



New Mexico Solid Waste: Past, Present & Future

New Mexico's solid waste system has dramatically evolved over the past few decades. As recently as the early 1980's, New Mexicans relied on community "dumps" which were often nothing more than open trenches. These "dumps" were regularly set on fire to "reduce" their volume and to make way for more trash. These sites are scattered across the state and can be found in close proximity to every pueblo, village and rural community. Managing solid waste in this way meant groundwater, surface water, or air could easily become polluted.

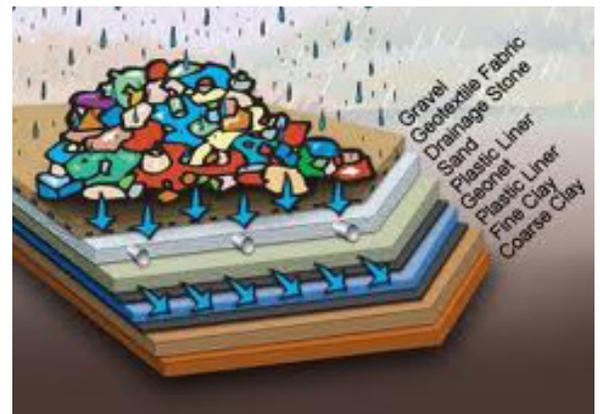


Rural NM Illegal Dump Site

With the rise of an environmental movement and passing of laws (see Waste and the Law) like the Clean Water Act and the Resource Recovery and Conservation Act (RCRA) in the '60s and '70s, New Mexico began its move to the modern solid waste landfill. These, and other, federal laws built a framework for the design, construction, permitting and operation of landfills and for the management of waste in general. New Mexico adopted the federal standards by passing the New Mexico Solid Waste Act of 1990. Today's landfills are vastly different from the burn pits of the past. The modern sanitary landfill is designed by specialized engineering firms using the latest computer drafting and modeling technology. These landfills use complex systems to manage and mitigate potential environmental hazards and employ state of the art materials to ensure the public's safety and wellbeing.

Landfills are Costly

While the modern landfill is certainly better for New Mexico's environment, its benefits come with significant cost. The cost to expand a landfill starts at \$1 million and increases from there. In light of these costs, it is surprising to note that NM has a relatively low average tip fee of \$31.00 per ton, as compared to the national average of \$45.02 per ton (2012, Waste Business Journal).



The Modern Landfill

The cost and regulatory and political obstacles to the development of modern landfills has caused a marked decline in the number of active landfills in New Mexico. In 2012, 30 landfills were operating in New Mexico. This compares to several hundred active disposal sites in the early 1990's.

A second outcome of the financial barrier to operating and developing modern landfills is the exploration of alternatives to landfilling our waste handling. These alternatives range from simple waste diversion and recycling programs to elaborate waste-to-energy conversion technologies. The focus of many of these efforts is to find



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a fiscally efficient means of handling our waste. We are also driven to look at waste as a commodity or a resource to be utilized like oil or iron ore, rather than junk to be abandoned in landfills. The shift to recognizing waste as a resource is still relatively new in NM compared to areas where landfill costs are at the highest.

The use of simple recycling systems has been successful in NM communities for starting a conversation about waste reduction and diversion. **Many rudimentary NM programs have matured since the first publication of this resource guide and have proven to be more than a cost-effective means of limiting disposal.** Even the simple programs showed to be economic drivers, too. As New Mexicans discover the value in a more diversified waste stream, programs will be scaled to meet the needs of every community in New Mexico and recycling rate goals will be reached. It will be the rudimentary diversion and recycling programs that are covered in-depth in the following chapters of this manual, with an emphasis on those practices which can slowly grow acceptance and material volume. First let's explore how recycling success can be measured.

Recycling Measurement Tools

While there are many distinct causes, one thing is certain: recycling has seen a burst of growth over the past decade as an integrated solid waste management practice in New Mexico. But, how is this success measured? New Mexico's recycling rate is calculated annually by the New Mexico Environment Department (NMED) based on data submitted by solid waste facilities via an annual report requirement. Reports are due each year on February 15th. NMED has elected to follow US Environmental Protection Agency (EPA) methodology to analyze the annual report data to produce the recycling and diversion rates. Other states use a variety of calculation methods and formulas, so perfect comparison of the recycling rate from state to state is difficult.

In order to calculate the state's recycling rate, NMED divides the total weight of all recycled materials by the total weight of all municipal solid waste (MSW) generated. MSW is the normal household waste and commercial waste, glass, lead-acid batteries, white goods, paper, plastics, textiles, tires, wood, yard trimmings, and other waste. This number is New Mexico's recycling rate.

The EPA method to calculate the diversion rate is: all materials recycled plus all materials beneficially used. So, in calculating NM's diversion rate, NMED divides all in-state generated recycled and beneficially used material, by all in-state generated MSW, including: construction & demolition debris (C&D), clean fill, and divertible special waste.

$$\text{Recycling Rate \%} = \frac{\text{Total Recycled}}{\text{Total MSW}}$$

$$\text{Diversion Rate \%} = \frac{\text{Total Recycled} + \text{Total Beneficially Used}}{\text{Total MSW} + \text{C\&D} + \text{Clean Fill} + \text{Divertible Special Waste}}$$



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These calculations, the recycling rate and the diversion rate, must be understood as techniques which paint two very different pictures of success. In general, we expect to see a higher diversion rate than recycling rate and a steady climb as recycling initiatives are enacted. In this chart, we see that inconsistent data has led to fluctuations in the state's recycling and diversion rates in recent years.

Rather than reporting the recycling rate, some states find it more helpful to report a disposal rate, the amount of material that is disposed in the landfill.

This approach encourages source reduction as well as diversion and recycling, since any of these

activities will help to decrease the amount of waste sent to the landfill. Often this number is reported as a per capita disposal rate, an average of how much each person in a community throws away per day or per year, in pounds. The EPA has also used this methodology to show that Americans, on average, throw away 4.5 pounds per person per day. This number has remained relatively stable for the last 5 years. Unpredictable data behavior and the recognition that each of the calculation methods discussed can only show a portion of waste materials, leads many states to search for different methods with which to show success or to illustrate a more clear picture of recycling versus landfilling.

Year	Recycling Rate	Diversion Rate
2004	5%	
2005	3%	
2006	9.74%	9.88%
2007	10.96%	13.71%
2008	12.4%	12.9%
2009	14.6%	20.64%
2010	16.2%	16.95%
2011	20.72%	20%
2012	15.7%	19.6%
2013	16.27%	21.9%

Source: NMED Annual Reports

Access to Recycling

When the State of New Mexico updated its state-wide solid waste plan in 2007 a new approach to measuring recycling was established. In addition to past and traditional numerical targets for recycling rates the stakeholders refocused the state's attention to "access to recycling." Increasing access, it seemed, would be a logical way to also increase the state's recycling rate. Under this vision, success would be found when every New Mexican had access to a recycling program within 30 miles. In order to show any upward trends with this approach, data was collected on facilities rather than volume of specific materials. NMRC documented the number of NM recycling locations from 2007 to 2013.

In that time period, the number of drop-offs providing access to recycling increased by 113%, with a total of 217 drop-offs housed in incorporated and tribal communities with recycling opportunities for most of the traditional household recyclables (cardboard, mixed paper, aluminum cans, tin cans, plastic #1 and #2 bottles). Not all communities collected all listed items, but at the minimum collected at least half of the identified household items. The number of communities providing access to recycling has jumped from 37 in 2004, to 58 in 2007 to 87 communities in 2013. There are currently 15 curbside recycling programs in NM.



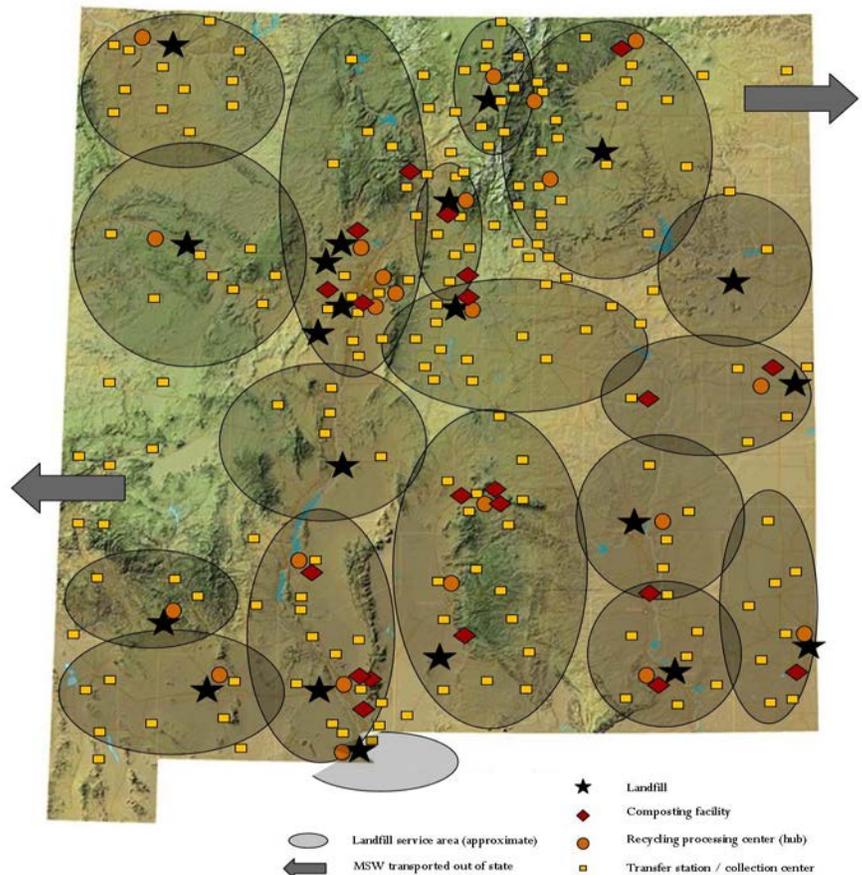
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During the time period measured, NMRC began work on a \$2.8 million grant from the U.S. Department of Energy to develop rural recycling infrastructure throughout New Mexico. More than two-thirds of those monies were sub-awarded to eligible rural and under-served communities to develop and expand hub and spoke collection infrastructure. The intention with hub and spoke model infrastructure was to overcome rural challenges such as: distance to market, limited capital to invest in equipment and marketability of smaller quantities of material. The model gained wide-spread attention as an efficient method to divert New Mexico's solid waste and to provide great recycling access. (Referenced in more detail on page 37.)

Then, with the development of New Mexico's first, large-scale material recovery facility (MRF) in the City of Albuquerque in 2013, even more opportunities became available to recyclers across the state. The new MRF enables communities to market single stream materials or to market sorted, baled materials on one truck. Both options proving as an advantage for any community in New Mexico, regardless of size.

The map here illustrates several of the current diversion opportunities across our state, including: composting facilities, recycling processing centers, and recycling collection centers. **Just as trash collection and landfills have been strategically placed, recycling programs must follow to ensure that all New Mexicans have a choice to value their waste.**

NEW MEXICO SOLID WASTE FACILITIES





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This new infrastructure, coupled with technical assistance and grant funding from the U.S. Department of Energy and the state Recycling and Illegal Dumping Grant program, has allowed New Mexico's collection and processing infrastructure to blossom over the past 5 years (2010-2015). We are expecting the push to launch New Mexico's recycling rate past the current national standard of 34%.

Increasing NM Recycling Rate to 50%

We won't stop at a 34% recycling rate! In the 2014 legislative session, legislators passed a memorial (HM51) sponsored by Representative Jeff Steinborn to develop strategies and policy in order to reach a state goal of a 50% recycling rate. The New Mexico Recycling Coalition (NMRC), in partnership with the New Mexico Environment Department: Solid Waste Bureau (NMED), began the multi-year project with initial research and stakeholder input to help guide the process. The project will include work on policy and strategy recommendations over the next several years. An Executive Summary of 2014 stakeholder input was presented to the December 2014 legislative Water and Natural Resources Interim Committee. The report can be found online at www.recyclenewmexico.com/increasingrecycling.htm

There is a direct link between increased recycling and the creation of jobs in the local economy. A report commissioned by the NMRC estimates that 9,000 direct, indirect (jobs that serve the industry) and induced jobs (those that provide goods and services to direct and indirect workers) in NM could be created by attaining a state-wide 50% recycling rate. Job sectors in the industry include collections, processing, re-manufacturing and reuse. Within these sectors, it is estimated that our state could add more than 3,500 direct jobs at a 50% recycling rate.

Some of New Mexico's more mature recycling programs are considering the collection of food waste (which is counted in the recycling rate) or employing more aggressive efforts to divert Construction and Demolition materials (which is calculated in the diversion rate.) In order to reach the 50% rate goal, it will be crucial to adopt national trends, track our successes accurately and help citizens understand their impact on the data.





Waste & the Law

New Mexico Solid Waste Management Plan

The New Mexico Solid Waste Management Plan (NMSWMP), established in 1993, guides decision making around solid waste and recycling statewide. It articulates short and long-term goals in the areas of waste characterization, diversion, facilities, education, funding, and environmental justice. The newly released 2015 NMSWMP version updates the 2007 plan with specific action steps local communities, state government, and other groups can take to meet state goals. The NMSWMP is available on the Solid Waste Bureau website at: <http://www.nmenv.state.nm.us/swb/documents/Links2015SolidWasteManagementPlan2.pdf>

The NMSWMP along with state and federal laws impacting solid waste management, are excellent guiding documents for recycling and waste professionals in New Mexico. The following tables identify state and federal laws which impact the handling of solid waste. Some are specific to waste, while others are often applied to solid waste operations. The Clean Air Act, for instance, was not written to address solid waste issues directly, but its standards are used to regulate equipment and processes employed by landfills. Once you understand where your facility fits into the regulatory framework, spend some time investigating federal and state rules for their potential impact on your operation.

FEDERAL LAWS	Title	Details
	Resource Conservation & Recovery Act	Enacted in 1976, gives EPA the authority to control waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of solid waste and hazardous waste.
	Clean Air Act	Enacted in 1970, the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect health and welfare by regulating emissions.
	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Enacted in 1980, provides a Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants. Through CERCLA, EPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup.



State Laws	Title	Details
	Solid Waste Act (74-9-1 to 74-9-43 NMSA 1978)	The purposes of the Solid Waste Act are to: <ul style="list-style-type: none"> • authorize and direct the establishment of a comprehensive solid waste management program; • provide technical, financial and program development assistance for solid waste management; • conserve, recover and recycle resources; and protect the public health, safety and welfare; • plan for and regulate the reduction, storage, collection, transportation, separation, processing, recycling and disposal of solid waste; • require issuance of permits for the construction, operation and, if applicable, closure and post closure maintenance of solid waste facilities; • promote source reduction, recycling, reuse, treatment and transformation of solid waste as viable alternatives to disposal • require the state and its agencies, instrumentalities and political subdivisions to develop procurement policies that aid and promote the development of recycling recyclable materials.
	Solid Waste Rules (20.9.2 - 20.9.10 NMAC)	Establishes rules and regulations for all solid waste facilities in New Mexico including permitting, design, public notification, financial assurance and long term care & monitoring.
	Litter Control & Beautification Act	Establishes litter control and beautification grant program (funded from motor vehicle registrations.)
	Recycling & Illegal Dumping Act	Establishes RAID grant program for recycling, illegal dumping and tire recycling (funded from motor vehicle registrations.)



Economics of Recycling

Waste is a Valuable Resource

Waste diversion activities do not only avoid the costs associated with landfills, they also strive to recover the residual value of the diverted materials. A ton of cardboard, for instance, will not only avoid the landfill tipping fee, but can be sold for an even greater financial reward. The recycling process, therefore can be viewed from an economic perspective.

Recycling Saves Dollars, Conserves Resources & Creates Jobs

According to a report by NMRC and ICF International, the State of New Mexico in 2010 paid \$51 million in landfill tip fees to bury recyclable materials representing a value of \$168 million if that material had been recycled. The recovery of this material would save money, landfill space and natural resources. Recovery would also create jobs.

Let's look at the current state of recycling in Truth or Consequences, NM (T or C) to illustrate some of the economic benefits of recycling. In this case, T or C not only generates new revenue from the sale of source separated recyclables, but it avoids significant costs related to collection, transfer and disposal of solid waste destined for the landfill. The graphic below illustrates that recycling is a smart financial choice statewide and provides details based on the experience in T or C .

Statewide	Destination	Costs	Outcome	Net Cost/Benefit
Recyclable Waste	Landfill	Tipping Fee (NM Average \$31/Ton)	Long Term Monitoring & Care	All Cost
	Recycling	Baling/Processing	Sale to Market	Avoided Costs + Net Revenue
T or C	Destination	Costs	Revenue	Net Cost/Benefit
Recyclable Waste	Corallitos Landfill	Hauling \$22/ton + Tip Fee \$28/ton	\$0	\$50/ton Cost
	Recycling Markets	Baling \$60/ton	Average \$75/ton for sorted materials	\$15/ton Revenue

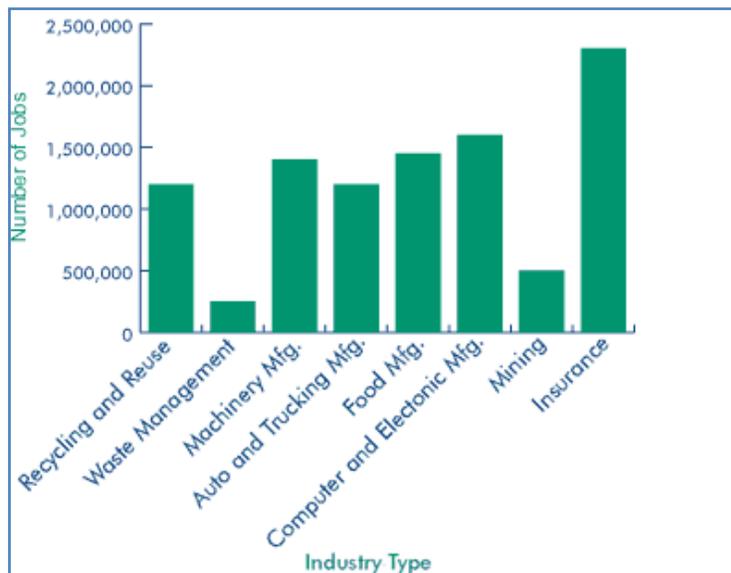


Economics of Recycling

It is important to remember recycling has an economic impact. Numerous economic studies demonstrate a direct correlation between recycling and job creation, generating jobs that are usually local. According to an older 2001 study, U.S. Recycling Economic Information, the recycling and reuse industry consisted of approximately 56,000 establishments that employ 1.1 million people, generate an annual payroll of nearly \$37 billion, and gross over \$236 billion in annual revenues. This represents a significant force in the US economy and makes a vital contribution to job creation and economic development.

As a driver of economic activity, recycling is also competitive with other major industries. Especially significant is the finding that recycling far outpaces the waste management industry because recycling adds value to materials. It is commonly reported that recycling will support five jobs for every one job in landfilling.

The US Recycling Economic Information Study proves that recycling is working by measuring the size of the nation's reuse and recycling industry. Below are a few of the key findings of this 2001 study.



Another common benefit of recycling is its direct impact on landfill operations. Less material going into a landfill preserves its finite space for only those materials that cannot be handled elsewhere. This space savings can add up to be a significant fiscal benefit of recycling as landfills last longer and their expansions are delayed.

Recycling efforts are also perhaps the simplest means of limiting greenhouse gas emissions. In nearly every case, recycling conserves energy, and thereby greenhouse gases, when compared to production of the same materials from virgin extracted resources. To explore the environmental benefits of recycling further, check out the EPA's WARM model at http://www.epa.gov/climatechange/waste/calculators/Warm_home.html You may also enter local information to learn the environmental benefits of your recycling program.

