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## ***Chapter 5***

### ***Recycling Grant Programs and Funded Projects***

Historical Overview

Waste Reduction Assistance Grant

Waste Reduction Assistance Research and Development Grant

Waste Reduction Initiative Through Education Grant

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## Historical Overview

Pursuant to A.R.S. §49-837 B.1-2, the Arizona Recycling Program administers a grant program that provides financial assistance or start-up money to political subdivisions, non-profit and for-profit organizations in Arizona. Throughout FY 1991 and FY 1992, the recycling grant was referred to as the Reduce, Reuse and Recycle Grant (3R Grant). The funding was awarded to projects that focused on source reduction of solid waste and source reduction education. In 1993, the 3R Grant was separated into two types of grants: the Waste Reduction Assistance (WRA) and the Waste Reduction Initiative Through Education (WRITE).

In an effort to address the difficulties associated with recycling in both rural and urban communities, the Arizona Recycling Program offered several specialized grant programs. In FY 1996, a WRA Grant focusing exclusively on household hazardous waste projects was made available to local governmental jurisdictions. In FY 1997, a WRA Grant was made available to individuals and/or organizations established or residing in a jurisdiction with a population of 100,000 or fewer. And in FY 1998, another specialized grant was developed to address research and development in the recycling industry. This grant was later named the Waste Reduction Assistance Research and Development (WRA R and D) Grant.

The focus of the WRA Grant is to provide funding to projects that divert significant amounts of material from the solid waste stream, or that represent comprehensive programs designed to achieve high solid waste diversion levels. All projects must be related to one or more of the following: the proper disposal of solid waste, source reduction, reuse, recycling, buying recycled content products and composting.

The focus of the WRA R and D Grant is to develop tools and ideas and create knowledge that will help divert significant amounts of material from the solid waste stream in the future.

The focus of the WRITE Grant is to provide Arizona residents with the information and education to increase their awareness for properly reducing and disposing of solid waste and to encourage participation in source reduction, reuse and recycling. The types of education projects may include, but are not limited to: school curricula, workshops, seminars, publications, mailings, flyers and mass media campaigns. The WRITE Grant projects assist the Arizona Recycling Program in its mandate to provide recycling education to the public.

Since the Arizona Recycling Program's inception in 1990, it has provided more than \$ 7.2 million in grant funding (see Table 5.1). Seventy-four grants were awarded to public jurisdictions, 57 grants to private sector businesses and organizations, 52 grants to non-profit organizations and 11 grants to universities and colleges; a total

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Table II.4 Grant Programs and Funding Amounts. This table lists the type of grant programs and the amount of funding awarded during each fiscal year. Grant programs include: 3R: Reduce, Reuse, Recycle (RRR), Waste Reduction Education (WRE), Waste Reduction Assistance (WRA), Waste Reduction Initiative Through Education (WRITE), Household Hazardous Waste (HHW), Small Community Waste Reduction Assistance (SCWRA) and Waste Reduction Assistance Research and Development (WRA R and D).

**Table II.4. Grant Program Funding Amounts**

Fiscal Year	RRR	WRE	WRA	WRITE	HHW	SCWRA	WRA R and D
1991	\$867,402						
1992	\$640,020						
1993		\$88,331					
1994			\$447,282				
1995				\$210,472			
1996			\$420,472		\$1,217,977		
1997						\$332,509	
1998			\$599,616	\$222,486			
1999			\$547,521	\$258,723			\$186,630
2000			\$841,669	\$253,381			\$81,915
Totals	\$1,507,422	\$88,331	\$2,856,330	\$945,062	\$1,217,977	\$332,509	\$268,545

### Waste Reduction Assistance Grants

#### *FY 1998 Waste Reduction Assistance Grant*

In FY 1998, the Arizona Recycling Program awarded \$599,616 in Waste Reduction Assistance (WRA) Grant funding to 14 projects. The contract period began March 1998 and concluded March 1999. Most of the projects were completed and descriptions are included in the Arizona Recycling Program FY 1999 Annual Report. A list of projects that were completed in FY 2000 follows.

## **Waste Reduction Assistance Grants**

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#### **Arizona State University**

“Technology of Crumb Rubber Composites”

Han Zhu, Ph.D.

P.O. Box 871603

Tempe, AZ 85287-1603

(480) 965-2745

**Grant Award \$29,891**

**Amended Award \$8,000**

**Total Award \$37,891**

### **Proposal**

With five to six million tires to dispose of yearly, waste tire disposal has long been a challenge in Arizona. There were some applications in place that utilize the recycled crumb rubber made from processed tires, such as rubberized asphalt and various types of garden equipment. This project focused on the research and development of additional crumb rubber applications. Arizona State University would be conducting various tests regarding its light weight, strength, non-catastrophic failure patterns and slow aging process. Potential impact of crumb rubber technology development would be regional, if not national.

### **Project**

This project developed many new and innovative uses for recycled crumb rubber. These included crumb rubber amended pour of Portland concrete and a spray-on crumb rubber based sound absorbing material designed mainly for application on highway sound barriers. This project received an extension and an increase in funds. The extension was requested due to the necessity of obtaining 12 months of data on an experimental pour of Portland concrete mixed with recycled crumb rubber and to continue the development of material and equipment associated with this project. The longer than normal extension period and increase in funds were approved to fund student assistance and to provide sufficient time for a four season analyses of the above mentioned concrete pour.

