

# Paper Recycling in Suffolk County



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[Link to Lesson Plan on Papermaking](#)

## Abstract:

I wanted to see how Suffolk county handles its waste paper. Recycling paper is an important issue because of deforestation concerns and limited landfill space. All ten of the major towns in Suffolk county collect waste paper through curbside programs or drop-off points. Once the paper is collected, the vendors arrange to sell it to the market that is currently paying the most. Towns often take various components of garbage from other towns and villages for money in "trash for cash" transactions. Garbage is transported to other areas of Long Island and even to other states.

## Introduction:

Garbage is an all-encompassing term for the items that make up the waste stream. The materials that constitute typical household garbage can be separated into yard waste, kitchen waste, various grades of paper, glass, cans, plastics, and the occasional old appliance or worn out piece of furniture. To recycle as much of our garbage as possible, we need to separate out the different materials.

I chose to concentrate on household paper for my project. It is a study of how Suffolk County handles its waste paper as of August, 1998. The reason I add the date is because like other related recyclable items, paper products are extremely market dependent. I became interested in the paper portion of the garbage stream when my children were born and I had to choose between cloth diapers and disposable diapers. As I became more aware of the amount of paper products in the waste stream, I realized how much volume is made up of paperboard.

What is paperboard? It is also called chipboard, and it is the light cardboard that houses many food products. When you go to a supermarket, with rare exceptions, the food is not sold in bulk out of barrels. Instead, the food is contained in glass bottles, cans, or paper boxes. This light cardboard comes into our homes in other ways too. Cardboard is often part of the packaging of products. Computer programs come in cardboard packages as do many school supplies. Put aside the light cardboard products in your home that would normally be thrown out for one week, and you will be surprised at how much you have collected in that time.

This project started as a study of how Long Island and New York City handles its paperboard waste, and as it developed, I decided to scale back on the geographical area and expand the types of material studied to encompass other paper products. I have not found another such study in the literature, and the recycling field has no dearth of literature.

The most similar study done was for a pilot program in composting for the Village of Bellport. That program (personal communication, Mrs. Dava Stravinsky) began when a group of local residents got together and decided to investigate various composting methods. They came up with a model they felt was most effective and went to the local government with their findings. The Village of Bellport felt the idea had merit, and in 1996, they started the pilot program for backyard composting. The Village subsidized the purchase of these backyard composters, and residents only had to pay ten dollars to receive a composter.

The scientific basis for a study of paper recycling in Suffolk County is to observe the present conditions, analyze the handling of the problem (the volume of paper in the waste stream), and draw conclusions about how the problem is being handled. Because this issue is in a state of constant flux, I did not rely on books very much because they were too out of date. Magazine articles were better because they were more recent, but the most helpful information came from telephone conversations with people responsi-

ble for making decisions about recycling in the various towns.

## The Search Begins:

A good place to start researching a recycling project is at the source. One of the key elements in recycling is finding a market for the finished materials. To identify these markets, it helps to gain an understanding of how the material is produced, and what its uses are. I began my research on paperboard by exploring my kitchen cabinet. Careful examination of the boxes showed me two things immediately. The first was that in many cases, the boxes were made of 100% recycled paperboard. The second was that each box had an 800 number listed for customer service.

These 800 numbers led me to the most valuable research tool used in this project. That tool was the telephone. Whether used directly in telephone conversations or as a means to e-mail and web sites, the phone and phone-lines were invaluable. The companies I spoke to were very helpful, and sent some informative material. Though the project was about household waste, the problem begins with the packaging from companies.

According to an informational pamphlet titled, "The Solid Waste Issue" from General Mills, "Packaging and containers make up approximately one-third of the solid waste stream." They go on to say that currently, 98% of the cartons they use for dry food are made of recycled materials, and at least 35% is from post-consumer materials. Recycled materials are not necessarily post-consumer materials. Sawdust and other low-grade pulp from mills has been classed as recycled with the idea that it otherwise would not have been used.

The General Mills pamphlet also addresses the problem of corrugated cardboard. "Corrugated shipping boxes contain, on average, 35 percent recycled paper." They also reuse the containers many times before recycling them. "56 million pounds of corrugated boxes were recycled by General Mills plants in 1991." To help in recycling of the light cardboard, "General Mills does not use printing inks that are formulated with heavy metals".

