



# Pilot Project to Help Companies Identify Alternative Wood Waste Market Options

## ***First Line Resources and Strategies For Small- and Medium-Sized Businesses Exploring Alternative Wood Waste Markets***

### ***A Fact Sheet for Alameda County, California Businesses***

In January 2009, EPA and StopWaste completed a Pilot Project to Help Companies Identify Alternative Wood Waste Market Options (Pilot Project) and reduce industry wood waste that is sent to landfills. As a result of the project, EPA identified a need for resources and tips catered specifically to small and medium quantity generators of wood waste (i.e., less than 500 tons per year). Since larger quantities of wood waste are commonly recycled by animal bedding and particleboard markets in the Bay Area, this fact sheet is focused on helping smaller businesses better manage wood waste and find ways to turn it into a valuable resource.



Why is there a disparity between larger and smaller quantity generators of wood waste? From an economic standpoint, it is cheaper and more cost-effective to truck and reprocess large loads of material. Transportation and reprocessing costs tend to be less expensive, making the end users more likely to actually pay for a company's wood waste material when large quantities are available. However, if your business does not generate wood waste in consistently large quantities, or your wood waste does not meet "clean" wood waste standards imposed by many end users, you may find that your business has a harder time identifying appropriate end use markets for discarded wood.

Due to the relative disparity between smaller quantity generators and larger quantity generators, the following strategies and resources are intended to guide smaller quantity generators towards market options that represent feasible options for a company's wood waste. This fact sheet outlines a step-by-step approach to help material managers and business owners improve overall waste management practices for wood waste. Whether your business has been recycling for years or is just getting started, the following information may be the key to help you reduce your waste stream and improve your bottom-line as well. The world of recycling has come a long way in recent decades; however, every business that generates wood waste can benefit from considering some of the enclosed suggestions. The information contained in this fact sheet can serve as a guide to assist you with future business decisions regarding waste management alternatives and help you reap the economic and environmental benefits that recycling and reuse alternatives may offer.

### **Step 1: Evaluate Current Waste Management Practices**

If your business or organization is serious about reducing wood waste that is sent to landfills, the first step requires a simple evaluation of your company's ability to plan for recycling and/or reuse of materials. Although this is a simple first step, planning for space and thinking about your ability to train workers on new waste management practices may require changes and flexibility, which



can be difficult for some businesses. Considering the following factors will help companies evaluate their current waste management practices.

### **1.1 Assess Production/Manufacturing Processes for Opportunities to Reduce Wood Waste**

Why not reduce wood waste in the first place? Before considering waste disposal options, rethink your current manufacturing or business processes. Ask yourself, “Is there a better way to manufacture or package our products to prevent excess wood waste from accumulating?” Simply reassessing daily practices and overall product design may significantly reduce the amount of wood you discard and pay to dispose. It may also reduce your purchasing costs, making an evaluation well worth the effort.

Not sure how to go about this process? Start by making sure you begin the evaluation process with a champion who is familiar with your goals and the local recycling market. StopWaste.Org can provide support to Alameda County businesses looking for help reducing waste. StopWaste’s business services are a free and designed to improve efficiency and lower operating costs while reducing waste. StopWaste can help identify recycling vendors, and offers resources such as its Use Reusables campaign on reusable transport packaging, as described in the box below.



## StopWaste.Org's Reusable Transport Packaging Resources

StopWaste has a program dedicated solely to the use of reusable transport packaging and has evaluated the use of these containers (see table below). If you rely on wooden crates or pallets, have you considered the use of more eco-friendly options, such as reusable containers? Although the upfront costs of reusable materials may be greater than traditional materials, their use can provide long-term savings. For example, according to research performed by StopWaste.Org (compiled in Table 1 below), a plastic reusable container, which can be made from recycled plastic, only costs \$0.04 after 250 trips when compared to using a less sturdy corrugated box, which costs \$0.53. These numbers make a good case for considering reusables and eliminating large quantities of wood waste upfront. Several businesses in Alameda County are dedicated to repairing and serving broken pallets as well. Talk to your pallet provider about offering similar services if they do not currently provide them, or research additional pallet repair services at [www.StopWaste.Org/Recycle](http://www.StopWaste.Org/Recycle). More information on the Use Reusables campaign can be found at [www.UseReusables.com](http://www.UseReusables.com).