### **Assessment**

This project was very successful in taking the first step towards incorporating recycled crumb rubber into high volume commercial use applications such as crumb rubber amended Portland concrete and a spray-on crumb rubber based sound absorbing material on highway sound barriers. The results of this research have shown that rubberized concrete can meet the design requirements for non-structural applications, and that the spray-on sound absorbing materials have a noise reduction capacity of more than 10 times that of concrete. With the strong results that were shown because of this funding, the researcher was awarded \$80,000 from the Arizona Department of Transportation for the further development of the spray-on sound absorbing material into a commercially viable highway noise barrier.



### **Tucson Habitat for Humanity**

“Construction Closet”

Carole Baumgarten

P.O. Box 43235

Tucson, AZ 85733

(520) 326-1217

**Grant Award \$50,000**

#### **Proposal**

Tucson Habitat for Humanity (THH) and TMM Family Services (formerly Tucson Metropolitan Ministries), both well-known, non-profit community-based organizations, teamed together on this project. These organizations constructed a warehouse for the storage of donated construction materials. The large volume of material, that had previously gone to landfills due to space constraints, would be stored on-site and used in the construction of homes for low-income residents. Because both organizations were well established in the Tucson area, the educational component and marketing of such a program would be easily attained.

#### **Project**

THH was able to purchase a large building to house their “ReStore” business at a price that met their budget. The ReStore is a building materials and furnishings store that sells used or recovered materials to the public at extremely reduced rates. Near the end of the contract period, THH was able to find a perfect building in which to house this operation. THH then leased the space next door to the ReStore for a permanent office. At the request of the Arizona Recycling Program, THH extended this project to September 1999 to provide additional diversion data for the project’s term.

#### **Assessment**

Due to the delay in finding a suitable location for the facility, only two quarters of diversion data were collected. Over the first six months of operation, the “ReStore” project diverted over 124 tons of material and saw over 4,900 people use the facility. The building is spacious enough to accommodate most functions and is in a very accessible location. The donors either bring materials to the store or can have materials pick-up by the store’s collection truck. THH felt that its partnership with TMM was especially successful and rewarding. This project shows that partnerships in recycling work and that used building supplies and household items have a definite market.



### **Santa Cruz County**

“ABOP Recycling Station”

Victor Gabilondo

2150 North Congress Drive, Room 117

Nogales, AZ 85621

(520) 761-7800

**Grant Award \$32,500**

#### **Proposal**

Santa Cruz County started a Household Hazardous Waste (HHW) Program in 1994, partnering with Pima County and three other southern counties to form a regional HHW Program in 1997. Through the success of outreach events, residents became more and more receptive to recycling HHW, but

due to limited funding, initiating a separate program for Santa Cruz County was not a possibility. With this WRA Grant, Santa Cruz County would construct a permanent collection facility for antifreeze, batteries, oil and paint processing at the Rio Rico landfill, and would use that facility as a marketing and educational tool for the promotion of its program to all county residents.

### **Project**

Santa Cruz County withdrew its project on November 8, 1999. The acquisition of land took longer than expected and delayed the start of the project. With the Rio Rico landfill expansion, the plans for the location of the HHW facility changed, subsequently, delaying its construction. As well, the plan approval and engineering processes for the landfill expansion also delayed this project. The county realized that it would not be able to complete the project in a timely manner and withdrew its proposal before unnecessary expenses were incurred.



### **Friedman Recycling**

“Arizona Small Business Recycling Project”

David Friedman

3640 West Lincoln Street

Phoenix, AZ 85009

(602) 269-9324

**Grant Award \$39,000**

### **Proposal**

Friedman Recycling, the oldest and largest independent paper recycling company in Arizona, conducted research on the small business community and its recycling efforts. They found that Arizona small businesses generated over 200 times more waste than Arizona big businesses. Friedman Recycling proposed to develop the Arizona Small Business Recycling Project. This project would offer no-cost, start up recycling programs to small businesses who, without the assistance of the Arizona Small Business Recycling Project, would otherwise not be able to support a recycling program. The long term estimate was for a diversion rate of approximately 2,700 tons of material each year. Funding was requested for the purchase of recycling bins, which would be made available to businesses interested in participating. Extensive marketing and education were incorporated into this project.

### **Project**

Friedman Recycling requested and received a four month extension to their project. This extension allowed Friedman Recycling to expand the scope of this project to include drop-off sites in Tucson. Friedman Recycling purchased 61 three cubic yard containers with funds from this grant with a cost savings of almost \$125 per bin. They placed 21 bins in Tucson at the “Neighborhood Recycling Centers” and have 68 businesses participating in the Phoenix metro area. Friedman Recycling initially used an advertisement in the *Business Journal* and a cold-calling marketing strategy to create sufficient market demand. Friedman Recycling addressed the low participation rate by devoting a full time marketing and education employee to this project.

