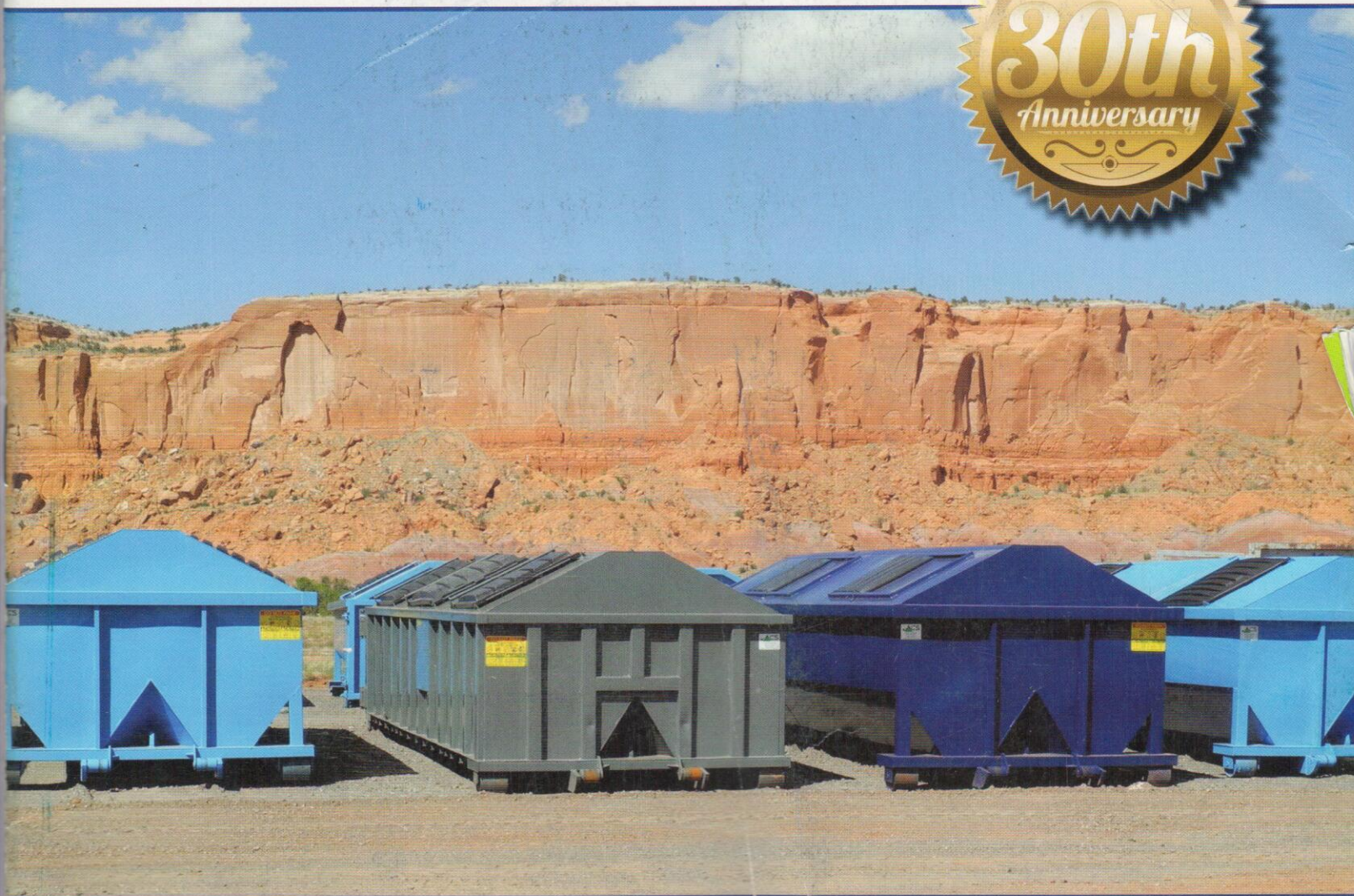


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Features



15

Hub and spoke, part one

Resource recovery can be a challenge anywhere, especially in rural communities. This two-part article looks at the initial results of the New Mexico Recycling Coalition's extensive and detailed hub-and-spoke plan to recover recyclables in the Land of Enchantment.

By Justin Stockdale

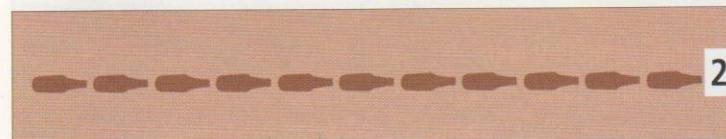


21

Will it compost?