One of the interesting things about the packaging issue is how much a little difference can make in reducing waste because of the volume of goods involved. Two things mentioned in the pamphlet show how great a difference a little change can make. A reduction in the weight of Hamburger Helper(trademark) cartons resulted in a 2 million pound reduction of packaging material per year. Replacing the Pop Secret(trademark) popcorn bag with a lighter weight design has led to a reduction of one million pounds per year.

What drives a company to become so conscious of packaging? Environmental policy and good public relations are some reasons, but there is another reason too. Package reduction makes good economic sense. An example of a change made by the Hershey Company that saved waste and money appeared in an article in Mother Jones magazine. "In 1994, Hershey thinned by 15 percent the piece of cardboard on which Reeses Peanut Butter Cups(trademark) rest, resulting in 300,000 pounds less trash and \$175,000 in annual savings." (Broyo, 1996). Since 1993, Hershey has saved nine million pounds of packaging through different reductions and by using recycled, post-consumer cardboard. The driving force behind recycling efforts is economics.

One thing to note about that thinner piece of cardboard in the candy package. Paper that is contaminated with food cannot be recycled. "Regardless of any 'recyclable' claims you may see printed on fast food containers, paper that is soiled with food or grease can not be recycled. ...Be aware that food chains that so mark their containers are being dishonest with you: the paper product may be recyclable until they put food in it, but not after. By the same token, we must avoid dumping the paper into the garbage container where it can become soiled with grease, food scraps, or coffee grounds. Such paper is lost for recycling."(Branson, 1991).

Reduction and recycling at the source by companies means that there is a market for post-consumer paper products. Recycling of paper is very dependent on market availability. Sometimes it is more economically feasible for paper to be recycled, other times it may be cheaper to put it in landfills. Dr. Allen Herschowitz, an environmentalist with the Natural Resources Defense Council, acknowledges the importance of economics to recycling. "What's going to kill recycling is if we can't get the price right and make it more competitive economically. And that means if it's not economic now, don't abandon it, adjust the economics so it gets done right."(Herschowitz, 1997).

A reality seems to be that many communities don't want to wait around to see if a recycling program will become economic. If it isn't economic now, they don't want it. I had an interesting conversation with Dr. David Tonjes of the Waste Management Department at SUNY Stony Brook regarding this topic. We agreed that though the politicians might be in favor of recycling, they do have limited budgets. As with everything else, recycling is balanced with other things and politicians may be forced to choose to allocate

funding elsewhere.

The next step in researching this project was to visit internet sites from companies and organizations like the Department of Environmental Conservation(DEC). Though this information was current, with the exception of the site for the DEC, I didn't feel that it was a good idea to use any statistics from the web because of a lack of confidence in the level of fact checking on the web. A nice compromise was the Infotrack in the library. This database allowed me to call up and print reams of articles on recycling paper(very ironic).

Since I was coming to the project with a very biased view in favor of recycling, I tried to find articles that were not in favor of recycling. One such article was by Mr. John Diconsiglio, who felt the cost of recycling was not necessarily worthwhile. He believes that though landfill space is at a premium in the northeast, out west there is much more room for landfill space. The figures he gives in his article state that on average a ton of garbage costs \$400 to recycle and only \$70 to dump in a landfill. Mr. Diconsiglio sees the fluctuating market for recyclables as a great drawback. As an example, he uses the recycling program in Madison, Wisconsin that makes \$475,000 a year in profit and one in Atlantic County, New Jersey that loses \$500,000 a year.

Despite these figures, however, he does say "Some forms of recycling make clear environmental sense. Recycling paper, for example, saves trees, which helps prevent global warming. The Sunday New York Times alone uses 75,000 trees." He quotes Mr. Kenneth Skog, of the U.S. Forest Products Laboratory as saying, "Recycling paper makes a real, noticeable difference"(Diconsiglio, 1997).

Most of the literature I encountered in my research stressed the landfill space as a reason to recycle paper. Few mentioned the number of trees that need to be cut down to feed our need for paper. I found it amazing how many trees were needed for newspapers, and wondered how many trees went into other common products. "According to the Southern Forest Institute, a 20-year-old pine tree contains 500 pounds of wood that can yield 120 pounds of paper, enough to produce 3,600 12-pound grocery bags." (The Global Tomorrow Coalition, 1990).

The definition of what makes recycled paper has been an issue in the past. In the summer of 1993, Environmental Action Magazine published an article by Ms. Barbara Ruben called "Paper chase: the battle over how recycled paper is defined may determine the fate of community recycling programs". The American Forest and Paper Association(AFPA) and a coalition of environmentalists and recycled paper companies called the Paper Definitions Working Group, appealed to the United States Environmental Protection Agency to set standardized definitions for recycled paper. Defining how much post-consumer paper pulp actually goes into recycled paper is very relevant for local recycling programs. "The greater the demand by companies making recycled paper, the more post-consumer paper will be worth to collect."(Ruben, 1993).