### **Assessment**

Friedman Recycling was able to divert over 300 tons of material during the project’s duration. They are projecting that over 1,000 tons of material will be diverted annually based on the monthly diversion rate of this project, at full participation. The expansion of this project to include the small

businesses of Tucson was extremely rewarding and was an unexpected success in this project. The process of educating the generators on the proper use of this program presented the largest obstacle. This was overcome by “re-education” and a greater commitment to education at each program’s initiation.

### ***FY 1999 Waste Reduction Assistance Grant***

The FY 1999 WRA Grant was available to private businesses, non-profit organizations and governmental agencies existing or servicing areas within Arizona. A total of \$547,421 was awarded to 11 projects selected from 65 submitted proposals. The grant period began January 1999 and concluded January 2000. Organizations awarded up to and including \$25,000 were required to match a minimum of 20 percent of the total project cost. Proposals requesting over \$25,000 were required to match a minimum of 35 percent of the total project cost. The maximum funding request was set at \$75,000.

Five of the 11 projects were still ongoing at the time of this report. The following is a brief synopsis of each proposal, a description of the progress of each project up until June 30, 2000, and an assessment of the six projects that have been completed.



#### **City of Bisbee**

“Yard Waste Diversion Program”

Ray Sparkman  
118 Arizona Street  
Bisbee, AZ 85603  
(520) 432-6000

**Grant Award \$12,468**

#### **Proposal**

The City of Bisbee proposed to decrease the amount of yard waste in the waste stream by implementing a yard waste diversion program. The city would purchase a wood chipper to mulch the material. The resulting mulch would be offered back to the residents of the community at no charge. The yard waste would be picked up free of charge in all areas of Bisbee on Wednesdays. The material would be brought to the city’s garage area where the street crew would operate the chipper to produce the mulch. It is estimated that the city would be able to divert 10 percent of its waste stream through implementation of this program.

#### **Project**

At the time of this report, the project has not been completed. Due to illness and a retirement among key personnel, the project fell behind quickly. The city replaced the key personnel in January 2000 and is continuing to work on the project. The city did purchase the chipper during 1999. However, no quarterly reports have been received as of June 30, 2000.

#### **Assessment**

The Arizona Recycling Program’s 2001 Annual Report will contain a complete project assessment.



## **Colorado River Indian Tribes**

"Greenwaste Composting"

Robert Jackson  
Route 1, Box 23-B  
Parker, AZ 85344  
(520) 669-1301

**Grant Award \$20,900**

### **Proposal**

The Colorado River Indian Tribes proposed to purchase a FM225 Flail Pulverizer mulching machine to assist them in diverting all the greenwaste that is delivered to the Tribe's two transfer stations and the site of their former landfill. It is estimated that the project would divert five to six tons of greenwaste per day from the solid waste stream. Products of the mulching operation would be distributed to local businesses and community members. The implementation of this project represents the first phase of an overall source reduction program created to reach the Tribe's solid waste management goals.

### **Project**

At the time of this report, the project has not been completed. In this case, a change in key personnel resulted in a period of time during which the project remained idle. However, the mulching machine was purchased and operational by March 1999. Though mulching was taking place, no records were kept to the amount of greenwaste diverted until January 2000. The project was granted an extension so that record keeping could begin, and a baseline of data documenting the amount of greenwaste processed could be established. By April 2000, the greenwaste diversion program was operating the machine four days a week, four hours a day. A fifth day was devoted to public use of the mulcher.

### **Assessment**

During the first six months of 2000, over 200 tons of tree trimmings were shredded. The project is due to be completed in August 2000. A complete assessment of this grant project will appear in the Arizona Recycling Program's 2001 annual report.



ENVIRONMENTALLY  
LOGISTIC  
FRIENDLY PRODUCTS INC.

## **E.L.F. Products LLC**

"Shipping Pallets Manufacturing"

Jerry Foley  
2521 North Fairview  
Tucson, AZ 85705  
(520) 792-2448

**Grant Award \$75,000**

### **Proposal**

Environmentally Logistic Friendly Products, LLC. (ELF) requested funding for the capital purchase of a Uni-shred model #55 shredder as a part of a system to manufacture shipping pallets using recycled plastics and cellulose fibers. The project would have the potential to recycle 4,325 tons of HDPE and LDPE plastics and 1,425 tons cellulose fiber, which would be used to manufacture 200,000 reusable plastic pallets per year to replace wooden pallets currently in use. The reusable plastic pallets would assist in keeping the equivalent of 4,000 tons of woodwaste from entering the waste stream each year.

## **Project**

To begin a manufacturing operation to produce recycled content plastic products, ELF first had to submit necessary permits and locate a facility in Arizona. They signed a lease on a Tucson facility in February 1999. ELF also had to disassemble an existing manufacturing plant in Toronto, Ontario, and reassemble it at the new facility, which was completed by March 1999. Test runs began shortly thereafter and the plant became fully operational in June. ELF hosted a grand opening celebration at which the mayor of Tucson spoke to area recyclers and waste disposal companies.

## **Assessment**

During the summer and fall of 1999, the facility manufactured an average of 65,000 pounds of finished product each month. By the end of October, the company had received more than 958,000 pounds of plastic to recycle and had manufactured 515,500 pounds of new plastic product. At the time of this report, fourth quarter and final reports have not been received from the company. The Arizona Recycling Program's Annual Report will contain a complete assessment of this project.