As curbside organics pick-up and the market for compostable consumer products grows, so do concerns on the actual compostability of some of these items. An industry expert shows us how to test what breaks down and what doesn't.

By Michele Riggs



24

Whatever happened to mandatory recycling?

The question of how to manage recyclable materials is something that is often on the mind of recycling coordinators and materials management professionals. Where can mandatory recycling make a difference instead of simple landfill bans?

By Lynn Rubinstein

Rising from the rubble

34

Following last May's tornado in Joplin, Missouri, the only thing greater than the devastation was the volume of debris that needed to be managed. How did Joplin do it and what can we learn?

By Jake Thomas

Cover photo: New Mexico is using an innovative "hub and spoke" approach to recycling in rural areas. The cover shows new spoke collection roll-offs at the Red Rocks Regional Landfill in Thoreau, New Mexico. Photo courtesy of Justin Stockdale.

News Front

- 5 News & Views
- 8 State & Province Watch
- 8 Programs in Action
- 9 Electronics Recycling Update
- 10 Stock Watch
- 14 Markets

Inside Look

- 4 Editorial Perspective
- 12 MRF of the Month
- 37 Former Times
- 38 Recycled Products
- 40 Recycling Online
- "A state recycling organization sampler"
- 44 Industry & Supplier News
- 45 Equipment & Products
- 50 Events
- 52 At Press Time
- 52 Recycling's Vital Signs

Reader Services

- 16 Reader Service Card
- 46 Equipment/Product Showcase
- 47 Plastics Recycling Showcase
- 48 Electronics Recycling Showcase
- 48 Professional Services Showcase
- 50 Classifieds
- 50 Advertisers Index
- 51 Publisher's Statement





HUB AND SPOKE

RESOURCE RECOVERY CAN BE A CHALLENGE ANYWHERE, ESPECIALLY IN RURAL COMMUNITIES. THIS TWO-PART ARTICLE LOOKS AT THE INITIAL RESULTS OF THE NEW MEXICO RECYCLING COALITION'S EXTENSIVE AND DETAILED HUB-AND-SPOKE PLAN TO RECOVER RECYCLABLES IN THE LAND OF ENCHANTMENT.