**Table 1 – StopWaste Comparison of Containers**

ATTRIBUTE OF CONTAINER	CORRUGATED ONE-WAY	CORRUGATED REUSABLE	FIBERBOARD REUSABLE	PLASTIC REUSABLE
Weight	1.5 lbs	2.2 lbs	5 lbs	5.5 lbs
Durability	Poor	Fair	Fair to Good	Excellent
Estimated Initial Cost	\$0.53	\$1.06	\$6.05	\$11.03
Estimated Life	1 trip	5 trips	50 trips	250 trips
Cost/trip (avg.)	\$0.53	\$0.21	\$0.12	\$0.044
Other costs	Setup Disposal/ Recycling	Setup Breakdown Return	Return Repair	Return

### 1.2 Plan for Waste Management

Space planning for recycling and waste management is crucial, but often overlooked. If you have already explored opportunities to reduce your waste stream, it is important to consider your ability to recycle or stockpile materials for others to reuse. If space presents a challenge for your organization, inform your facility or plant manager of the need for ample storage and sorting space for recyclable materials. If your business generates large quantities of various recyclable waste streams, make sure you collaborate with a recycler to plan the most effective use of space.



Another consideration when recycling is whether the space allotted for waste management provides sufficient room for trucks and loading vehicles to maneuver? Can you accommodate several different containers, if material separation is required? Last, but not least, make sure you develop visible signage with graphics to ensure compliance from employees. Visible signage will also serve as an outward symbol



to plant visitors that you care about the environment and make waste reduction and recycling a priority.

**Consider This:** Smaller businesses can often benefit from stockpiling reusable wood materials on site. If your business generates reusable lumber, off-cuts, veneers, or sawdust, you should consider your ability to stockpile these materials until you have a sufficient quantity for resale in markets that require consistent quantities of materials.

### 1.3 Remove Common Contaminants Prior to Marketing Materials

The level of cleanliness of wood waste is one of the determining factors for successful marketing of these materials. Before you explore wood waste markets, do all that you can to improve the quality of your material. Doing so will significantly improve your options. In general, “clean” wood waste is unpainted and free of chemicals (i.e., not pressure treated or processed, no melamine), adhesives, glues, nails, and rubbish. The cleaner the material a business generates, the more appealing it is on the open market. If your business uses adhesives or glues in its products, you may benefit from switching to a more eco-friendly alternative (e.g., formaldehyde-free, soy-based). Manufacturers that use nails in boxes or pallets may benefit from designing products for easy deconstruction and reuse. Products that are designed for deconstruction allow for materials to be salvaged and reused without generating damaged goods as often. The practice simply re-examines how products are put together and the best way to take them apart or repair them.

**Fact:** One Styrofoam cup in a load of otherwise “clean” wood chips can damage a load of processed particleboard and cause the whole batch to fail quality tests.

## Step 2: Identify Alternative Market Options for Your Wood Waste

Once you know the type and condition of material you are trying to market and your ability to store it, you should begin exploring recycling markets and end users willing to accept your materials, either for free or for a fee. High quality loads of wood chips and materials such as reusable lumber, veneers, and MDF may represent an opportunity to generate cash for your business. However, most of the wood generated at smaller and medium quantity businesses may represent materials that are difficult to market. Keep in mind that the most viable option may be to donate the materials or hire a general recycler to pick up materials.

### 2.1 Educate Yourself About Local Markets and End Users

Businesses located in Alameda County can benefit from the findings of the 2009 Pilot Project. During the project, contractors developed a diverse database of both generators of wood waste in Alameda County and businesses and organizations that recycle or reuse wood waste from other businesses in the Bay Area. Knowing what materials you have to offer will allow you to more effectively identify feasible end market partners. Contact StopWaste.Org or California Integrated Waste Management Board (CIWMB)



representatives to access resources and end market contacts in the Bay Area that were compiled over the course of the 2009 Pilot Project.



**StopWaste.Org** can help your company reduce operating costs and increase efficiencies. Plus, you can eliminate waste before it's created and learn to recycle materials that now go into your garbage. Alameda County businesses can receive expert, technical assistance—absolutely free—through the StopWaste Business Partnership. Contact StopWaste at 1-877-STOPWASTE (786-7927) or send an email to [Partnership@StopWaste.Org](mailto:Partnership@StopWaste.Org).



The CIWMB's **Recycling Market Development Zone (RMDZ)** program combines recycling with economic development to fuel new businesses, expand existing ones, create jobs, and divert waste from landfills. This program provides attractive loans, technical assistance, and free product marketing to businesses that use materials from the waste stream to manufacture their products and are located in a zone. To locate your zone administrator and learn more about RMDZ, visit <http://www.ciwmb.ca.gov/rmdz/>.

Table 2 provides a brief overview of some wood waste materials that are currently being reused or recycled by other industries in the Bay Area. Not all wood types and industries are represented; however, the table provides a baseline for current opportunities to recycle/reuse wood.