In short, recycling can provide financial savings, and in some cases a revenue stream, economic stimulus and many environmental benefits.



Recycling Program Development Strategy

Collection, Processing and Marketing

Recycling, as a business, is a simple enterprise whereby materials are gathered, processed in some way and then sold as a feedstock to another industry. These three components; collection, processing and marketing are all fundamentally and equally important to the success of a recycling effort. Each element contributes to the next and is therefore significantly interdependent. This document will discuss these elements in detail to provide a complete understanding of how the recycling industry functions to afford the reader a clear blueprint for the development of a successful recycling program, or the expansion of existing services.

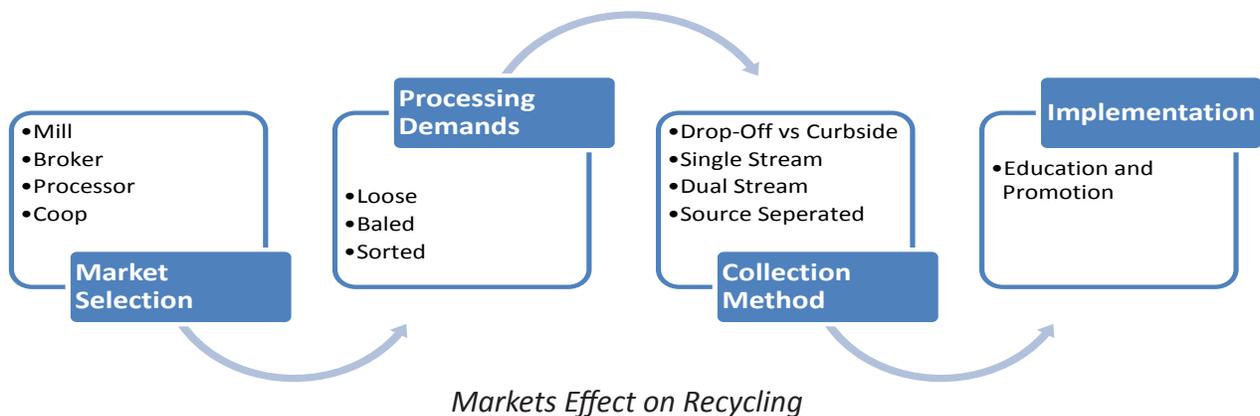
Recycling is effectively a light industrial manufacturing process, where waste products are transformed into raw materials for other industries. Raw material demand is the cornerstone of any recycling program and makes recycling resemble mining or other resource extraction industry.

Assess Your Markets or Processors First – Where Will the Recyclables Go?

Market selection should be the first concern of a new or expanded recycling effort, as well as the marketability of materials or access to a nearby community with recycling processing capacity. The market selected and their processing demands will then dictate the collection method.

Collect Only What You Have Markets For

Collecting materials without identifying a market/processor is a common mis-step of small or new recycling programs. Recycling efforts are often developed in response to social and political demands rather than their economic viability. This approach to recycling fails to recognize basic economic principles and typically produces nothing more than a large stockpile of materials which have little hope of being recycled.





Community Recycling Action Plan

Introduction to the Community Recycling Action Plan

An effective integrated solid waste management system considers how to prevent, manage and market solid waste in ways that most effectively protect citizens and the environment. Each activity requires careful planning, financing, collection, and transport. When goals and tasks are outlined in a document, they become an important guide. More importantly, the document can then be officially adopted by any political entity, Tribe, Authority, Town Council, or County Commission. It can also serve as the framework for grant proposals, related environmental projects and local level policies to increase diversion (see policy discussion on page 51.)

Establishing a community recycling program is a wise investment in the local and regional economy. Even with the best intentions, getting started or making changes can be daunting. The Community Recycling Plan on the following pages has been designed for recycling and solid waste program planners to assist them in assessing where they are at and where they would like to go with their recycling program. Planning for equipment improvements, collection expansion, new materials and customer participation via education will ensure that you meet your goals and have a successful story to share with your community and elected officials. Keep in mind the quality of the action plan is not the number of actions, but the ability of your community to achieve them.

Checklist for an Action Plan:

Work through these elements before plowing ahead.

1. Establish a Team
2. Identify Program Supporters
3. Assess the Waste to Determine Type & Volume
4. Research & Evaluate Options for Marketing, Processing and Collection
5. Set Goals

ACTION PLAN				
GOAL	ACTION	PERFORMANCE MEASURE	DUE	RESPONSIBILITY

SAMPLE FORMAT FOR A COMMUNITY RECYCLING PLAN

Annual tons or cubic yards of material currently diverted from landfill:

Annual tons or cubic yards of waste landfilled:

Status of Recycling in the Community: Overview of existing programs, activities, services, collection, processing, diversion rates, & markets

Vision of the Community Recycling Program: Describe what you want to achieve in 1-5 years. (e.g. meet recycling rate goals, increase recycling access to community members, save landfill space)

Economic Assessment: What does the current solid waste program cost and how is it funded? What avenues are available to fund improvements? (e.g. internal fund, state grant funds, loans) Don't forget to consider the money saved by avoided landfill tipping fees or transportation costs.

Local & Political Support: Are your community leaders already in support of recycling? If so, can they invest time or funds toward your recycling goals?

Marketing the Materials: Have you identified where the material will go for recycling? Will you have to deliver the material? Will the end-market pick-up the material? What is the distance to market? What materials do they accept and what are the requirements? If the material you are collecting has a fee to process it, can you plan to pass this cost on to your customers?

Collection Methods: It is wise to plan equipment according to the end-market and their requirements. Are they allowing for mixed materials? If there are several collection points, consider the efficiency of each one. Will each collection area be manned? How are you currently collecting trash? Can you co-locate recycling services at every place there is trash service? Do the businesses in your community have equal space for recycling containers?

Processing and Storage: Most end-markets provide better prices for baled material, but your community must decide the level of investment to make before deciding to bale. Do you have storage capacity for bales and also for loose material waiting to be processed? Consider the number of households, businesses and government offices in your community. Do you have the volume of materials necessary to make an investment in baling equipment?

Regional Partnerships: A nearby community or business may be able to share resources. Are there potential partnering opportunities to maximize the efficiency of recycling equipment and resources? Is there a nearby transfer station that could be the locale for shared recycling equipment? Is there a community that will accept loose material, so that your community does not have to invest in baling equipment?

Education & Outreach: Public education about recycling is key to the success of the program. What type of communication will you use to deliver the message about the program goals? Do you have easy to read signage at your all of your facilities and drop-off areas, including small containers next to trash cans?

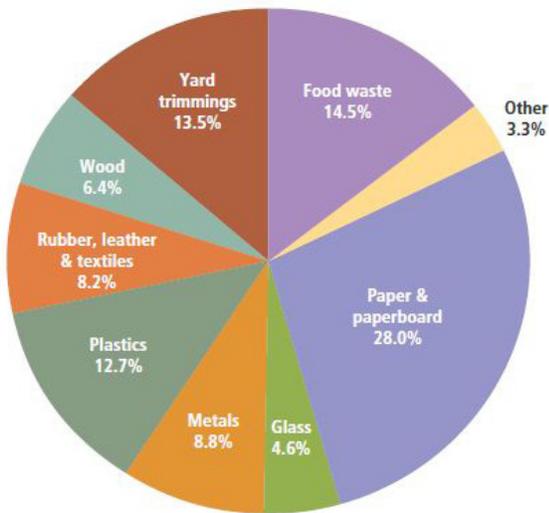
EXISTING RECYCLING AND TIMELINE TO EXPAND MATERIALS

MATERIAL	EXISTING PROGRAM	TIMELINE TO EXPAND COLLECTION	COLLECTION DEVICE OR EQUIPMENT NEEDED	END-MARKET
Aluminum Cans				
Animals or Animal Waste				
Batteries - Rechargeable				
Building Materials (Reuse exchange)				
Cardboard, Corrugated				
Concrete				
Drywall (Gypsum Board)				
Electronics (E-Waste)				
Food Waste				
Glass Containers				
Green Waste/Yard Debris				
Household Hazardous Waste				
Lead-Acid Car Batteries				
Lumber, Wood Waste				
Mixed paper				
Motor Oil / Antifreeze				
Newspaper ONP #7				
Office Paper				
Plastic #1 & #2 Bottles				
Plastic, Mixed (#1 - #7)				
Plastic Bags				
Printer Cartridges				
Rechargeable Batteries				
Reuse Exchange Area				
Scrap Metals				
Textiles/Clothing				
Tires				
White Goods (Appliances)				
<i>Other Opportunities?</i>				

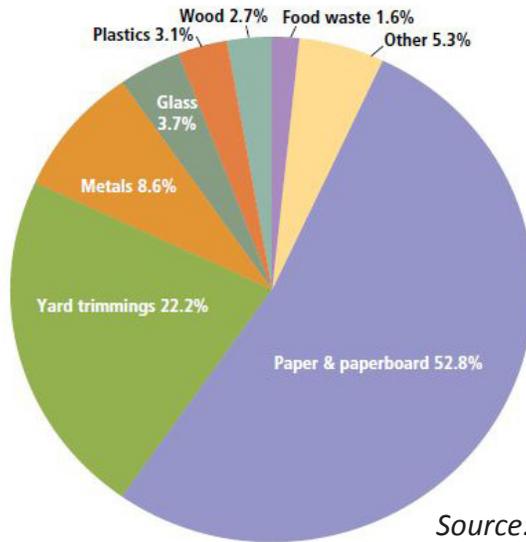


Materials: Understanding the Value

**Total MSW Generation by Material
250 Million Tons**



**Total MSW Recovery by Material
87 Million Tons**



Source: EPA 2011

Municipal Solid Waste (MSW), or household generated waste, has been extensively evaluated to understand what materials it consists of. The US EPA produces a study of our waste which identifies an established list of materials and the quantity produced each year. In the chart to the left we see each material as a percentage of total waste generated. On the right we see only the materials recycled in the US. For example, 14.5% of our total waste is food (equal to 36,250,000 tons). Of that 36,250,000 tons of food waste, we recycled 1.6% or 5,800 tons.

Some professionals in the field of solid waste suggest that similar studies should be conducted locally prior to establishing recycling programs or expanding existing ones. This approach could prove to be very costly. Smaller waste audits, as we discuss later in the manual can be used as an educational tool and just using EPA statistics can give a reasonable estimate of the volume of specific materials available for recycling. Keep in mind that the above statistics reflect national averages and local conditions will cause variations from these percentages. However, they do serve as a safe standard by which to calculate estimations of available recycling.

The following commodity fact sheets examine many of the materials identified in the graph above and other materials that could be hazardous to the environment, if not recycled properly. This information is intended for operators and program planners, but could be handed out for public education and outreach.



Old Corrugated Containers

What is OCC? OCC is the industry term for old corrugated cardboard boxes. Corrugated refers to those boxes where the material is made from three separate layers of paper, two liners and a corrugated, or wavy, layer sandwiched between them. Brown paper bags are commonly accepted with OCC for recycling. OCC does not include waxed cardboard (commonly used for produce), paperboard (flat rigid paper from beverage, cereal, tissue or other boxes), or other fiber materials. Waxed boxes, boxes with food waste or oil are detrimental to the recycling process and should not be recycled.

What is OCC Used For? OCC is most commonly recycled into materials for the production of new corrugated containers. It can also be mixed with other fibers to create a paperboard.

How Should OCC Be Prepared? OCC is most commonly purchased as a baled commodity. It can be baled in a vertical or horizontal baler. OCC should be kept dry and free from food and motor oils.

Why Should OCC Be Collected? OCC is one of the easiest materials to collect because citizens can quickly recognize it. Cardboard is often separated from the trash as boxes are emptied and considered bulky items. Businesses generate an enormous amount of OCC and can benefit instantly from recycling collection options.

Best Practice: In a sorted system, it is wise to collect OCC separately, as the volume will quickly overtake a separated collection container. In a single stream system, many communities choose to collect OCC separately, in order to reap the high value.



Consists of baled corrugated containers having liners of either test liner, jute or kraft.

Prohibitive materials may not exceed.....1%
(any materials which by their presence will make the material unusable as the specified grade or that materials that may damage mill equipment)

Total Out-Throws may not exceed.....5%
(materials other than the specified grade which can be tolerated by the recycling process)

Source: ISRI





Mixed Paper

What is Mixed Paper? There are three grades of mixed paper, varying only by the allowable outthrows. Soft Mixed Paper (SMP) is the middle grade, slightly more valuable than the mixed paper which is sorted out from a single stream facility. SMP is the commodity that most facilities in New Mexico collect. The general mixed paper category includes most any paper fiber. While, “if it tears, it’s acceptable”, is a common outreach phrase used to describe this category, there are a few fibers that should not be included in the collection: tissues, paper towels, and toilet paper.

What is SMP Used For? Paper markets often buy many different grades so it may be possible to combine several grades in one shipment to the same market. Always keep in mind, that if a large quantity of a specialty paper turns up for recycling in your community, discuss the material with your market, as you may be able to sell it at a premium.

Why Should SMP Be Collected? While the increased value is attractive, meeting the specifications for higher grades is challenging and relatively costly. These grades should only be pursued if consistent supplies, staff and equipment are available. The soft mixed paper category is an easy program for citizens to understand and will dramatically increase your diversion. Collecting mixed paper encompasses a variety of paper types totalling an average of 21.5% of the MSW stream.

Can Other Papers Be Collected For Higher Value? A larger community or area with high paper volumes may want to look into a separate collection of sorted office papers (SOP) or newspapers and junk mail (ONP). All papers can be collected together and sorting would happen at the processing center. Any fiber material that does not fit the high grade sort can then be sold as the lower value Mixed Paper.

Best Practice: Shredded paper is commonly collected by consumers in plastic bags. These bags can quickly add up,

Soft Mixed Paper:
Consists of a clean, sorted mixture of various qualities of paper not limited as to type of fiber content.
Prohibitive Materials <1%
Total Outthrows <5%

Source: ISRI



causing red flags at the paper mill. Based on volume, determine who will be responsible for emptying bags before recycling - the consumer or staff. A full truckload of paper bales should contain no more than a handful of plastic bags. The photo to the left is an example of a bale that was rejected by a paper mill.



Used Beverage Cans

What is UBC? Used Beverage Cans (UBC) covers all pop top beverage containers. Most mills will also accept other, lower value, forms of aluminum such as foil, pie plates and cat food cans. All mills require that the material be free of any food debris, other containers such as plastics and steel or other contaminants. Local scrap dealers tend to have looser specifications.

What is UBC Used For? UBC is commonly recycled back into new beverage containers. In some cases a used can might return as a new product in as few as sixty days. UBC is also used to make other aluminum products including wire, aircraft bodies and foil.

How Should UBC Be Prepared? UBC is purchased by mills in many different forms. Their requirements are generally specific to the processor handling the material. Larger processors typically bale cans, smaller operators are more likely to sell loose cans or *briquettes*, miniature cubes equaling one to two cubic feet of compressed cans. Sales of UBC directly to mills is uncommon for smaller processors as local scrap dealers can be more accessible.

Why Should UBC Be Collected? Aluminium recycling provides significant energy savings in multiple sectors. Recycling aluminum requires 95% less energy, and produces 95% fewer greenhouse gas emissions (GHG), than manufacturing primary aluminum. UBC holds high value and has steady end-markets. Cans are very easy to collect and recognizable to all citizens.

Best Practice: Due to the accessibility of scrap metal dealers in just about every town in New Mexico, aluminum cans are a common target for theft.

Trailers of loose cans and bales of crushed cans are both at risk. Consider locking mechanisms (shown here), fenced areas or pulling collection containers under cover at night. Also, develop a relationship with staff at the local scrap yard and move material often.



UBC shall consist of old aluminum food and/or beverage cans. The material is to be free of other scrap metals, foil, tin cans, plastic bottles, paper, glass, and other non-metallic items. Variations to this specification should be agreed upon prior to shipment between the buyer and seller.

Preparation of UBC for Market

- Shredded
- Densified (biscuited)
- Baled
- Briquetted

Source: ISRI



Plastics

What Are Plastics? One of many high-polymeric substances, including both natural and synthetic products, but excluding the rubbers. At some stage in its manufacture, every plastic is capable of flowing, under heat and pressure if necessary, into the desired final shape. Unlike fibers, plastics do not have industry accepted specifications making for a very confusing marketplace.

Why Are Only #1 and #2 Plastics Commonly Recycled? The short answer is that there are a lack of stable markets for plastics beyond #1 and #2. While new stable markets for #5's, rigids and film are increasing, the majority of plastics numbered 3-7 have very limited markets, if any. When #3-#7 mixed plastics are successfully marketed it is commonly as an export with an unknown use. Some communities will accept #3-#7 in an effort to simplify their program for consumers, but this tactic is not recommended, as the #3-#7's are often sorted out and landfilled rather than recycled. This simpler sorting requirement, however, has proven to generate larger volumes of the very marketable #1 and #2 bottles. Until reliable markets for the #3-#7 plastics develop, it is best to refrain from collecting this material. Educate citizens about the easily recyclable packaging and discuss reduction methods.

Can Tubs or Packaging Be Collected With Bottles? Even though plastic bottles and tubs or packaging might have the same number inside their recycling symbols, they are not really made of identical material. Bottles are produced through one kind of molding process, tubs and thermoforms through another, and these two processes require different plastic mixtures that melt at different temperatures.

The thermoform container is commonly used to package small electronics and is sometimes referred to as a "blister pack", identifiable as the clear plastic packages that are difficult to open. Thermoforms and tubs are quickly being adapted into traditional PET bottle markets, **however the collection of any other containers with bottles should be discussed with your market.**



Can We Market Plastics? The greatest challenge to plastics recycling is volume. Small communities rarely generate enough volume of a specific type of plastic to be able to market it successfully. Accumulating over 40,000 pounds of #1 bottles might take several years for a small community. The only options are to sell these materials well below market value to a processor or broker, or to sell materials from several communities to the same buyer, or cooperative marketing.



What Do the Numbers On the Bottom Mean? Plastics can be manufactured from a wide variety of materials and chemical compositions and are often hard to distinguish from other plastic types, in 1988 the Society of the Plastics Industry developed numbered codes to support their identification and recycling. These “resin codes”, typically found in concert with the recycling arrows, do not mean a material is recyclable, only what material they are made from. The chart below identifies the code number, the corresponding material and types of products made from each type of plastic.

Resin Code	Abbreviation	Polymer Name	Uses once recycled
	PETE or PET	Polyethylene terephthalate	Polyester fibres, thermoformed sheet, strapping, soft drink bottles.
	HDPE	High Density Polyethylene	Bottles, grocery bags, recycling bins, agricultural pipe, base cups, car stops, playground equipment, and plastic lumber.
	PVC or V	Polyvinyl Chloride	Pipe, fencing, and non-food bottles.
	LDPE	Low Density Polyethylene	Plastic bags, various containers, dispensing bottles, wash bottles, tubing, and various molded laboratory equipment.
	PP	Polypropylene	Autoparts, industrial fibers, food containers.
	PS	Polystyrene	Desk accessories, cafeteria trays, toys, video cassettes and cases, insulation board and expanded polystyrene products (e.g. Styrofoam).
	Other	Other Plastics	Other plastics, including acrylonitrile butadiene styrene acrylic, polycarbonate, polylactic acid, nylon and fiberglass.

