NEW MEXICO CONSTRUCTION & DEMOLITION RECYCLING GUIDE

Produced by the New Mexico Recycling Coalition

In conjunction with the New Mexico Construction & Demolition Recycling Task Force

This guide is also available online at www.recyclenewmexico.com

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[Logos of edi, GRIND, and New Mexico Compost Products]
# Table of Contents

## C&D Recycling Overview
- New Mexico Recycling Coalition: 2
- Construction & Demolition (C&D) Recycling Task Force: 2
- C&D Recycling Summary for New Mexico: 2
- Why Recycle on the Job Site?: 2
- Incentives to Recycle C&D Debris: 3
- Challenges to C&D Recycling in New Mexico: 3
- LEED Impact on C&D Recycling in New Mexico: 3
- Reduce Greenhouse Gas Emissions: 4
- Federal/Large Facility Renovation/Deconstruction Projects: 5
- Identify Components of Waste Stream: 5
- Buy Recycled: 6
- Identify Recyclable Materials: 7
- Drywall Recycling for Beneficial Usage: 8
- Forecasting Recycling and Disposal Costs Basics: 8

## Planning for C&D Recycling
- Standard Volume-to-Weight Conversion Factors: 9
- Planning for C&D Recycling: 10
- Contractor, Owner and Architect Relationship: 11
- Training on the Job Site: 12
- Construction Waste Management Supervisor: 13
- Barriers and Solutions: 14

## The Waste Management Plan
- Steps 1-8 to a Successful Plan: 15

## Appendixes
- Appendix A: Recycling Worksheet: 19
- Appendix B: New Mexico Case Studies: 21
- Appendix C: Contract Language: 36
- Appendix D: Recycling Plan Sample: 41
- Appendix E: Recycling Resources: 42

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New Mexico Recycling Coalition
The New Mexico Recycling Coalition is a non-profit statewide professional membership organization that has a mission to lead New Mexico to value waste as a resource. This goal is reached primarily through education and advocacy projects. With 260 recycling members, the organization supports itself from dues, trainings and conference revenue. Several special projects are funded by grants. Joining NMRC helps support efforts such as this to educate professionals and the public about the value of recycling.

Construction & Demolition (C&D) Recycling Task Force
♦ Supports development of end-markets via private business and municipalities.
♦ Supports builders, contractors, facility managers and designers with resources and outreach.
♦ Comprised of a diverse group of builders, architects, solid waste managers, haulers, recycled-content businesses and private recycling businesses.

C&D Recycling Summary for New Mexico
♦ C&D debris represents from 19-28% depending on the year by weight of waste sent to New Mexico landfills.
♦ Building renovation and demolition accounts for 91% of the C&D generated each year, while new construction accounts for only 9%.
♦ Composition studies have found 75%+ of C&D material is recyclable, depending on recycling outlets in the region. Several Leadership in Energy & Environmental Design (LEED) projects in Appendix B: NM Case Studies have reached 78%, 80% and 83% diversion rates.
♦ Bernalillo County produced 147,184 tons in 2008 (down from 323,000 in 2004) tons of C&D. Sandoval County produced 199,212 tons of C&D waste, which was greater than the Municipal Solid Waste (MSW) tonnage accepted.
♦ New Mexico has a legislated goal in the Solid Waste Management Act (1990) with a target of 50% of MSW to be diverted from the landfill by the year 2000 (using baseline of 1992). This goal has not been met, as the current recycling rate for MSW diverted from the landfill measured in 2009 is about 12.4%. The NM Environment Department: Solid Waste Bureau has an annual report at www.nmenv.state.nm.us/SWB with waste generation statistics.

Why Recycle on the Job Site?
♦ Commitment to environmental responsibility for positive marketing aspect;
♦ LEED and other green building program points;
♦ Cleaner worksite and thus increased safety;
♦ Some collection haulers provide a rebate after the recyclable products are sold, offering a reduction in cost;
♦ Recycling reduces pollution, greenhouse gas emissions, and landfill space requirements. Information about online greenhouse gas emission reduction calculations are on page 4.
♦ Recycling conserves energy – think about logging, mining and other resource extraction activities;
♦ Recycling creates jobs. It takes on average 5 more people to work in the recycling field than one job in landfilling.
Incentives to Recycle C&D Debris
Looking at models around the country and locally, here are a few examples that a community could implement to encourage increased C&D recycling.

♦ Municipal commitment to support C&D material diversion and recycling by ordinance, e.g. Portland mandates all projects over $25,000 to require job-site recycling, Chicago mandates 50% recycling by weight for all projects.
♦ Permitting and Planning Department Partnership: Require recycling plan for all building projects. Incentives include deposit for waste (of which deposit returned for tons recycled) or fast-track approval or reduced fees.
♦ Landfills to offer lower tip fees for recyclable materials, e.g. Los Alamos County’s regular tip fee is $45/ton. For concrete, the tip fee is reduced to $29.50/ton. The facility is able to re-sell that material to an end-market to help offset the management costs of that material. Thus, the ability to accept the material at a reduced rate. And an incentive to the customer to recycle.
♦ Include language with sub-contractor agreements that require the recycling/reuse of materials or use of recycled-content products, go to Appendix C.
♦ Develop and identify partnership programs for companies that produce and then reclaim items such as carpeting, wood, metals, etc.
♦ Recognition or special awards for contractors/builders/designers who demonstrate excellence in recycling and reuse of C&D materials.

Challenges to C&D Recycling in New Mexico
♦ Market and Business Development. Recycling is a new component to building in New Mexico and the industry is just starting to support all potential recyclable products, e.g. LaFarge accepts concrete debris and recycles it to become base course or concrete again.
♦ Expense. There is an emerging recycling collection infrastructure. As more haulers offer recycling, we will see more competitive pricing.
♦ Drywall. Up until recently, there has been no drywall recycling end-market in New Mexico (see topic on page 8).
♦ Education. Need to impart message of urgency that this aspect of building is important to all job site workers on a regular, if not daily basis. One of the biggest challenges to proper recycling collection is contamination. Contractor agreements must specify recycling requirements and penalties must be added to ensure compliance. On-site project manager must be responsible for recycling coordination and follow-through.

LEED Impact on C&D Recycling in New Mexico
Green building rating systems, like the U.S. Green Building Council’s Leadership in Energy & Environmental Design (LEED), are rapidly gaining momentum throughout the construction industry. Commercial and residential construction projects are encouraged or required to recycle and utilize recycled materials in order to receive certification. Construction recycling is among the most visible commitments a developer can make to sustainable building, visible to every worker on the site and to every passerby. On and off the job site,
recycling is one of the most significant commitments that can be made to sustainable building.

In New Mexico, Governor Bill Richardson passed an executive order in 2006 requiring all state buildings that are larger than 15,000 square feet to be LEED-Silver certified. The City of Albuquerque passed an ordinance in 2005 that all city buildings larger than 5,000 square feet will be LEED-Silver certified as well. The Home Builders Association has created Build Green New Mexico to promote green building and to certify residential projects, and LEED has expanded its certification programs to include residential and retrofits. The LEED and other certification programs, the rapidly growing interest in green buildings, and the growing importance of energy conservation, have already directly impacted the increase in demand for jobsite recycling. Furthermore, in the 2007 Legislative session, a Sustainable Building Tax Credit was passed that provides tax incentives to commercial and residential building projects that are certified LEED and Green Build New Mexico.

Since the implementation of these incentives, 16 LEED-certified projects have been completed as of January 2010 and 180 have registered as LEED.

In the LEED program, where a minimum of 26 points must be earned to achieve basic certification, construction jobsite recycling can provide 1 to 2 points. Other recycling-related opportunities for points include re-use of materials in the project, use of recycled-content new products and materials and innovative solutions involving recycling. Other green-building certification programs offer similar credits.

**LEED-NC V3.0 Scoring In Regard to Recycling, Recycled-Content and Reuse**

| Prereq 1 | Storage & Collection of Recyclables | Required |
| Credit 2.1 | Construction Waste Management, Divert 50% from Disposal | 1 point |
| Credit 2.2 | Construction Waste Management, Divert 75% from Disposal | 1 point |
| Credit 3.1 | Materials Reuse, 5% | 1 point |
| Credit 3.2 | Materials Reuse, 10% | 1 point |
| Credit 4.1 | Recycled Content Materials, 10% | 1 point |
| Credit 4.2 | Recycled Content Materials, 20% | 1 point |
| Credit 1 | Innovation in Design | 1-5 points |

**Reduce Greenhouse Gas Emissions**

Calculate resources conserved by your recycling efforts at the EPA Climate Change website: [www.epa.gov/climatechange/wycd/wastel](http://www.epa.gov/climatechange/wycd/wastel). On the “Tools” Link visit the WARM—Waste Reduction Model Calculator, a tool for solid waste professionals and organizations to measure and track their GHG reductions.
Federal/Large Facility Renovation/Deconstruction Projects
Several federal facilities and large commercial/institutional facilities have met to
discuss the idea to cooperatively pool recyclable materials for shipment to the
recycler, that otherwise would be too costly to recycle if done by individual sites.
This is practical for such items as carpet, ceiling tiles, and other harder-to-
recycle items that a national manufacturer may accept at low or no cost if a
truckload of material is available for pick-up. If interested in becoming part of
this “pool”, please contact Ralph Wrons, the Pollution Prevention coordinator at
Sandia National Labs in Albuquerque, by e-mail at rjwrons@sandia.gov.

Identify Components of Waste Stream
A Construction and Demolition Waste Stream Composition Calculator is avail-
able online at [http://www.ciwmb.ca.gov/WasteChar/Calculator/Default.htm](http://www.ciwmb.ca.gov/WasteChar/Calculator/Default.htm)
to help you evaluate your specific project’s waste stream.

There have been no specific studies of C&D waste for New Mexico. The best
representation of recyclable material coming off of jobsites can be seen in
Appendix B: NM Case Studies on page 21.

Building-Related C&D Debris Generation Nationwide By Weight

<table>
<thead>
<tr>
<th>Material</th>
<th>Estimated Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete &amp; Mixed Rubble</td>
<td>40-50%</td>
</tr>
<tr>
<td>Wood</td>
<td>20-30%</td>
</tr>
<tr>
<td>Drywall</td>
<td>5-15%</td>
</tr>
<tr>
<td>Asphalt Roofing</td>
<td>1-10%</td>
</tr>
<tr>
<td>Metals</td>
<td>1-5%</td>
</tr>
<tr>
<td>Bricks</td>
<td>1-5%</td>
</tr>
<tr>
<td>Plastics</td>
<td>1-5%</td>
</tr>
</tbody>
</table>


Evaluating disposal cost savings will be based on volume if the builder pays for
each container “pulled”, or weight if disposal costs are a “per ton” fee charged
by the hauler/landfill. Generally, by weight or volume, concrete, wood and dry-
wall make up 60-80% of jobsite waste. Please note that this is a national aver-
age for all construction projects. In the case of commercial projects, concrete,
wood, metals and drywall will be the significant recyclable materials. **Drive-by
contamination can be as much as 30%** of the total volume hauled from the
site. Plan your roll-off container site so it can be protected from illegal drop-off
dumping.

Management Must Lead By Example for a Successful Project
Buy Recycled

Many construction materials, such as particle-board and concrete contain recycled material without advertising it. "Buying recycled" is an important component in making the collection of recyclables possible. If the demand for a product exists, then materials will be sought in order to manufacture the product. So, buying recycled creates the demand for recycling.

Procuring recycled-content materials may be done through conventional bidding or the standard specification process. Any recycled-content product can simply be included in drawings or specifications.

Possible recycled-content construction materials include: engineered lumber, concrete, tile, drywall, base course, asphalt, carpet, paint, structural steel, metal framing, miscellaneous metal, insulated concrete forms, aluminum frames, glass and ceiling tiles.

Reducing Quantity of Materials and Waste

In the design phase, consider how materials can be most efficiently used. An excellent resource resides online at The National Association of Home Builders Green Building Guidelines website at http://www.nahbrc.org/greenguidelines/userguide_resource_reduce.html or go to the American Institute of Architects webpage at www.aia.org.
Identify Recyclable Materials

To identify a provider in your area, go to the New Mexico Recycling Directory at [www.recyclenewmexico.com/search](http://www.recyclenewmexico.com/search) and locate options by county, statewide, by material type and by service provided. A condensed Resource Guide is included as part of the printed directory in Appendix E on page 42.