## **Gila County Solid Waste Department**

"Chipping of Land Clearing Debris"

Sharon Radanovich  
1400 East Ash Street  
Globe, AZ 85501  
(502) 425-8501

**Grant Award \$33,703**

## **Proposal**

Gila County has worked to reduce the amount of land clearing debris entering its landfills. Grant funding was used to purchase a portable, high volume, wood chipper and to offset operating and maintenance costs. Due to the acceleration of development throughout the county, the amount of land clearing debris entering its landfills had grown too large for the county's present small chipper to handle. The county estimated that each year 4,156 tons of organic waste, representing 13 percent of the total waste stream, would be diverted and used as landscaping material or sold to wood waste recyclers. The program could have the ability to extend the life of the county's landfills by two years.

## **Project**

The chipper was delivered to Gila County's Buckhead Mesa Landfill in May 1999. Training began the next day, and the program was operational in June 1999. The chipper was operated twice a week. The county found that much of the greenwaste delivered to the landfill was not clean enough to chip with the new machinery. The representative of the chipper manufacturer advised the county that if they processed only clean material, the machine would require less maintenance and have a longer lifespan. Therefore, the operators of the chipper spent a considerable amount of time sorting greenwaste suitable for chipping from the material that was not. Several promotional events were held to increase the greenwaste delivered to the program. During the summer months, the tipping fee for greenwaste was reduced. This was also done to encourage cleaning up brush, a potential fire hazard, during dry months. The county also advertised the availability of Christmas Treecycling during the holiday season. Finished mulch was offered to area residents. Truck loads were priced at \$5. Smaller amounts were free. Other markets for the mulch, such as commercial composters, have been investigated. Sharon Radanovich, the project lead, also presented environmental education programs highlighting the greenwaste diversion project to area schools.

## **Assessment**

During one year of complete operation, June 1999 through May 2000, the project diverted 3,469 tons of greenwaste, which neared their goal of 4,156 tons. Of the total, 1,260 tons were processed by the chipper. The remainder was “composted” without processing. A six month extension to the project was granted so that the county could meet the matching funds requirement of the grant. The extension was required as a result of a slower than expected procurement process, which delayed the project almost six months. Since most of the matching funds were from operating costs, the county required additional time for operation. The county has also had difficulty marketing the finished mulch. The county’s quarterly reports were on schedule and resulted in a high quality final report.



## **LB International Incorporated**

“Bio-Mass Fuel Source: ‘Eco-Log’”

Jim Lehman

850 East Highway 89A

Fredonia, AZ 86022

(520) 643-6066

**Grant Award \$75,000**

## **Proposal**

LB International requested grant funding to purchase equipment and machinery for the production of environmentally friendly fireplace logs known as “Eco-Logs.” The product line would include a 2.5 pound pack of six logs ideal for the camping market, a five pound log suitable as a cosmetic fireplace log and a 10 pound log that can replace coal and cord wood for serious heating needs. Each product would be composed of wastepaper and wood fiber derived from small diameter lumber and forest residue available as a result of the United States Department of Agriculture Forest Services thinning programs that promote forest health. The logs would also burn 55 percent cleaner than traditional fossil fuels with respect to smoke and carbon monoxide. When fully operational, production of the logs would recycle 3,000 tons of waste paper each year.

## **Project**

LB International had originally chosen to locate their manufacturing facility in Fredonia, Arizona. However, a much better site became available in Winslow. This location is a former saw mill owned by Precision Pine and Timber Company. The advantages included better infrastructure for planned operations and expansion, a rail spur, it is close to Interstate 40 for shipping raw materials and finished products, and better access to raw materials such as waste paper, phone books and small diameter trees. The decision to relocate caused the project to fall behind schedule, however. The equipment arrived in Winslow during the spring of 1999. It was refurbished, but could not be installed as an environmental impact assessment determined that remediation of the property was required. As a result of this, LB International was granted a six month extension for the remediation process. In the mean time, LB has been working with local communities to secure the required sources of waste paper. The Arizona Recycling Program’s 2001 Annual Report will contain an assessment of this project.

## **Assessment**

The project is still awaiting remediation of the new property. The Arizona Recycling Program’s 2001 Annual Report will contain an assessment of this project.



## **Southwest Public Recycling Association**

“Proposal to Develop Commercial Glass Recycling  
Infrastructure in the Phoenix Area”

Nancy Howlett

P.O. Box 27210

Tucson, AZ 85726

(520) 791-4069

**Grant Award \$33,200**

### **Proposal**

The Southwest Public Recycling Association (SPRA) proposed to develop commercial glass recycling in the Phoenix area. The glass recycling project would target the hospitality industry, specifically, restaurants and bars. Working with Curbside Recycling, a local recyclable material hauler, SPRA would establish glass recycling in 30 bars and restaurants and collect an estimated 1,250 tons of glass for recycling. A successful bar and restaurant recycling program could stimulate similar programs throughout the state and help insure that Arizona retains its critical, local glass markets.