Part of my research into recycling paper was an examination of how recycled paper is made from post-consumer paper. The Marcal Paper Company in New Jersey maintains a web page [www.marcalpaper.com](http://www.marcalpaper.com) that proved very informative. This would be a great internet site for a classroom as well, because the information was presented in a very straightforward, easy to understand fashion. This site even had a kid's section that contained a project for creating recycled paper at home. Because this used an iron which I didn't think was appropriate for a classroom setting, I looked into other books on the art of paper making. An excellent source is Making & Decorating Your Own Paper by Kathy Blake and Bill Milne.

Combining techniques from both sources, I've found a method of doing paper making that should be acceptable to do with a class. Doing this project with my eight year old daughter gave us both a greater appreciation of how "real" paper is made. From T'sai Lun in 105A.D. China (Making & Decorating Your Own Paper, 1994), to the paper mills of today, the art of paper making hasn't changed tremendously.

The quality of recycled paper has changed though in recent years. "Since recycled paper uses shorter fibers than virgin paper, it is generally more malleable. Recycled papers can equal the performance of virgin papers if properly processed, exhibiting high bulk, opacity and consistent strength levels. Post-consumer waste, when de-inked expertly, can even produce white, fleck-free writing and printing papers that offer extremely high performance levels."(The Office, 1993).

The old paper to be recycled is put in water where the pulp is screened and washed to remove inks and clays from the cellulose fibers. Marcal, and many of the other companies whose web sites I visited, made a point that their pulp is not whitened with chlorine bleach. "Chlorine bleaching's toxic legacy encompasses more than dioxins and furans.... In Sweden, where several toxicological studies have begun, more than 15 compounds show cancer-or-birth-defect-causing properties."(Raloff, 1989).

There are more uses for post-consumer paper products than just recycled paper. Making the paper into pellets to burn in industrial

boilers is one such solution. These pellets burn like coal but are a renewable resource and can be more environmental. Notice I say can be more environmental. "Pelletized fuel offers many advantages in addition to providing a new use for discarded paper. It reduces non-renewable fossil fuel consumption, provides a high level of heat generation, and since paper contains little sulfur, its co-firing with coal reduces sulfur dioxide emissions. In fact, paper fuel emits 10% to 20% less carbon than coal."(The Office, 1993). On the other hand, in 1978, Mr. David Cleverly of the Environmental Protection Agency told Science News, "We've estimated that the air emissions [of dioxins and furans from U.S. municipal-waste incinerators] contribute from two to 40 cancer cases per year."(Raloff, 1989).

That statement was made twenty years ago. I wondered if it was still a valid concern today. In 1987 when I was working for the Queens Borough President's Office and involved in environmental issues, Dr. Barry Commoner of CUNY Queens College argued against burning and sited dioxins as a problem. I spoke to Dr. Commoner August 14, 1998 to get his input on this issue and see if dioxins were still a problem. Burning anything, according to Dr. Commoner isn't a good idea because of the dioxins, and the co-generation plants that burn garbage suffer from this problem. He said that even if the emissions were controlled, there would still be dioxins in the ash.

Luckily then, burning is not the only alternative use of post-consumer paper products. Pinnacle Industries in Bohemia, Long Island turns newspapers into mulch which is mixed with grass seed and sprayed out on highway dividing areas. Another new product is manufactured by the Marcal Paper Company in New Jersey. They recycle the water for the paper recycling process and the clay and organic materials are removed from the water. The resulting product is called kaofin(trademark). In its web site, Marcal defines kaofin(trademark) fiber clay as "an additive to produce cement, building aggregate, planting material, compost mixes, cat litter, oil/spill absorbent, etc..."([www.marcalpaper.com](http://www.marcalpaper.com)).

Once I had familiarized myself with the basic concepts and products related to recycling the various grades of paper, I decided not to limit myself to paperboard recycling. Initially, I had planned to do my project on a larger geographical area, namely the whole of Long Island and New York City. As sometimes happens with a project, I had to narrow my scope to Suffolk County because of time constraints. Students doing a project will often find that their initial goals were too ambitious and they need to scale things down to cover less material more thoroughly.