In Albuquerque and Santa Fe Markets, the following can be recycled:

<table>
<thead>
<tr>
<th>Material</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>The scrap metal market is strong. Local scrap markets are available as well as hauler collection.</td>
</tr>
<tr>
<td>Wood</td>
<td>Two businesses in Albuquerque accept waste wood. Another option for wood is to give away as firewood or to grind on site for use as mulch, erosion control or infill. A business can provide the grinder service or equipment can be rented.</td>
</tr>
<tr>
<td>Concrete</td>
<td>La Farge, Waycor, Vulcan, BTU and most other concrete companies accept clean concrete with rebar and metal removed. Haulers can collect this material as well for recycling.</td>
</tr>
<tr>
<td>Drywall</td>
<td>As of January 2010, Grind, Inc. accepts drywall for recycling.</td>
</tr>
<tr>
<td>Cardboard</td>
<td>The cardboard recycling market is strong. Haulers can collect or cardboard can be recycled in local recycling programs.</td>
</tr>
<tr>
<td>Plastics</td>
<td>Could range from just plastic beverage containers to shrink wrap, PVC and other types. Ask hauler about options.</td>
</tr>
<tr>
<td>Glass</td>
<td>In most cases if glass beverage containers are recycled on-site in a small collection bin, the material must be taken to local recycling program drop-off center. For other glass, the closest recycler is Dlubak Glass in Texas.</td>
</tr>
<tr>
<td>Green Waste/Organic Material</td>
<td>Chipping cleared trees onsite provides an excellent mulch to protect soils, promote re-seeding and can be utilized as an erosion control best management practice. Resources at <a href="http://www.recyclenewmexico.com/cfrp_project.htm">www.recyclenewmexico.com/cfrp_project.htm</a>. The material may also be hauled to a municipal or private business for recycling.</td>
</tr>
<tr>
<td>Asphalt or Road Base</td>
<td>If pavement must be removed for a new project, an excavation or road building company will be able to either re-use the material onsite or haul away for other projects they work on.</td>
</tr>
<tr>
<td>Reusable Materials</td>
<td>Fixtures, roofing, electrical, plumbing, ceiling tiles, wood, insulation and any other renovation materials that are reusable can be received at Habitat of Humanity ReStores.</td>
</tr>
</tbody>
</table>
Drywall Recycling
Drywall has been a problem material for project recycling up until recently. The Albuquerque-based drywall production company, American Gypsum, has been approached numerous times and as gypsum is a readily available material in the state, the company has determined it is not economically feasible to accept. Grind, Inc., a statewide company, has opened a drywall recycling facility in Albuquerque and now accepts the material for use as an agricultural amendment.

Possible Beneficial Uses for Drywall at the Project Site:

1. When designing the project, ensure that wall dimensions match standard wallboard dimensions to decrease amount of scrap.
2. As a non-toxic material comprised simply of gypsum and paper, clean drywall may be used as infill onsite.
3. Clean drywall may be chipped and added as a soil amendment. As this material is alkaline and our soils are generally alkaline, the material must be well spread and worked in. Gypsum provides a source of sulfur and calcium to crops. Gypsum can also improve the drainage and texture of clayey soils.

More information is at [www.drywallrecycling.org](http://www.drywallrecycling.org) regarding these concepts and for specific processing and case study information.

Forecasting Recycling and Disposal Costs Basics

**Handling:** Handling expense is considered in a builder’s total waste management cost. The only cost difference in waste vs. recycling is in preparing recyclables. Example: Time to cut all wood waste to 3x3 or smaller.

**Transporting:** By transporting and marketing recyclable materials yourself, direct revenues can be generated. When contracting with a private hauler, disposal savings may be realized through reduced container/service fees.

**Tipping:** Tipping fees are charged by facilities that receive the "waste" material. Landfills and recycling outlets can charge by volume (cubic yards) or by weight (tons or pounds). Therefore you may need to convert your weight to volume, or vice versa.

Refer to Appendix A: Recycling Worksheet on page 19.
Standard Volume-to-Weight Conversion Factors

Volume-to-weight conversions are helpful for estimating the weight of waste materials in a disposal or recycling container. It should be noted, however, that the actual conversions for C&D debris are highly variable. Note: To convert 1 cubic foot to 1 cubic yard, multiply your poundage by 27. Remember 1 ton = 2000 lbs.

<table>
<thead>
<tr>
<th>Recyclable Material</th>
<th>Volume</th>
<th>Estimated Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt/paving, crushed</td>
<td>1 cubic yard</td>
<td>1380</td>
</tr>
<tr>
<td>Carpet and padding, loose</td>
<td>1 cubic yard</td>
<td>84.4</td>
</tr>
<tr>
<td>Cardboard, flattened boxes, loose</td>
<td>1 cubic yard</td>
<td>50.08</td>
</tr>
<tr>
<td>Cardboard, whole boxes</td>
<td>1 cubic yard</td>
<td>16.64</td>
</tr>
<tr>
<td>Cardboard, compacted</td>
<td>1 cubic yard</td>
<td>400</td>
</tr>
<tr>
<td>Cement, bulk or Concrete, cinder</td>
<td>1 cubic yard</td>
<td>2700</td>
</tr>
<tr>
<td>Cement, mortar</td>
<td>1 cubic yard</td>
<td>3915</td>
</tr>
<tr>
<td>Concrete, scrap, loose</td>
<td>1 cubic yard</td>
<td>1855</td>
</tr>
<tr>
<td>Glass, broken</td>
<td>1 cubic yard</td>
<td>2160</td>
</tr>
<tr>
<td>Glass, window</td>
<td>1 cubic yard</td>
<td>4239</td>
</tr>
<tr>
<td>Glass, crushed</td>
<td>1 cubic yard</td>
<td>1215</td>
</tr>
<tr>
<td>Metal, scrap ferrous</td>
<td>1 cubic yard</td>
<td>906</td>
</tr>
<tr>
<td>Metal, scrap ferrous 55 gallons</td>
<td>55 gallons</td>
<td>226.5</td>
</tr>
<tr>
<td>Mortar, hardened</td>
<td>1 cubic yard</td>
<td>2700</td>
</tr>
<tr>
<td>Mortar, wet</td>
<td>1 cubic yard</td>
<td>4050</td>
</tr>
<tr>
<td>Plastic, film mixed loose</td>
<td>1 cubic yard</td>
<td>22.55</td>
</tr>
<tr>
<td>Plastic, film semi-compacted</td>
<td>1 cubic yard</td>
<td>72-76</td>
</tr>
<tr>
<td>Plastic, beverage containers</td>
<td>1 cubic yard</td>
<td>32</td>
</tr>
<tr>
<td>Polystyrene, rigid, whole</td>
<td>1 cubic yard</td>
<td>21.76</td>
</tr>
<tr>
<td>PVC, loose</td>
<td>1 cubic yard</td>
<td>341.12</td>
</tr>
<tr>
<td>Sheetrock scrap, loose</td>
<td>1 cubic yard</td>
<td>393.5</td>
</tr>
<tr>
<td>Wood, pallet, 48” x 48”</td>
<td>1 pallet, avg</td>
<td>40</td>
</tr>
<tr>
<td>Wood, particle board, loose</td>
<td>1 cubic yard</td>
<td>425.14</td>
</tr>
<tr>
<td>Wood, plywood, sheet 2’ x 4’</td>
<td>1 cubic yard</td>
<td>776.3</td>
</tr>
<tr>
<td>Wood, scrap, loose</td>
<td>1 cubic yard</td>
<td>329.5</td>
</tr>
</tbody>
</table>

Planning for C&D Recycling

The Waste Management Plan is the document that lays out the start-to-finish strategy for job site recycling. It is prepared directly from the drawings and specifications for the job, and a good plan will closely follow these documents.

The Waste Management Plan should:

♦ Estimate types and quantities of C&D wastes generated during each phase of the job;
♦ Identify waste minimization as a good strategy for all trades;
♦ Identify how each waste will be managed and marketed;
♦ Provide an estimate of the overall job recycling rate and recycling rate per material;
♦ Lay out plans for training, meetings, and other communications related to job site waste management;
♦ Provide troubleshooting instructions and contact information.

All of this can (and should) be done before you break ground, so that recycling is incorporated seamlessly into overall performance of the job. It’s best if the Waste Management Plan is written and signed off on by all parties (owner, architect, contractor) a month or more before groundbreaking or the first day of demolition.

Because of its central role in construction waste management, more detailed information and a sample waste management plan are provided as a web link in Appendix D.

On balance, source separation is generally preferable to commingled recycling. Recycling rates are typically higher. The basics of source separation are easy: each recyclable material should be segregated as it is generated, and placed in the appropriate container.

Tips to Make Recycling Separation Work

Keep as few containers as possible on site at any time.
Containers take up space, and having too many containers increases the possibility of confusion and contamination.

Match containers to the material. A wood container, for example, will typically hold 30 or 40 cubic yards. But scrap metal from wiring and plumbing may need only a 2- or 4-yard container. For something like concrete, you may need a roll-off.

Place containers close to work locations. Look for opportunities to use intermediate containers like hampers or rolling hoppers that can be placed right next to the work, then wheeled to a larger waste container at the end of the shift. There may be surprising savings in labor and convenience.
Contractor, Owner and Architect Relationship

C&D recycling is no different from any other aspect of performance on a construction project: A good relationship and understanding between the owner, architect, and general contractor are the most important part of making it work.

Understandably, it’s the contractor who’s often most concerned about recycling. The General Contractor’s (GC’s) job is to deliver a project on time and within budget. For the GC, trash has historically been a minor issue, an afterthought. Call a hauler, get some bins on site, pull them when they’re full. Waste has been among the last and least of the contractor’s concerns.

To maintain the strength of the owner/architect/contractor relationship, it’s important to have strong and clear communications between all parties on the job:

♦ It should be made clear that recycling is a critical and valued aspect of the GC’s overall performance.

♦ It’s important to communicate that the owner and architect understand the complexity of managing recyclable materials as commodities and not as wastes, and understand that this complexity has to be accounted for in project management.

♦ It’s important to build a relationship in which it’s clear that the owner, architect, and contractor share a common interest in waste management performance. The owner and/or architect should be familiar with recyclable materials, procedures, and markets, and should be able to suggest options and solutions. Therefore, it is important that the owner and architect have prior knowledge and reasonable expectations for what is practical to recycle for the project.

♦ It’s important to build in appropriate performance goals and guarantees. Recycling goals and standards should be made explicit in Requests for Proposals and other contract documents, along with reporting and record-keeping requirements and expectations for recycling performance (see Appendix C). It should be made clear that the contractor will be recognized for solutions that go beyond minimum standards. And conversely, it should be made clear that sub-par performance will not be tolerated without clear explanation, with appropriate penalties included in contract language.

And finally, remember and take advantage of the fact that recycling is probably the most visible of all steps that can be taken toward sustainable building. Unlike energy efficient HVAC or certified forest products, recycling is something that everyone understands. On the job site, use this fact to generate teamwork and motivation among workers and subcontractors. For the local community, a placard on the perimeter fence that highlights recycling performance is a great public relations tool, and a press release on recycling will almost always get picked up by local media. If you turn recycling into a shared mission that heightens camaraderie and teamwork among everyone on the job – GC, subcontractors, workers, architect, and owner – you can gain benefits that go far beyond the calculation of a recycling rate.
Training On The Job Site
There’s a simple rule in C&D recycling (which is the same as a simple rule in architecture and construction): If it doesn’t meet specified requirements, it costs money to fix.

Recyclers are set up to handle specific materials: wood, metal, concrete, etc. If a load comes to their facility that’s mixed with other materials, that’s a problem that can increase recycling costs. Either the contaminating material has to be separated out, or the quality of the recycled product will be downgraded, or the entire load will be rejected and disposed of – all of which add cost that will be passed back to the contractor. It’s much easier and less expensive to meet the specification in the first place. That means training.

Training need not be extensive, time consuming or complicated. For the most part, it consists of one lesson: “If it’s X, it goes in the X box. If it’s Y, it goes in the Y box. If you have questions, ask your supervisor.”

There are just a couple of other things to be added to this lesson, like:

“It is important to do this. This is one of our major environmental commitments on this job.”

“It is important to do this. If you do not do this it will cost us a lot of money.”

“It is important to do this. If you do not do this you will have to go into the dumpster and get it right.”