### **Project**

During the first quarter of the project, SPRA formed a project advisory committee that included the Glass Packaging Institute, the Container Recycling Alliance, Curbside Recycling, EnviroSand and various other private companies and public officials. Existing promotional material was provided to Curbside Recycling to assist the recycler with its efforts to market the glass recycling program. By the beginning of May 1999, four commercial establishments were participating the Hyatt Regency, Scottsdale; the Holiday Inn, Tempe; the Hard Rock Cafe, Phoenix; and the Pub, Glendale. SPRA developed a customized “Bar and Restaurant Recycling Guide” for the program. However, though many establishments were interested in the program, very few new restaurants or bars decided to participate. It was determined that a blanket mailing to all restaurants and bars in the Phoenix metropolitan area might stimulate interest. A six month extension to the project was granted for this purpose. SPRA hired Blue Wolf Marketing Communications to design a postcard and advertisement based on the guide SPRA had developed. The postcards were mailed to approximately 1,000 bars and restaurants and the advertisement appeared in the April, May and June editions of the Hotel/Motel Association newsletter.

### **Assessment**

By April 2000, the Scottsdale Princess Resort was added to the short list of businesses participating for a total of five accounts. Curbside Recycling had collected only 56 tons of glass for recycling. A final report was due in July of 2000. A complete assessment of this project will appear in the Arizona Recycling Program’s 2001 Annual Report.



## **TUCSON ROLL-OFFS RECYCLING**

### **Tucson Roll-Offs and Recycling**

“Construction and Demolition Debris Sorting Line”

Fred Brown

P.O. Box 17867

Tucson, AZ 85731

(520) 721-4884

**Grant Award \$73,400**

### **Proposal**

Tucson Roll-Offs and Recycling (Tucson Roll-Offs) requested funding to construct a sorting line for recyclable construction and demolition debris materials. The project would sort the material and reclaim aggregate, wood and drywall. The aggregate would be recycled to produce aggregate base, engineer fill, pipe fill, mortar sand and gravel. The woodwaste would produce animal bedding, mulches, soil conditioners, play cushion, fire logs, re-cut lumber and animal feed. The drywall would be recycled into soil amendments, cement additives and adobe stabilizers. The sorting line would give the construction and demolition debris material recycling facility the capacity to divert 25,000 tons material from Tucson area landfills each year.

### **Project**

The first task in developing the construction and demolition material processing and recovery facility was purchasing the necessary equipment. Tucson Roll-Offs was able to purchase used equipment, including a sort line and trommel screen, that saved enough money to expand the scope of the sorting facility. The company used the savings to purchase additional conveyors to more fully automate the system. A unique design for the facility was developed. The tipping area was located at ground level. Incoming material is pushed into a feeder located below ground on a second level. The feeder sends the material through the trommel screen, also below ground, where fine material falls through and is conveyed for further processing at B and R Materials. The larger material continues up to the sorting line. The sorting line is raised enough above the lower level on which it was constructed to provide room for 40 yard roll-offs that are placed as bins collecting the sorted material from above. Once the materials are passed to the sort line, they are divided into various commodities including aluminum, steel, glass, old corrugated containers, aggregate, woodwaste, greenwaste, asphalt and drywall. Installation of the equipment was completed in January 2000. Shortly thereafter, Tucson Roll-Offs held a grand opening. The event was attended by many area recyclers and featured the Mayor of Tucson as a guest speaker.

### **Assessment**

Though the sorting facility was not operational until the year 2000, Tucson Roll-Offs was able to recycle 4,203 tons of material collected from over 139 customers. These figures will be useful for comparison with data collected from the year 2000, after the system became operational. A final report is pending. A complete assessment of this project will appear in the Arizona Recycling Program's 2001 Annual Report.



**Universal Entech, LLC**  
"Debris Screening System"  
Daniel Musgrove  
5501 North 7th Avenue, Suite 233  
Phoenix, AZ 85013  
(602) 944-0083  
**Grant Award \$75,000**

### **Proposal**

Universal Entech (dba Horizon Recycling) requested funding for the purchase of a debris screening system that would be utilized in conjunction with their existing wood processing equipment. The debris screening system would provide additional processing capabilities, more recycling flexibility and improved operating efficiencies. It would allow the company to sort out high grade dimensional lumber, cardboard and metals for recycling from the construction and demolition waste stream. Contaminants would also be removed from the remaining material to produce cleaner wood chips and mulch products. Universal Entech estimates it would be able to process 10,000 cubic yards of material during the first year of the system's operation.

### **Project**

Equipment specifications and site expansion plans were completed during the first stage of the project. The company then purchased the collection equipment necessary to supply the material to the debris screening system. The equipment purchased included two roll-off trucks and one hundred 40-yard containers. A marketing plan was completed during the third quarter of the grant. The plan addressed strategies to increase the collection of woodwaste materials, and to market the finished products the facility was producing. The debris screening system was installed in April 2000. Though the system was not operational until that time, Horizon Recycling began processing construction and demolition waste in April 1999. All sorting and recycling activities were conducted on a concrete pad. During the grant period, Horizon Recycling processed 1) factory scrap wood containing glues and adhesives (particle board and plywood), 2) woodwaste from building framers and other contractors of new construction, 3) demolition waste from commercial contractors, 4) used wood from commercial accounts (crates, pallets and other scrap) and 5) woodwaste from manufacturers that was contaminated with sawdust, plastic, scrap metal, trash and other recoverable or residual materials.