The next step was to contact those in charge of waste disposal . My project got scaled back to Suffolk county once I made my telephone list and discovered that Suffolk county has 46 villages and towns, not including hamlets. Many villages do not have their own sanitation department and rely on private garbage carters. There are a few tips I would give to students planning on doing a project that required as much telephone work. As simple as it is to use the telephone, it can be an uncomfortable experience to many people, especially teen-agers, to call up a total stranger and ask a lot of questions.

The first tip is to make sure you have a paper and working pen/pencil available. This is a help for a couple of reasons. Not only do you need to be prepared to write down the information that you are getting, it can help make the phone call go more smoothly. Having the name of the person or company you are calling written down, especially if you are making a lot of calls, avoids confusion and possible insult. Any terms that you want to use that might not come easily should be written down. Even the name and nature of your project could be written down so you talk with confidence and can focus more on the information and not worry that you sound awkward.

Taking time to prepare for the telephone call really pays off. You should know in advance what information you are seeking. Writing down questions can also help. That will also prevent you from going off on a tangent in the conversation and losing track of the main point. Some information gained on such tangents is interesting and possibly even useful, but think how awful you would feel to hang up and then realize that you still don't have any answers to your questions. As for me, I was very fortunate in my research to have only encountered nice, helpful people.

There are ten main towns in Suffolk. These are: Babylon, Brookhaven (which is geographically larger than Nassau county), East Hampton, Huntington, Islip, Riverhead, Smithtown, Southampton, Southold and Shelter Island. Some towns were aware of where the materials went, others were not. Remember, recyclable material is a commodity and it is a full-time job to watch the markets to get the best price for material.

## Town of Babylon:

I spoke to Mr. Ronal Kluesener, the Commissioner of the Department of Environmental Control. Babylon Source Separating collects every alternate Wednesday. They collect newspapers and cardboard and deliver to Omni of Babylon where the materials are re-loaded. From there, Omni determines where it will go to be marketed. The residential waste accounts for no more than 5000 tons

per year. For commercial waste, the town has over 40 separate companies that are licensed to pick up recyclables. The vendors pick and deliver their own outlets. Economics dictate in favor of these companies taking the products to be recycled. This includes three villages, Babylon, Amityville and Lindenhurst.

### **Town of Brookhaven:**

I spoke to Ms. Rosemary Wiesner, Public Information Officer. The Town of Brookhaven had a Materials Recycling Facility (MRF). This is a separation facility, it does not process any paper. In fact, there are no facilities in Suffolk county that do process paper. The materials at the MRF are separated for market. The market varies from month to month because of economics. Paperboard does not have a market according to Ms. Wiesner, so it is an end product. On a positive note, though, she did say that it has usually already been recycled.

### **Town of East Hampton:**

I spoke to Mr. David Paoletti. They collect mixed paper, light cardboard and paperboard (which he referred to as chipwood). Island recycling collects this material for the Town of East Hampton and they market it. The paperboard is a very low end market. Newspapers are baled and shipped to Pinnacle Industries in Bohemia and made into mulch. There they are mixed with a green dye and grass seed. In this way, 80% of the town's newspapers are made into fiber mulch. Mr. Paoletti and I had a very interesting discussion on the economics of recycling. He said, as I've also seen said on the internet, that if the government is really serious about recycling, they will have to provide tax breaks and the like to make sure that recycling is more economical than landfilling. I absolutely agree. Every town and village I have spoken to relies upon the carter to see that the material gets recycled. For now, recycling is better business, but if it becomes cheaper to landfill material, it is ridiculous to think that the companies are going to lose money to be environmentally correct.

### **Town of Huntington:**

A curbside collection program collects newspaper, cardboard and paperboard. The vendor then sends it to market, presumably to be recycled.

### **Town of Islip:**

I spoke to Mr. Rich Albanese, the Recycling Educator. They have 300,000 residents and 1500 miles of roads in the Town of Islip, and so they have many carters. On alternate Wednesdays they have a curbside recycling program for papers. These papers go to Garden State Paper in New Jersey. They constantly watch markets so they can get the best deals.

[While not pertaining directly to paper recycling, I found out that both the Town of Islip and Town of Babylon use co-generation plants to handle garbage. These are waste to energy facilities that burn garbage and convert it to electricity that is sold to LIPA. The Town of Babylon accepts the ash from burning from the Town of Islip in an "Ash for Cash" program. That ash is placed into holding tanks like swimming pools, and the leachate from the ash after a rain is collected and trucked off to a Bergen Point plant.