There are times when more instruction is needed. For example, if you’re using hoppers or hampers close to work locations, workers will need to be instructed to use these containers, where to take them at the end of the shift, and where and how to empty them. If workers have to remove steel anchors/rebar from concrete, provide a demonstration of how it is done.

Training should be provided every time one subcontractor crew switches out for another. It’s most important that every worker who is regularly on the site and handling a recyclable material should receive some training.

Signage. Another part of training is signage. Basically, each waste container should have a big sign that says: “RECYCLING. METAL ONLY” (with different material names as appropriate).

A problem with signs: they often disappear down the highway when a container gets pulled. This is particularly true with flat magnetic signs, which otherwise make a lot of sense on dumpsters and rolloffs. One alternative is free-standing signs on posts welded into tire rims (which work great until the wrong sign gets parked next to the wrong container). Another effective solution is to rig signs that hang over the rim of a container. Compared to magnetic signs, it’s more obvious that they’re temporary and not permanently fixed to the container, and it’s hard for a driver to miss them when he’s checking his load before pulling away.
Construction Waste Management Supervisor

Like anything on a construction site, everything goes fine when everything goes fine, but you need someone to call when something goes wrong to address:

- The container’s full and the truck doesn’t show up.
- The container has to be moved so the crane can get in behind it.
- There’s cardboard in the wood box and the driver refuses to haul it.
- Can a glu-lam beam go in with dimensional lumber?
- It’s going to rain tonight and the wallboard container is only half full.
- Workers keep throwing lunch wrappers in the metal box.

Every construction recycling site should have one person (with a backup) who knows everything that’s going on, waste-wise, and has ultimate responsibility for making it go right. Just as the GC and each subcontractor have a supervisor, there should be a recycling supervisor as well. This can be a contractor employee, or someone hired by the contractor. This person need not be on site all the time, but he or she should come to the site regularly to check on progress and answer questions; he/she should also be present to listen and provide input at project oversight meetings. Generally, this should also be the person who’s prepared the waste management plan and made the hauling and marketing arrangements for the job, who provides training when there’s a change of subcontractor crews, and who’s responsible for waste tracking and reporting. In other words, all these reins should come together in one set of hands, in a person who’s able to understand and respond to every recycling contingency that comes up.

Barriers and Solutions

Recycling proponents need to address each barrier that comes their way otherwise recycling will often be abandoned before it’s tried. It’s far better to address the barriers up front, with real information, than let them stand in the way, or linger and taint the whole recycling effort (see Barriers & Solutions Table on next page).

Encourage Participation

Frequent reminders—both verbal and visual—are important.

Large signs designating recycling areas work well.

Participation awards, such as caps, T-shirts, pizza lunch or a BBQ using proceeds from recycling efforts, reinforce the importance of following the waste management plan.

Most important is communication. Talk about recycling and how important it is to follow the plan as often as possible.

Help contractors realize that when you succeed, they succeed, and the environment benefits...it’s a win-win-win situation!
<table>
<thead>
<tr>
<th><strong>BARRIER</strong></th>
<th><strong>SOLUTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling will slow down the job</td>
<td>Recycling asks workers to work a little bit smarter, not any harder or longer. Recycling containers should be clearly labeled. Because they’re often smaller than the big rolloff boxes used for mixed debris, many recycling containers can be placed closer to the work locations where wastes are generated, saving time and efforts. There’s also a safety connection. Because recyclable wastes are usually put into containers as soon as they’re generated – not left on the ground to be picked up as mixed debris – recycling generally makes for a cleaner and safer job site.</td>
</tr>
<tr>
<td>There’s no room on site to recycle</td>
<td>A key to successful recycling is to match containers to wastes, both in time and size. Match containers to each phase of the job if possible, and try to swap containers in or out so that only one to three containers are on location at any time, matched to specific wastes being generated.</td>
</tr>
<tr>
<td>With all these containers and materials, recycling is way too complicated</td>
<td>What recycling requires is intelligent up-front planning, most of which is already done as part of overall project management. When the framers are working, it’s time for a wood box. When the wiring, plumbing, and HVAC are being installed, it’s time for a metal box. When gypsum wallboard is being installed, it’s time for a wallboard box.</td>
</tr>
<tr>
<td>We have no RFP or contract language for recycling</td>
<td>C&amp;D recycling starts with a good specification that clearly states recycling goals, materials to be recycled, and planning, reporting, and record-keeping requirements. There are a lot of good samples of C&amp;D recycling specs to choose from, that fit just about every recycling situation and specification format. Appendix C provides two model specifications.</td>
</tr>
<tr>
<td>Recycling costs too much</td>
<td>Currently in New Mexico there will be additional costs for multiple bins. Ask the hauler about rebates after the material is sold to help offset costs. Consider marketing the material yourself. As more demand for this service arises, more competitive pricing will be seen. If you are able to re-use material at the jobsite for other beneficial uses, you can calculate the cost saved from landfilling that material. Full cost accounting in solid waste usually considers land-fill space avoided and energy savings for material recycled.</td>
</tr>
<tr>
<td>I’ll never get subcontractors to go along</td>
<td>Give clear priorities, instruction, procedures, financial penalties and incentives. Two things are most important: 1. Management-level interactions and 2. Training.</td>
</tr>
<tr>
<td>The union won’t cooperate, and the labor cost will be too high</td>
<td>In almost all cases, the reverse will be true. Recycling promotes a neater, safer, and more productive jobsite. It is important to bring union reps into the planning process and solicit their input.</td>
</tr>
</tbody>
</table>
The Waste Management Plan
The Waste Management Plan is the cornerstone for successful C&D recycling. It is a comprehensive document that provides all of the information needed by any individual on site to understand and achieve the waste management goals for the project.

The Waste Management Plan should be started as early in the project as possible, well before groundbreaking or the beginning of demolition. This allows time for all parties to participate in developing the plan, allows contractors and subcontractors to integrate recycling into their setup and work plans, and assures that training can be provided to supervisors and workers. If there will be issues like space for recycling containers or internal handling of recyclables (e.g., using hampers or self-dumping hoppers), these definitely should be addressed in the Plan well in advance of groundbreaking.

The Waste Management Plan is also a living document, used as a day-to-day reference just like blueprints and specifications. This fact cannot be over-emphasized. Handling procedures or markets may change during the course of a job; these changes should be noted in modifications to the plan. As waste materials move from the site you will gather information on waste and recycling tonnages and costs. These should be matched against initial projections, variances should be analyzed, and a running recycling rate should be calculated. This last is critical. If you’re looking for LEED points or other certification, you need to track progress toward this goal (and take steps if it looks like you’re running low). And you should publicize the recycling rate to laborers and trades; it’s a good way to help boost morale, and keep workers striving to achieve your recycling goals.

The Waste Management Plan should include the following information, laid out in clearly identified sections. A web link to a sample waste management plan is included in the Appendix D.

**Step 1: Contact Information**
Contacts for all persons with responsibility for waste management, including, at a minimum, architect, general contractor (project manager and site supervisor), and waste management specialist (if one is engaged for the project). Also, in some cases, owner’s representative, waste hauler(s), and key subcontractors (e.g., demolition subcontractor).

**Step 2: Goals**
This is a critical – if brief – section and should be placed front and center. It states in concise but explicit terms the waste management goals for the project. For example, “This project will recycle, reuse, or salvage at least 75% of the waste generated on site to earn 2 LEED points.” Important sub-goals should also be stated clearly, such as, “Documentation of all wastes leaving the site shall be maintained by the site supervisor, including wastes removed from the site by subcontractors.” The Goals section makes clear the importance of waste reduction and recycling, specific goals, and the most important activities and responsibilities that support achievement of these goals.
Step 3: Training
It’s important that all contractor and subcontractor employees receive training in jobsite recycling procedures. They are the individuals who will place wastes in either the right (that is, the recycling) or the wrong (the trash) container. The training section of the Waste Management Plan lays out the procedures to assure that all workers and supervisors receive training, and outlines the contents of training. Typically, training will be keyed to two events:

Crew shifts. When the job moves to a new phase with a new set of subcontractors on site, training should be provided to subcontractor supervisors and personnel. Whenever possible, training should be provided directly to all laborers. If not, the responsibility of subcontractor supervisors to provide training should be made clear, and they should be required to document that training has been provided to their crews.

Weekly meetings. Weekly construction project meetings should include a recycling “freshener”, including updates on recycling rates, notes of any changes in recycling procedures, troubleshooting, and time for questions and answers.

Step 4: Communications and Troubleshooting
Meetings. At what meetings will waste management and recycling be discussed? What is their schedule? Who will attend? What information will be discussed? Typically recycling is addressed in most pre-construction meetings and in meetings at subcontractor changeover or the introduction of a new subcontractor. Some contractors, owners, or architects ask for a recycling update at all weekly meetings.

Questions and Decision-making. The communications section also specifies who is responsible for decisions related to recycling, the chain of command for such decisions, and who should be contacted with recycling questions.

Troubleshooting. Like any process during construction, recycling can encounter problems – a container in the wrong location, a missed pickup, an engine block in the wood dumpster. The troubleshooting section specifies the steps to be taken and individuals to be contacted in the event of such situations. Most important is that persons using the plan – the site supervisor and key subcontractor personnel – know what steps to take (generally, “STOP”) and whom to call if an unexpected problem comes up.

Step 5: Reporting and Record Keeping
It’s impossible to prove the value of waste reduction and recycling – either financially or environmentally – without good documentation. This means (1) a comprehensive and verifiable record (by weight or volume, consistent for the duration of demolition or construction) of all materials that leave the site, either as trash or recyclables; (2) documentation of where these materials have been sent; and (3) information on the costs of hauling and disposing of all wastes and recyclables.
The Waste Management Plan should specify who is responsible for acquiring and storing this information, where information will be stored (e.g., on site, by the architect, by the contractor), who is responsible for using the information to
produce operating and financial reports (including LEED or other documentation), and how and when information will be transferred from one party to another (i.e. monthly reports vs final report at the end of construction).

The Waste Management Plan needs to spell out procedures to collect and manage this information. Four items are critical:

1. Weight or volume slips: Obtained from haulers or end markets, for each container that leaves the site.
2. Documentation of recycling (or disposal): Obtained from all end markets (in many cases, weight slips are adequate to provide this documentation).
3. Transportation invoices: Obtained from haulers or markets (in cases where transportation is provided by the market).
4. Recycling/disposal invoices/receipts: Obtained from end markets.

A few waste streams need special consideration. The Waste Management Plan should include instruction on how and when documentation of these wastes should be handled:

- Furniture and furnishings: These typically aren’t recorded by weight. Conversion from a piece count to a weight estimate is required.
- Equipment that is resold: Items that are sold or donated to secondary markets are rarely weighed. These may include, for example, chillers, air conditioning or ventilation units, kitchen equipment or industrial machinery. Again, a reasonable weight estimate is required.
- Items recycled by subcontractors: Many scrap metals have significant market value, and subcontractors are used to carrying them off on their own. Contractors who may do this include plumbers, electricians, HVAC contractors, and roofers. It’s not necessary to interfere with this practice; simply require that subcontractors report on the materials they take off site. (Unless there’s a lot of tonnage involved, you don’t have to require weight slips; subcontractors’ estimates are sufficient.)

Step 6: Waste Identification, Management and Marketing

This section is the core of the Waste Management Plan. Material by material, it catalogues what will be generated as waste from project start to finish, how each material will be handled (source-separated recycling, commingled recycling, or disposal), and where each material will be marketed (or disposed).

The section can be less or more comprehensive. A simple project that generates only a few waste materials may need only a few lines of information. The aim is to assure that anyone who comes on site and generates a waste can find that waste in the plan and find out what to do with it.

For each waste, the management plan should include the following information:

- Material: Described in enough detail so that each waste material can be identified without ambiguity. It’s critical that the roster of materials is comprehensive; if you omit a significant waste stream, it may cause confusion on the job site, and may seriously affect your ultimate recycling rate and waste management costs. It’s most important to list separately all materials that will be handled differently or will be sent to different markets. For example, if all
metals will be placed in a single container and marketed together, it may be sufficient to list “Metals” in the plan. But if, for example, ferrous and nonferrous metals are to be marketed independently, the waste management plan should specify this separation and independent handling procedures.