### **Assessment**

Even without the proposed system fully operational, Horizon Recycling diverted over half of the 10,000 cubic yards of material they estimated they could handle. During the period that began in April 1999 and ended in June 2000, approximately 5,850 cubic yards of construction and demolition type waste were processed. It was estimated that this was equivalent to 820 tons. Only the last three months of the period had the advantage of using the debris screening system. Therefore, it will be interesting to see if volumes increase during the year 2000. In order to obtain a screening system that fit within the project's budget, Horizon Recycling was forced to purchase used equipment. This equipment needed refurbishing and caused the project to fall behind schedule. The company requested and was granted a 90 day extension to install the screening system. The additional time allowed Horizon Recycling to re-evaluate several installation and integration schemes to find the one best suited for their processing goals. Competition within the woodwaste and composting industry forced the company to develop new finished product lines. The overall result of the competition was

that Horizon began concentrating more effort on developing niche products with less emphasis on the collection of material. Though Horizon Recycling did fall behind the schedule they had formulated, the company did increase their match significantly. They proposed to purchase one roll-off truck and 50, 40-yard roll-off containers, yet they actually doubled those numbers to two trucks and 100 containers.



**Fire Chiefs Association  
Verde Valley**

**Verde Valley Fire Chief's Association**  
"Household Hazardous Waste Collections"  
William R. Loesche  
827 North Main Street  
Cottonwood, AZ 86326  
(520) 282-6800  
**Grant Award \$25,000**

### **Proposal**

The Verde Valley Fire Chief's Association (VVFCA) proposed to sponsor three household hazardous waste (HHW) collection events to be held in April 1999. One event would be held in each of the following communities, the city of Sedona, the city of Cottonwood and the town of Camp Verde. Residents would be able to dispose of poisons, corrosives, reactives, oxidizers and flammables. These materials include batteries, auto fluids, mercury, pesticides, paint, cleaning agents, acids and hobby chemicals. Explosives, bio-hazards and radioactives would be prohibited. It was estimated that 2,000 residents would participate in the collection events.

### **Project**

The three HHW collection events were held in the months of March, April and May 1999. Thirty vehicles took advantage of the first event, located in the town of Camp Verde, by dropping off 3,730 tons of household hazardous waste. The Cottonwood Fire Training Grounds was the site of the second event in April. During this event, the VVFCA received 9,557 pounds of HHW material from 122 vehicles. The final event was held at the Sedona Fire District Station #3, and resulted in the collection of 12,640 pounds of HHW from 159 vehicles. Publicity for the three events were handled by Sedona Recycling Inc. and included a press release, newspaper advertisements, public service announcements and flyers distributed to the public. The press release and advertisements were carried by two local newspapers. Residents who took advantage of the collection events were given a HHW fact sheet and 300 HHW education wheels were distributed.

### **Assessment**

The project brought a wide range of organizations together as a cooperative partnership. The VVFCA and the Arizona Recycling Program were joined by Yavapai County, Sedona Recycles Inc., Ace Hardware Stores, Bashas, Weber's IGA, Desert Flour Bakery, Camp Verde Lumber, Graves Butane Company, Mountain Waste, Red Rock Recycling and Rubbish and Waste Management. The project proceeded on time throughout the grant period. Problems associated with materials that could not be accepted or spills were not experienced. A total of 25,927 pounds of household hazardous waste, ranging from latex paint to mercury and cyanide were received from 311 vehicles. This number of vehicles represents less than the 2,000 residents the project hoped to serve, but more than a half pound of material per person residing in the Verde Valley was collected. VVFCA underestimated the cost of the events by just more than \$4,000. By covering these additional costs the association increased the match percentage from an anticipated 31 percent to 38 percent.

**WASTE NOT RECYCLING CENTERS**  
***Recyclers of carpet and carpet pad***

**Waste Not Recycling Centers, Inc.**  
“Carpet Bailing Equipment”  
David LaFountain  
1702 South 19th Avenue  
Phoenix, AZ 85009  
(602) 252-7712  
**Grant Award \$48,750**

**Proposal**

Waste Not Recycling Centers (WNRC) proposed to purchase carpet baling equipment to expand the recycling of carpet made from Nylon 6 and Nylon 6.6. At the time of the proposal, the company had a customer base of 100 floor covering companies in Phoenix, Mesa, Tempe and Chandler. During 1998, the company had contracts to deliver 750 tons of used carpet to manufacturers of new carpet. The purchase of the baler would allow WNRC to eventually increase the amount of carpet recycled to 4,500 tons per year. They would also be able to offer their services to a larger customer base, including collecting carpet from landfills in the Phoenix metropolitan area.