What Are Mixed Rigid Plastics? Over the last decade markets have evolved and are consuming what is commonly called mixed rigid plastics. This grade typically includes:

- All bottles and caps
- All non-bottle rigid containers (includes cups, trays, boxes, clamshells, tubs, pots, deli containers, carton, blister)
- All bulky rigid plastic (includes carts, crates, buckets, baskets, toys, lawn furniture)

While this market continues to expand, the loss in value when compared to sorted # 1 and #2 is significant. For small communities, a move to mixed rigids may make up this loss in value with increased volume and the limited sorting demands offered by the mixed grade.



Are Plastic Bags Recyclable? Plastic bags and other film plastics are highly sought-after commodity streams. However, the inability for processors to handle film and bags with the same machines as for other household recyclables, has prevented collection by municipal programs. Plastic bags clog sorting screens at material recovery facilities (MRFs) and cause major problems including: increased labor costs, machine down time and contamination to other materials. The national trend regarding plastic bag recycling is to rely on existing take back programs at retailers. Most national chains offer some level of bag collections and municipalities should direct their customers to return the bags to where they got them. You can explore your community's options at www.plasticbagrecycling.org.

Why Recycle Plastics? At 12%, plastic makes up just as much of our municipal solid waste as cardboard. This 12% only accounts for the plastic that is safely disposed of in a landfill, not the millions of pounds floating in the ocean or sitting on roadsides. In the last 40 years, there has been a large shift away from paper, glass and metal packaging to plastic. As plastic manufacturing grows, the urgency to recycle it increases, too. Plastics have transformed every day life and plastic packaging has reduced transportation costs for many products, but this material, made primarily of fossil fuels and added chemicals, also has left harmful imprints on the environment and human health. While collecting and recycling plastic has its challenges, it is more important than ever to reduce this material's impact on the environment either by reduction at the source or by recycling. The plastics industry has also made it clear that currently the demand for plastic scrap far outweighs the supply.





Glass

What Types of Glass Are Recyclable? When marketing glass to a bottle remanufacturer, only container glass is acceptable. Container glass refers to bottles and jars which were used to package food and beverage products. During the recycling process, glass is crushed and then melted to form new bottles. Ceramics, drinking glasses, cookware, plate glass and other types of glass are not accepted by traditional bottle markets.

What Markets Are Available in NM? Very few glass bottle markets are available to New Mexico recyclers. Plants are located in Denver, Phoenix and elsewhere, but the distance to these plants generally makes them unsuitable for NM. Several small markets have developed in NM in the past few years, but consume very little glass. The safest glass market for NM is local beneficial use.

What is Secondary or Beneficial Use of Glass? The biggest obstacle to glass recycling in New Mexico is the inaccessibility of the remanufacturer. When recycling of a material isn't economical, a community can consider it solid waste or find a beneficial use. Some communities have successfully utilized crushed glass in winter road salt mixtures, trail paving materials and landscaping projects. In cases where glass is processed locally for use as an aggregate or building material, other types of glass (ceramic, windows, drinking glass, etc) may be acceptable, however it is important to understand how the material will be used locally, before collection. The equipment used to pulverize or crush the glass will also determine which types can be used.

Why Divert Glass From Landfills? Crushed glass, or cullet, has been proven as an effective material in place of sand or gravel. While these materials are cheap to mine and purchase, using the glass in your community supports local economic development. Recycling glass extends landfill life, too, by diverting a heavy material.



Local Uses for Recycled Glass

- Road base, sidewalks
- Traction on snow or ice covered roads
- Additive to Portland Cement
- Filtration for septic drain fields, water well packing sand, landfill daily cover, etc
- Sand blasting abrasive and water jet cutting medium
- Decorative tiles, mosaics and art

The NM Local Use of Glass Recycling Guide is available online at www.RecycleNewMexico.com



Waste Motor Oil

How Should Waste Motor Oil Be Collected? Waste motor oil is commonly collected in large storage tanks. These tanks can then be serviced by a number of waste motor oil processors for recycling. All processors require that the tanks be limited to accept motor oil only, and will refuse to collect from tanks where there is antifreeze, solvents, brake fluid or other fluids mixed with the motor oil. Tanks must be secured with a secondary containment system in the event of spillage. Containment is commonly achieved through the use of double wall tanks which are self contained for easy management.



What is Waste Motor Oil Used For? Waste motor oil is commonly re-refined into heating oil for use in homes and industry. Waste motor oil can also be re-refined for reuse as motor oil. Because waste motor oil is recycled to displace virgin oil, its value is closely tied to global oil trading markets. Waste motor oil can also be used on site as heating oil. Several waste oil heaters are available from auto parts distributors or directly from a variety of manufacturers. Waste oil heaters are simple to use and relatively inexpensive to install. These applications are ideal for vehicle repair shops where waste oil is generated but are also in use at solid waste facilities where waste motor oil is collected from the public.

Why Recycle Waste Motor Oil? The proper collection and recycling of this product is imperative. Waste motor oil presents a significant threat to the environment, if not disposed of properly. The used oil from just one oil change can contaminate one million gallons of fresh water with toxic chemicals and heavy metals. While not considered a "hazardous waste" in New Mexico, used oil is banned from landfills and other solid waste disposal systems.

Regulatory Issues: The collection, storage and handling of waste is regulated by the US EPA and the NMED Hazardous Waste Bureau. It is critical to review the relevant regulations prior to commencing collection activities.





Batteries

What Are Batteries? Batteries are used to store an electric charge for later use. They range in size from a few grams to over 100 lbs and are made of a comparable variety of materials. The hazards associated with improper disposal of old batteries are also varied. Car batteries are especially toxic as they contain liquid acid. Modern rechargeable batteries are also potentially harmful to the environment as they use specialty metals such as lithium and cadmium.



What Are the Various Types of Batteries? Batteries can be separated into two basic groups; disposable and rechargeable. Disposables are most commonly the ubiquitous alkaline battery but also include other single use forms such as zinc-carbon batteries. Rechargeable batteries are constructed of at least twenty different chemical compositions. They include car batteries (or lead acid), power tool batteries, computer and cell phone batteries and many more.

Are Batteries Toxic? The materials used in all batteries are potentially dangerous to humans and the environment. The laws governing their disposal, however, vary greatly in their scope. Some states and all of Europe require special handling for all batteries, while other laws cover only lead acid batteries or rechargeables. Federal standards banned the use of mercury in alkaline batteries in the mid 1990's, which successfully removed the alkaline's most toxic material. While the lack of mercury makes alkalines less toxic, they continue to pose an environmental risk when not handled appropriately. **In New Mexico only lead acid batteries are regulated, and are banned from solid waste disposal facilities.**

Can We Collect Batteries for Recycling? As with all materials, batteries should only be collected if there is a market. Fortunately, there are numerous markets available for recycling of the rechargeable and lead acid batteries. Lead acid batteries are recycled nearly everywhere they are sold. Junk yards and scrap metal recyclers also typically handle them. Other rechargeable batteries can also be recycled easily. The Rechargeable Battery Recycling Corporation offers a mail-back program where they will provide collection containers, shipping and recycling of rechargeable batteries. Alkaline batteries, on the other hand, are more challenging as the cost to recycle them can be significant. In fact there are very few facilities able to process alkaline batteries.





Greenwaste

What is Greenwaste? Greenwaste refers to slash and brush generated from landscaping and tree care work. It can include weeds and other non-woody plant materials and in some cases scrap lumber is included. Materials are ground up using a chipper or grinder to reduce its size and to produce “wood chips”. These chips can be used alone as erosion control or soil cover, or blended with manures, biosolids or food waste as a feedstock for compost.

Why Divert Greenwaste? Greenwaste consumes a large amount of landfill space and area in transport containers for waste. At the landfill, greenwaste is difficult to compact and presents a potential methane problem as it decomposes, complicating long-term care of landfills. The readily available local uses for greenwaste make it an ideal candidate for diversion. The EPA estimates that 14% of our MSW is greenwaste and another 15% is food waste. Communities are able to reduce their waste stream significantly when diverting greenwaste.



How is Greenwaste Beneficially Used? Mulch and compost provide the public, local government and businesses with a valuable locally-generated product that can reduce water usage. Mulch/compost is also effective at slope stabilizing and roadside and river bank erosion remediation. Its long-term environmental benefits are far superior to those of concrete, rock, silt fences and straw used for the same purposes.

What Type of Equipment is Available? Greenwaste processing equipment can be classified into three basic types: *tub grinders*, *horizontal grinders* and *hand-fed chippers*. Hand fed chippers are effective for only small quantities of greenwaste while the other two styles can handle large volumes. All equipment is maintenance intensive and require skilled operators with mechanical ability. Keep in mind that with the larger machines specialized equipment is needed to feed materials. A small excavator with a thumb attachment or a loader with a grapple are a must. Therefore, it is best to share equipment with a neighboring community or to rent a mobile chipper as needed.

Create local demand for compost and mulch. Consider local ordinances to increase demand for locally created mulch and compost. Examples include requiring a certain percentage of compost be turned into disturbed soils after construction takes place, requiring compost, mulch and mulch-based filter socks to be used on local road projects to stabilize erosion, support vegetation re-growth and decrease the loss of topsoil and require the use of compost and mulch on local parks and golf courses.

Incentives for Program Participation

Choose to set a lower tip fee for greenwaste than for solid waste. This provides an incentive for customers to sort organic material for diversion. To ensure sustainability of your program, make sure that the tip fee for organic material covers your operations costs and reinforce education about clean material.

Check out the Local Use of Mulch and Compost Guide at www.RecycleNewMexico.com



Food Waste

What is Food Waste and Why Recycle It? Food represents 14.5% of the waste stream in America (EPA). From an environmental perspective, organic materials, of which food waste is a significant component, disposed of in landfills generate methane, a greenhouse gas that is twenty-one times more potent than carbon monoxide. Additionally, 13% of greenhouse gases in the US are associated with growing, manufacturing, transporting, and disposing of food.

An astonishing 40% of food is wasted in the United States each year at an annual cost of \$100 billion (US Department of Agriculture). Almost 15% of American households are suffering from hunger. Hungry people do not always know where their next meal will come from and 50 million people do not have access to enough food.

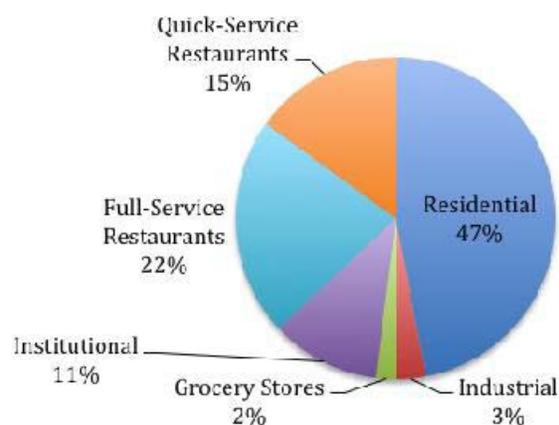
The future of organics and food management in the business environment will most likely include local or state level guidance on food waste management. Two states, Vermont and Connecticut, have passed legislation requiring food waste recycling. On the city level, New York City, San Francisco, Portland, Austin and Seattle have passed local ordinances requiring diversion from larger producers of food waste.

First Steps With Food Waste. Advising larger food waste generating facilities to donate edible foods first before composting is critical to supporting the food bank system and those in need. There may be local options to divert food waste that is suitable for animal feed. Composting remains as the final diversion option once these two other avenues have been properly considered. For guidance to food-handling entities on how to manage food waste with source reduction, donation, animal feed and composting, please refer to the NMRC Food Waste Management webpage.

How is Food Waste Collected? Targeting business food waste collections is typically the first step with many food waste residential collection programs starting to come online each year.

Food waste can be collected from businesses, ideally in 64-gallon wheeled, watertight and lidded carts that after being picked up and delivered to the compost facility are fully rinsed out for next use. Collection options may include a side-load automated truck that lifts and dumps food waste collection carts into the leak-proof compaction body. Ensuring that the lift handle can manage heavy carts is important. Converting a heavy-duty pick-up truck to provide hauling offers several opportunities: one option can include a lifter to empty carts into a complementary leak-proof container that sits in the truck bed, a lift gate can be added to a pick-up where carts can be loaded and transported in the bed or a trailer can be connected with a lift gate to transport carts to/from businesses. A box van with a lift-gate is another collection option to transport carts.

Food Waste Sector Percentages



Source: Food Waste Reduction Alliance, "Best Practices & Emerging Solutions Toolkit", Spring 2014



Managing Food Waste Contamination With Clear Signage and Education

As food waste is a newer diversion practice, providing clear and descriptive signage will be essential to a successful program. Contamination in the composting process presents product quality issues, in that materials that are not compostable (e.g. rubber gloves, silverware, non-biodegradable service-ware) may spoil the end-product compost. Good signage on carts and posters on walls in food preparation areas are important. Providing guidance on appropriate certified compostable service-ware is important as well. The composting facility will notify in regard to contamination issues that need to be corrected.

How is Food Waste Recycled? A composting operation (public or privately owned and operated) that is registered with the NM Environment Department: Solid Waste Bureau to handle food waste as a material managed in its composting process will be the appropriate destination for food waste collections. The food waste is added to other organic materials such as chipped yard trimmings to create a composted end-product to be used as a soil amendment. Instruction on best practices of managing a composting facility is provided at the NMRC-NMED Compost Facility Operators Certification Course.



What Local Uses Are Available for Compost? Compost is a valuable soil amendment for landscape applications, land remediation, roadside revegetation, golf courses and farming to name the primary uses. For case studies please reference the NMRC Local Use of Compost and Mulch Guide online at www.recyclenewmexico.com on the Resources Page.

Create Local Demand for Compost Consider local ordinances to increase demand for locally created compost. Examples include requiring a certain percentage of compost be turned into disturbed soils after construction takes place, requiring compost, mulch and mulch-based filter socks to be used on local road projects to stabilize erosion, support vegetation re-growth and decrease the loss of topsoil and require the use of compost and mulch on local parks and golf courses.





Scrap Metal

What is Scrap Metal? Scrap metal covers anything made of metal. Most markets allow for items containing as little as 60% metal by weight to accommodate the many products made from several materials. The most common form of scrap metal are appliances and other household items, but also include car parts, machinery, and building materials. Scrap metal is one of the easiest materials to collect and handle.

How is Scrap Metal Handled? It is recommended to collect scrap metal in a roll-off or container of comparable size. The container should be placed in an area where residents and staff can throw metal down rather than get into the bin or reach over head. Exceptions can be made for large appliances, which promote safety and care for the container. Once the container is full, scrap metal is most commonly hauled directly to a local scrap yard. There are also several companies out there who will drop their own containers for rent or for free and will pay at each pick up.



How Should Scrap Metal be Prepared? The first concern related to scrap metal is the proper recovery of freon from refrigeration equipment (see next page, *Freon Recovery*). Proper handling of these gases is critical and required by law. Sorting, however, may prove a valuable investment. Many scrap yards purchase metals by type and you may find that a little sorting will more than pay for itself. However, some scrap buyers prefer mixed materials and will support this with pricing. It may seem sorting will bring in more revenue, but always keep track of the money spent on sorting to make sure it pays off.

Where Does the Scrap Metal Go? The American steel industry has transformed over the past few decades. Where steel once was made from mined iron ore exclusively, today more than half of domestic steel production is based on scrap. Scrap is "shredded" then separated by type prior to shipment to mills. Mills put the shredded metal directly into a furnace where it is melted and prepared in the same manner of ore based steels, whether for rods, sheets or other forms.



Other Considerations? While most scrap metal is environmentally benign, there are some metal products which can contain hazardous materials. The number one concern is freon in refrigeration units which is a strictly regulated air pollutant (see next page). Other potential hazards are oils in pumps and motors, some of which may contain toxic PCB's. PCB's are most commonly found in ballasts manufactured before the mid 1970's, but may be found in many other products. Care should be taken to know the hazard and to limit potential exposure and contamination.



Freon Recovery

What is Freon? Freon is a generic name for various gasses used in refrigeration and cooling equipment. Freon is not inherently toxic, but is a dangerous substance and must be handled with care to avoid risk of suffocation and other hazards. Freon is also harmful to the environment and is considered one of the most problematic greenhouse gases.

How is Freon Regulated? Because of its effects on global climate, several traditional Freon types were banned by the Clean Air Act in 1990. The CAA also established regulations (Section 608) which regulates the handling of Freon from discarded units. Section 608 sets standards for training and certification of Freon recovery technicians and other rules affecting the equipment and reclamation procedures used in recovering Freon.

What are the Various Types of Freon? Traditional, and now banned, types of Freon are made of CFC's and HCFC's: chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). These two types of Freon are further classified by numeric coding; R-11, R-12 and R-22 are the most common types banned by the Clean Air Act. Several new non-CFC and non-HCFC Freon's have been developed to replace the banned types, the most common of which is R-134a. Most refrigeration units are labeled (currently required) with the type of Freon they contain so identifying the type in each unit is as simple as reading the label.

Can I Recover Freon? The short answer is, yes, with training and the proper equipment, offering Freon recovery services is a relatively simple endeavor. The Clean Air Act, Section 608, requires anyone handling Freon to be certified through an appropriate testing service before handling any refrigerants. These rules also set standards for recovery equipment and require the provider of recovery services to register with the EPA. The actual recovery process is quite simple and only requires attention to detail, and not technical skill. An effective recovery unit retails for approximately \$1,000 and can handle all types of Freon. The collected Freon must be shipped to a certified Freon reclamation facility. These reclaimers will typically charge a fee for certain types and pay the collector for others. In most cases, using two recovery cylinders, one for R-12 and one for all others, will allow you to recover value from the R-12 to offset the costs of reclamation of the mixed refrigerants. Confirm these issues with your vendor prior to start-up as you may be able to isolate certain types to ensure costs are kept to a minimum.

Freon Recovery Information

US EPA – provides guidance and resources for recovery programs
www.epa.gov/ozone/snap/emissions/downloads/SafeDisposalBrochure.pdf

The Air-Conditioning and Refrigeration Institute
703-524-8800 www.ahrinet.org





Tires

Why Should Tires be Recycled? Tires are considered a *problem waste* as there are very limited options for managing them. They are difficult for landfills as they are known to “float” to the surface no matter how tightly compacted they are. They cannot be readily processed into their component materials, which makes traditional recycling difficult.

What Are the Markets for Tires? In New Mexico, the primary market for scrap tires currently is beneficial use as a baled product. NMED has long promoted this practice and supports it through a grant program. Each year about \$800,000 is generated through a fee on motor vehicle registrations, of which two-thirds of this grant fund is set aside for communities to apply to help fund tire-related cleanup and projects.

Other markets are accessible to NM that shred tires for use in landscaping applications and as an additive to asphalt (rubberized asphalt applications). While there are no shredding facilities to create crumb rubber as a product within New Mexico, a couple exist within close proximity.

How Should Tires be Collected and Stored? It is important to bale tires often to reduce mosquito and vector issues. Tires are regulated by the New Mexico Environment Department’s Solid Waste Bureau. The Bureau has developed and adopted rules specific to the collection, transportation, storage and use of scrap tires which are codified as 20 NMAC 9.20 and are referred to as the *Recycling, Illegal Dumping and Scrap Tire Management Rules*. The text can be found at http://www.nmenv.state.nm.us/swb/documents/RIDSTMR_2007.pdf

These regulations are designed to protect the public and the environment from the risks posed by the improper management of scrap tires as well as mechanisms which enable the state to ensure they are responsibly managed and to provide for data collection to document the volume of tires generated in New Mexico.

Questions and Guidance:

NMED Tire Recycling Web Page, <http://www.nmenv.state.nm.us/swb/tires.htm>

EPA Scrap Tire Management information, <http://www.epa.gov/wastes/conservation/materials/tires/markets.htm>

Scrap Tire Trade Publication, <http://www.scraptirenews.com/>

Rubber Manufacturer’s Association, <http://www.rma.org/scrap-tires/>





E-Scrap

What is E-Scrap? E-scrap refers to electronic products that are nearing or at the end of their useful life. These products are most commonly considered obsolete, broken or irreparable. E-scrap often contains precious metals like gold and silver as well as toxic substances such as chromium and barillium.