- **Procedure:** How will materials be handled? Many jobs may have only three categories: (1) source-separated recycling; (2) commingled recycling; and (3) disposal as waste. Other categories (not necessarily a comprehensive list) include recovery as salvage (e.g., furniture and furnishings), on-site or off-site grinding (e.g., landclearing debris) or crushing (e.g., concrete), or on-site stockpiling (e.g., soils).

- **Market:** This field lists the specific organization that will receive each recycled material. No waste is recycled until it’s marketed, and no material should be targeted for recycling until (a) a market has been identified, (b) you’ve confirmed that the market will accept the material, and (c) confirmed that you can meet the market specification for the material.

- **Estimated Quantity:** As the plan is developed, quantities of each waste should be estimated and recorded as an aid in planning container number and size, estimating the project recycling rate, and estimating costs.

### Step 7: Recycling Rate Estimate

This calculation encapsulates your estimates of the total quantities of materials recycled and the total disposed. The recycling rate is simply the total quantity recycled divided by the sum of the quantity recycled plus the quantity thrown away. When the plan is first developed, this will be an estimate, used to forecast an ultimate recycling rate and to assess changes in waste management procedures that will affect this rate. As the project moves along, it becomes a living record used to track progress toward recycling goals. If the rate runs below projections, use the results documented in the plan to find out why, and (particularly if you need a specific rate for LEED or other certification) use the plan to evaluate alternatives to increase the rate.

### Step 8: Cost/Benefit Estimate

As noted elsewhere, it’s a rare project where recycling is undertaken for strictly environmental reasons. Recycling needs to be justified financially, as well as environmentally. This section of the plan – typically a worksheet – is where you make this justification. See next page for Appendix A: Recycling Worksheet.

As you develop the plan and identify markets, you’ll be able to estimate recycling costs, material by material, for transportation (including containers) and management. You should simultaneously estimate the cost to dispose of materials as wastes (transportation plus tipping fee), so that you can compare the cost of recycling versus disposal.

Once again, these are estimates that should be updated with real information as the project moves ahead, so you can compare actual against budgeted costs, and keep a running track of the savings for recycling compared to disposal. This is another good morale builder for workers on site, as well as a nice Good News item for contractor management, architect, and owner.
## APPENDIX A: RECYCLING WORKSHEET

### Recycling Costs/Savings Worksheet

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Quantity of Recyclables</th>
<th>Quantity of Disposables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Estimate Total Waste</strong></td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td><strong>2. Determine Recyclable Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Cardboard</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Metals</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Concrete/Masonry</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Asphalt</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Drywall</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Plastics/Films</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Land-clearing debris</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Other</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Other</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td><strong>3. Determine On-Site Labor Costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours to separate 1 ton recyclables (a)</td>
<td>__________ Hrs/ton</td>
<td></td>
</tr>
<tr>
<td>Hours to prepare 1 ton waste for disposal (b)</td>
<td></td>
<td>__________ Hrs/ton</td>
</tr>
<tr>
<td>Labor Rate (per hr) (c)</td>
<td>$__________/hr</td>
<td>$__________/hr</td>
</tr>
<tr>
<td>Total On-Site Labor Cost (Recyclables) (a X c)</td>
<td>$__________</td>
<td></td>
</tr>
<tr>
<td>Total On-Site Labor Cost (Disposal) (b X c)</td>
<td></td>
<td>$__________</td>
</tr>
<tr>
<td><strong>4. Determine Recycling Fees</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel Time to Recycler (1a)</td>
<td>__________ hrs</td>
<td>__________ hrs</td>
</tr>
<tr>
<td>Travel Time to Disposal (1b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost to operate hauling vehicle per hour (2)</td>
<td>$__________/hr</td>
<td>$__________/hr</td>
</tr>
<tr>
<td>Hauling charge per ton (3)</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>Number of tons (4)</td>
<td>__________ Tons</td>
<td>__________ Tons</td>
</tr>
<tr>
<td>Total Hauling Charge = (1x2) + (3X4)</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>Procedure</td>
<td>Quantity of Recyclables</td>
<td>Quantity of Disposables</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>5. Determine Landfill Disposal Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge to tip 1 ton of materials (1)</td>
<td>$________________ Ton</td>
<td>$________________ Ton</td>
</tr>
<tr>
<td>Number of Tons (2)</td>
<td>_______________Tons</td>
<td>_______________Tons</td>
</tr>
<tr>
<td>Tipping Fee = (1x2)</td>
<td>$________________</td>
<td>$________________</td>
</tr>
<tr>
<td>6. Determine Market Value of Recyclables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Cardboard</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Concrete/Masonry</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Asphalt</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Drywall</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Plastics/Films</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Land-clearing debris</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>$________________/Ton</td>
<td></td>
</tr>
<tr>
<td>Multiply market price by recyclable material amounts in Step #2 to gain total monetary value of recyclables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>$________________</td>
<td></td>
</tr>
<tr>
<td>7. Cost Comparison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Cost for Recycling</td>
<td>$________________</td>
<td></td>
</tr>
<tr>
<td>(Add Steps 3 + 4 + 5 - 6 in Recyclables Column)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Cost for Disposal</td>
<td>$________________</td>
<td></td>
</tr>
<tr>
<td>(Add Steps 3 + 4 + 5 in Disposables Column)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AppENDIX B: NM Case Studies

Santa Fe Prep Library

Project Details
**Project Name:** Santa Fe Prep Library  
**Client:** Santa Fe Preparatory School  
**Location:** Santa Fe, NM  
**Architect:** Spears Architects, Mark Natkin Project manager  
**General Contractor:** John G. Rehders General Contractor  
**Recycled Material Hauler:** RoadRunner Waste Services  
**Approximate square feet:** 20,500  
**Construction Recycling Rate:** 85%  
**Current Status:** Completed May 2006

**Green Building:** LEED-Gold status received January 2007. This project earned 2 LEED points in the Construction Waste Management category.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway</td>
<td>315 Tons</td>
<td>Eker Brothers</td>
</tr>
<tr>
<td>Concrete</td>
<td>72 Tons</td>
<td>Waycor</td>
</tr>
<tr>
<td>Metal</td>
<td>2 Tons</td>
<td>Albuquerque Metal Recycling</td>
</tr>
<tr>
<td>Cardboard</td>
<td>na</td>
<td>School recycling program</td>
</tr>
<tr>
<td>Wood</td>
<td>0 Tons</td>
<td>Recycled onsite</td>
</tr>
<tr>
<td>Total Tons Recycled</td>
<td>389 Tons</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>67 Tons</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>85.31%</td>
<td></td>
</tr>
</tbody>
</table>

Materials & Resources

The paving material from the roadway that was removed was recycled and ground up to be used in future projects. Likewise, the base course of the new road is made of recycled, ground-up concrete from other jobs.

Challenges

General contractor John Rehders stated, “Probably one of the most challenging things was getting our subs and employees to put the right waste products in the right dumpsters.”

Innovative Recycling in Order to Achieve Diversion Rate

This project took advantage of the need to tear up roadway to develop the project site. Including this pre-construction activity essentially enabled this project to achieve such a high recycling rate.
APPENDIX B: NM CASE STUDIES

Loma Colorado Library

Project Details
Project Name: Loma Colorado Library
Location: Rio Rancho, NM
General Contractor: Jaynes Corporation, Matt Ammerman (PM)
Recycled Material Hauler: RoadRunner Waste Services
Approximate square feet: 32,000
Construction Recycling Rate: 42.5%
Current Status: Completed October 2006
Green Building: LEED certification application in process.

Waste Stream Recovery
*Specific material amounts were na at print time

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>na*</td>
<td>La Farge</td>
</tr>
<tr>
<td>Cardboard</td>
<td>na</td>
<td>RoadRunner Waste</td>
</tr>
<tr>
<td>Metal</td>
<td>na</td>
<td>RoadRunner Waste</td>
</tr>
<tr>
<td>Wood</td>
<td>na</td>
<td>Recycled onsite</td>
</tr>
<tr>
<td>Total Tons Recycled</td>
<td>80.5 Tons</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>108.5 Tons</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>42.5%</td>
<td></td>
</tr>
</tbody>
</table>

Challenges and Recommendations to Other Projects
The Project Manager was disappointed in not achieving the 50% diversion rate in order to receive 1 LEED point for material handling. Here are some lessons learned from this project:

♦ Superintendent was not properly trained to strictly enforce compliance of subcontractors with waste handling process and sorting and to check loads before shipment.
♦ A full load of concrete was rejected by LaFarge due to steel rebar content, causing that 15 tons of material to be landfilled. If that load had been accepted for recycling, the 50% rate would have been attained on this project.
♦ Subcontractors were verbally advised. No language in subcontractor contract required jobsite sorting or recycling. In future, Mr. Ammerman would include this language and would work weekly with subs to review and encourage proper recycling behavior.
♦ Did not develop a job cost plan for jobsite recycling nor tracked additional expense to recycle. In future will track these costs, as well as developing a recycling plan.
Environmental Dynamics Inc. Building Renovation

Project Details
Project Name: "ño
Location: Albuquerque, NM
Architect: Environmental Dynamics Inc.
General Contractor: A&T Construction
Recycled Material Hauler: Self-hauled
Approximate square feet: 7,200 commercial building
Construction Recycling Rate: 92%
Current Status: Completed May 2007
Green Building: Applying for v2.2 LEED-NC Gold

Waste Stream Recovery  *Measured in Cubic Yards

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Total*</th>
<th>Re-used</th>
<th>Donated</th>
<th>Recycled</th>
<th>Land filled</th>
<th>End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>70</td>
<td>3</td>
<td>67</td>
<td>0</td>
<td>0</td>
<td>Acme Metal &amp; ABQ Metal Recycling</td>
</tr>
<tr>
<td>Concrete</td>
<td>85</td>
<td>85</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>La Farge</td>
</tr>
<tr>
<td>Asphalt</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>La Farge</td>
</tr>
<tr>
<td>Wood</td>
<td>62</td>
<td>40</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>ReStore</td>
</tr>
<tr>
<td>Ceiling Tile</td>
<td>98</td>
<td>0</td>
<td>98</td>
<td>0</td>
<td>0</td>
<td>ReStore</td>
</tr>
<tr>
<td>Cardboard</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>Drop-off</td>
</tr>
<tr>
<td>Roofing</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>ReStore</td>
</tr>
<tr>
<td>Insulation</td>
<td>150</td>
<td>20</td>
<td>130</td>
<td>0</td>
<td>0</td>
<td>ReStore</td>
</tr>
<tr>
<td>Fixtures/Electrical/Plumbing</td>
<td>136</td>
<td>123</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>ReStore</td>
</tr>
<tr>
<td>Plaster/Lathe</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Carpet</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>686</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Recycled</td>
<td>626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Recycled</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material Management & Challenges
For self-hauling, each vehicle was measured for standard cubic yardage, then again when filled with material. Photo documentation and tickets from end-users provide documentation. Besides use of gas for transport, there were no premiums to recycle. Due to size of project, permanent collection bins were not set up. Instead, 3-4 trips were made per week to deliver materials.
Jefferson Green

Project Details

Project Name: Jefferson Green
Client: JCC-One, LLC
Location: Albuquerque, NM
Architect: Dekker/Perich/Sabatini. Julie Walleisa
General Contractor: Enterprise Builders
Recycled Material Hauler: Enterprise Builders does their own hauling
Approximate square feet: 85,000
Construction Recycling Rate: 80%
Current Status: Completed September 2006
Green Building: LEED Gold achieved March 2007

Waste Stream Recovery
Materials & Resources
Recycled-content materials on job included: structural steel, concrete, metal studs, aluminum storefront, access floor, rebar, gypsum board, and acoustical panel ceilings.

Challenges
This was the first time Enterprise and most of the subcontractors had attempted to recycle construction waste, so effort was needed to find recycling companies and end users for materials.