— BY JUSTIN STOCKDALE —

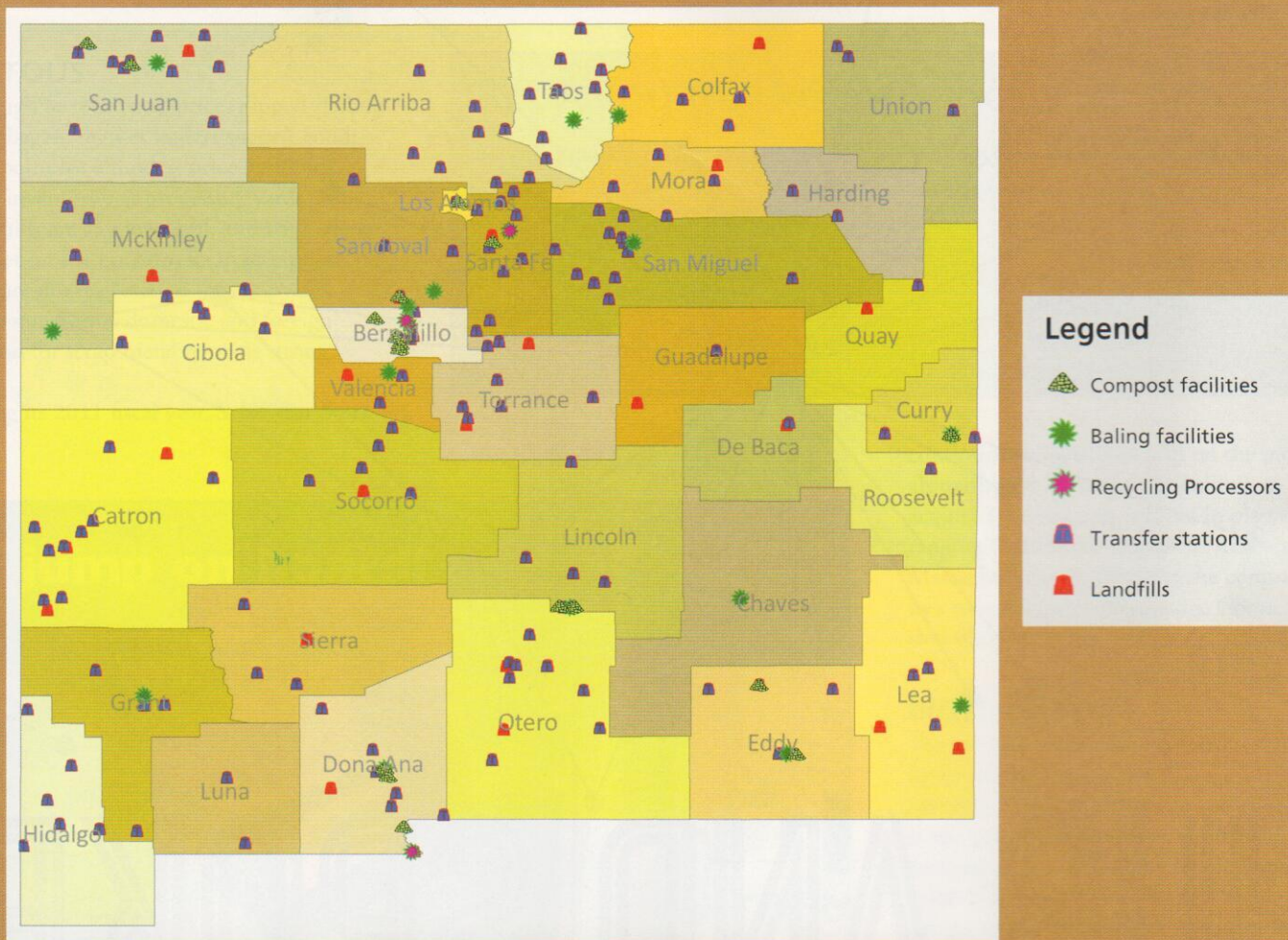
New Mexico is the fifth largest state in the U.S. with 121,589 square miles, but is ranked 36th in population at just over 2 million people. This demographic reality – 16 people per square mile – creates a highly dispersed population outside of the few urban areas such as Albuquerque and Las Cruces. In 2007, the State of New Mexico initiated a review of its statewide solid waste plan, last updated a decade ago. The 1997 plan followed the lead of many other state planning efforts and called for aggressive numeric diversion goals tied to even more aggressive timelines. For example, the plan called for an ambitious 50-percent diversion level by 2000. As of 2007, the state had calculated a diversion rate of just over 8 percent with almost no resources available to support even a modest increase, let alone achieving the plan's target of 50 percent.

Access versus accounting

The working group assigned to focus on diversion and recycling during the 2007 update of the plan came to the conclusion that numeric targets are all well and good, but in a state as rural as New Mexico, they are only relevant to the most urban areas. A small community might have a 100-percent diversion rate, but its success would translate to only a miniscule uptick in the statewide rate and, therefore, the numeric target actually discouraged the state from focusing attention on anywhere but the big cities. To combat this disenfranchisement of rural New Mexico, the working group refrained from setting a new numeric target and, instead, called for the development of access to recycling for all New Mexicans. Not only is this a more relevant goal, but it allowed the state to focus its very limited resources where they would have direct benefit – rural New Mexico.

In the summer of 2008, the New Mexico Recycling Coalition

Figure 1 | New Mexico solid waste facilities



Source: New Mexico Recycling Coalition, 2011.

(NMRC) took the access goal a step further, and applied for a grant from the USDA Rural Utilities program to analyze the barriers to recycling in the vast rural areas of the state. One cornerstone effort under this grant was developing geographic information systems (GIS) mapping tools to provide a clear look at the level of access. The mapping project required NMRC to gather GIS data for every solid waste facility in the state, as this data had never been collected. Most counties had no better information on the location of their rural collection sites than “take a left at the cactus patch and its three miles down that dirt road.”

This left NMRC staff pouring over Google Earth images looking for the tell-tale signs of a Dumpster out past the cactus patch. Figure 1 shows the outcome of the mapping project with all solid waste facilities. Figure 2 locates the recycling process-

ing activity in the state and demonstrates the challenge; the majority of the state had no available recycling services. With this picture in hand, NMRC set out to strategize how best to fill the voids.

After several lengthy discussions, NMRC’s board of directors and staff came to the conclusion that New Mexico would always be limited in the amount of available capital to invest in recycling and diversion programs. Past efforts at statewide landfill tip fee surcharges had never developed traction, and all other approaches to recurring funding efforts had failed. Accepting that funding would be limited, and that the need was widespread, a strategy was developed to focus what dollars the organization could find and spread their impact as far as possible.