**Project**

Waste Not Recycling Centers purchased a large horizontal baler and conveyor system at a significant savings, during the first quarter of the grant period. However, because of frequent operational difficulties, WNRC requested and was allowed to trade this equipment for three smaller vertical balers. Despite the downtime caused by the equipment, carpet recycling continued uninterrupted and the tonnage processed increased. The company used the funding saved, along with additional capital, to purchase twelve trailers to place at mid to large size carpet retailers and installers for collection purposes. For high volume dealers and installers, an independent hauler was used to collect carpet in 40-yard roll-off containers that were delivered to “Waste Not.” Smaller installers were encouraged to drop carpet off directly at one of two locations at which WNRC processed the material. Arrangements with four metro-Phoenix landfills to divert carpet for collection by WNRC were also agreed upon and enacted.

**Assessment**

During the grant period, WNRC diverted 2,239 tons of nylon 6 and nylon 6.6 carpet and delivered it for recycling to new carpet manufacturers. This represented a 180 percent increase over the amount they were contracted to collect the year prior. The company is already 50 percent of the way to their long term goal of diverting 4,500 tons of carpet annually from metropolitan Phoenix landfills. The company has established an additional processing center in the East Valley to further increase carpet recycling.

The project proceeded on time throughout the grant period. WNRC was innovative by saving money on the initial purchase of equipment and investing that savings in additional trailers to develop their carpet recycling infrastructure. The company was also able to increase the amount of carpet recycled through periods of equipment failure and a transfer of ownership that occurred during the third quarter of the grant. In addition, WNRC invested over \$79,000 more capital than they had pledged and contributed over \$37,000 more than expected in in-kind contributions. This additional funding increased the company’s match from an anticipated 35 percent to an actual 74 percent.



### **Western Organics, Incorporated**

“Municipal Green and Wood Waste Composting”

Doug Porter

P.O. Box 25406

Tempe, AZ 85282

(480) 966-4442

**Grant Award \$75,000**

### **Proposal**

Western Organics, Inc. proposed to increase its capacity to process municipal greenwaste and municipal woodwaste by purchasing a screening device. Organic material from municipal sources are normally contaminated with much more rock and plastic materials than the organics the company has used in the past. In addition, municipal greenwaste contains palm branches which are more fibrous and take much longer to compost. The screening device would allow Western Organics, Inc. to sort the material and increase its capacity in the Tucson and Phoenix area by 40 percent, or 1,450,000 cubic yards over a five year period.

### **Project**

The tasks needed to get the project underway were very straightforward. First, Western Organics, Inc. purchased the equipment necessary to increase the company's green and wood waste processing capacity. Second, they began screening the material collected at various locations. Third, advertising and the education of their clients was begun to increase the quantity and quality of green and wood waste being delivered to their sites. The two pieces of equipment purchased were a CEC SCREENIT 16 x 6 composting screen and a used 1980-1981 966C Cat front end loader. The screen was purchased for \$178,961 during the first month of the grant project. The front end loader was purchased in March for \$42,500. Screening of material began almost immediately in January 1999. Though the bulk of the material, 90 percent, was screened at Western Organics' main plant in Phoenix, the screen was transported to other sites within Arizona to process materials. These locations included Western Organics' Tucson location, the Phoenix 27th Avenue Landfill, the Salt River Pima Indian Landfill, the city of Glendale Landfill and Western Organics' satellite locations within “the Valley of the Sun.” Advertising, not only, included signs on their property advertising their services, but Western Organics developed and distributed flyers to waste haulers, landscapers and woodwaste generators. The flyers notified these potential customers of the company's alternative to paying landfill tipping fees. During the grant period, the company finalized the changes to two of their product packaging bags, adding the Arizona Recycling Program logo and the statement, “Providing you with quality recycled products in cooperation with the Arizona Department of Environmental Quality.” Press releases were also sent out. In an effort to educate greenwaste generators and the general public about greenwaste composting and how to prepare their wastes for maximum diversion, Western Organics worked with the city of Phoenix to determine ways to improve the quality of their greenwaste and make it suitable for screening. In addition, the company continued to work with Salt River Project in their efforts to recycle both line clearing waste and woodwaste products.

### **Assessment**

The diversion of municipal greenwaste and woodwaste was the primary goal of Western Organics for this project. In 1999, the company received a total of 365,000 cubic yards (93,500 tons) of organic material of all types at their Arizona locations. This was a 27 percent increase in the volume of material received and composted over the previous year. The amount of municipal greenwaste

doubled from 73,000 cubic yards (11,300 tons) in 1998 to 147,000 cubic yards (26,000 tons) in 1999. In addition, municipal woodwaste tripled from 36,000 cubic yards (6,300 tons) in 1998 to 101,000 cubic yards (21,100 tons) in 1999. An additional goal was to maintain the company's line of composted organic products while using less sawmill waste. Western Organics was able to decrease its sawmill waste feedstock from 107,000 cubic yards (20,000 tons) of saw dust in 1998 to only 52,000 cubic yards (11,000 tons) in 1999. Though none of the quarterly reports were received on schedule, and the final report was received three months late, the project was a clear success. The amount of material processed increased by such a large amount that two front end loaders were required to keep the screen running efficiently, instead of the single loader proposed. In addition Western Organics match over 65 percent of the project cost. This was a very impressive amount, given that Arizona Recycling Program granted the project the maximum amount of funding allowable.