Innovative Recycling in Order to Achieve Diversion Rate
For land-clearing, the contractors pursued a combination of chipping for onsite use as mulch, and splitting larger pieces into firewood, which was given away. (Note: Land-clearing debris is no longer accepted by LEED into the recycling

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Volume</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landclearing/green waste</td>
<td>3,572 cy</td>
<td>Hilltop Landscaping</td>
</tr>
<tr>
<td>Concrete</td>
<td>207 cy</td>
<td>LaFarge, Albuquerque</td>
</tr>
<tr>
<td>Cardboard</td>
<td>50 cy</td>
<td>Petty Cash Depot or Durango McKinley Paper Company</td>
</tr>
<tr>
<td>Metal</td>
<td>14 cy</td>
<td>Acme Iron &amp; Metal</td>
</tr>
<tr>
<td>Total Recycled</td>
<td>3843 cy</td>
<td></td>
</tr>
<tr>
<td>Total Landfilled</td>
<td>985 cy</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>80%</td>
<td></td>
</tr>
</tbody>
</table>

Photo courtesy of Julie Walleisa, D/P/S
APPENDIX B: NM Case Studies

D/P/S Tenant Improvements

Project Details
Project Name: D/P/S Tenant Improvements
Client: Dekker/Perich/Sabatini
Location: Albuquerque, NM
Architect: Dekker/Perich/Sabatini. Julie Walleisa
General Contractor: Enterprise Builders
Recycled Material Hauler: Enterprise Builders does their own hauling
Approximate square feet: 35,000
Construction Recycling Rate: 23%
Current Status: Completed September 2006
Green Building: Application for LEED certification is under review, expected to achieve LEED-CI Gold.

Waste Stream Recovery
Materials & Resources

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Volume</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardboard</td>
<td>35 cy</td>
<td>Master Fibers or Durango McKinley Paper Co.</td>
</tr>
<tr>
<td>Metal</td>
<td>1.44 cy</td>
<td>Acme Iron &amp; Metal</td>
</tr>
<tr>
<td>Total Recycled</td>
<td>36.44 cy</td>
<td></td>
</tr>
<tr>
<td>Total Landfilled</td>
<td>123.5 cy</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>23%</td>
<td></td>
</tr>
</tbody>
</table>

Recycled-content materials on job include: structural steel, composite wood, metal studs, gypsum board, marmoleum flooring and tackboard, carpet, furnishings and acoustical panel ceilings.

Challenges
This was the first time anyone on the core team had pursued LEED certification and construction waste recycling on a tenant improvement project. Since the scope of the project was limited to finish materials and minimal buildout, most of the waste generated was from finish materials such as scraps of carpet, gypsum board, and acoustical ceiling tiles. These materials proved much more difficult to recycle than shell construction materials, due to the lack of local outlets. The materials were not generated in usable sizes for reuse, or sufficient bulk to recycle out of state or back to the manufacturer.

Innovative Recycling in Order to Achieve Diversion Rate
The furniture installers – Contract Associates installing Herman Miller furniture – collected all of the furniture packaging, took it offsite to a cardboard recycling facility, and provided records to the team.
Advent Solar

Project Details
Project Name: Advent Solar
Client: Forest City/Mesa del Sol
Location: Albuquerque, NM
Architect: Dekker/Perich/Sabatini. Julie Walleisa
General Contractor: Klinger Constructors
Recycled Material Hauler: RoadRunner Waste Services
Approximate square feet: 87,000
Construction Recycling Rate: 78%
Current Status: Completed September 2006
Green Building: Application for LEED certification is under review. Expected to be the first LEED-certified industrial building in New Mexico.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Volume</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>180 cy</td>
<td>LaFarge</td>
</tr>
<tr>
<td>Paper and Cardboard</td>
<td>38 cy</td>
<td>Master Fibers and Earthday Recycling</td>
</tr>
<tr>
<td>Metal</td>
<td>16.5 cy</td>
<td>West Silver Recycling or Earthday</td>
</tr>
<tr>
<td>Plastic</td>
<td>38 cy</td>
<td>Earth Day Recycling</td>
</tr>
<tr>
<td>Wood</td>
<td>48 cy</td>
<td>Soilutions</td>
</tr>
<tr>
<td>TOTAL Recycled</td>
<td>320.5 cy</td>
<td></td>
</tr>
<tr>
<td>Total Landfilled</td>
<td>90 cy</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>78%</td>
<td></td>
</tr>
</tbody>
</table>

Materials & Resources
Materials that have recycled content were specified for construction. Some of these materials include: structural steel, concrete, metal panel, aluminum storefront, rebar, and glazing.

Challenges
This was the first time many of the subcontractors had attempted to recycle construction waste, so effort was needed to find recycling companies and end users for materials.
APPENDIX B: NM Case Studies

Hotel Andaluz

Project Details
Project Name: Hotel Andaluz
Owner: Goodman Realty Group
Location: Albuquerque, NM
Architect: Kells & Craig; Studio Southwest Architects
LEED Consultant: Darin Sand and Halcom Consulting
General Contractor: Integrated Property Services Construction
Recycled Material Hauler: Various
Square feet: 109,698
Construction Recycling Rate: 76.6%
Total Building Renovation Cost: $30 million
Green Building: LEED-Gold status anticipated early 2010. This project earned 2 LEED points in the Construction Waste Management category.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardboard</td>
<td>9.32</td>
<td>Unicor</td>
</tr>
<tr>
<td>Carpet</td>
<td>19.63</td>
<td>L.A. Fiber, Los Angeles, CA</td>
</tr>
<tr>
<td>Cast Iron</td>
<td>12.82</td>
<td>Mesalands Community College</td>
</tr>
<tr>
<td>Concrete</td>
<td>12.49</td>
<td>Coronado Wrecking</td>
</tr>
<tr>
<td>Furniture</td>
<td>50.90</td>
<td>Resale</td>
</tr>
<tr>
<td>Metal</td>
<td>177.57</td>
<td>W. Silver Recycling, Inc.</td>
</tr>
<tr>
<td>Misc.</td>
<td>2.38</td>
<td>Various</td>
</tr>
<tr>
<td>Porcelain</td>
<td>4.54</td>
<td>Base course for private road</td>
</tr>
<tr>
<td>Plaster</td>
<td>497.66</td>
<td>Engineered fill material</td>
</tr>
<tr>
<td>Wood</td>
<td>60.31</td>
<td>Wood You Recycle/Mt. Taylor</td>
</tr>
<tr>
<td><strong>TOTAL Tons Recycled</strong></td>
<td><strong>845.39</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Tons Landfilled</strong></td>
<td><strong>258.48</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Recycled</strong></td>
<td><strong>76.6%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Challenges
The porcelain covered cast iron tubs and sinks were donated to Mesalands Community College in Tucumcari. The fine arts program melted the cast iron and transformed into sculptures. Transport of the cast iron and carpet was creatively solved by the college’s trucking school. The 4.5 tons of porcelain toilets and sinks were ground by a local rock crushing business producing base course for a private road. Large wooden ceiling beams were reworked to produce the custom vanities in the public restrooms. The project set up a wood shop in order to reuse wood. Unneeded wood was stripped of its finish and recycled into wood pellets.
Appendix B: NM Case Studies

Artyard at the Railyard

Project Details
Project Name: The ArtYard Project, Parkside Building
Client: Wiv Co
Location: Santa Fe, NM
Architect: Praxis Architects, Inc.
LEED Consultant: Environmental Dynamics, Inc.
General Contractor: The Lofts, LLC
Recycled Material Hauler: RoadRunner Waste
Approximate square feet: 30,674
Construction Recycling Rate: 90%
Total Building Cost: not available
Current Status: Estimated completion November 2009
Green Building: LEED-Platinum status anticipated March 2010. This project earned 2 LEED points in the Construction Waste Management category.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masonry</td>
<td>312.000</td>
<td>Eker Brothers Recycling Facility</td>
</tr>
<tr>
<td>Cardboard</td>
<td>0.838</td>
<td>Santa Fe County</td>
</tr>
<tr>
<td>Steel</td>
<td>3.785</td>
<td>Capital Scrap Metals, Inc.</td>
</tr>
<tr>
<td>Misc Metals</td>
<td>0.065</td>
<td>Capital Scrap Metals, Inc.</td>
</tr>
<tr>
<td>Aluminum Cans</td>
<td>0.014</td>
<td>Santa Fe County</td>
</tr>
<tr>
<td>Plastic</td>
<td>0.011</td>
<td>Santa Fe County</td>
</tr>
<tr>
<td>Glass</td>
<td>0.925</td>
<td>Santa Fe County</td>
</tr>
<tr>
<td>Scrap Lumber</td>
<td>3.238</td>
<td>Salvaged by workers for home use</td>
</tr>
<tr>
<td>Engineered Lumber</td>
<td>11.620</td>
<td>Chipped &amp; reused as mulch onsite</td>
</tr>
<tr>
<td>TOTAL Tons Recycled</td>
<td>332.50</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>33.19</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>90.92%</td>
<td></td>
</tr>
</tbody>
</table>

Lessons Learned
Careful record-keeping helps to streamline the documentation of LEED credits. Organizing information about approved construction materials allows a project team to maximize the use of recycled content and regional materials.
Aperture Center at Mesa del Sol

**Project Details**

**Project Name:** Aperture Center  
**Client:** Forest City Covington NM, LLC  
**Location:** Albuquerque, NM  
**Architect:** Antoine Predock  
**LEED Consultant:** Environmental Dynamics, Inc.  
**General Contractor:** Klinger Constructors, LLC  
**Recycled Material Hauler:** RoadRunner Waste Services  
**Approximate square feet:** 80,000  
**Construction Recycling Rate:** 86.2%  
**Green Building:** LEED-Silver status anticipated December 2009. This project earned 2 LEED points in the Construction Waste Management category.

**Waste Stream Recovery**

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>297.00</td>
<td>LaFarge NA, Vulcan Materials</td>
</tr>
<tr>
<td>Metals</td>
<td>4.13</td>
<td>Albuquerque Metals</td>
</tr>
<tr>
<td>Wood</td>
<td>23.75</td>
<td>Soilutions, Inc.</td>
</tr>
<tr>
<td>TOTAL Tons Recycled</td>
<td>324.88</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>52.00</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>86.2%</td>
<td></td>
</tr>
</tbody>
</table>

**Lessons Learned**

Ensure that all project team members share in green building goals and understand their roles in achieving them. The additional tasks associated with documenting LEED credits take time and should be incorporated into the fees of consultants and subcontractors.
Los Alamos Eco Station

**Project Details**

**Project Name:** Los Alamos County Eco Station  
**Client:** Los Alamos County  
**Location:** Los Alamos, NM  
**Architect:** Environmental Dynamics, Inc.  
**LEED Consultant:** Environmental Dynamics, Inc.  
**General Contractor:** RMCI, Inc.  
**Recycled Material Hauler:** Waste Management  
**Approximate square feet:** 14,000  
**Construction Recycling Rate:** 92%  
**Total Building Cost:** not available  
**Current Status:** Occupancy  
**Green Building:** LEED-Gold status anticipated December 2009. This project earned 2 LEED points in the Construction Waste Management category.

**Waste Stream Recovery**

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>492.77</td>
<td>Los Alamos County Landfill</td>
</tr>
<tr>
<td>Cardboard</td>
<td>1.0</td>
<td>Master Fibers</td>
</tr>
<tr>
<td>Metals</td>
<td>2.24</td>
<td>Ace Metals</td>
</tr>
<tr>
<td>TOTAL Tons Recycled</td>
<td>496.01</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>42.46</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>92.115%</td>
<td></td>
</tr>
</tbody>
</table>

**Lessons Learned**

“The high percentage of recycled construction waste was made possible by the fact that the Eco Station IS the recycling facility and by the supreme scavenging culture in Northern New Mexico.” -Regina Wheeler, Los Alamos County Solid Waste Department and Sustainability Director

The site was set up to facilitate recycling, with separate dumpsters for different material types. The superintendent paid strict attention to the contamination of loads, and when contamination occurred, he charged the person responsible with jumping in the dumpster and cleaning it out.
Desert Willow Family School

**Project Details**
Client: Albuquerque Public Schools  
Location: Albuquerque, NM  
Architect: The Hartman Majewski Design Group  
LEED Consultant: Environmental Dynamics, Inc.  
General Contractor: TA Cole & Sons General Contractors, Inc.  
Recycled Material Hauler: Waste Management  

**Approximate square feet:** 27,120  
**Construction Recycling Rate:** 68.5%  
**Total Building Cost:** $3.1M  
**Current Status:** Occupancy  
**Green Building:** LEED-Silver status anticipated December 2009. This project earned 1 LEED point in the Construction Waste Management category.