How Much is Out There? E-scrap represents 2% of the waste stream, and includes 70% of the toxic materials entering landfills, with only 12.5% of this material recycled. It is estimated that each year \$60 million worth of gold and silver is disposed of just in cell phones alone. As manufacturers make these technological advances, consumers follow the saying, "Out with the old and in with the new". As a result, an overwhelming volume of e-scrap is generated every year, challenging communities to develop an environmentally responsible management system. The EPA estimates that e-scrap is the fastest growing waste stream entering landfills.



Is it Hazardous? E-Scrap that is not taken to a collection center often ends up in landfills or incinerators. As a result, toxic substances commonly found in electronics such as lead, cadmium, and mercury have the capability of contaminating land, air, and water. Accumulation of these substances in the environment is toxic to humans, animals, plants, and microorganisms. In order to prevent such toxins from affecting our environment, e-scrap recycling programs must be established that responsibly manage old electronics.

How is E-Scrap Recycled? While there are full-time permanent collection centers for e-scrap in New Mexico, many communities support take back events to collect this material. From the collection center, e-scrap is sent to a dismantler who recovers the valuable materials and manages the toxic materials safely. These dismantlers often charge a fee for their services as the cost to sort and handle the many different materials found in e-scrap is frequently more than the value of the salvaged materials.

What About Data Security? One of the greatest challenges in managing e-scrap is ensuring that any old information on a computer is secured and destroyed. Most e-scrap handlers address this problem appropriately, but customers should always ask for assurance that their data will be handled responsibly.

E-Scrap Markets

As a potentially toxic material, great care must be taken in selecting a market for e-scrap. When working with an e-scrap recycler, request their certifications, as well as written guarantees of their commitment to environmental standards.



Fluorescent Lamps

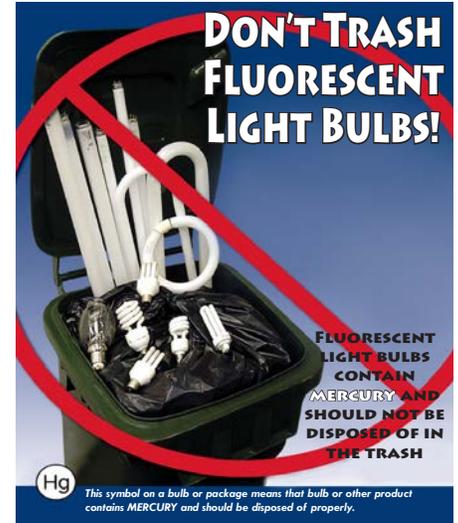
What are fluorescent lamps? Several lamp types are considered fluorescent. They include; straight tubes, circline, u-bent, compact and HID's. These lamps are different than a traditional incandescent bulb in that they use mercury to conduct electricity through a particular gas rather than a metal filament. While most are tubular in shape, compacts (CFL) compress the tube into a spring shape and HID's more resemble large versions of traditional bulbs.

Are fluorescent lamps hazardous? Yes, all types of fluorescent tubes contain hazardous components, including mercury. Each lamp contains a small amount of mercury, which in itself seems insignificant. In sum however, fluorescent lamps pose a significant environmental hazard. This is especially true as more and more consumers are using highly efficient CFL's for residential lighting.

How are fluorescent lamps regulated? On the federal level, fluorescent lamps are considered universal waste and therefore carry a relatively limited regulatory burden. They can be disposed of as trash when discarded by an otherwise unregulated generator. Lamps from regulated entities must be handled as hazardous waste. In New Mexico these rules are further defined for solid waste facilities. In NM a solid waste facility may collect whole bulbs or consolidate bulbs by crushing for recycling at an off-site, certified facility. If consolidated, specialty equipment must be used and worker protections must be addressed.

How are lamps collected for recycling? Two basic systems are available for the collection and recycling of spent fluorescent lamps; mail-in of whole bulbs or on-site consolidation. Mail-in programs typically use pre-paid shipping boxes where bulbs can be collected and stored. Once full, the container is sealed and shipped to a certified recycling facility. Consolidation programs utilize custom bulb crushing equipment which contains and stores the mercury and other potential hazards. Consolidation systems are best suited for high volume generators or for use at large solid waste facilities. Mail-in systems are ideal for rural and smaller scale operations.

Regulatory Issues: The NMED Hazardous Waste Bureau and Solid Waste Bureau have established specific rules for the use of bulb consolidation equipment. Information can be found at <https://www.env.nm.gov/HWB/stareg.html>





Markets by Definition

Markets for recycled materials can be classified into four distinct categories; *mills, processors, coops and brokers*. All provide a destination for collected recycling, however each plays a very different role in the greater recycling system and the overall economy of recycling. Generally, community recycling efforts are likely to utilize several market types in the course of their business. Paper may go directly to a mill, plastics might be marketed to an intermediate processor and steel cans may be sold through a broker.

While there are clear advantages and disadvantages to each particular market type, the selection of an appropriate market is wholly dependent on local conditions and other community specific issues. Markets for one community may be quite different from a similar community only 100 miles away.

Recycling Markets Are Commodities Markets

It is imperative to understand that markets for recycling are no different than markets for food, gasoline or other goods. The prices paid for recyclables are constantly changing in reflection of various internal and external influences.

A dangerous reaction, when markets are down, is to store materials in hopes markets will soon rise. This can be a bad decision for a number of reasons, but most importantly, it may hurt your relationship with a market. If you are willing to stand by your buyer when things are bad, they are far more likely to help you take advantage of the best prices when markets rebound. In short, if you can sell it, sell it. **Do not wait for the markets to reach your price, the wait may be long, and the market may disappear!**

Specifications for Selling Recyclables

Just as there are marked differences between the three market types, they all share many similarities. Specifications, for instance, are used by all markets to define the materials which they consume. "Specs" primarily provide a collector with specific quality requirements for a given material. They may also provide guidance on how these materials are to be handled and in what form they will be purchased. Each distinct market will provide specifications relevant to their process. While we all know what cardboard is, the specifications for this material may vary greatly between markets.

Even as each mill or broker will define their own specifications, there is a common jargon, or language, used by

MILLS

Mills represent the end of the line for any given recyclable as they consume recyclables as feed-stocks for a manufacturing process. Mills are generally the most desirable market for a community recycling program as they provide the highest value per ton. Mills also demand the most stringent requirements and specifications.

BROKERS

Brokers are commonly middle-men between recycling programs and mills. They are typically used by programs who do not have the connections or ability to market materials directly to mills and are often critical to the success of such programs. Brokers generally charge a percentage of a materials value for their services, so if a mill pays 100% of value, a broker may only pay 90%, keeping 10% as their fee. Brokers can also accommodate off-spec materials as they generally carry significant clout in the marketplace.



Markets by Definition

all markets. Specifications generally provide the following three conditions; 1) acceptable materials, 2) out-throws, and 3) prohibitives. The first condition states what materials are desired by the market, the second describes those materials which are not wanted but will not harm the market and the final and third condition defines those materials which are not wanted and will potentially harm the market. The following is a common specification for cardboard or OCC.

OCC consists of corrugated containers having liners of either test liner, jute or kraft.

Prohibitive materials _____ <1%
Total Out-throws _____ <5%

The bold type denotes the acceptable, or desired materials, which is followed by prohibitives and out-throws. In this example, a 1,000 lb. bale of cardboard will be allowed to contain only 10 lbs of prohibitive materials and 50 lbs of out-throws.

Quality

The previous example demonstrates the need for close monitoring of collected materials. Ten pounds out of 1000 is a very small allowance for error. Such small allowances are also not readily discernible, but are nevertheless enforced. Markets will commonly use a “core sample” from a bale or loose pile of material to identify non-compliance. This small sample will be used to evaluate the larger bale, so what may seem insignificant may cause a market to reject materials.

A second element of specifications defined by a market is the condition or form of acceptable materials. Aluminum can (UBC) markets exemplify this component of specifications. One UBC market may only allow “briquettes” or cubes of not more than 12 inches in any dimension. Another UBC market will be limited to loose UBC only, while yet another may only desire 1500 lb. bales. These variations are critical in determining the best market for a program. If a UBC market demands bales, and the program does not have the equipment to meet this spec, the market is inherently unsuitable.

Plastics also provide an excellent example of this type of market requirement. Plastic markets typically require a specific bale density, or weight per bale. While a program may have an otherwise suitable baler for plastics, if it cannot generate the required density either the market is unsuitable or the baler is.

PROCESSORS

Processors are similar to brokers in that they are intermediaries between recycling programs and mills. Processors are useful to programs in that they provide physical services along with marketing. Processors can “clean-up” collected materials to meet market specs, often providing an outlet for mixed materials which cannot otherwise be marketed. In general, processors can provide a community with all the services needed to market materials allowing the community to focus on collections only. Financially, processors are the least advantageous, however, as they may charge for their services and provide less value for the materials.



Markets by Definition

Preparation

Beyond material specifications, markets also provide sellers with guidance regarding terms of sale, freight and quantity. Freight and transportation costs can be a critical concern when evaluating markets. While it is common for mills to cover all costs associated with the transport of materials, these costs may still impact the selection of one market over another. A nearby mill will typically always provide the highest value for a given material as their cost to transport will be less than a distant mills. However, if a distant mill is in short supply of raw material, they may pay a premium and offer more value per ton. Brokers and processors also may cover transportation charges, but these terms must be agreed upon prior to shipment.

While most mills cover freight, one commodity is rarely afforded this benefit from mills. Tin can and scrap metal mills rarely cover freight and transportation costs. This limitation often makes brokers more appealing when marketing these materials, as the broker may provide for this service.

Quantity

Market quantity requirements are also an important element to consider in evaluating potential markets. For large volume programs, quantity requirements are rarely a concern, but for smaller communities quantity issues may exclude several markets. Typically, mills require a minimum of a truckload, or 40,000 lbs of a material. Mills also favor programs which generate a consistent quantity, or a truckload every week, over programs which generate truckloads infrequently or on a seemingly random basis. Brokers can allow for inconsistent quantities, but generally cannot accommodate small quantities. Processors, however, can allow for both small and irregular quantities as they will combine materials from several sources to meet these requirements.

Terms of Sale

Terms of sale can be an important part of market selection. If one market agrees to pay for a commodity upon receipt they may be preferable to a market which pays for materials on a delayed schedule. A market which is known to be delinquent in paying for materials is also less preferable when compared to a market which is known for being on time with payments. In fact, a loss of value may be acceptable from a market which pays on time. A bill of lading (BOL) works as a receipt for freight services and is a crucial document providing the driver and the carrier with all the details needed to process the shipment and invoice it correctly. The BOL should at the very least include: Shipper & Receiver Names and Addresses, Date of Shipment, Number of Units & Description, Price per Unit, and Exact Weight of Shipment. This document proves invaluable during any disputes.

The following presents a market glossary, as well as a table comparing the four traditional markets discussed.

COOPS

Coops are often managed by non-profit entities in support of local recycling efforts. They act much like a broker, but rather than dealing with individual sellers, they unite many sellers together to achieve the best value per ton for the seller. A Coop's ability to pool small quantities from many sources gives the seller the advantage of full-load pricing and other mill direct benefits. Coops also typically offer direct support to small programs.



Markets by Definition

Market Glossary

Out-throws: Undesirable, yet not damaging materials.

Prohibitives: Unacceptable materials which may damage equipment or machinery used by the market.

FOB: (Freight on Board) “FOB origin” indicates the buyer pays shipping cost, and takes responsibility for the goods when the goods leave the seller’s premises. “FOB destination” designates the seller will pay shipping costs, and remain responsible for the goods until the buyer takes possession.

Bill of Lading: A required document to move a freight shipment. Works as a receipt of freight services.

Gross/Net/Tare: Gross = weight of vehicle + contents, Tare = weight of vehicle. Net = weight of contents.

RISI PPI Pulp and Paper Week: A trade publication of the paper industry which publishes pricing for recycled papers monthly. Used as the standard by most paper markets who often offer PPI +/- X dollars. Membership fee.

ISRI Specification Circular: The Institute for Scrap Recycling Industries publishes a comprehensive specification manual each year which covers every grade of commonly recycled commodities. These specs are meant to be representative of individual markets but should always be confirmed with an individual buyer.

Markets			
Mills <ul style="list-style-type: none"> • Best \$/ton • Strictest Requirements 	Processors <ul style="list-style-type: none"> • Lowest \$/ton • Off-spec okay • No minimum quantity • May afford more convenient collection 	Brokers <ul style="list-style-type: none"> • Moderate/Best \$/ton • Can access <i>hidden</i> markets • May allow off-spec 	Coops <ul style="list-style-type: none"> • Moderate/Best \$/ton • Other support • Affords small quantity • One contact for all materials

Markets at a Glance



Market Selection

What Level of Processing is Necessary?

With an understanding of the markets for recyclables you can begin to evaluate and select the best market for your program. As discussed in the previous section, each market type offers different benefits and challenges. Selecting your markets requires you to weigh these issues in order to control your costs and maximize your potential revenue. Keep in mind, that the highest price paid per ton does not always make the best market. It may be that a nearby community with a baler is the best option.

This evaluation is critical in selecting the most appropriate market. It is also important to keep in mind that markets are volatile and that the price paid per ton today will not be the same price paid in the future. In the case of cardboard, mill pricing has swung from a high of \$150 to a low of \$70 in just one year.

To pursue the Mill as your market, in order to receive the highest return, you will incur a significant capital cost as well as large operational cost. A baler will be required as well as covered storage for finished bales. The baler operation will involve at least two personnel producing approximately one bale per hour. This all adds up to a cost approaching, or possibly exceeding, the sale value of the material. Choosing a nearby community with baling infrastructure, on the other hand, requires no handling other than collection and the capital investment is no more than the cost of a collection/transport container.

Consider Distance to Market & Environmental Implications

Distance to market should be a consideration when selecting a market. In terms of price, or value per ton, a higher value market may be less desirable as the cost of transport may outweigh the additional revenue. If each community manages recycling independently, economies of scale cannot be obtained and energy will, in fact, be wasted as these scattered efforts will not enjoy the efficiencies of centralized processing.

Markets drive every aspect of recycling. Programs that collect materials without first securing an end market may find themselves with a big pile of recyclables that do not get recycled.

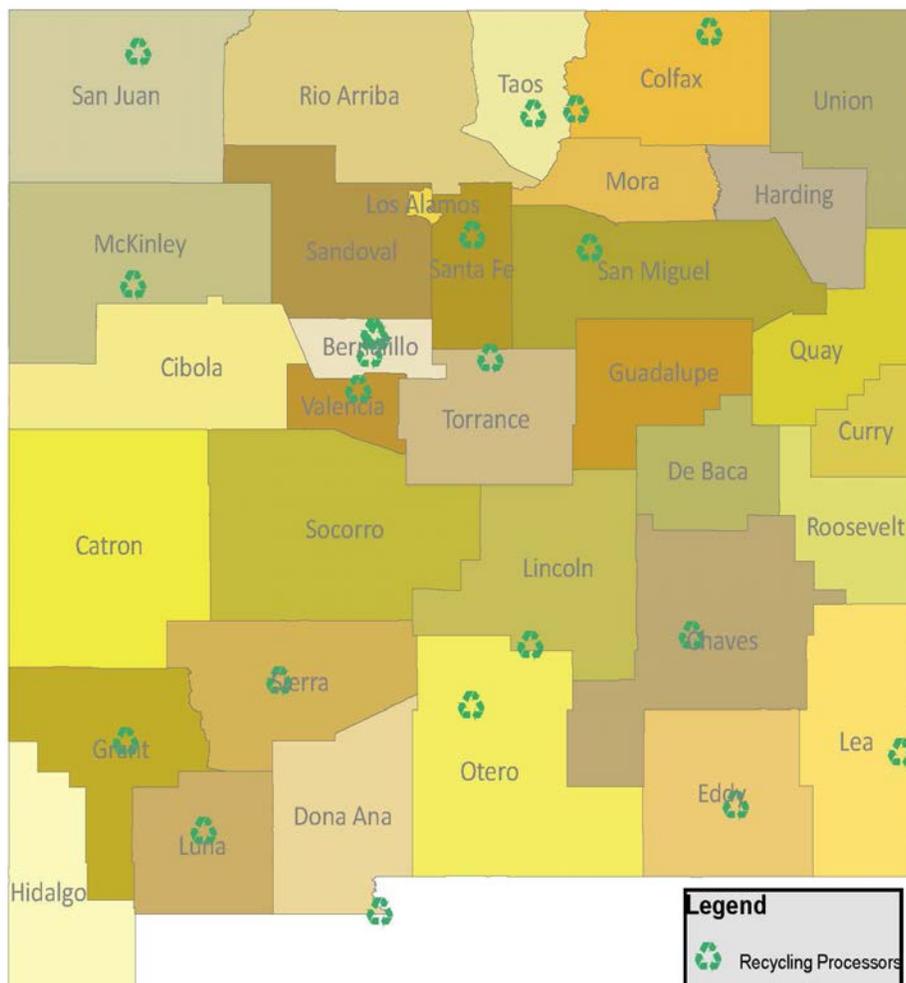
Market Creation

In some cases, market creation may be appropriate. Glass for instance is likely best consumed locally as an aggregate material for local public works projects. Other materials, such as plastics, may need to be shipped across the country to find a market. Keep in mind that the best market for your community is your decision. To ensure the success of your program, be sure this decision is made with as much information as possible.



Hub and Spoke Recycling

Successful recycling programs depend on efficient collection and basic processing of materials. Most of the time, especially for rural NM, success is achieved by sharing resources. Hub and spoke recycling as a concept was developed to provide the most efficient means of gathering and processing recyclables from both a capital and operational perspective. The Hub and Spoke model works by creating regional recycling processing centers that serve as the “hub” (or processor) and encourages smaller communities, or “spokes”, to deliver their collected material to these hubs. The hubs invest in equipment and infrastructure needed to create and store the high density bales that remanufacturing markets require, while the spokes invest in collection trailers or containers and transportation to the hub. While our urban areas have been better served with large processing facilities, NM now has 20 processing hubs available to regional rural communities as a means to prepare recyclables for the end market. Below is a map of all recycling processors in the state.





Collections: Drop-Off & Curbside

How Will Your Program Collect Materials?

Recycling collection systems provide the means of gathering recyclables from a variety of sources within a community. Programs may be designed to target a specific material or a particular source of materials. While there are a wide range of potential collection systems, two formats provide the bulk of recyclable materials; curbside and drop-off (other formats include commercial, event-based, public spaces, in-house, etc.). Curbside and drop-off systems tend to focus on materials generated by households, although they can also support small businesses. As its name implies, curbside collects materials from residents at the “curb” in front of their home. Drop-off on the other hand provides centralized collection containers for the use of many homes.

Drop-off collection systems have long been the standard of the recycling industry. Drop-off centers are simple, affordable and relatively effective at gathering recyclables from the public. While drop-off centers have historically utilized the source-separated method, single-stream or dual stream could also be collected in this way. Curbside programs have been developed to provide a more convenient and universally accessible method of gathering recyclables and are either a single stream or dual stream system.

Drop-Off

For rural areas, drop off collection systems are the preferred approach to gathering recyclables. It is no wonder that in New Mexico, the vast majority of garbage services utilize centralized collection centers which haul collected materials to regional disposal sites. If it’s good for garbage, it’s good for recycling.