In three words, the strategy was *Hub and Spoke*. While the term was new to New

Mexico, the practice actually had significant roots within the solid waste industry. With the advent of the federal Resource Conservation and Recovery Act, and the closing of nearly 300 small landfills in New Mexico in the ‘80s and ‘90s, most were quite familiar with the consolidation of solid waste resources. The landfill effort was successful with the support of multi-million dollar landfill development costs, which quickly drove the politics out of the way and let rational planning prevail. In today’s recycling effort, the coalition needed a tool which could similarly push political demands to the background. The maps gave NMRC that tool.

Funding the vision

With GIS, NMRC could effectively educate local decision makers on the most efficient

means of bringing recycling to their communities –population could be tied to generation rates and prove that each small community could not support a recycling effort on its own. Instead, communities would need to pool their materials with neighbors to support the development of an efficient and sustainable infrastructure.

With a compelling program in hand, NMRC set out to find the funding to support investment in rural recycling across New Mexico. The first shot came when the State of New Mexico released a request for proposal (RFP) looking to

Image 1 | Hub retrofit at the Red Rocks Regional Landfill

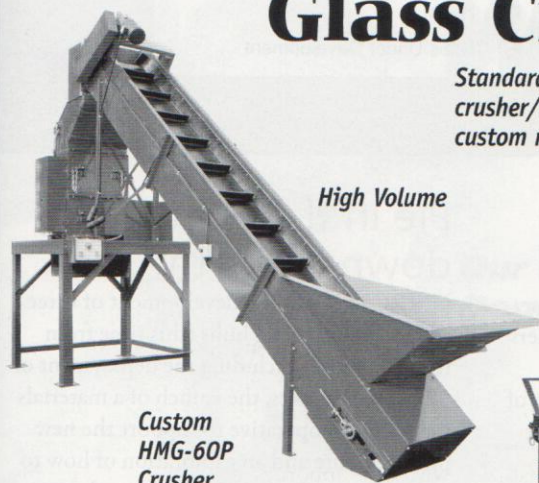


Source: New Mexico Recycling Coalition, 2011.