**Waste Stream Recovery**

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Asphalt</td>
<td>350</td>
<td>PG Enterprises</td>
</tr>
<tr>
<td>Other</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL Tons Recycled</strong></td>
<td>720</td>
<td></td>
</tr>
<tr>
<td><strong>Total Tons Landfilled</strong></td>
<td>330</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Recycled</strong></td>
<td>68.571%</td>
<td></td>
</tr>
</tbody>
</table>

**Materials & Resources**
The Family School is a “community of learners.” Classes are composed of multiple ages and parents are active in the classroom. Each student’s day is split between home schooling and coursework led by professional APS staff. To develop the campus, the design team pursued the following: Create classroom buildings formed around a central courtyard that create a learning community while providing for children’s safety, health, and environment; Develop and design two distinct, yet integrated construction phases for the Family School elementary (K-8) and the future high school programs.

**Lessons Learned**
A construction waste management plan was developed at the beginning of the project and waste materials were tracked on a monthly basis. All tickets were recorded and uploaded to LEED online, which gave the project team a good sense of where they were at with achieving CWM goals.
APPENDIX B: NM CASE STUDIES

Step Up Childcare Recycling Project (UNM CE Master’s Project)

Project Details
Project Name: Step Up Childcare  
Client: Step Up Childcare  
Location: Edgewood, NM  
Architect: Darren Sowell Architects  
General Contractor: CJ Mead  
Recycled Material Hauler: Jerome Aigner (UNM Student, Dept. of Civil Engineering)

Approximate Square Feet: 3700  
Construction Recycling Rate: 44%  

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Volume</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Plastics</td>
<td>4.4 cy</td>
<td>City of Albuquerque Drop-Off</td>
</tr>
<tr>
<td>Mixed Metals</td>
<td>3.0 cy</td>
<td>Acme Iron &amp; Metal</td>
</tr>
<tr>
<td>Wood</td>
<td>51.4 cy</td>
<td>Bernalillo Transfer Station: 68% Recycled &amp; 32% Re-Usable**</td>
</tr>
<tr>
<td>Paper/Cardboard</td>
<td>12 cy</td>
<td>City of Albuquerque Drop-Off</td>
</tr>
<tr>
<td>Wood Pallets</td>
<td>18 Pallets</td>
<td>Riteway Pallets</td>
</tr>
<tr>
<td>TOTAL Volume Recycled</td>
<td>71 cy</td>
<td></td>
</tr>
<tr>
<td>Total Volume Landfilled</td>
<td>90 cy</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Direct Money Saved</td>
<td>$1090 or 47% savings</td>
<td>$2310 (assumed) - $1220 (actual) = $1090 (47% savings)</td>
</tr>
<tr>
<td>Cost to UNM Student</td>
<td>$0</td>
<td>$32 (dump fees – mulch) - $32 (paid for metal) = $0</td>
</tr>
</tbody>
</table>

Additional Information
The structure of the building came in numerous pre-constructed sections and trusses, which cut down on onsite scrap wood. **Recycled wood was separated into wood that could be later processed for firewood (dimensional lumber given to Owner) and wood that would be processed into mulch at the Bernalillo County Tijeras Transfer Station. Reusable wood was given to the Owner for future projects.

The full version of the Onsite Recycling Plan for the Step Up Childcare Project, as well as the accompanying presentation, will be made available on the New Mexico Recycling Coalition Construction Recycling website www.recyclenewmexico.com after June 2010.

‘Direct Money Saved’ was based on the Contractor’s typical average of using one 30cy dumpster/ mo. The reduced frequency in dumpster hauling, as well as the reduced dumpster size, had a direct monetary savings for the Contractor.
APPENDIX B: NM CASE STUDIES

Step Up Childcare Recycling Project (UNM CE Master’s Project) Continued

Challenges/ Lessons Learned
The location of the dumpster directly affected the progress of the recycling project. The first dumpster was located beyond the recycling center, so recycling was increased. The second dumpster was placed closer to the building than the recycling center, so recycling decreased substantially.

The recycling project recycled all plastics, but it turns out that the only plastics that are of value to the City of Albuquerque recycling program are type 1 and type 2 plastics, meaning that all other plastics recycled by this project will be discarded, and may become nuisance material when processed by the Albuquerque Intermediate Processing Facility.

Given the absence of training the field-crews, laborers were unsure what to do with materials that were composites (for instance a wire spool constructed of a cardboard center, wooden edges, and metal bolts to hold it together). Also, materials like Styrofoam, wax paper, and other unobvious materials became a challenge. Furthermore, boxes full of mixed garbage were frequently placed in the cardboard recycling area, instead of being dumped in the dumpster first.

Separating metals into steel/ copper/ aluminum & tin, using 55 gallon buckets, would have prevented having to separate the materials in the back of a truck at the metal recycling facility.

This project was not prepared to recycle reinforced concrete, so when a handicap parking slab was to be removed and replaced, one dump-truck load of concrete had to be land-filled because there was no plan in-place to recycle the reinforced concrete.

Original Estimates

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Actual</th>
<th>Estimate</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>51.4 cy</td>
<td>12 cy</td>
<td>420% more of estimate</td>
</tr>
<tr>
<td>Metals</td>
<td>3 cy</td>
<td>2 cy</td>
<td>150% more of estimate</td>
</tr>
<tr>
<td>Plastics</td>
<td>4.4 cy</td>
<td>7 cy</td>
<td>63% less of estimate</td>
</tr>
<tr>
<td>Paper/Cardboard</td>
<td>12 cy</td>
<td>7 cy</td>
<td>170% more of estimate</td>
</tr>
</tbody>
</table>
APPENDIX B: NM CASE STUDIES

V. Sue Cleveland High School

Project Details

Project Name: V. Sue Cleveland High School
Client: Rio Rancho Public Schools
Location: Rio Rancho, NM
Architect: Joe Muhlberger
LEED Consultant: Environmental Dynamics, Inc.
General Contractor: Jaynes Corporation
Recycled Material Hauler: RoadRunner Waste Services

Approximate square feet: 459,222 SF combined
Construction Recycling Rate: 81.1%
Green Building: LEED certification application in process.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>2420</td>
<td>Waycor, LaFarge, Vulcan</td>
</tr>
<tr>
<td>Metals</td>
<td>169.36</td>
<td>Albuquerque Metals, Acme Metals</td>
</tr>
<tr>
<td>Wood</td>
<td>532</td>
<td>Soilutions, Inc.</td>
</tr>
<tr>
<td>Asphalt</td>
<td>88</td>
<td>LaFarge</td>
</tr>
<tr>
<td>Cardboard</td>
<td>55.39</td>
<td>Master Fibers, Earth Day Recycling</td>
</tr>
<tr>
<td>Plastic</td>
<td>2.5</td>
<td>Master Fibers</td>
</tr>
<tr>
<td>Styrofoam</td>
<td>2</td>
<td>Rastra</td>
</tr>
<tr>
<td>TOTAL Tons Recycled</td>
<td>3269.25</td>
<td></td>
</tr>
<tr>
<td>Total Tons Landfilled</td>
<td>761.56</td>
<td></td>
</tr>
<tr>
<td>Percent Recycled</td>
<td>81.1%</td>
<td></td>
</tr>
</tbody>
</table>

Lessons Learned

It helps having someone to check on the recycling a few times a day. This controls contamination and helps make sure the wrong items do not get buried in the wrong dumpsters and result in a fine.

Challenges

It's a challenge to get the subs to take recycling seriously in the beginning, and even at the end when things are wrapping up. We remind the subs weekly that this is an important part of a LEED project.

Innovations

When subs first show up onsite we introduce recycling and our LEED goals in conjunction with our safety orientation to illustrate the importance of both to the project. A handout has been created to help the workers better understand what LEED is and what type of items are accepted for recycling.
National Hispanic Cultural Center – Pete V. Domenici Building

Project Details
Project Name: National Hispanic Cultural Center – Pete V. Domenici Building
Client: State of New Mexico Cultural Affairs
Location: Albuquerque, NM
Architect: Studio Southwest Architects
LEED Consultant: Halcom Consulting Ltd.
General Contractor: Jaynes Corporation
Recycled Material Hauler: RoadRunner Waste Services
Approximate square feet: 25,280
Construction Recycling Rate: 84.65%
Total Building Cost: not available
Current Status: Occupancy
Green Building: LEED-Gold status achieved. This project earned 2 LEED points in the Construction Waste Management category.

Waste Stream Recovery

<table>
<thead>
<tr>
<th>Material Recycled</th>
<th>Tonnage</th>
<th>Recycling End-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>812.50</td>
<td>LaFarge, Vulcan Materials</td>
</tr>
<tr>
<td>Metals</td>
<td>45</td>
<td>Albuquerque Metals</td>
</tr>
<tr>
<td>Wood</td>
<td>27.5</td>
<td>Soilutions, Inc.</td>
</tr>
<tr>
<td><strong>TOTAL Tons Recycled</strong></td>
<td><strong>888.50</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Tons Landfilled</strong></td>
<td><strong>161</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Recycled</strong></td>
<td><strong>84.65%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Lessons Learned
In order to accomplish successful job site recycling, establishing early on a set form of practices for all to follow and then provide constant reinforcement to ensure the follow through.
APPENDIX C: CONTRACT LANGUAGE

RFP/Contract Language Specifying C&D Recycling

The following sample specifications can be obtained in electronic word processing format from the Institution Recycling Network at www.wastemiser.com. Additional examples may be found and downloaded from web sites listed in Appendix E in that National Resources section on page 47-48.

Example 1
This is a comprehensive and detailed specification that lays out very specific procedures for preparation of the Waste Management Plan, material tracking, recordkeeping, and reporting.

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 Related Sections (edit as appropriate for consistency)
A. Section 01031 - Waste Management / Recycling Alternates
B. Section 01060 - Regulatory Requirements
C. Section 01094 - Definitions
D. Section 01300 - Submittals
E. Section 01600 - Materials and Equipment

1.2 Description of Work
A. This section describes the requirements for the Contractor and all subcontractors to minimize construction waste and debris and to reuse, salvage, and recycle to the greatest extent feasible.
B. This section includes a statement of [OWNER]'s Waste Management Goals, requirements for the development of a draft and final Waste Management Plan, a reference to resources to assist in recycling, and steps for Management Plan Implementation.
C. This section specifies certain wastes that are required to be recycled.
D. This section specifies obligations for Reporting to the [OWNER] weights of materials recycled and materials not recycled or reused throughout the project.

1.3 Intent and Waste Management Goals
A. [OWNER]'s waste management goals include increased recycling and conservation of materials. Construction and Demolition Wastes have been identified as a particular target for reuse and recycling, for several reasons: C&D debris typically represents a large volume of material; Many of the waste streams generated during building demolition and construction projects are highly recyclable at reasonable prices;
B. [OWNER] has determined that reducing, to the maximum extent practicable, the amount of waste disposed of in this project is a high priority. The Contractor and subcontractors shall take steps to generate the least amount of waste possible by minimizing waste due to error, poor planning, breakage, mishandling, contamination, or other factors.
C. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be segregated for reuse, salvage, or recycling, or recycled as mixed debris. In no case shall material be disposed of in a landfill or incinerator where an approved and less costly recycling or reuse
alternative exists. Waste disposal in landfills and incinerators shall be mini-
mized and shall be considered the alternative of last resort.
D. With regard to these goals the Contractor shall develop, for the Owner’s
review and approval, a Waste Management Plan for this Project as de-
scribed in Section 1.4.

1.4 Draft Waste Management Plan
A. Within 14 calendar days after receipt of Notice of Award of Bid, and prior to
any waste removal, the Contractor shall submit a Draft Waste Management
Plan to [OWNER OR PROJECT MANAGER OR ARCHITECT, AS APPROPRIATE]. The Draft Waste Management Plan shall contain, as a minimum:
1. A written analysis of the project wastes expected to be generated, by
type and approximate quantity.
2. Disposal options: The name of all landfill(s) proposed for trash disposal,
the respective tipping fee(s) for each of these disposal options including
transportation costs, and the projected cost of disposing of all Project
waste in the landfill(s).
3. Alternatives to Landfill Disposal/Incineration: A list of each material pro-
posed to be salvaged, reused, or recycled during the course of the Pro-
ject, the proposed end use or market for each material, the respective
tipping fees for each end use or market (including transportation costs),
and the estimated net cost savings or cost increase resulting from recy-
cling each material (versus landfilling or other disposal), taking into ac-
count revenue from the sale of recycled or salvaged materials and tipping
fees saved due to diversion of materials.
4. The Draft Waste Management Plan shall include, at a minimum, the ma-
terials included in Section 1.5 that are required to be reused or recycled.
B. Following the submittal of the Draft Waste Management Plan, [OWNER] and
Architect will review the plan and consider the proposed recycling and waste
disposal alternatives. The Owner and/or Architect may suggest alternatives to
the proposed disposal options in order to increase recycling, reduce costs, or
both.