Drop-offs for recycling are already commonplace at many solid waste collection sites in NM. **Co-locating recycling services with disposal services affords a convenient option for residents and a cost-effective approach for local governments.** These sites employ a wide variety of equipment to gather materials and an equal variety to handle the collected recycling. Below are a few examples of common collection equipment used for source-separated recycling.



Sorted Recycling Collection Trailer



Gable Top Divided Recycling Roll-Off



Collections: Drop-Off & Curbside

Each type of equipment offers unique benefits and challenges. Roll-offs, for instance, afford the largest capacity, but require specialized equipment to move and unload. Trailers, on the other hand are readily transportable, but offer limited capacity. In any case, the best choice for your program is the choice that fits your community's needs and existing infrastructure. While not common in New Mexico, some other states have utilized compactors for the collection of single stream materials at the drop-off.



Custom-Made Collection Trailer

Adapted Curbside For Rural Communities

Curbside is only a cost-effective approach when there is a high density of potential users. For this reason, curbside recycling is rarely used in truly rural areas. Curbside is feasible in smaller communities that have dense populations and trash is already picked up at the curb in automated carts. However, rural areas do provide a setting for a modified version of curbside recycling which reflects the use of centralized garbage dumpsters used by a few homes. These "dumpster" sites are typically used in the most rural areas for garbage collection services, and can be very difficult to adapt for recyclables. For garbage, this system typically uses two or three 4-6 cubic yard dumpsters located at a common intersection or road side for use by a cluster of homes. The addition of recycling bins at these sites is a more convenient alternative to a centralized drop-off center for residents, but will be impractical for the solid waste authority that wants to source separate. For the highest efficiency this recycling program would need to take advantage of existing equipment and infrastructure. Single stream would be the most effective collection.



Alley Dumpster Service in Rural Community

Recycling Drives

The permanent drop-off center can be adapted, as well, in the use of recycling *events* or *drives*. These programs are basically "mobile" drop-off centers. Collection equipment can be deployed for a limited period of time (every other Saturday for example) at the same location or at rotating locations. These event based programs are very cost effective and avoid the need for a permanent site, staff and all the issues related to traditional drop-off centers. Many communities establish these types of collections in conjunction with other community programs. Setting up a periodic drop-off at a regularly scheduled farmers market, for instance, is an effective approach. For these programs to be successful they must be consistent and user friendly. Irregular schedules make it impossible for the customer to keep up and will alienate many potential users. When routine, customers can build the service into their lives and make recycling a regular practice. While these programs differ from the traditional drop-off all the same rules apply; clear signage and staffing are complements.



Collections: Source-Separated & Single Stream

Source-Separated Recycling

As we discussed earlier in the materials section, conventional household recycling can be categorized by its basic material make-up (i.e. glass, metal, plastic, paper) and further classified by industry defined specifications. Paper fiber can be sorted over 50 ways with the exact “specs” numbered 1-52, whereas number 1 is “Residential Mixed Paper” and 52 is “Aseptic Packaging and Gable-Top Cartons”. You may be familiar with the term ONP#7. The Newspaper grade allowing a small amount of office paper and magazines is number 7 in the “Guidelines for Paper Stock” list.



Children at a source-separated collection center test their cans on a magnet.

Where there is a category, or grade, there may be a mill interested in that feedstock. The more specialized the grade, the more revenue you can expect to earn, but remember that the specifications will also become more strict and the market more difficult to find. **Give careful consideration before making specialized grades to ensure that enough volume can be collected, stored and processed to effectively meet the requirements of the end market.**

Successful source-separated collection requires that both solid waste staff and citizens have a basic knowledge of materials - what is acceptable in the program and what is not. Staff knowledge of materials and markets will be critical as contamination could be detrimental to the program. Material knowledge for staff can come from a variety of sources, including: industry publications, trainings hosted by NM’s recycling and waste professionals and internet searches.

Citizens’ understanding of the program is critical, too, because for source-separation to truly work, material should be separated at the source! An industry that is changing rapidly, rules that change from town to town or state to state, packaging that looks like plastic but is made of corn - recycling can get pretty complicated for the average consumer. In order to keep up participation numbers there will have to be strong outreach with constant positive reinforcement. If the community program requires separation of cardboard and greyboard, for example, then staff must be able to communicate what the difference is between these two materials. Education and outreach must be clear, concise, and on-going. Campaigns, youth involvement and clever messaging can help keep the excitement going. If citizens do not understand what materials are acceptable or what is expected of them, staff will have to step in for extra work, potentially causing a very expensive program.

Convenience will also increase participation and keep volumes high. In general, recycling should be as convenient as trash. If this is cost prohibitive, consider adding drop-off locations, staffing recycling areas with helpful citizens and maintaining convenient hours for working citizens.



Collections: Source-Separated & Single Stream

Single Stream

Single stream is a method of recycling, which allows all recyclable items to be mixed together for collection. Depending on the processor available, single stream can include a variety of materials beyond the conventional paper, cardboard, plastic and metal. Single stream processors may allow small electronics, pots and pans, rigid plastics and much more. This collected material will be at its lowest value mixed together, as it will need to be separated before selling to an end user as feedstock. The baled or loose, co-mingled materials are accepted at a large processor or materials recovery facility (MRF) for “unscrambling” with modern technology and people on a sorting line.



Single stream recycling is gaining popularity across the United States, especially in urban areas. The savings for solid waste managers is often in collections and processing, as it is possible to divert more material with less labor and sell to just one processor. Single stream can increase efficiencies in transportation, as well. Single stream can also encourage residents to place more material in their recycling bin by giving them a larger bin and simplifying the system.

For municipalities struggling to divert more waste with less money, the concept of single-stream collection may seem like an attractive alternative, but is important to note that this does not mean “everything that used to go in the trash can now be recycled”. There are still general specifications which include outthrows and prohibitives. Using just one bin makes recycling for citizens more convenient and typically shows increased participation rates, but with that comes the possibility of increased contamination. Some of that contamination is detrimental to the processor’s machinery, like plastic bags, garden hoses and wires. Then, some contamination is unique to the single stream process and causes issues for the end user; for example, glass sand in paper or small plastic bits in cardboard. **The concept of sorting acceptable items from unacceptable items is still a critical activity in single stream programs.** Solid waste managers must continue with citizen recycling and reduction education.

Modified Recycling Systems

A type of simplified sorting program, whereas some separation is needed, can be referred to as dual stream recycling. In general, this means collecting the fiber component (paper, cardboard and cartons) separately from containers (glass, plastic and cans). Dual stream can also mean collecting just glass bottles separately from the other household recyclables. This method can be used along with curbside pickup. The value in this system is reduced contamination among materials, and slightly less time in sorting. The assumption here being that you will market the materials as they are collected without processing them first. In some cases, cardboard is the only material collected separately and all other acceptable materials are baled together for market. This method is typically called “modified single stream”.



Collections: Source-Separated & Single Stream

Good Signage and Resident Guides Are Essential for Successful Recycling

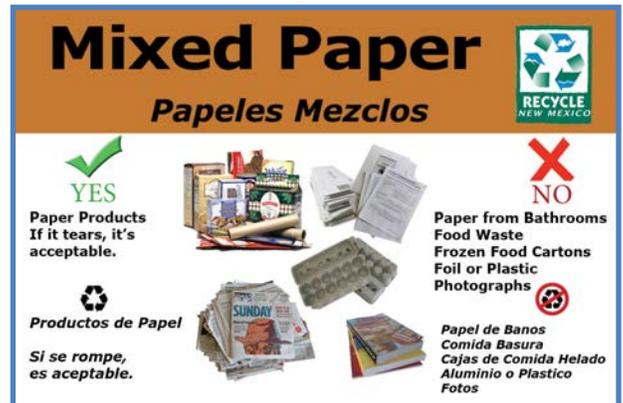
With equipment and a knowledge of materials in hand, you can move on to other details. The number one concern for drop-off recycling centers is good signage. Signage should be short and to the point to ensure rules are understood at a glance. Signs should also be limited to only those absolutely necessary: too many signs only confuse the user. They should also be consistent in terms of materials and style to “invite” the user to follow their guidance.

With clear signage, a second education tool is a comprehensive sort guide offered as a handout. Even when detailed sorting isn't necessary, this type of resource offers the user valuable information - more than should be used on signs and a good reference at home to prepare materials. Sort Guides should use the same language as the signage as well as employ complimentary styles. In curbside programs, including the allowable materials on the carts can be considered as well.

NMRC has developed standardized collection signage for the most commonly recycled materials. These signs are available at www.recyclenewmexico.com as PDF's and are free.

Proper Maintenance of Recycling Areas

Other significant concerns for drop-off centers involve day-to-day oversight and maintenance. Invariably, drop-off centers can be plagued by illegal dumping and misplaced materials. To avoid contamination of recyclables, it is always best to staff the site during all open hours. Having a site attendant also offers users a source of guidance and instruction for sorting and placement of recyclables. Maintenance is also high on the list of important considerations for drop-off centers. Keeping sites clean will prove very effective at making the user's experience pleasant and thereby encouraging them to use the site again. A dirty, debris-ridden site will only encourage users to add to the mess, while a clean site will foster respect and responsibility. In the absence of full-time staffing, sites should be fenced and gated to control access during closed hours. While a fence will almost certainly guarantee piles at the gate on occasion, they will prevent scavenging, contamination, illegal dumping and other types of vandalism. Make certain that a list of acceptable items is posted on the closed gate.

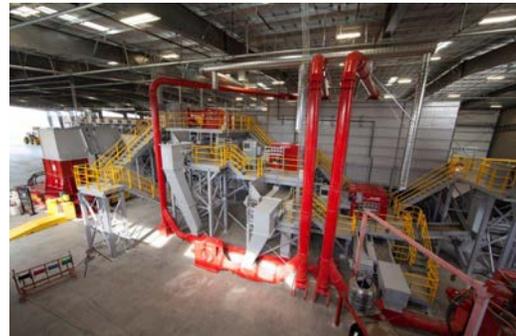




Materials Processing



Small Processor: 3,000 square foot processing facility, capable of processing about 4 tons per day.



Large Processor or MRF: 90,000 square-foot recovery plant processes up to 30 tons per hour.

How Do You Process Materials?

Once markets have been identified for your recyclables, the next step is to create a processing strategy to meet the demands of the markets. Processing recyclables is effectively a manufacturing process where you transform raw materials (loose unsorted recyclables) and create a product in demand by a market. In most cases the process will entail some level of sorting, or cleaning of the material, and then baling the material. In many smaller communities where you will send materials to a nearby processor, those materials will most likely be accepted loose with little if any preparation.

While regional processors allow for the lowest level of processing, they are also the least profitable in financial terms as you pass the processing responsibility and cost onto the processor. **However, avoiding the capital and operational costs of processing on your own will likely be a very important consideration** (see 4.5: Market Selection). As mentioned, large regional processors, as markets, require the least amount of handling by the collector. Any market that accepts single stream in loose loads, means the collector only needs to gather materials in one bin and deliver it to the facility. Other smaller processors, or hubs, generally require *source-separated* materials. The three levels of processing; single stream, dual stream and source-separated, mentioned earlier should also be used to guide your decision-making process when selecting the level of your own processing system. The costs associated with each type is directly related to the level of sorting required to prepare material for market. So, single stream processing is the most expensive to build and operate, noting that large sorting equipment and staff time will be the bulk of cost. In this way, most communities which collect single stream do not also sort their own material. Alternately, source-separated is the least expensive to build and operate because citizens are doing most of the separating. Staff can prepare mill ready bales for market or deliver the clean sorted material to the closest market.



Single Stream Processing

Single stream and dual stream processing is quite costly and not recommended for rural communities. Sorting systems, designed to process mixed recyclable materials range in price from hundreds of thousands of dollars to over \$10 million. A rural community which is collecting mixed materials, should also market them as such. MRFs are effective at handling varied material streams, to include source-separated materials that can be co-marketed with other materials produced by the MRF. If your community is near one of these facilities, they should be your first stop in your search for potential markets.



*Large Scale Multi-Material
Horizontal Baler Auto-Tie at NM Hub*

Balers

Source-separated facilities are very common in New Mexico.

They have been established by small communities across the state and have proven successful at handling small quantities of materials from the most rural areas. In many cases, the “facility” is nothing more than a stand-alone down stroke, or vertical, baler. Because the recyclables are collected by type, there is little need for sorting or other processing. Facilities which act as Hubs in the Hub & Spoke recycling system have upgraded to a horizontal baler which has greater capacity and speed for the volume that can be collected in surrounding areas.

Balers range in price from a few thousand dollars to nearly \$1 million. The most expensive units are highly automated and are designed for high volumes of nearly any material. The cheapest are labor intensive, but are effective at compacting a broad range of materials.

Baler Selection

Selecting the right baler for your program can be boiled down to a few critical criteria:

- 1) Available Location/Facility
- 2) Material Compatibility
- 3) Capital Cost
- 4) Operating Cost
- 5) Projected Volume of Material



*Mid-Size Horizontal Baler
Manual Tie in New Mexico Hub*



Materials Processing

An Available Facility and Power source should be your first consideration. The strongest balers rely on *three phase* power. Three phase power can be hard to find in rural areas, or the cost to bring it to your site can be prohibitive. If you do not have it, or cannot afford to bring it on site, you will need to find an alternative. The use of “phase converters”, which shift single phase to three phase, have become a practical and cost-effective solution for sites with only single phase power. If a phase converter is considered, it must be designed for the specific application (motor size etc.) and if possible should be supplied by the baler manufacturer.

While true single phase balers are available, they cannot produce high-density mill spec bales. The upside is they “plug right in” almost anywhere. Used units are also widely available as they can be found in most large retail businesses like grocery and drug stores.

Material Compatibility should also be a primary concern. Some machines are very effective at compacting all common recyclables, while others are designed for specific products. This is especially important if plastics are part of your program, or might be in the future. If plastics are considered, three phase power is likely a must as only the larger balers can generate enough pressure to produce stable bales of plastic. Manufacturers can provide guidance on which materials a particular baler is effective at baling.

Cost must always be a consideration when selecting equipment. You might find a great baler for your operation, but it is far out of your price range. As mentioned, used and reconditioned balers are available and offer a more affordable option. Scaling down on size or materials to be handled will also provide cost savings. Leasing a baler may also be an option. While more expensive over the long run, a lease can avoid the need for a large up-front capital investment.

A second element of cost is related to operating the unit. Balers can consume large amounts of electricity and baling wire for each bale, making one more costly than a competitor’s model. Baling wire can become very costly over time. Finding a baler that uses a standard dimension and wire type can save money vs a baler which requires custom sized wire. Generally, manual tie balers use 10 gauge wire, with one looped end to aid in tying. They can usually handle any “finish” which include oiled, galvanized and bright wire. Oiled is usually the cheapest, but as its name implies, can be very dirty. Galvanized tends to be expensive and only useful for materials which will remain outside for long periods of time, like tire bales. Bright is a moderately priced alternative that will not leave you covered in oil at the end of the day.

Projected Volume of Material is another important issue to be aware of when looking at balers. A vertical baler is the cheapest option, but also the most labor intensive. Vertical balers should be used for low volume or small spaces. Typically these bales will be smaller and will weigh less than horizontal bales, so if the goal is to load a truck full and send it to mill, vertical baling is not recommended.



Typical Downstroke or Vertical Baler



Materials Processing

Other Equipment

Handling finished bales also requires specialized equipment. Moving large bales of material will require a pallet jack at a minimum. These manual “lifts” are used to move pallets and their contents on smooth level surfaces. If you operate on a dirt lot, they may not be very helpful, but inside a building or truck, they are invaluable.

Forklifts are also an important tool for recyclers. A dedicated true fork lift, however, is not required. A great alternative is a skid loader, like a bobcat, with a fork attachment. These machines can handle large loads and are also very useful for other jobs around a recycling center. As they are not designed to be forklifts, operators must be very cautious to avoid spilling loads or tipping over. **But, if you only have enough budget for one machine, the skid loader is a very effective tool.**

Loading ramps or docks are often overlooked when setting up recycling centers. Without drive-on access to semi-trailers, loading out bales can be very challenging. A dock made of a simple retaining wall or a portable ramp is a very helpful addition. They allow for safe and quick loading of any number of vehicle types which is critical to ensuring you are flexible to meet the transport needs of different markets. For example, if your cardboard market uses flatbed trailers, a loading ramp might seem useless, but that market or a better paying market might use enclosed vans in the future. Without a dock, this new or changed market will be inaccessible.



Forklift with Bale Clamp



*Simple Loading Dock
Town of Taos, NM*



*Portable Loading Dock
Estancia Valley Regional Recycling Hub*



Maximizing Potential

Determining Potential

How Much is Out There? In order to make the most of your recycling program it is important to understand just how much of any given material is consumed in your community and thereby may be recycled. Some communities elect to conduct very refined Waste Characterization analyses to understand what specifically is thrown away and potentially recycled. While these studies can be valuable, especially to very mature recycling programs, they are not critical or necessary for success.

In place of waste characterization, NMRC has developed a simple tool which communities can use to explore the potential volumes of recyclables available for recycling. This tool, the *Diversinator*, makes use of data from several detailed waste characterization studies and averages this data to derive approximate volumes of materials available for recycling in a given community.

In addition to exploring potential tons the *Diversinator* also looks at the financial benefit of recycling. The tool calculates avoided disposal and transportation costs as well as revenue potential from the sale of recyclables. It is important to note that the *Diversinator* is an estimating tool and the data it generates are exemplary only and should not be used as hard facts. An example of the *Diversinator* at work follows below:

EPA Predicted MSW (tons)	20,565 (4.5 lbs/person/day)
Disposed Tons	27,677 (actual, NM Environment Department Solid Waste Report 2011 figures)
Recycled Tons	150 (actual, NM Environment Department Solid Waste Report 2012 preliminary figures)
Actual MSW Generation	27,827 (actual, lines 4 + 5 added together)
Landfill Tipping Fees Per Ton	\$ -
MSW Hauling Fee Per Ton	\$ - (estimate range of \$14-17/ton)

Sorted Recyclables - Estimate of Current Diversion

	Percent of MSW ¹	Tons Generated	Estimated Capture Rate based on actual tonnage from 2012 report	Recovered Tons	Estimated \$/Ton (low market)	Gross Value
Cardboard (OCC)	11.00%	3,061	0.8%	23	\$85	\$1,951
Mixed Paper (ONP#7)	10.00%	2,783	0.5%	14	\$45	\$626
Aluminum Cans (UBC)	0.42%	117	0.0%	0	\$1,000	\$0
Steel Cans	1.00%	278	0.0%	0	\$90	\$0
#1 PET Plastic Bottles	1.50%	417	0.3%	1	\$175	\$183
#2 HDPE Plastic Bottles	1.50%	417	0.3%	1	\$200	\$209
		7,074		39		\$2,969

Sorted Recyclables - Increased Diversion to Low Capture Rate

	Percent of MSW ¹	Tons Generated	Estimated Low Capture Rate	Recovered Tons	Estimated \$/Ton (low market)	Gross Value
Cardboard (OCC)	11.00%	3,061	5.0%	153	\$85	\$13,009
Mixed Paper (ONP#7)	10.00%	2,783	5.0%	139	\$45	\$6,261
Aluminum Cans (UBC)	0.42%	117	1.0%	1	\$1,000	\$1,169
Tin	1.00%	278	1.0%	3	\$90	\$250
#1 PET Plastic Bottles	1.50%	417	5.0%	21	\$175	\$3,652
#2 HDPE Plastic Bottles	1.50%	417	5.0%	21	\$200	\$4,174
		7,074		338		\$28,516



Maximizing Potential: Rate Incentives

Rate Incentives

An effective tool for maximizing potential of a recycling program is the use of rate incentives to place a variable pricing structure on waste. Rate incentives are strategies employed by communities to put a price on the amount of waste each resident or household generates. Using rate incentive programs create a direct economic incentive to recycle more and to generate less waste. The benefits of rate incentives are numerous, but several of the most common benefits reported by communities with successful rate incentive programs include:

- **Increased Diversion and Recycling.** Rate incentives have successfully increased diversion and recycling in thousands of communities in the U.S. According to *U.S. EPA 2010 Summer Bulletin*, Pay-As-You-Throw (PAYT) communities dispose of 45% less waste than non-PAYT communities. This means 45% less paid in landfill fees. Correspondingly, recycling revenues increase if your community is the processor.
- **Increased Landfill Life.** As rate incentives decrease the rate of waste disposed, landfill cells can stay open and accept waste for longer, as less waste will be landfilled annually. This helps delay or avoid the costs associated with developing new landfill cells, shutting down existing landfills, finding new landfill sites, or sending waste to other landfills.
- **Communities Can Adjust Rates and Cover Costs.** Should communities be unable to completely cover the cost of waste and recyclables collection and processing, waste collection rates can be adjusted to quickly raise revenue.