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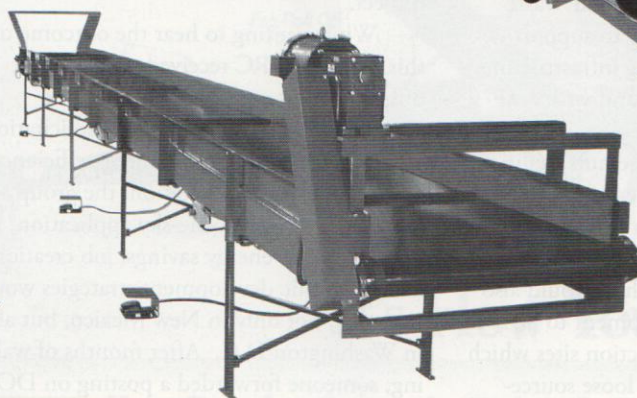
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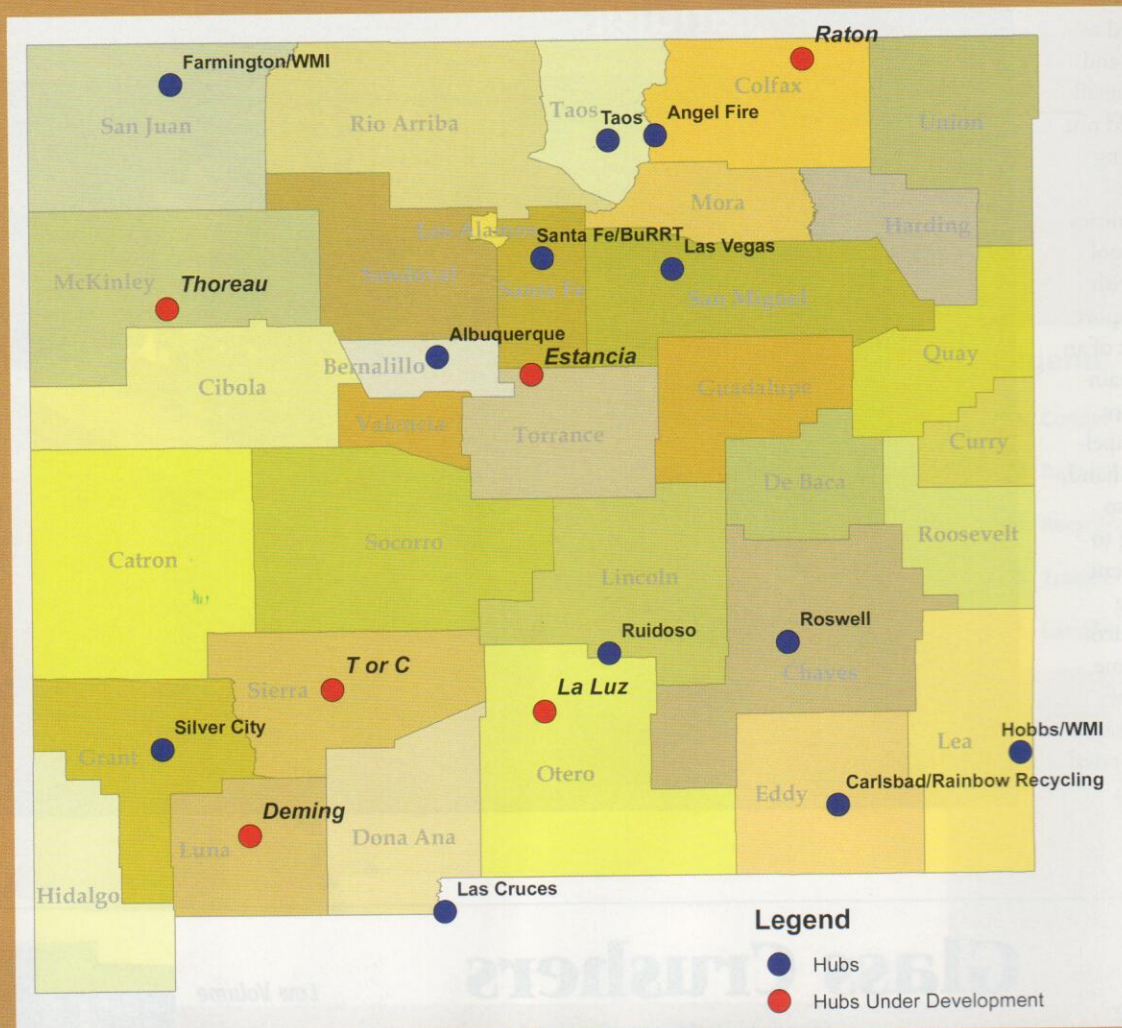
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Figure 2 | New Mexico hub and spoke recycling



Source: New Mexico Recycling Coalition, 2011.

fund energy efficiency projects under the federal American Recovery and Reinvestment Act (ARRA) State Block Grants. NMRC itself was not eligible, so the group collaborated with the state's Solid Waste Bureau to apply for funding to support development of rural recycling infrastructure. NMRC compiled the data and wrote the first draft of the Bureau's application. Funds were requested to place three hub facilities into existing buildings. The hub would include the installation of a small horizontal baler outfitted with a below-grade feed conveyor (see Image 1). Each hub would also get "spoke" collection equipment to be used at existing solid waste collection sites which would feed the "hub" with loose source-separated materials.

With a little luck and a firm conviction that recycling provides a measurable

means of limiting energy consumption, and thereby green house gas avoidance, the Solid Waste Bureau was awarded just more \$500,000 for the "balers and trailers" project.