1.5 Materials for Which Recycling Is Required
A. [OWNER] requires that, as a minimum, the following materials must be con-
sidered for recycling, salvage, or reuse during this project:

[ADD OR ELIMINATE MATERIALS AS APPROPRIATE TO PROJECT]
Asphalt
Concrete, concrete block, concrete masonry units (CMU), slump stone
(ornamental concrete block), and rocks
Asphalt Concrete
Brick
Paper, including bond, newsprint, cardboard, mixed paper, packing materials
Cardboard
Cement Fiber Products, including shingles, panels, siding
Paint
Rigid Foam
Glass
Plastics
Carpet and Pad
Beverage Containers
Insulation
Gypsum Wallboard
Porcelain Plumbing Fixtures
Fluorescent Light Tubes
Green materials (i.e. tree trimmings and land clearing debris).
Metals including, but not limited to, stud trim, ductwork, piping, reinforcing steel (rebar), roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze. (ferrous and non-ferrous).
Soils
Wood, including clean dimensional wood, pallet wood, plywood, oriented strand board (OSB), particle board

B. The Contractor should be aware that the state of New Mexico has banned the following waste streams from landfill disposal. These items may not be included in waste destined for landfills:
   1. Lead-acid batteries
   2. Motor Oil

1.6 Resources for Development of Waste Management Plan
The following sources may be useful in developing the Draft Waste Management Plan:
1. Recycling Haulers and Markets. A list is included in this guide and is also available in the New Mexico Recycling Directory at www.recyclenewmexico.com/search.

1.7 Final Waste Management Plan
A. Once [OWNER] has considered the draft Waste Management Plan and made appropriate suggested modifications, the Contractor shall submit, within 14 Calendar days of receiving such suggested modifications, a Final Waste Management Plan, incorporating [OWNER]'s input. The Final Waste Management Plan shall contain the following:
   1. Analysis of the proposed jobsite wastes to be generated, including types and approximate quantities.
   2. Disposal options: The name of all landfill(s) proposed for trash disposal, the respective tipping fee(s) for each of these disposal options including transportation costs, and the projected cost of disposing of all Project waste in the landfill(s)
   3. Alternatives to Landfilling: A list of the waste materials from the Project that will be separated for reuse, salvage, or recycling.
   4. Markets: A list of the market(s) or other on-site or off-site end use(s) that will be used for each material that will be separated for reuse, salvage, or recycling.
   5. Materials Handling Procedures: A description of the means to be employed in separating and recycling the materials identified in item (3) above consistent with requirements for acceptance by designated facilities, including the means by which such materials will be protected from contamination.
6. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and hauled to designated markets, or whether mixed materials will be collected by a hauler and removed from the site and later separated for recycling).

7. Cost of Reuse, Salvage, or Recycling. An estimate of the cost, including separation, transportation, and marketing, to reuse, salvage, or recycle the materials identified in item (3) above.

8. Meetings: A description of the regular meetings to be held to address waste management.

1.8 Waste Management Plan Implementation
A. Manager: The Contractor shall designate a specific party (or parties) responsible for instructing workers in recycling and overseeing and documenting results of the Waste Management Plan for the Project.
B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.
C. Instruction: The Contractor or his designated waste manager shall provide on-site instruction regarding appropriate separation, handling, and recycling, salvage, reuse, and/or return methods to be used by all involved parties at the appropriate stages of the Project.
D. Separation facilities: As appropriate during each stage of the Project, the Contractor shall lay out and label a specific area(s) to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
E. Hazardous wastes: Hazardous wastes shall be separated and disposed of according to state law.

1.9 Reporting Required at Time of Invoicing
A. Application for Progress Payments: The Contractor shall submit with each Application for Progress Payment a Summary of Waste generated by the Project. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner and shall contain the following information:
1. The amount (in tons) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid, transportation costs (if separate) and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
2. For each material recycled, reused, or salvaged from the Project, the amount (in tons or cubic yards), the date removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts, and invoices.
Example 2 of the C&D Recycling Specification

This is a simpler specification that includes requirements for recycling, record-keeping, and reporting, but is less prescriptive in providing detailed instructions and requirements on the contractor.

Waste Disposal and Recycling

[OWNER] has implemented strict recycling and waste management policies for all waste materials removed from its campus as a result of construction and demolition activity. These include:

[ADD OR ELIMINATE MATERIALS AS APPROPRIATE TO PROJECT]

- Asphalt
- Concrete, concrete block, concrete masonry units (CMU), slump stone (decorative concrete block), and rocks
- Asphalt Concrete
- Brick
- Paper, including bond, newsprint, cardboard, mixed paper, packing materials, and packaging
- Cement Fiber Products, including shingles, panels, siding
- Paint
- Rigid Foam
- Glass
- Plastics
- Carpet and Pad
- Beverage Containers
- Insulation
- Gypsum Wallboard
- Porcelain Plumbing Fixtures
- Fluorescent Light Tubes, per [REGULATORY AGENCY] regulations
- Green materials (i.e. tree trimmings and land clearing debris)
- Metals including, but not limited to, stud trim, ductwork, piping, reinforcing steel (rebar), roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze. (ferrous and non-ferrous)
- Soils
- Wood, including clean dimensional wood, pallet wood, plywood, oriented strand board (OSB), particle board

The successful bidder will be required to account for all waste materials removed from the Project, and to recycle, salvage, or reuse, to the maximum practicable extent, all of the materials listed above. If the successful bidder believes that recycling, salvage, or reuse of any of these materials is impractical, the bidder must so inform [OWNER] before initiation of the Project, and secure [OWNER]’s written authorization for an alternative means of disposal.

The successful bidder will be required to develop and maintain a plan which documents procedures to recycle, salvage, or reuse the materials listed above, including separation and recycling procedures and markets for each material recovered. This plan must also address training and communications, record-
keeping, and reporting requirements to assure that all waste materials are ac-
counted for. As the project proceeds, this plan is to be updated with the quanti-
ties of each waste that are actually reused, salvaged, recycled, or disposed of, 
and the markets to which these materials are directed, so that it provides docu-
mentation in a single source of waste management performance on the Pro-
ject.

[OWNER] retains the right to inspect, and subsequently approve or disapprove 
any and all recycling end markets, reuse or salvage outlets, and/or waste dis-
posal facilities that are involved in the receipt of recyclables and/or waste mate-
rials generated from the Project. Disapproval of such a market or outlet may 
be based on past or current violations of federal or state environmental, health, 
or safety laws, improper disposal activities, risk or liability exposure, or any 
other reason deemed sufficient by [OWNER].

The successful bidder shall maintain records for each type of material removed 
from the job site (including materials that are not recycled), provide the name 
(s) of specific end destinations for all materials removed (whether recycled or 
disposed of), and provide weights and measures of all materials removed. 
Every load of waste material must be weighed and these scale weights must 
be reported to [OWNER] on a monthly basis, detailing material types and net 
weights. [OWNER] retains the right to certify weights of sample loads of mate-
rials leaving the project site, and compare these to the weights submitted by 
the successful bidder. [OWNER] retains the right to request copies of original 
scale tickets for any and all materials removed from the Project up to two (2) 
years following project completion.

Upon request, [OWNER] will provide assistance to the successful bidder in 
identifying markets for recyclable materials. If any bidder is unfamiliar with 
recycling procedures and/or markets for the materials listed above, information 
is available from the following sources:

Appendix D: Recycling Plan Sample

A sample Solid Waste and Recycling Plan is available online at 
www.recyclenewmexico.com/Construction_Recycling.htm
APPENDIX E: RECYCLING RESOURCES

NEW MEXICO CONSTRUCTION RECYCLING RESOURCES

Please note this is a limited listing of resources focused mostly on the Albuquerque area. Please go online to our searchable Recycling Directory at www.recyclenewmexico.com/search to research more resources in your area. The New Mexico Recycling Directory was created by the NMRC with support from the New Mexico Environment Department: Solid Waste Bureau.

RECYCLED MATERIAL COLLECTION SERVICES

All-American Waste Removal/ Bedford Enterprises
505-345-7997
www.allamericanwastenm.com
Notes: Waste hauler that can provide multiple roll-off and front-load containers for construction job-site recycling. Offers rebates for recyclables sold. Services and sells compactors and front-load containers.
Service Area: Albuquerque, Rio Rancho, Sandoval County and Santa Fe
Accepted Materials: Clean concrete, All metals, Cardboard, Paper, Plastic

Earth Day Recycling Company
Albuquerque
505-232-9211 or 505-615-7069
Notes: Provides recycling collection services to businesses/construction sites
Service Area: Albuquerque
Accepted Materials: All metals, Cardboard, Mixed paper, Most plastics, Plastic films

Grind, Inc.
Serves state of New Mexico & W Texas
575-644-9778
www.grindlc.com
Notes: Construction waste specialists offering complete construction waste management and materials processing. Services include waste management planning, program implementation, and complete waste diversion documentation. Complete assistance provided with LEED, BGNM, and other sustainable construction programs. Providing both ON and OFF site material processing services.

Accepted Materials: Lumber, drywall, block, brick, tile, concrete, asphalt, and land clearing debris. Cardboard, metals, and plastics are transported to their appropriate local recycling facility.
Recycled-Content Product Sales: Manufacturer of erosion control sediment logs (wattles).

Master Fibers, Inc.
5109-B Edith Blvd. NE, Albuquerque
505-345-6413
www.masterfibers.com
Notes: End-market recycler as well as collection service
Service Area: Statewide
Accepted Materials: All metals, Cardboard, Paper, Carpet padding, Most plastics

RoadRunner Waste Service
(505) 867-9000
Notes: Provides roll-off containers for construction recycling projects
Service Area: Albuquerque to Santa Fe
Accepted Materials: Clean concrete, Metals, Wood, Cardboard

SBM Site Services, LLC
505-975-3845
www.sbmsiteservices.com
Notes: Provides comprehensive recycling program development, management and operations while focusing on diversion, waste reduction, reuse, and sustainability. SBM Site Services can manage the collection, sorting, processing & shipping of materials from site to the best end-destination.
Service Area: Albuquerque/Rio Rancho
Accepted Clean Materials: Cardboard, Plastics, Metals, Concrete, Wood, Paper

NEW MEXICO CONSTRUCTION RECYCLING RESOURCES

Please note this is a limited listing of resources focused mostly on the Albuquerque area. Please go online to our searchable Recycling Directory at www.recyclenewmexico.com/search to research more resources in your area. The New Mexico Recycling Directory was created by the NMRC with support from the New Mexico Environment Department: Solid Waste Bureau.
Waste Management
Albuquerque contact: Dan Wilson, (505) 975-5354; Farmington contact; Janie Kimbell, (505) 486-1070/327-6284; and Hobbs contact Mars or Jenny at (505) 392-6571
Notes: Can provide recycling roll-offs for any material. Must know where you want material delivered to for recycling.
Service Area: Albuquerque, Santa Fe, Hobbs and Farmington
Accepted Materials: Metals, cardboard, plastics, scrap wood/brush clearing, & any other materials with recycling end-markets (depends on location).

Wood You Recycle! / Mt. Taylor Machine
4201 Williams SE, Albuquerque
505-287-9469
www.wood-you-recycle.com
Notes: Drop-off and collection available. Can offer collection containers for large quantity producers. Chips material for wood stove pellets.
Service Area: Albuquerque, with potential expansion to Santa Fe. Also works in Milan region
Accepted Materials: Clean wood scrap, OSB, plywood and particle board.