**Table 2 - Examples of End Uses for Wood Waste in the San Francisco Bay Area**

End Products	Wood Reused by Various End Product Industries										
	Douglas Fir	Pine	Mahogany	Exotic Wood Species	Walnut	Cedar	Broken Pallets/Crates	Sawdust (no Walnut)	Shavings (no Walnut)	Various Wood Types	Clean Wood Waste
Pallets		●					●				
Furniture	●	●	●	●	●	●				●	
Animal Bedding								●	●		
Landscape Products								●	●	●	●
Compost								●	●		●
Consumer Products	●	●	●	●	●	●	●			●	
Particleboard and MDF								●	●	●	●
Wood Packaging	●	●	●	●	●	●	●			●	
Construction/Decking	●	●	●	●	●	●				●	

**2.2 Assess Non-Traditional Local End Users**

Working with StopWaste.Org or CIWMB, hopefully your business will identify an industry that can benefit from your materials. However, if a market relationship cannot be developed, you may find opportunities to help the community through the donation of smaller quantities of reusable wood materials. For instance, some scraps and wood species can be readily reused in educational institutions, such as local woodworking academies or trade schools. Non-profits, such as food or medical distribution centers, may benefit from donated pallets or crates. Post office or military distribution centers may also have a need for excess pallets. Examples of organizations that can reuse specific wood types include the following Bay Area facilities:

**Table 3 - Local Organizations That May Accept Reusable Wood Waste**

Organization	Location	Specifications
Sawdust Shop	Sunnyvale, CA	Accepts various wood sizes and types
Work Training Center for the Handicapped	Chico, CA	Accepts wood scrap for mulching (landscape department) and various reusable wood scraps/lumber (woodworking center)
Mt. Diablo Adult Education Center	Pleasant Hill, CA	Accepts various wood types and sizes

*Note: Please call and inquire about current needs before dropping off materials. Some organizations may be able to pick-up materials on either a consistent or intermittent basis depending on current need and material type.*



**Got Sawdust?** Local elementary schools have used sawdust to make sawdust clay for recreational and educational projects. California-based company Puzzle People donates its spent sawdust to local elementary schools with a copy of the recipe.

### Step 3: Explore Markets Through Free Online Listing Services

For waste types that may not be considered “clean” and free of contaminants; such as paint, pressure treatments, adhesives, and nails; look to online posting services such as Craigslist.org or Yahoo’s Freecycle network. Craigslist.org is a nationwide website that allows individuals to post items for sale or free based on location. By describing the type and quantity of your material, your business can explore new and unique markets for your materials.



Maybe a large industry partner is not feasible for your small quantity of MDF scrap; however, a local artist may benefit from your material. Yahoo’s Freecycle network uses a similar model, although all material posted on the group list serve is offered free to the public. You may not make a profit from this approach, but you may be able to eliminate costly tipping fees for waste disposal. The added benefit of these online tools is that your material can stay local, which reduces the negative environmental impacts of shipping and trucking long distances.

#### Online Classifieds Help Local Retailer Keep Wood Out of Landfills

Berkeley-based furniture store The Wooden Duck relies on supplies of reclaimed wood, primarily old growth Douglas fir, for their products. The eco-conscious furniture designer generates fir scraps and sawdust during the production of its rugged furniture. To prevent spent wood waste from disposal in a local landfill, The Wooden Duck owners have turned to the use of online classifieds. Using Craigslist.org, the furniture retailer has been able to post the type and amount of material available for free to those who can pick it up. Since turning to the Internet, The Wooden Duck has found outlets for its sawdust (local ranchers) and various community members that reuse the scrap as firewood or in home projects. While the materials are provided free to the public, the retailer avoids traditional disposal costs such as tipping and pick-up fees.

### Step 4: Identify a Recycler for Non-Marketable Wood Waste

Although efforts have been made to improve communication between generator and end user markets through the 2009 Pilot Project data effort, some businesses will find it difficult to source their materials to new markets for reuse. The Bay Area enjoys a wide array of wood waste recycling options, which may prove less expensive than traditional landfill disposal.



Information about local wood waste recyclers and drop-off locations for mulching and other woodworking operations can be found through both StopWaste.Org and CIWMB.



**Drop-Off Facilities:** Most drop-off facilities in the Bay Area will provide you with a less expensive tipping rate for clean wood waste than refuse. High quality batches may be accepted for free or warrant payment. The cleaner the material, the easier it can be marketed. If your business owns transport vehicles, drop-off facilities may be a more cost-effective option than hiring a recycler to pick up your waste.