Both towns also have a program called Stop Throwing Out Pollutants (STOP) that collects cleaning supplies and the like from residents on certain days of the year. These materials are then hauled to authorized landfills. I also thought it interesting that the Town of Islip has its own 40 acre compost facility for leaves, branches, etc... Teachers interested in arranging field trips for a tour of either the co-generation facility or the compost facility in Islip can contact Mr. Albanese at: 224-5650.]

### **Town of Riverhead:**

The paper gets collected on alternate weeks by three separate carters and then it is sent to various places dependent upon the market.

### **Town of Shelter Island:**

There is no curbside recycling program in this town. Residents bring the material to the dump and separate them into containers. Mattituck sanitation then brings the material for recycling.

### **Town of Smithtown:**

The town has a curbside recycling program. The town separates the materials and then it gets sent off to various markets.

### **Town of Southampton:**

This town has no curbside recycling program. Newspapers, magazines, junk mail, clean white paper, and corrugated (but not light

cardboard) cardboard are all recycled. They are source separated at drop off sites and shipped to market.

## Town of Southold:

This township does not have a curbside recycling program either. The residents bring material to a transfer station themselves or arrange to have private carters do the job. Newspapers and corrugated cardboard are recycled through Gershaw in Medford. Junk mail is delivered to the Marcal Paper company in New Jersey.

## Conclusions:

When I began this project, I knew that paper waste accounted for a large volume of the waste stream. What I didn't realize was just how large the problem was. The end result of a research project should be that the researcher learns more than a scattered collection of facts. The project's end should see him/her changed in some way by things learned and the act of research itself. That is the case in this project. I am so much more sensitized to the masses of paper in my house.

Why is recycling paper important? On a very personal level, I see paper wherever I look. In addition to the kitchen which is full of paper boxes containing food products, I am sitting in my den surrounded by reams of articles I generated from the library printer when I used Infotrack. I felt guilty about printing out five and six page articles on paper recycling. Then there are the two newspapers that we subscribe to, not to mention magazines. Once school starts, assuming things are like last year, my children will return home with backpacks stuffed with notices, art projects, work sheets and other papers.

The junk mail that comes to my house is a constant source of more paper. On the subject of junk mail, an article in E magazine by Will Nixon called, "Are We Burying Ourselves in Junk Mail?", raised some good issues about junk mail. At the start of the project I would have absolutely said that junk mail was an unnecessary and wasteful use of trees and landfill space. After reading this article, I see that like most things, the issue of junk mail is not so clear cut. Mr. Nixon refers to the injunction to stop junk mail in the book, "Fifty Simple Things You Can Do To Save The Earth", as the start of what he calls the great mailbox debate of 1990. He says, "Junk mail wasn't the most serious crisis in the world, but it was a sign of our consumer culture run amok, a vast paper slick hitting almost every mail slot in the land."(Nixon, 1993). On the other side of the coin, he acknowledges that many valuable nonprofit organizations benefit by the use of bulk mailings to solicit members and funds. He also presented the fact that mail order companies save 100 million gallons of gas a year because people do not have to drive to stores to shop.

How do I feel about junk mail now? Well, I was glad to see that every township and village I spoke to did recycle junk mail. The most satisfying thing was to use some of my junk mail as raw material for my paper making experiments. Initially I had thought to branch out in this project to design a household method of recycling paper. Now, I see this as impractical.

First of all, the paper making process is messy. Shredding the paper is not the problem; there are shredding machines that are already designed for such purposes. Using the blender to make paper pulp isn't the problem either. The real drawback comes once you have the basin of pulp and start to make the paper. Once you have finished making the paper, the remaining pulp must be thrown away or it is going to clog up the drain. That means you have to dump it somewhere outside because you can't toss a mostly liquid mixture into your garbage bag. The next day, and the day after that and so on, you will see where you dumped the excess pulp outside. There will be unattractive gray flecks on the grass in your yard. And in all honesty, the resultant paper (especially the first time) looks like thin, wrinkled cardboard.

The fact that surprised me the most on this project is that recycling is such a big business. Economics and the demands of the market for recycled materials are what determines the fate of the collected paper. All of the towns had a venue for paper collection. And yet, hardly any of them knew what happened to the paper once the carters took it away. Garbage is being transported from one town to another and even out of state. Recycling is in the hands of the vendors, not the individual towns. Because the present economic conditions make it cheaper to recycle paper than to dump it in a landfill, it is assumed by the towns that the paper is being recycled. The government needs to become more involved with subsidies and tax breaks to make sure the economics continue to favor recycling.

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