DECONSTRUCTION COMPANIES
Albuquerque Car Crushers DBA BP Construction
505-452-1025
Notes: Provides deconstruction services for recycling.
Service Area: Statewide

Coronado Wrecking & Salvage
4200 Broadway Blvd. SE, Albuquerque
505-877-2821
www.coronadowrecking.com
Notes: Provides building demolition and recycling of concrete and asphalt into base course. Retail M-F 8-5, Sat 8-3
Service Area: Entire Southwest
Accepted Materials: Reusable C&D items from homeowners

GranCor Enterprises
2121 Menaul Blvd NE, Albuquerque
505-872-0005
www.grancor.com
Notes: Offers demolition and construction services. Handles onsite recycling.
Service Area: Statewide

Rios Excavating and Wrecking
1851 Rodeo Rd, Santa Fe
505-471-7772
Notes: Retail salvage yard with reusable building materials. Also performs building demolition.
Service Area: Santa Fe and surrounding areas
Accepted Materials: Reusable construction and demolition items from homeowners (call first)

ARCHITECTURE FIRMS WITH LEED AND CONSTRUCTION RECYCLING EXPERIENCE
Dekker/Perich/Sabbatini
Julie Walleisa
7601 Jefferson NE, Suite 100, Albuquerque
(505) 761-9700
www.dpsdesign.org
Notes: Architecture firm specializing in LEED projects. Provides construction-recycling management for their projects.

Environmental Dynamics, Inc.
Kris Callori
142 Truman NE Suite A-1, Albuquerque
(505) 242-2851
www.edi-arch.com
Notes: Architecture firm specializing in LEED projects. Provides construction-recycling management for their projects.

SMPC Architects
Lisa Logan
115 Amherst Drive, SE, Albuquerque
505.255.8668
Notes: Architecture firm specializing in LEED projects. Provides construction-recycling management for their projects.

Valerie Walsh Construction Management
Lafayette, CO
303-444-8114
www.leedmanagement.com
Notes: Independent LEED Manager and owner's representative in Colorado and New Mexico

LEED AP Consultant Directory
Search www.usgbc.org/LEED for “LEED AP Directory” for more certified firms and consultants in New Mexico and region

ON-SITE MULCHING SERVICES
Grind, Inc.
See listing in on page 42

Hilltop Landscaping
7909 Edith Blvd NE, Albuquerque
505-898-9690
www.hilltoplandscaping.com
Notes: Provides land-clearing and onsite mulching

New Leaf Resources LLC
Anthony Zamora
505-506-3085/505-850-2549
Notes: Can chip green waste onsite for infill or to haul away
Service Area: Albuquerque & Santa Fe
Accepted Materials: Wood scrap, brush clearing

Soilutions, Inc.
9008 Bates Rd. SE, Albuquerque
505-877-0220 (Composting); 505-281-8425 (Landscape/consulting)
www.soilutions.net
Tue.-Sat., 8:00 - 4:30
Notes: Offers compost and other soil amendments for sale to the public and commercial industry. Offers erosion control, onsite mulch usage and landscaping
consulting. Offers on-site mulching and application services to gain LEED points. Also drop-off facility for wood waste (incl OSB) and tree/brsh waste.
Service Area: Albuquerque & Region
Accepted Materials: Construction wood waste (crates, pallets, skids, lumber, OSB and compressed wood OK) and branches/brush.

NEW MEXICO BUILDING ASSOCIATIONS AND CONSTRUCTION RECYCLING RESOURCES
Associated General Contractors, New Mexico Building Branch
1615 University Blvd NE, Albuquerque
505-842-1462
www.agc-nm.org

Build Green New Mexico
4100 Wolcott Ave, NE Suite B, ABQ
505-344-3294 x124
www.thegbi.org/newmexico

Construction Industries Division
2550 Cerrillos Rd, Santa Fe
505-476-4700
rld.state.nm.us/cid/
Notes: Offices in ABQ & Las Cruces

Home Builders Association of Central NM
4100 Wolcott Ave. NE Ste B, Albuquerque
505-344-3294
www.hbacnm.org

NM Energy, Minerals, & Natural Resources Department
Susie Marbury, Energy Efficiency & Green Building Administrator
1220 S. St. Francis Dr., Santa Fe
505-476-3254
www.cleanenergynm.org
APPENDIX E: RECYCLING RESOURCES

New Mexico Environment
Department: Solid Waste Bureau
Tim Gray
505-827-0129
www.nmenv.state.nm.us/SWB

New Mexico Home Builders Assoc.
5931 Office Blvd NE, Suite 1, Albuquerque
505-344-7072
www.nmhbna.org

New Mexico Recycling Coalition
505-983-4470
www.recyclenewmexico.com/
Construction_Recycling.htm

US Green Building Council – New Mexico Chapter
505-227-0474
www.usgbcnm.org

RE-USE BUSINESSES AND ORGANIZATIONS

Beck Office Systems
5300 Eagle Rock Ave., Albuquerque
505-883-6471
www.bosinc.com
Accepted Materials: Buys and sells recycled office furniture systems

Bentley Auction Service
1915 Commercial St NE, Albuquerque
505-344-1812
www.bentleysauction.com
Accepted Materials: Most commercial/business infrastructure items

Greater Albuquerque Habitat for Humanity ReStore
204 San Mateo SE Suite E, Albuquerque
505-265-0057
www.habitatabq.org
Notes: Wed-Fri 10AM-6PM, Sat 9-5
Accepted Materials: Used doors, windows, cabinets, appliances, lighting, lumber, plumbing, and any other usable building material or items usable in a house, including appliances and office/residential furniture

RDB Office Furniture
1629 4th St SW, Albuquerque
505-343-9979
Accepted Materials: Office furniture recycler, sells recycled furniture

RECYCLING EQUIPMENT SALES

Ditch Witch of New Mexico
4310 Edith Blvd NE, Albuquerque
bill@ditchwitchnewmexico.com
(800) 954-1889
www.ditchwitchnewmexico.com
Notes: Sells Bandit chippers

Ellen Equipment
6613 Edith NE, Albuquerque
505-342-2566 x310
www.ellenequipment.com
Notes: Recycling Equipment Sales

Hydraulic Systems of NM
4851 Ellison NE Unit L, Albuquerque
505-345-6767
Notes: Recycling Equipment Sales

Jackson Compaction
6420 2nd St NW, Albuquerque
505-345-3900
Notes: Sells and maintains compactors, balers, roll-off, collection containers and innovative recycling machinery.

Southwest Abatement
4609 Kinney St. SE, Albuquerque
505-873-2967
www.southwestabatement.com
Notes: Sells Roll-Off containers, Offers Abatement Services

Tom Growney Equipment
2301 Candelaria Rd. NE, Albuquerque
505-884-2900
www.growneyinc.com
Notes: Recycling Equipment Sales
APPENDIX E: RECYCLING RESOURCES

MUNICIPAL PROGRAMS

Albuquerque Solid Waste Department
505-761-8100
www.cabq.gov/solidwaste/recycle.html
Notes: The City provides curbside pick-up for residential and drop-off locations for commercial. 3 Convenience locations with set hours. 19 Drop-off locations always available.
Accepted Materials: Aluminum, tin cans, cardboard, paper, glass, electronics, brush/branches, all plastics with neck.

Bernalillo County Transfer Station
505-224-1640
www.bernco.gov
Notes: 7 days week 7am to 5:15 p.m at 711 Old Hwy 66 & State Road 333
Accepted Materials: Aluminum, Tin Cans, Cardboard, Newspaper, Plastics #1 and #2, Branches/Brush

RECYCLING BUSINESSES AND OTHER END MARKETS

Big D's Flooring
4019 Edith NE, Albuquerque
505-345-1002
Accepted Materials: Carpet padding

Durango McKinley Paper Company
4600 Williams SE, Albuquerque
505-873-0440
www.mckinleypaper.com
Notes: Primarily services commercial accounts. Manufactures cardboard from cardboard and brown paper bags in Prewitt, NM.
Service Area: Statewide. Drop-Off in Albuquerque.
Accepted Materials: Cardboard, Paper

Ghost Town Trading
111 Carlisle Blvd NE, Albuquerque
505-255-5656; workshop 991-3097
www.ghosttowntrading.com
Notes: Carlisle store carries line of locally-made Rustic Furniture from Recycled Wood. Workshop: 2418 2nd St. SW,
Accepted Materials: Old/used dimensional lumber (painted/stained OK), fence pickets, rusty tin roofing, corrugated metal, ceiling tin, rusty window screens, old doors/windows at 2nd St. location only. Call first. Not accepted: pallets, wafer board, particle board, plywood

Greenplanet Recycling
2604 Princeton NE Bldg C, Albuquerque
505-837-1950
Accepted Materials: Carpet

Grind, Inc.
Serves state of New Mexico & W Texas
575-644-9778
www.grindlc.com
Notes: Construction waste specialists offering complete construction waste management and materials processing. Services include waste management planning, program implementation, and complete waste diversion documentation. Complete assistance provided with LEED, BGNM, and other sustainable construction programs. Providing both ON and OFF site material processing services.
Accepted Materials: Lumber, drywall, block, brick, tile, concrete, asphalt, and land clearing debris. Cardboard, metals, and plastics are transported to their appropriate local recycling facility.
Recycled-Content Product Sales: Manufacturer of erosion control sediment logs (wattles).

LaFarge
(505) 343-7800
www.lafargecorp.com
Accepted Materials: Clean concrete from Albuquerque/Santa Fe areas

Rinchem Company
6133 Edith Blvd., Albuquerque
505-341-4173
www.rinchem.com
APPENDIX E: RECYCLING RESOURCES

Waycor Materials
4400 Tower Rd SW, Albuquerque
(505) 246-2474 or 243-1333
www.waycor.com
Accepted Materials: Clean concrete

Metal Recyclers

Acme Iron & Metal Company
6144 Second St. NW, Albuquerque
505-345-2457
Notes: M-F 8-4:30 p.m. Sat 8-11:45 am
Accepted Materials: All metals, no appliances

Albuquerque Metal Recycling
3339 2nd Street, Albuquerque
505-877-6110
Accepted Materials: All metals

Metal Monger
610 Haines Ave NW, Albuquerque
505-459-2080
Accepted Materials: All metals

R&M Metal
2227 Mayflower Rd SW, Albuquerque
505-877-6110
Notes: M-F 8-4:30 p.m.
Accepted Materials: All metals

Rudy’s Downtown Recycling
1224 2nd St NW, Albuquerque
505-247-4576
Notes: M-F 8-4:30, Sat 8-12
Accepted Materials: All metals

W Silver Recycling of NM
1800 1st Street NW, Albuquerque
505-244-1508
Notes: Roll-offs available for large accounts
Accepted Materials: All metals

Wise Recycling
Albuquerque: 505-345-2405
Belen, 505-345-2405
Las Vegas, 702 Railroad, 505-425-8344
Los Lunas, 505-345-2405
Rio Rancho: 505-345-2405
Roswell: 505-622-5780
www.wiserecycling.com
Notes: Several locations around state. Call for exact locations.
Accepted Materials: All metals

National Resources

California Integrated Waste Management Board
http://www.ciwmb.ca.gov/ConDemo/
Notes: An amazing online C&D Recycling resource

C&D Recycler
800-456-0707
www.cdrecycler.com

Carpet Recovery
www.carpetrecovery.org

Concrete Recycling
http://www.concreterecycling.org/

Construction Material Recycling Association
312-609-4241
www.cdrecycling.org

Drywall Recycling
www.drywallrecycling.org

DuPont Flooring Recovery
www.flooring.dupont.com

Environmental Building News
www.greenbuilding.com

The Institute for Local Self-Reliance
http://www.ilsr.org/recycling/buildingdebris.pdf

National Association of Home Builder’s Research Center, Inc.,
Residential Construction Waste
http://www.epa.gov/epaoswer/non-hw/debris/mgmt.htm

For information on designing to reduce quantities of materials and resources
http://www.nahbrc.org/greenguidelines/userguide_resource_reduce.html

National Recycling Coalition
www.nrc-recycle.org

Steel Recycling Institute
www.steel.org

Tyvek TackBack Recycling Program
1-800-44-TYVEK
http://industrialpackaging.dupont.com/5techtips/index.html

US EPA C&D Recycling Home Page
http://www.epa.gov/epaoswer/non-hw/debris-new/index.htm

U.S. Environmental Protection Agency Solid Waste and Emergency Response, Building Savings, Strategies for Waste Reduction of Construction and Demolition Debris from Buildings (EPA-530-F-00-001) (June 2000), http://www.epa.gov/osw


The U.S. General Services Administration (GSA) has recently updated its online Construction Waste Management Database to assist the building industry in reducing construction and demolition waste. Recyclers of construction and demolition waste may advertise their services free on this site. Access the database at http://cwm.wbdg.org.

US Green Building Council – LEED Building Information
www.usgbc.org/LEED

Join the NM Recycling Coalition! If you’ve appreciated the information compiled in this guide, show your appreciation by making a tax-deductible donation at www.recyclenewmexico.com/join.htm