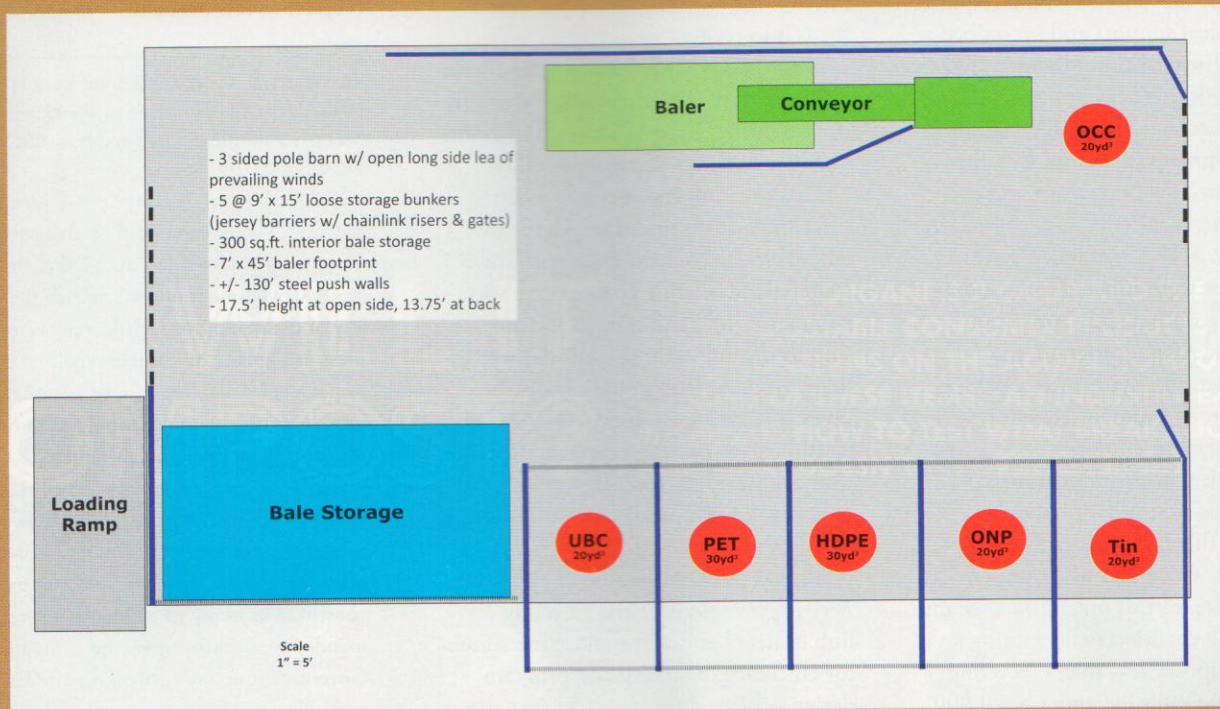
While waiting to hear the outcome of this grant, NMRC received notice about different grant opportunity under the DOE's ARRA, under a separate solicitation of competitively-awarded energy efficiency grants. With little hesitation, the group set out to write a pie-in-the-sky application, in the hopes that energy savings, job creation and economic development strategies would ring true, not only in New Mexico, but also in Washington D.C. After months of waiting, someone forwarded a posting on DOE's website that NMRC had been awarded \$2.8 million dollars to continue work on rural recycling.

Pie in the sky coming down to earth

NMRC's pie was the development of three additional recycling hubs (this time from the ground up) including the deployment of 40 or more spokes, the launch of a materials marketing cooperative to support the new infrastructure and an exploration of how to utilize the principles of pay-as-you-throw (PAYT) in rural New Mexico.

Mapping had left obvious targets for the infrastructure investments and the coalition solicited proposals from these "underserved" communities for funding. Within three months of the award, NMRC awarded three sub-grants to the City of Deming, Torrance County and Otero County to develop new recycling hubs. While all three communities were committed to the project, they had limited capacity to manage

Figure 3 | Hub facility design



Source: New Mexico Recycling Coalition, 2011.

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the efforts. NMRC well recognized that money alone would not solve the access question, but that success would require direct technical support and prescribed solutions. The coalition provided engineered designs of a universal rural baling facility (Figure 3), and specified all of the needed equipment including fork-lifts, baling systems, loading ramps and collection equipment. NMRC also assisted in ensuring the ARRA-mandated procurement policies were adhered to including the Davis Bacon Act, Buy American clauses of the ARRA program, the Copeland Act, the Byrd Anti-Lobbying Amendment, and more, were addressed in all procurement efforts.

It has been evident at every step of this process that NMRC was the underdog. This is a small grassroots organization which had never undertaken anything of this magnitude. Many said what the coalition is attempting to do was impossible – that a recycling center can't be built for under \$300,000, let alone address state permitting rules, NEPA requirements and the landfill

ethic of rural America. Yet with only two full-time and two part-time staff, NMRC is beginning to see the vision focus into reality.

To date NMRC has completed two facilities, with the others coming on-line in November. A second round of grants will be released in November which will support improvements at existing recycling centers in order to improve efficiency and increase capacity. The R3 Materials Marketing Cooperative will launch this fall, and expects the membership to include all of the hubs as well as many of the existing publicly-operated processors in New Mexico. NMRC also continues to provide technical assistance to the State Solid Waste Bureau related to its stimulus funding and hub projects.

Part two of this series, to be published in the next issue of *Resource Recycling*, will look at the recycling hub in detail and will explore the search for efficiency in facility and program design. **RR**

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director for the New Mexico Recycling Coalition. He can be reached at justin@recyclenewmexico.com.

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