By creating a direct relationship between the amount of waste a household or business generates and the amount of money they pay to have it collected for disposal, saving money by reducing the amount of waste they generate and by recycling as many materials as possible.

While many New Mexico communities employ limited use of rate incentives, a handful have taken advantage of their potential. One landfill, for instance, uses a rate incentive to encourage the diversion of greenwaste. By charging a slightly less tip fee for clean greenwaste materials, generators are financially encouraged to sort this material and ensure it is free from contaminants such as hoses, plastics, metals and other debris that decreases the final mulch or compost's value. Silver City, New Mexico gives residents three options for trash container size, with one extra low-cost option for seniors. In 2014, they reported a higher recycling rate than the state's average. Silver City also collects single stream recycling at the curb and manages a robust commercial cardboard collection route.



Maximizing Potential: Pay-As-You-Throw

How Would PAYT Work In Your Community?

Implementing PAYT provides an opportunity to expand recycling services and cover any new program costs by including them in the new rate structure. **It is imperative that communities considering PAYT make sure adequate and convenient recycling options are available.**

Curbside Programs: Municipalities that provide curbside trash services through automated or manual collection

with municipal employees or contracted haulers can easily create a PAYT program using bags, tags, or containers (or a combination of all three). Note the cost to convert to and maintain inventory of different-sized containers as a programmatic expense when designing program.

Drop-off Programs with Multiple Private Haulers: Municipalities with drop-off programs that are monitored by attendants are ideal for an imprinted trash bag or tag program. Private residential haulers can also implement PAYT using bags, tags or containers. Compliance of haulers can be monitored at the landfill or transfer station.

Dumpster Programs: Group dumpsters are unique, so a PAYT system would be unique, as well. One option is to use imprinted color-specific PAYT trash bags and have a remote camera to monitor compliance when dumping.



Rate Structure Options

Proportional Rate Structure incorporates all costs of the program, both fixed (administration, labor, equipment etc) and variable (cost of tipping and associated) and builds them into the rate structure.

Linear Rate Structures are financed using a one-to-one ratio of disposal units to cost. For instance: if one bag costs 1\$ then two bags costs \$2. Or, if one 32-gallon container costs \$10 per month, then a 64-gallon container would cost \$20 per month and a 96-gallon \$30 per month.

Variable Rate Structures offer different rates for different size containers or levels of service. For instance, some programs may charge increasingly higher rates to penalize households that do not reduce trash. Note that the lowest tier should, at least, cover the fixed costs per stop.

Two-tiered Rate Structures keep the fixed costs of the program in the tax or fee base and creates a unit-based cost to cover the variable expense.

Overflow/Modified Rate Structure would allow a certain amount of disposal within the current fee or tax structure and charge a second tier for additional disposal.



Maximizing Potential: Pay-As-You-Throw

Solid Waste Collection Design Options

There are three varieties of PAYT collection designs. The systems are not mutually exclusive and can be combined to meet the community's needs.

1. **Imprinted Trash Bags:** Residents purchase special colored plastic bags imprinted with the name and seal of the municipality. The price of the bag covers the cost of the bag itself and all or part of the cost of waste collection transportation and disposal. In hauler programs waste haulers are instructed to pick up only specially marked bags. At drop-offs, attendants only allow disposal of specially marked bags.
2. **Tags and Stickers:** Residents purchase specially marked labels and affix them to their own trash bags. Different colored stickers or different quantities may be purchased according to the volume of waste being disposed.
3. **Containers:** Residents choose a certain size container at a certain price level for curbside collection. Containers are billed through the municipality monthly, quarterly or annually.



TAGS/ STICKERS

Online Resources to Help Re-Structure Rates for PAYT

There are many excellent web resources to help New Mexico communities discover how to use PAYT as a tool for successful solid waste management, but also for the initial planning process.

- Use the Massachusetts Municipalities with PAYT programs spreadsheet to find communities that are your size to call and discuss their program. <http://www.mass.gov/eea/agencies/massdep/recycle/reduce/pay-as-you-throw-payt.html>
- Use the EPA PAYT Bulletins to find communities that fit your profile <http://www.epa.gov/epawaste/consERVE/tools/payt/index.htm>
- Use the EPA PAYT SMART BET Calculator to see how PAYT can affect your community <http://www.epa.gov/osw/consERVE/tools/payt/tools/smart-bet/>
- The state of Connecticut has a great website on PAYT and SMART planning. The web page provides community examples, collection type and contact information. http://www.ct.gov/dep/cwp/view.asp?a=2714&q=324920&depNav_GID=1646

Ordinances from PAYT Communities

See what other communities have implemented for Recycling Ordinances that successfully promote Pay-As-You-Throw systems. Search online in these communities to find their PAYT ordinances.

- Aspen, Colorado Curbside trash & recycling pick up
- Fort Collins, Colorado Curbside trash & recycling pick up
- Logan County, Ohio Rural drop-off recycling program
- Binghamton, New York Curbside trash & recycling pick up



Maximizing Potential: Local Level Policy

Local Level Policy to Increase Diversion

Implementing local level policies and ordinances will assist in increasing participation and volume of material, as your program matures. The idea is to slowly increase access to recycling and incentives to participation until the act of recycling becomes a common practice. Jumping directly to mandatory recycling with a new program, for example, can have detrimental effects, but for a very mature program, this kind of strict policy can be an important economic and diversion driver.

Your adopted strategic plan, including staff expertise and public input, will be the strong foundation for any policies that need local leadership approval later. Strategic plans will include goals for diversion or participation that can be measured. Reaching these goals will require a series of steps, which aim to capture the attention of a growing audience. As the recycling program matures, it is wise to develop recognition programs first as a way to encourage recycling behavior before punishment.

Use solid waste rates to provide a financial incentive to recycle. This allows members of the community to voluntarily choose recycling over trash and is a proven mechanism to increase both participation and volume. Rate structure incentives can be implemented at the drop-off station, landfill or curbside. When setting trash rates, ensure that the cost to collect recyclables is built in.

Review local solid waste ordinances and contracts. Communities can control who collects what types of solid waste. In some cases, a private business may be best suited to provide collection and/or processing services. A public-private partnership can be very helpful in expanding services and would be developed through the contract process. Refer to NMRC's Economic Development webpage to learn more about public-private partnerships.

Local Level Policy to Increase Business Recycling

Almost half of all recyclable material originates from the business community, so developing strategies to collect from local business is a critical component of any growing recycling program. **It is important to engage business owners with proper education materials and to use rate incentives, first.** Then, capture a larger audience by creating an "Equal Space" or "Dual Space" requirement. A community can enforce a space requirement for businesses and new/remodel projects through the permit process.

Some communities choose to mandate businesses to recycle, even if community participation is not mandated. A local ordinance can be developed that requires businesses to recycle, based on a variety of parameters, including: businesses of a certain square footage or amount of waste generation. Mandates require enforcement, as fines must be assessed for either not participating or for throwing recyclable materials in the trash.



Maximizing Potential: Local Level Policy

Disposal Bans

Another tool to control or eliminate waste is to utilize disposal bans. A disposal ban prohibits designated types of waste from landfills. Many states, including New Mexico, have enacted disposal bans. However, many of these bans include only toxic materials, such as: lead acid batteries and household hazardous waste, so communities can enforce their own bans in order to increase diversion or recycling rates.

Local government can add language to their solid waste ordinance about banning certain materials from the landfill in order to reach a particular goal. Various strategies can be employed to implement and support disposal bans. **Have a plan in place.** An effective plan will include: public outreach, a phase-in time frame to ensure that the collection and processing system is ready to handle the ban, specifically what materials are banned, how the measure will be enforced and how penalties will be given.

Many states have reported that bans were a catalyst for increased economic development because new opportunities opened for the private sector in collection, processing or manufacturing. Bans can also be effective at removing a problem or toxic waste. Banning from the landfill those materials which are easily recyclable is a good place to start because most people will already be recycling these materials.

Below are examples of how other states or communities have used bans and the materials associated with the ban:

- Increase diversion or recycling rate: cardboard, aluminum/tin cans, paper, yard debris
- Stimulate economic development: food waste, electronics, mattresses
- Remove a problem/toxic waste: electronics, mattresses, tires

Construction and Demolition Diversion Policy

Heavy items such as concrete, scrap wood and metals add up quickly. Generation of construction and demolition (C&D) waste materials can represent up to 25% - 33% of the waste stream, depending on the community and the building economy. Most New Mexico communities have not yet invested in C&D material sorting facilities as is seen in other states, but there are emerging opportunities.

A local community that wishes to divert C&D must first plan for collection and processing infrastructure before enacting any policy requiring diversion. If your community is unable to invest in infrastructure, creating a public-private partnership through the RFP and contracting process can be an effective way to support C&D diversion.

Many communities in other states use the construction permitting process to require or incentivize C&D recycling, which gives a community many options:

- Require a C&D recycling plan in the permit submittal, in order to be approved.
- Fast-track permit requests that have a C&D diversion plan in the review process.
- Require a deposit that can be returned with proof of "adequate" C&D recycling or a certain diversion rate.



Maximizing Potential: Local Level Policy

Event Recycling Policy

Event recycling has two avenues of collection to manage: the general public areas and the vendors, or back-of-house areas. Effective event recycling requires clear guidance from the waste management entity for both areas in order to keep contamination to a minimum. In most cases, it is best to offer volunteer and staff training on what materials are and are not acceptable.



A volunteer works the waste station at a campus event.

To increase diversion in the community, it is possible to require event managers to provide recycling at any registered event. Event permit options range from requiring recycling as part of the permit approval process, to requiring vendors to only provide recyclable or compostable service-ware in their offerings. A community may require event managers to recycle a certain percentage of materials generated or target a specific item to be banned from the trash, such as cardboard or beverage containers.

Other Strategies to Increase Recycling and Diversion

Provide Access: Make recycling collection as convenient as solid waste collection. Develop options/requirements for condos or multi-family units.

Ensure Education: Provide regular education and outreach on what is recyclable and occasional targeted campaigns.

Develop Markets: Require parks and recreation, golf courses and road department to use locally generated compost or mulch as filter socks, for erosion control, or for remediation projects. Require recycled glass to be used as an aggregate in local public works projects.

Expand Materials: Partner with existing entities to recycle and reuse more items: Hard-to-recycle items, yard waste/organic materials, reusables.

Support Economic Development: Consider allowing private entities to co-locate at existing solid waste facilities to help utilize resources effectively or divert more items from the waste stream. Develop public-private partnerships (PPPs) supporting small business using the Local Economic Development Act (LEDA) and PPPs. Learn more about LEDA and PPPs on the NMRC Economic Development webpage.

Buy Recycled: Policy can include a recycled-content purchase preference on all products or certain outlined products purchased by local governmental entities. Refer to page 74 for more information.



Outreach and Education

Planning the Public Education Campaign

Like any other service or product, recycling earns more “customers” through advertisement, outreach and education. Properly educated citizens spread the word about opportunities in their communities which ensures more recycling with less contamination. Each community should have a dedicated Recycling Outreach Coordinator who works to identify the specific challenges to recycling in that community and to address those needs with targeted outreach, and community events centered on recycling education. This constant outreach will ensure that recycling is ever present in the community.

Quick Tips:

- Public education must be consistent & create a sense of urgency
- Define realistic program goals. Share results with the public to encourage more participation.
- Establish budget, identify sponsors and in-kind partners. **Your annual solid waste and recycling budget should always include funding for outreach and education.**
- Identify your message and your audience. Each message must be clear and consistent. Define your audience by asking, “who do you want to influence”? The better you define your audience, the better your campaign will be.
- Identify and establish appropriate media outlets. For rural areas, word of mouth is the best advertisement. Keep staff well-informed of program goals and changes so that they can pass the word onto customers.
- Evaluate the results of your public relations campaign and have a way to measure success.

America Recycles Day

November is host to a statewide annual event created to promote recycling, waste reduction, composting & buying recycled products. It’s held in conjunction with America Recycles Day, Nov. 15th. Schools, businesses & government entities sponsor events to bring recycling practices to the forefront.

How can you participate?

- Hold a recycling collection drive
- Visit schools to talk about recycling
- Work with youth to create recycled art
- Set up an info table at the local grocery store or community center
- Create a media/outreach campaign as outlined in this fact sheet!
- Host a recycling bin give-away contest



Keep America Beautiful and The American Ad Council created this campaign to create awareness and motivate behavior change.



Outreach and Education: Building Community Relations

Building Effective Community Relations

It is essential to bring together as many stakeholders as possible to encourage recycling as a culturally important and necessary behavior. The more entities and players you engage, the more successful your program will be. Identify prospective partners and host a planning meeting. Some examples include:

- Elected Officials
- Chamber of Commerce
- Council of Government
- Citizen Activists
- Civic Groups
- Private Haulers
- Schools
- Media



Discussion items for these regular, quarterly meetings could include:

- Recycling Program Updates
- Feedback from Stakeholder Partners on Program - What Works, What Can Be Improved
- Discussion of Outreach Plan and How Partners Can Assist

Essential Outreach For Your Recycling Program

When you are planning how to interact with the public and community partners, consider that there are two different needs: day-to-day educational communication and periodic education campaigns.

Every recycling program needs the following day-to-day education, at a bare minimum:

- Site Sign at All Drop-Off Locations, including: Hours of Operations, Items Accepted, Fees, Entity Name and Contact Phone or Website
- Signs On All Collection Containers - Clear, consistent messages (see page 20 for collection center best practices)
- Recycling Brochure - Distributed at city and county offices, at drop-offs, distributed to all solid waste customers via billing, cart, etc.
- Web Site - It can be part of the governmental entity site or a standalone site, i.e. (www.YourCommunityRecycles.com), but make sure it is regularly reviewed and updated.
- Community Staff - Make sure all community staff members are well informed about the recycling program and keep them up-to-date with any changes
- Ensure listing is current on the NM Recycling Directory (www.RecycleNewMexico.com)



Outreach and Education: Program Promotions

Promotional Activities: How to Attain Visibility in Your Community

The following list identifies the range of activities that your community or entity can use for periodic educational campaigns or regular communication. The NMRC has created a variety of outreach material templates that are available for free. Visit the webpage, www.recyclenewmexico.com

Outreach Methods to Consider:

- Printed Materials
 - Brochures, posters, flyers, utility inserts, newsletters, door hangers, magnets
- Public Events
 - Create your own recycling-oriented events or piggy-back on an existing community or national event like America Recycles DAY every November 15th
- Media
 - Press releases, inviting the press to events, radio public service announcements, newspaper ads or articles, billboards
- Electronic Media
 - Webpage, listserve, FaceBook, ensuring links on community web pages
- Public Speaking
 - Chamber and civic meetings, hosted workshops, association meetings, schools, neighborhood associations
- Get Creative!
 - School contests, mascots, recycling thermometer, paint-a-dumpster, pledges/commitments

RECYCLING LOCATIONS

	Central	Desert / Hill & Valleys / Pecos de Aragon	Eastern Hills	Northern	Southern	Tri-County	Western
THE RECYCLING GANG							
Aluminum Cans	X						X
Tin Cans	X	X	X	X	X	X	X
Cardboard	X	X	X	X	X	X	X
#1 and #2 Plastic Bottles	X	X	X	X	X	X	
Mixed Paper (junk mail, etc.)	X	X	X	X	X	X	
HOUSEHOLD RECYCLING							
Glass Bottles							
#3-#7 Plastics							
Scrap Metal	X	X	X	X	X	X	X
Appliances with Freon	X	X	X	X	X	X	
Tire Branches				X	X		
Electronics	X	X	X	X	X		
Plastic Bags							
Compact Fluorescent Lamps							
Phone Books							
Rechargeable Batteries	X	X	X	X	X		
Reuse Area Waste Exchange							
HAZARDOUS WASTE							
Paint							
Other HHW							
AUTOMOTIVE RECYCLING							
Auto Batteries	X	X	X	X	X	X	X
Tires	X	X	X	X	X	X	X
Auto Fluids	X	X	X	X	X	X	X



Outreach and Education: Program Promotions

Working with the Media to Get Your Message Out

You will be surprised how open your local radio, newspaper and TV partners may be to helping get the word out about recycling. Developing long-lasting relationships with media partners is a win-win for everyone. Invite the media to all of your events by calling or sending them a Media Advisory. Call to remind them about the event to ensure that they can make it. Create a partnership with your local paper to submit a regular article about recycling or submit a spunky and exciting radio public service announcement script to your local radio station. Often media are open to sponsoring events. Offer to add their logo on the event banner or event ad and they may be able to provide you two-for-one ad rates or help spotlight your event or cause in other ways.

Media experts advise for all press events and releases - **always include a great visual**. It's what people see first and remember. **Every press release must also include contact information and good descriptive details on the event.**

Steps to a Successful Recycling Event

There are many different types of events your community could plan, including: recycling drives, new services announcements, grand openings, and collection center tours. Follow these steps to ensure you make the most of your event:

1. Invite all identified stakeholders by e-mail and mail, if needed. Call to make sure folks can attend if you don't hear back on their RSVPs. Be sure to include regional partners.
2. Invite the media and prepare a media packet. This folder should include pertinent information about your recycling program and a speaking agenda. The more information you can add to media coverage, the better emphasis on your message and recycling participation. A Media Advisory telling who, what, where and when can be e-mailed to local media venues.
3. Plan your speakers. Provide talking points to elected officials and provide all speakers with an agenda.
4. Provide good visuals. To ensure that your photographers have great images, have recyclables on hand, new equipment, a bale of material, anything that will make a visual impact.
5. Remember the key - clear and consistent messaging!



*Volunteers help customers sort during
Raton Recycles Day*



Outreach and Education: Program Promotions

What is a Waste Audit?

Waste audits can not only help you to make a plan for reducing, reusing and recycling, they can also be a great education tool and promotional activity. Small waste audits, for just one building, can be performed in less than a day. The results of a small waste audit can help a school or business determine what areas need work and how best to start a waste reduction program. As a bonus, schools can use the collected data for real-world math lessons on weight and volume and creating graphs and charts. Businesses can use the data to determine just how much recycling can boost the bottom line.



Waste audits on a large scale, for an entire community, often involve a consultant and are performed over a long period of time 6 months to 5 years. Typically a large audit will be a formal process to determine potential or to plan what type of solid waste and recycling service will be most economical.

Instructions for a Basic Waste Audit

Before the Audit: Obtain permission to conduct the audit in a covered area outdoors and work with the custodial staff to save garbage from the previous day. Garbage can come from offices, cafeteria and classrooms. Safety considerations: Do not sort bathroom or health room waste.

Time: 2-4 hours, with 5-10 students

Equipment: Rubber gloves, large tarp or plastic drop cloth, calculator, extra garbage bags, scale, several five-gallon buckets, waste category signs, waste audit form. Wear closed-toe shoes and gloves during the exercise.