**Table 4 - Wood Recycling Versus Non-Recycling Tipping Fees**  
Pricing for Alameda County Landfills and Transfer Stations (2009)

	<b>Recycling Prices</b>	<b>Refuse Prices</b>
<b>Transfer Station 1</b>	<b>Wood waste \$60/ton</b>	<b>Refuse \$115/ton</b>
	<b>Wood waste \$26/cubic yard</b>	<b>Refuse \$29/cubic yard</b>
<b>Transfer Station 2</b>	<b>Wood waste \$65/ton</b>	<b>Refuse \$115/ton</b>
	<b>Wood waste \$21/cubic yard</b>	<b>Refuse \$27/cubic yard</b>
<b>Transfer Station 3</b>	<b>Wood waste \$33/ton up to 880 pounds</b>	<b>Refuse same as wood waste</b>
	<b>Additional charge of \$73.97/ton after first 880 pounds</b>	<b>Refuse same as wood waste</b>
<b>Landfill 1</b>	<b>Wood waste \$49/ton</b>	<b>Refuse \$62.25/ton</b>
<b>Landfill 2</b>	<b>\$9/cubic yard</b>	<b>All material recycled</b>
<b>Landfill 3</b>	<b>\$108/ton</b>	<b>All material counted as refuse</b>

**Pick-Up Services:** Pick-up service may be more expensive than dropping off materials; however, recyclers can often provide less expensive services than your waste hauler. If your wood waste is in pristine condition, you will have more room to negotiate for lower pick-up pricing. This may require an extra effort on the part of employees to keep loads properly sorted and free of water, debris, and rubbish. Recycling pick-up providers in the Bay Area begin charging at \$295 for a 7-yard roll-off container and go up to the \$500 range for larger containers, such as 40-yard roll-offs. Fees per box include the pickup, recycling tip fee, and delivery of containers. Since the majority of pick-up costs are concentrated in the cost to hire drivers and transport loads, companies that can fit larger containers on site may benefit from less frequent pickups in larger containers.

**Step 5: When in Doubt, Implement Creative Solutions**

If you are still looking to improve your waste management program when it comes to wood, don't be afraid to implement creative solutions. The following tips will help your business explore any remaining possibilities for improving waste management goals:

**Tip #1: Designate On-site Storage.** Small quantities of wood waste may present a challenge for cost-effective reuse of wood waste. If you can create space on site for the material, an end user may be able to collect larger quantities of material on a less frequent basis. For example, California-based particleboard plants and animal bedding manufacturers pay for materials fitting strict criteria for generators of at least 500 dry tons per year. Consider any extra space in your warehouse or elsewhere that would serve as appropriate storage shelters for marketable materials.



**Tip #2: Create a Community Pick-up Bin.** Consider placing a community pick-up bin on site for scraps or sawdust that can no longer be used by your business. Notify the local community and artist communities of its location and post any rules you find necessary for takers of the material. Research shows that connecting to your community can be great for business.



### **Berkeley Rustic Birdhouses**

Local artist Michael Paporayno combines a love for the earth with a love for art. His handmade birdhouses are crafted from recycled materials that he picks up from local salvage yards. He is able to use any wood type that can be used to make high quality outdoor birdhouses. Local artists like Michael represent a unique market for smaller wood scrap that other small businesses need to discard. The added bonus to businesses that donate materials to local artists is that many artists can pick the materials up from the generator, which reduces or eliminates transport and disposal costs.

**Tip #3: Partner with Other Businesses.** If your business lacks the necessary storage space to store wood waste on site, consider reaching out to other small businesses that may be able to partner with you to collect and store material. Once the material is collected at a central location, you may want to grind smaller wood scraps for transport to mulching facilities. Partnerships will benefit all parties by reducing costs to recycle and allowing for materials to be reused. Some end users, such as producers of wood flour, animal bedding products, MDF, and particleboard will pay for larger quantities of material matching certain criteria (i.e., ground to 1 to 1.5 inch pulp chips, containing 8 to 8.5 percent moisture content).

### **Berkeley Mills Finds Various Outlets for Wood Scrap**

Not only does local custom designer Berkeley Mills handcraft beautiful furniture using sustainable materials such as bamboo, but it also works to find environmentally-preferable options for disposing of scrap material. For years, Berkeley Mills has donated wood scraps to Laney College for use in its woodworking department. Other scraps are provided to the community for free. For fifteen years, a local landscaper has accepted sawdust from the furniture designer at no cost for use in compost. These efforts to keep wood waste out of landfills have allowed the company not only to avoid disposal costs associated with the materials, but also has allowed the company to provide resources to the community at large.

