driven demand. By servicing this niche, it has opened up other uses for his wood material besides pallet stock and cross ties.

The company receives most of its business by word of mouth. Mr. Warmbold explains that the certified wood community is small and word travels quickly. Since CitiLog offers most of its certified products at market prices, consumers are quick to choose them over non-certified products.

Mr. Warmbold sees endless possibilities for CitiLog. He plans to take what he has learned and the contacts he has made and duplicate this operation in other cities. He believes his business is good for the environment and also supports skilled artisans and small-scale production in local communities. And as an urban business, it provides jobs for the inner-city populace who work in the collection, warehousing, and distribution of the logs and wood products.