A basic school waste audit form can be found on the following page. There will be items that do not fit in these categories. Make sure to list these items on a separate sheet to discuss later or revise the form to fit the common waste categories found in a small business.

1. Make a copy of the general waste audit form and fill out the general information section and assign someone the task of recording all weights, volumes and notes throughout the exercise. A calculator will be handy.
2. Put on gloves and estimate the total volume and weight of all the waste to be audited. Record on form:
For Weight Calculation: Weigh the unopened bags of garbage. (With a bathroom-type scale, have a person hold the bag while standing on the scale, then subtract the person's weight)
For Volume Calculation: Compare volume to the 5-gallon buckets
3. Empty the contents of each bag onto tarp and sort into waste categories listed on the form.
4. Record the weight and estimate the volume for each of the categories.
For Weight Calculation: Place material in a bucket and weigh. Then, subtract the weight of bucket.
For Volume Calculation: Estimate the volume by measuring how much of the bucket is full with material.
5. Make notes about the commonly found items or other interesting things you observe.
6. Clean up by returning non-recyclables to the trash and taking recyclables and compostables to the nearest outlets.

Waste Audit Worksheet

Business or Area Where Waste Was Collected _____

Duration of Waste Collection _____

HOUSEHOLD WASTE	# OF ITEMS	WEIGHT	% OF TOTAL WASTE (BY WEIGHT)	LANDFILL ALTERNATIVE?			
				REDUCE	REUSE	RECYCLE	COMPOST
XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX				
COMMONLY RECYCLABLE							
Aluminum Cans							
Steel / Tin Cans							
Aseptic Containers & Gable Tops							
Glass Bottles & Jars							
Plastic Bottles #’s 1 & 2							
Plastic Container #’s 3-7							
Recyclable Paper (Mags, News, Office)							
Cardboard							
RECYCLABLES TOTAL							
COMPOSTABLES							
Food Waste							
Non-Recyclable Paper (Towels, Napkins)							
COMPOST TOTAL							

Note: Recyclable items are only those which can be collected and recycled locally.



Outreach and Education: Program Promotions

Motivating Behavior Change

Many studies have been conducted to pinpoint the effectiveness of various outreach and education tactics on recycling behavior. Among the results, one thing is very clear. There is no single tactic that will be effective. Surprisingly, there is some agreement about how to increase recycling participation.

1. Make recycling convenient
2. Offer financial incentives
3. Conduct public education and outreach

A recycling program can be made more convenient by simply increasing open hours or providing staff to assist recyclers during busy times. Increased convenience can also come with a change in collection system, from drop-off to curbside or source-separated to single stream, and by adding collection stations.



Motivators for recycling are similar to those in marketing - perceived effectiveness, concern about the environment or family, and social pressure. So, education and outreach for your recycling program should, at the very least, focus on helping citizens to understand the different categories of waste they create and the local benefits that your recycling program provides. **It is critical to tie the “features” of the service you offer to the benefits for the user.** Citizens want to know, “what’s in it for me?”

Convenience and exciting outreach will work for some citizens, but others will need to see a financial incentive. A Pay-As-You-Throw (PAYT) system, which makes the household trash expense more like electric or water, is a great way to provide that financial incentive. When the cost of trash is directly correlated to the volume of trash produced, citizens will naturally seek ways to reduce the household trash. A detailed discussion of PAYT can be found on page 49 of this guide.

All administration buildings should have educational materials to inform staff and the public about the recycling program. Handouts should also be provided at all places where trash is accepted. Motivating the public to act with a sense of responsibility toward the environment or community will certainly require sustained, creative efforts but the return on this investment is huge for communities. Solid waste departments will experience higher volumes, quality materials and a sustainable program.

Material fact sheets, designed to help citizens gain a better understanding of each commodity and how recycling works, can be found in the appendix of this publication. **You are encouraged to make copies of these fact sheets and hand them out to citizens at any place where waste and recycling are collected.** You may also obtain colored electronic versions by visiting www.RecycleNewMexico.com.



Appendices

- 1.0 Material Education for Citizen Outreach
- 2.0 Buy Recycled
- 3.0 Funding Opportunities
- 4.0 NMRC 2012 Landfill Rate Study

PLASTIC BOTTLES

What is a plastic bottle?

A plastic bottle will have an opening smaller than the base. Most plastic bottles are synthetic and derived from petrochemicals. The resin codes or “recycle numbers” found on the bottom of most plastic containers are an attempt to help you distinguish types of plastic and do not mean that the item is recyclable in your area. If your program asks only for bottles then DO NOT include tubs, bags or plastic packaging, regardless of number.

How should plastic bottles be prepared for recycling?

Completely empty liquids before recycling bottles. Removing lids can be helpful to recycling center staff, but is not crucial. Crushing the bottle is always helpful as it allows for more bottles in the recycling bin. You do not need to remove labels. Check the bottom of bottle to ensure that the number is compatible with your program.

What if there is no resin code on the bottle?

If there is no resin code on the bottle, do not recycle it. Sometimes it is difficult to see. Ask a recycling station attendant for help and memorize the recyclable items in your household.

Why can't I recycle tubs, bags, or packaging, even if they are #1 or #2?

Tubs and bottles are created in different ways, making them chemically different. During recycling tubs and bottles melt at different temperatures. If your program only accepts bottles, this means that the end-market will purchase a bale of plastic bottles. Sorting plastic by type is a way for programs to redeem the highest value for their material. You support your program by checking and sorting your materials as required.



What is a #1 Plastic Bottle?

Name: Polyethylene terephthalate (PET, PETE)
Characteristics: Clear or colored clear (like Sprite), thin, easy to squish. **Most Common:** One-time use beverage bottles, like soda, water and juice.
End Use: PET is flaked, washed and made into either more bottles or into fiber. Less than 50 PET bottles go into making 1 fleece jacket.



What is a # 2 Plastic Bottle?

Name: High Density Polyethylene (HDPE)
Characteristics: Darkly colored or frosty (like milk jugs), thick, heavy, difficult to squish. **Most common:** Milk jugs and household products like shampoo, soap, detergent and spray bottles. **End Use:** HDPE is flaked, washed and made into either into new bottles or hard plastic products like outdoor furniture.

Our Waste is a Resource

Plastic Bottles
Botellas Plásticas

HDPE

YES
Empty Plastic Bottles & Jugs with Neck

#2 Botellas Vacías Plásticas

Look for number on the bottom
Busque el número en el fondo

NO
Plastic Bags
Motor Oil or Pesticide Bottles
Tubs

Bolsas Plásticas
Botellas para Petróleo
Tinas o Cubos

Plastic Bottles
Botellas Plásticas

PETE

YES
Empty Plastic Bottles with Neck

#1 Botellas Vacías Plásticas

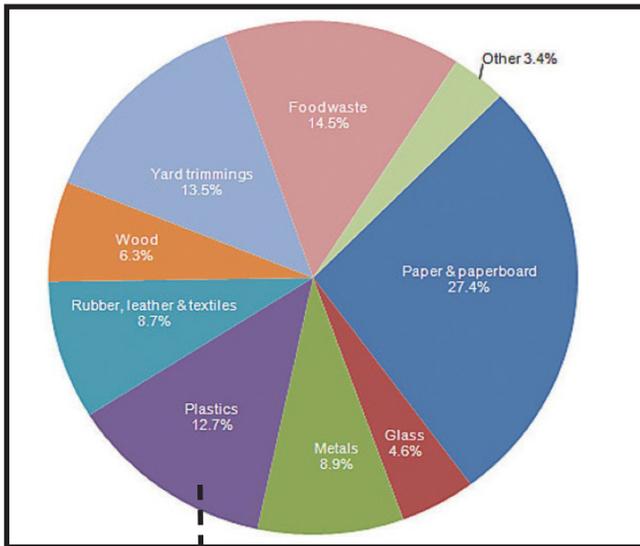
Look for number on the bottom
Busque el número en el fondo

NO
Plastic Bags
Pesticide or Motor Oil Bottles
Tubs

Bolsas Plásticas
Botellas para Petróleo
Tinas o Cubos

Look for informational signs at your local recycling center!

Did you know?



Plastics make up about **13%** of the total waste produced in the US.

Producing new products from recycled plastic uses **2/3 less energy** than making products from virgin plastic.



Cigarette filters are made of a plastic fiber, **not cotton**.

A bale of plastic bottles weighs **500-800 pounds**.

Plastic litter does not decompose. It breaks into small pieces, which birds and fish often mistake for food.

Polystyrene (Resin code #6) is produced in foam and solid forms. **Polystyrene foam is 90% air**, therefore it must be compacted with a special machine for recycling to be economical.

Polystyrene foam and plastic bags are **not recyclable with other plastics**, even in plastics #1-7 collection programs.



Hungry for more FACTS?

The EPA www.epa.gov/osw/conserve/materials/plastics.htm

Society of the Plastics Industry www.plasticsindustry.org/

Resource Recycling resource-recycling.com

Aluminum Cans

Latas de Aluminio



YES
Beverage Cans
Aluminum Foil
Baking Tins



NO
Aerosol or Paint
Cans
Food Residue

*Latas de Aluminio
Papel de Aluminio*

*Latas de Aerosol o
Pintura
Restos de Comida*

Produced by New Mexico Recycling Coalition. Printed with permission.

Look for informational signs at your local recycling center!

DID YOU KNOW?

Recycling aluminium makes both economic and environmental sense.



Every minute, an average of 113,204 aluminum cans are recycled.

A used aluminum can is recycled and back on the grocery shelf as a new can in about 2 months.

Aluminum does not contain iron, therefore it **does not rust**.

Scrap metal recyclers processed **\$40 billion** of non-ferrous scrap metal in 2010.

Magnetic separation during the remanufacturing process ensures that no steel is present.



Hungry for more FACTS?

The Aluminum Association <http://www.aluminum.org>
Institute of Scrap Recycling Industries, Inc. <http://www.isri.org>
Can Manufacturers Institute <http://www.cancentral.com>

ALUMINUM CANS

What is an aluminum can?

This category covers all pop top beverage containers, as well as some cat food cans.

Also accepted for recycling with aluminum cans are pie plates and aluminum foil.

How do I recycle aluminum cans?

Crush or leave whole. All cans must be free of any food debris. Always ask before placing aerosol cans in a drop-off collection container or curbside program.

Do I have to wash cans before recycling?

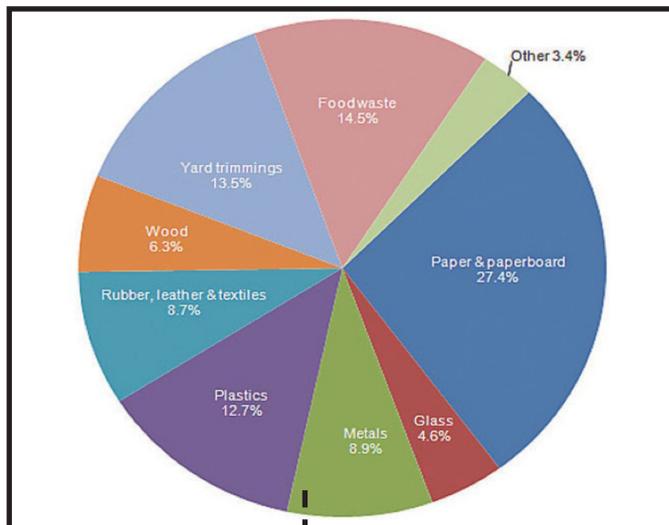
A quick rinse will help prevent odors and insect issues in your home and at the recycling center.

How can I tell if the can is aluminum?

Test your can with a magnet! Aluminum cans are non-ferrous, meaning that they do not contain iron. They are not magnetic. Aluminum cans are much lighter than steel cans. Today there are more than 600 sizes and styles of aluminum cans being manufactured, but your household will probably only use 2 or 3 different kinds.

Is it worthwhile to recycle cans even if I don't get money for them?

Absolutely! Significant water resources are required for the production of aluminum, especially during the refining and smelting process. The process is also very energy-intensive. Using recycled aluminum yields a 95% energy savings, making it the most efficient of all other recycled commodities.



Metals make up about **9%** of our total waste. Aluminum cans are a small portion of this total.



Where does aluminum come from?

Aluminum is made from a mineral called bauxite. Bauxite is generally found close to the surface of the earth, so opencast mining methods are used. The aluminum in bauxite is formed when the material is refined. The refining process produces a fine, white powder called alumina. Electricity “zaps” the aluminum powder with a continuous electric current, which separates the aluminum from the oxygen. The electricity also melts the aluminum so that it is hot and bubbly, like lava.



What do recycled aluminum cans become?

They are commonly recycled back into new beverage containers. In some cases, a used can might return as a new product in as few as sixty days. Aluminum cans may also be used to make other aluminum products including wire, signs and foil.

TIN/STEEL CANS

What is a tin can?

Tin / Steel cans are used mostly for food and some dog foods. The steel makes these cans magnetic and heavier than aluminum cans. The tin coating prevents any rust from leeching into food.

How should tin cans be prepared?

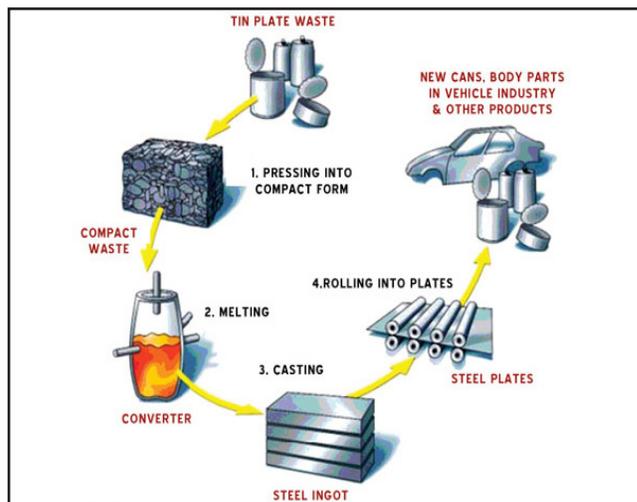
Rinse out any food debris and place lid inside the can. Labels do not need to be removed.

Are rusty cans recyclable?

Small spots of rust are okay. Rust is erosion, so if the can is completely rusted, there may not be much left to recycle.



STEEL CAN RECYCLING PROCESS



Steel cans are mixed with other scrap steel to make new cans, car parts and construction materials.

Why should I recycle tin/steel cans?

Steel is ideal for recycling because it does not lose any of its inherent physical properties during the process. Recycled steel can be used for the same applications as steel produced from virgin material but uses 75% less energy!



What do recycled tin/steel cans become?

Tin cans are a valuable commodity, which typically become new cans, but may be mixed with other scrap steel and recycled into construction materials and car parts.

Tin Cans

Latas de Acero



YES
Empty Tin Cans



NO
Aerosol or Paint Cans
Food Residue



Latas de Aerosol o Pintura
Restos de Comida

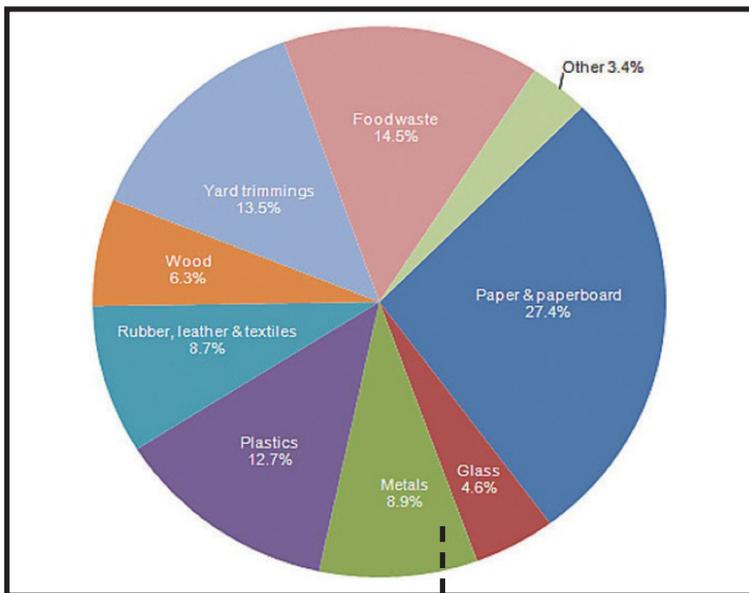


Latas Vacías de Acero

Produced by New Mexico Recycling Coalition. Printed with permission.

Look for informational signs at your local recycling center!

DID YOU KNOW?



Metals make up about **9%** of our total waste. This includes steel cans.

Using recycled steel can yield **75%** savings in energy and **86%** reduction in air pollution.

Steel is a ferrous metal, meaning that it **contains iron**.

The recycling rate of steel is currently **95%**, making it the **most** recycled commodity.

Every ton of steel recycled saves:
2,500 pounds of iron ore
1,400 pounds of coal
120 pounds of limestone



Hungry for more FACTS?

Bureau of International Recycling www.bir.org
Institute of Scrap Recycling Industries, Inc. <http://www.isri.org>
Can Manufacturers Institute <http://www.cancentral.com>

PAPER

What is mixed paper?

Mixed paper refers to a mix of paper grades, which can include: office paper, newspaper, magazines, junk mail, cartons/boxboard, paperbacks and phone books. Some communities choose to sort paper into more specific grades to gain a higher value for the bale. Not all paper mills use the same recycled “stock” to create new products. A mill that makes white office paper will not buy a bale full of cereal boxes, for example. It is important to read the signs at your recycling center and to understand why certain items are not accepted.

How should mixed paper be prepared?

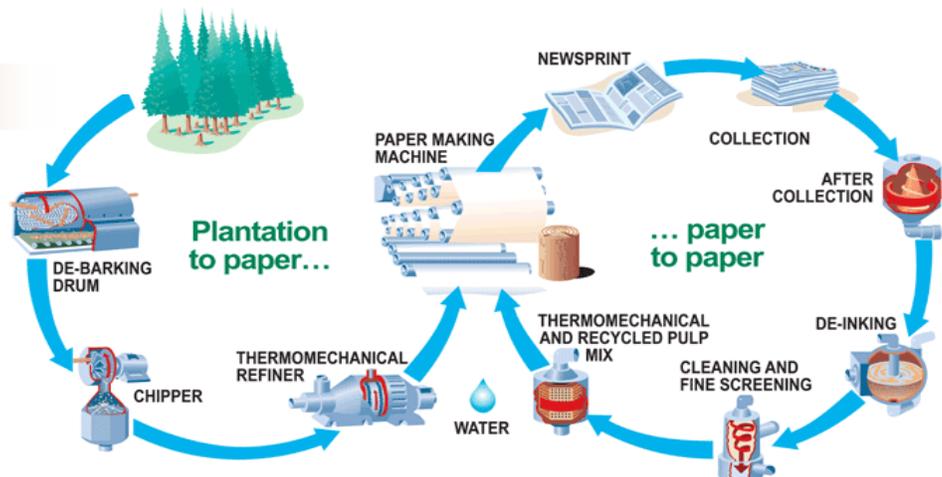
Papers can be kept neatly together in a paper bag. The bag can be recycled with Mixed Paper or Cardboard. Always ask before leaving any paper inside a plastic bag or before leaving shredded papers. Binder clips should be removed and reused. There is no need to remove staples or window envelopes.

What is paper recycled into?

Typically mixed papers are reduced to pulp, mixed with wood chip pulp and recycled into products like cereal boxes and paper towel tubes.

Why should I recycle paper?

Paper makes up one of the largest portions of the municipal waste stream, so if we want to reduce our waste, it makes sense to start there. Among many benefits, using recycled paper reduces the demand for trees to make new paper.



RECIPE FOR PAPER

Yield: 1 Ton

- 24,000 gals Water
- 3, 688 lbs Wood Chips
- 216 lbs Lime
- 360 lbs Salt Cake
- 76 lbs Soda Ash

- 1 Break down wood chips to form pulp.
- 2 Process and wash pulp with chemicals to remove resins and lignin.
- 3 Spray pulp liquid onto screen to release water.
- 4 Feed through heated rollers until dry.
- 5 Add colored dye, if desired.

Mixed Paper

Papeles Mezclas



YES
Paper Products
If it tears, it's acceptable.

NO
Paper from Bathrooms
Food Waste
Frozen Food Cartons
Foil or Plastic
Photographs

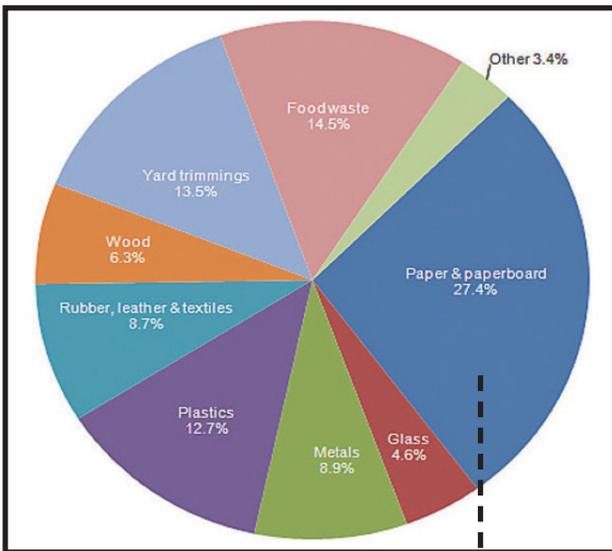
Productos de Papel
Si se rompe, es aceptable.

Papel de Banos
Comida Basura
Cajas de Comida Helado
Aluminio o Plastico
Fotos



Look for informational signs at your local recycling center!

DID YOU KNOW?



Paper makes up about **29%** of the total waste produced in the US. Recycling our paper is a valuable alternative.

More than **5,000 products** can be made from recycled paper, including:
Masking tape
Globes
Bandages
Lamp Shades

You **can recycle** Christmas wrapping paper. Just don't forget to remove the bows!

Paper coffee cups are lined with plastic and should not be recycled with mixed paper.



Reducing paper use is a valuable alternative to landfilling and saves more energy than recycling. Visit www.printgreener.com for helpful tips!



Hungry for more FACTS?

- Paper Industry Association Council www.PaperRecycles.org
- Project Learning Tree www.plt.org
- TAPPI Paper University www.tappi.org

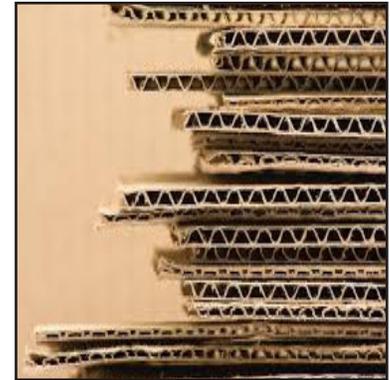
CORRUGATED CARDBOARD

What is corrugated cardboard?

Cardboard refers to those boxes where the material is made from three separate layers of paper, two liners and a corrugated, or wavy, layer sandwiched between them. Brown paper bags are acceptable with cardboard for recycling.

How should corrugated cardboard be prepared?

Remove all contents from cardboard boxes (Styrofoam, plastic bags, etc), then flatten. Cardboard does not include waxed boxes (commonly used for produce), paperboard cartons (thin, floppy, cereal, tissue or other cartons), or any other papers.



Why can't I recycle paperboard cartons with cardboard?

Every time paper is recycled, the fibers get shorter. After being recycled five to seven times, the fibers become too short to bond into new paper. Paperboard or boxboard is made up of very short fibers and a lot of glue, like press board. It is recyclable, but it should not be mixed with cardboard.

Is cardboard compostable?

Yes! Any cardboard can be used as safe and effective weed barrier in your garden. Composting or reusing your cardboard is the next best thing, if you cannot recycle it.

If it's compostable, then doesn't cardboard just decompose in the landfill?

Landfills are specifically designed to enclose our trash in a compacted tomb. Plastic liners and compaction ensure that our land filled waste does not decompose. Cardboard and other papers hold value as feedstock for new paper materials and as a compost additive, turning into soil.



Recyclable...



Compostable...



Reusable...

Corrugated Cardboard

Cajas Corrugado



YES
Corrugated Cardboard
Brown Paper Bags



Cajas Corrugado
Bolsas de Papel Marrón



NO
Boxboard Cartons (cereal box, 6-pack)
Pizza Boxes
Food Residue



Cajas de cartón delgado (de cereal, galletas, etc.)
Otros Papeles
Restos de Comida

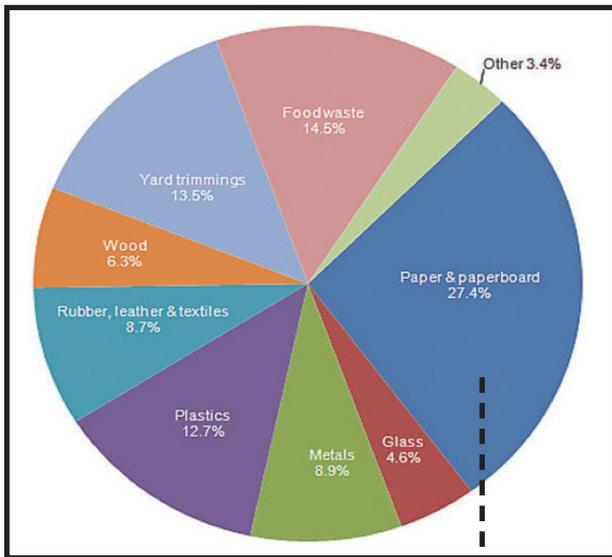


Please flatten boxes.
Se alpanar las cajas, por favor.

Produced by New Mexico Recycling Coalition. Printed with permission.

Look for informational signs at your local recycling center!

DID YOU KNOW?



Paper makes up about **29%** of our total waste. Cardboard is counted as a portion of this total.

Once cardboard is deposited in the recycling bin, it is referred to in the industry as OCC, **Old Corrugated Cardboard**.

New Mexico is home to one OCC recycling mill, making it a highly **desired commodity**.

Cardboard is used to ship **90%** of all products in the US.

Using **recycled OCC** uses just 75% of the energy used to make cardboard from virgin paper pulp.

Food, wax and oil are contaminants in cardboard, so pizza boxes and waxed cardboard should not be recycled.



Hungry for more **FACTS?**

- Corrugated Packing Alliance www.corrugated.org
- Project Learning Tree www.plt.org
- TAPPI Paper University www.tappi.org

Glass Bottles

Why can't I recycle glass in my community?

The high cost of transportation and the low market value of cullet, deters many communities from collecting glass in their recycling program. New Mexico's closest plants that use cullet in re-manufacturing are located in Denver and Phoenix. Markets have developed in NM in recent years, but consume only a small portion of the supply.

We have a curb side program. Why do I have to put glass into a separate bin?

Broken glass is a hazard to the people who later manually sort the co-mingled paper, plastics and metals for recycling. Glass is also a hazardous contaminant in paper and nearly impossible to remove once it is crushed.

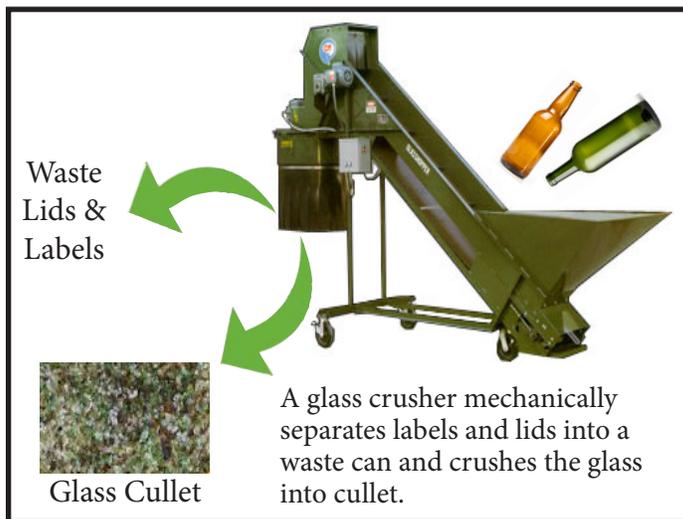


Why can't glass bottles be refilled, like back in the day?

Prior to 1938, all beer and soft drinks were sold in refillable bottles. The centralization of the beverage industry and the desire for convenience have resulted in the virtual disappearance of the reusable bottle. Today, nearly 100% of packaged soft drinks are sold in one-way disposable bottles.

Is it true that recycled glass still ends up in the landfill?

Glass cullet has been approved for use in construction of landfills and as a daily cover, in place of gravel or sand. In areas where end-markets for glass are few, beneficial use is the next best thing to burying the bottles without any re-purpose.



DID YOU KNOW ?

Glass that is crushed and ready to be reused or recycled is called **cullet**.

Cullet **size ranges** from small chunks to fine colored sand and are **not sharp**.

Cullet prolongs the glass manufacturers furnace life and **saves energy**, since it melts at a lower temperature.

Our Waste is a Resource



What glass is recyclable?

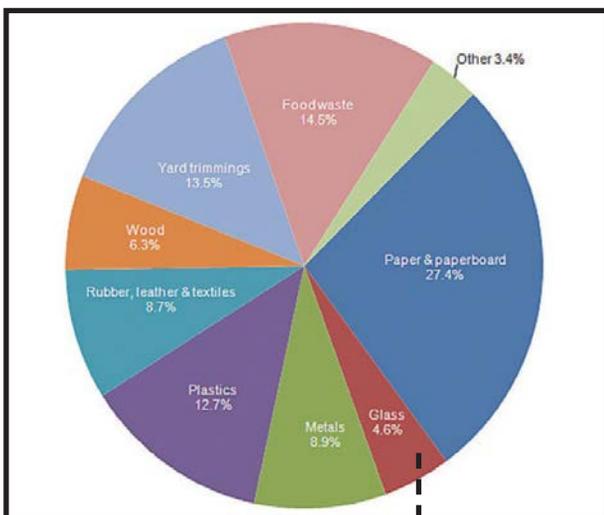
Any glass bottle or jar that is designed for storing food or beverages is recyclable within a household recycling program. Do not include drink glasses, window glass, ceramic, vases or light bulbs, unless specified by the waste authority. These contaminants pose special problems for glass manufacturers because they cannot be easily removed from the cullet.

What is glass recycled into?

Mixed colors of bottles and jars (low-quality cullet) is increasingly used in the manufacture of fiberglass insulation, roadbed aggregate, driving safety reflective beads, and decorative tile. Glass separated by color yield glass cullet of higher economic value and can be used to make new beverage bottles.

How should glass be prepared?

Please rinse all food and drink residue from glass. Remove lids. Metal lids can usually be recycled with steel cans. Do not mix glass with other recyclables, unless told to do so by your solid waste authority.



Glass makes up about 5% of our total waste.



Hungry for more FACTS?



Glass Packaging Institute www.gpi.org
Clean Washington Center www.cwc.org
Glass Manufacturing Industry Council www.gmic.org



Buy Recycled: Purchasing & Procurement

Close The Loop

Purchasing recycled products creates markets for the recovered materials used in these products. This action fosters sustainability and conserves natural resources and energy. In addition, purchasing recycled products promotes the continued manufacture of these products, thus completing the recycling loop. **Buying recycled content products ensures there are markets for materials recycled through your local program.**

Recycled Labeling

The labeling of products relevant to recycling can be misleading and hard to decipher. Labeling can describe the content of recycled materials used in a new product, the source of these materials or the recyclability of the product. The following list identifies the various terms used and offers a brief definition of each:

- **Post-Consumer Content:** the percentage of a product made from materials recycled from consumer sources (paper recycled from home).
- **Pre-Consumer Content:** the percentage of materials recycled from industry waste (paper scrap from a paper mill).
- **Recyclable:** the product is believed to be recyclable by the manufacturer, but only when services exist locally.

Commonly Available Recycled Content Products

- paper including; copier, tissue, notebook, paper towels
- building materials including; insulation, plastic lumber, carpet
- fabric & clothing including; t-shirts, fleece and cloth grocery bags
- office supplies and products of all types
- playground equipment and surfaces

Resources for Buying Recycled

- California Integrated Waste Management Board (CIWMB) maintains an online Recycled Content Products Directory (www.ciwmb.ca.gov/RCP/)
- Conservatree a non-profit organization providing information and resources related to recycled paper (www.conservatree.com)
- Recycled Content Coops
 - www.treecycle.com (paper products)
 - www.recycledproducts.org (all recycled content products)
- US GSA Purchasing offers a clearinghouse of federal contracts for recycled content products at www.gsa.gov
- NM State Office Supply Approved Vendor (www.generalservices.state.nm.us/statepurchasing/officesupplies.aspx)

New Mexico's Recycled Content Price Preference

Description:

New Mexico State procurement code provides for a 5% preference for recycled content goods.

Opportunity:

By encouraging 'Buy Recycled' programs in government, the market for recycled content goods is increased and opportunities for employment in recyclables processing and manufacturing is increased. Several New Mexico-based recycled-content providers are available as well.

EPA's Comprehensive Procurement Guidelines

Description:

The U.S. EPA has created recycled-content purchasing guidelines and hosts a search engine to locate products.

Opportunity:

This national database provides resources on everything from recycled-content office supplies, bike racks, construction materials, carpet, newsprint, pallets, park & recreation supplies, and office furniture.

Online:

<http://www.epa.gov/epawaste/conserve/tools/cpg/index.htm>



Funding Opportunities

Funding opportunities for recycling, litter control and beautification can be found through three distinct programs; Federal grants, State grants, and Non-profit Organizations as well as several other programs.

Federal Grant Opportunities

- Environmental Protection Agency: Grants Homepage
<http://www.epa.gov/epahome/grants.htm>
- Community Action for a Renewed Environment:
<http://www.epa.gov/care/>
- Pollution Prevention:
<http://www.epa.gov/p2/pubs/grants/index.htm#p2grant>
- Environmental Education:
<http://www.epa.gov/enviroed/grants.html>
- USDA Rural Utilities Solid Waste Management Grant:
http://www.rurdev.usda.gov/uwep_HomePage.html

State Grant Opportunities

- Recycling and Illegal Dumping Grant: Tire and Non-Tire Grants
<https://www.env.nm.gov/swb/GrantandLoanPrograms.htm>
*These grants are available to Municipalities, Counties, Solid Waste Authorities, Land Grant Communities, Pueblos, Tribes, Nations, and Cooperative Associations.
** There are two separate grant categories. There is a **tire recycling grant** and there is a **recycling and illegal dumping grant**.

Non-Profit Grant Opportunities

- New Mexico Clean and Beautiful: Litter Clean-up and Beautification
<http://nmtourism.org/partnership-opportunities/clean-and-beautiful/>
- Keep NM Beautiful: Recycling bin grants, beautification, landscaping www.knmb.org

Other Opportunities

- Environmental Gross Receipts Tax
- Self Imposed Landfill Tipping Fee Surcharge
- Legislative Capital Outlay
- Private Foundations



NMRC 2012 Landfill Rate Study

New Mexico Landfill Rate Analysis and Opportunities for Increased Diversion with PAYT and Rate Incentives

February 2012

Executive Summary

The analysis contained in this study was conducted using data gathered from landfills in New Mexico. The New Mexico Recycling Coalition (NMRC) and their subcontractor ICF International developed a survey, which was submitted to the New Mexico landfill managers. With the data collected, ICF developed this landfill-based New Mexico rate analysis study to shed light on the variety of rates and their setting mechanisms. This analysis also discusses existing rate incentives that will be used in an outreach campaign to inform and educate about the Pay-As-You-Throw Rate Incentive Program.

Of the 29 New Mexico landfills identified by NMRC, 28 landfills provided a response to some or all of the questions in the survey. The survey responses were collected through an online form and personal communications directly with landfill managers via email and telephone. Based on these responses, an analysis of trends across New Mexico landfills and their rates was conducted. General findings from the survey and rate analysis show that:

- Of the 29 New Mexico landfills surveyed, 19 charge for residential waste disposal per ton of waste landfilled. For these landfills, the average landfill tip fee for residential waste is \$31.29 per ton;
- In 2010, the total reported waste in New Mexico that was landfilled was 1,664,797 tons;
- Based on an average tip cost of \$31.29 per ton the state of New Mexico spent approximately \$51 million to bury waste;
- Based on US EPA 2010 Franklin Associates Waste Characterization Study, 54% of materials landfilled were commodity materials (paper [34%], plastic [12%], and metal [8%]) that can be recovered through recycling;
- Recycling commodities equaling 54% of material from New Mexico landfills would result in a tip cost avoidance of \$28,000,000 for taxpayers. The recovery and sale of these commodities through recycling could result in revenue of \$168,000,000 as well as additional economic growth and job potential;
- According to the New Mexico Environment Department's 2010 Annual Solid Waste Report (utilizing 2009 data) the state of New Mexico recycled 200,000 tons of commodity materials, which is estimated at today's value of \$25,000,000 [metal, paper and plastic];
- Eleven of the landfills reported that they separately track the tonnage of commercial and residential waste streams, with another ten reporting that they do not distinguish between these streams and seven landfills not providing information. Based on the total tonnage reported from the eleven sites, approximately 49% of waste was generated from the residential sector and 51% from the commercial sector;



NMRC 2012 Landfill Rate Study

- Just over half of the landfills surveyed adopted a weight-based rate structure for most materials they accept (although some of these landfills charge per item for less common materials like tires and white goods);
- Most landfills have adjusted their rates in the past 10 years;
- The majority of landfills accept most or all of their residential waste from haulers that use automated collection;
- Of the landfills surveyed, 22 offer some sort of recycling service;
- Of the landfills surveyed, 25 reported the tonnage of waste they accepted in 2010, reporting an average of 85,215 tons landfilled per facility, across all waste types;
- Most New Mexico landfills that collect recycling do not charge tipping fees for recyclable materials;
- Three landfills recently closed, and another six landfills are planning to close within the next six years; and
- The average household spends approximately \$50 in actual solid waste disposal costs in New Mexico. This is a rounded average and will vary from landfill to landfill – but it is an easy number to use for demonstration purposes.

These general findings are helpful for educating about different rate initiatives in New Mexico. Rate incentives are strategies employed by communities to drive down disposal rates by putting a price on the amount of waste each resident or household generates. Under rate incentive programs, such as Pay-As-You-Throw (PAYT), residents are charged per unit for the collection of municipal solid waste, creating a direct economic incentive to recycle more and to generate less waste. Benefits of rate incentives include increased diversion and recycling, increased landfill life, flexibility to adjust rates as needed, decreased tipping costs, decreased greenhouse gas emissions, and job development opportunities. However, because each community is so different, there may be barriers to overcome. These potential barriers may include illegal dumping, transition issues associated with changing the existing system, concerns over increased need for infrastructure and personnel, initial financial start up costs, and the need for education and outreach. The benefits to rate incentives far outweigh the barriers; therefore, it is important to have a proactive education and outreach starting with community officials and stakeholders.

While the specific steps towards developing a successful rate incentive program will vary for each community, several widely used strategies have been successful and are discussed in this analysis. The foundation of a successful rate incentive program is choosing a rate structure that will not only cover the program costs, but positively influence customer behavior. Three strategies that have been successfully used in other states include mandatory state rate incentive laws, landfill regulations, and individual municipal programs.