### ***FY 2000 Waste Reduction Assistance Grant***

The FY2000 WRA Grant was available to private businesses, non-profit organizations and governmental agencies existing or servicing areas within Arizona. A total of \$719,429 was awarded to 15 projects\* selected from 42 submitted proposals. The grant period began January 2000 and will conclude January 2001. Organizations awarded up to and including \$25,000 were required to match a minimum of 35 percent of the total project cost. The maximum funding request was set at \$100,000. The following is a brief synopsis of each project. *\*Three proposals declined funding.*



#### **American Surface Technologies, Inc.**

“Safety Surfacing Materials from Truck and Off-the-Road Tires”

Cindy Castellano

15900 North 78<sup>th</sup> Street, Suite 102

Scottsdale, AZ 85260

(480) 998-4700

**Grant Award \$75,000\***

### **Proposal**

American Surface Technologies, Inc. (ASTI) proposed to purchase equipment that would assist in the manufacturing of a safety surface material. ASTI estimated that they would recycle approximately 1.8 million truck and off-the-road tires. The safety surface material would be used in the construction of playgrounds, parks and school yards. *\*Funding was awarded, but ASTI declined the award due to internal circumstances.*

**ARIZONA BIOCOSMOSITES, LLC**

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**Arizona Biocomposites, LLC.**

“Bondomass Pellet Machine”

Robert Walz  
2241 East Myrtle Avenue  
Phoenix, AZ 85020  
(602) 997-2811

**Grant Award \$100,000\***

**Proposal**

Arizona Biocomposites, LLC. proposed to purchase a twin screw extruder with a pellet making attachment. The equipment would be used to assist in the manufacturing of “Bondomass,” a composite that will utilize post-consumer plastic and wood wastes diverted from nearby landfills. Arizona Biocomposites, LLC. estimated that more than 30,960 tons of wood waste and 3,600 tons of plastic waste would be diverted from the landfills each year. *\*Funding was awarded, but Arizona Biocomposites declined the award due to internal circumstances.*



**GROWER'S - MULCH**

**Grower's Mulch**

“Maximum Sales of Compost”

Neal Brooks  
18047 North Tatum Boulevard  
Phoenix, AZ 85032  
(602) 992-5457

**Grant Award \$100,000**

**Proposal**

Grower's Mulch proposed to purchase bagging equipment to increase production of a final compost product. Last year, Grower's Mulch composted 156,000 cubic yards of material. With the addition of this bagging equipment, Grower's Mulch estimated that production would increase to 280,000 cubic yards of materials. The additional equipment would open a new market to Grower's Mulch and allow a greater amount of material to be sold, processed and diverted.



**City of Holbrook**

“Holbrook Drop-off Recycling Centers”

Joe Rye  
P.O. Box 970  
Holbrook, AZ 86025  
(520) 524-6225

**Grant Award \$10,240\***

**Proposal**

The city of Holbrook proposed to establish a drop-off recycling center. The requested funding would be used to purchase four, 40-yard roll-off dumpsters to collect designated recyclables. The city would provide, to its residents, a location to drop-off their newspapers, aluminum cans and mixed paper for recycling. If successful, the drop-off recycling center could be expanded to include other types of materials that are collected and increase recycling efforts in the Holbrook area. *\*Funding was awarded, but the city of Holbrook declined the award due to transportation issues.*



**Mattera Enterprises Recycling Company**  
"Material Handling Equipment and Recycling Containers"  
Joseph Mattera  
11130 Garden Grove Avenue  
Northridge, CA 91326  
(818) 366-4263  
**Grant Award \$100,000**

**Proposal**

Mattera Enterprises Recycling Co. (MERC) proposed to equip a material recovery facility that would serve the city of Prescott and the surrounding area. The funding would be used to purchase a front-end loader and two forklifts. MERC estimated that 14,636 tons per year of material could be collected through the expansion of the city's curbside recycling program. MERC proposed to provide the city of Prescott with a 20 percent diversion rate and to provide recycling services to the "Tri-City" area which includes Prescott, Prescott Valley and Chino Valley.

**Mesa Recycles!**



**City of Mesa**  
"Clean Sweep Program"  
Craig Smith  
20 East Main Street  
Mesa, AZ 85211  
(480) 644-3671  
**Grant Award \$32,000**

**Proposal**

The city of Mesa proposed to purchase twelve, 30-yard roll-off containers to be used to expand its Clean Sweep Program. Currently, the Clean Sweep Program provides roll-off containers for its residents to dispose of large, bulky materials. However, it was determined through visual inspections, that a very high percentage of the materials discarded was greenwaste. With the expansion of the Clean Sweep Program, the greenwaste materials could be easily diverted and composted. The city has a Green Barrel Program in place to divert smaller dimensions of greenwaste. Addition of this program would compliment existing efforts by the city and its residents.

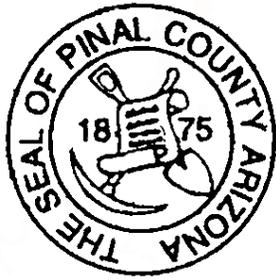


**Northern Arizona University**  
"NAU Composting Project"  
Kathy Leonard  
P.O. Box 4130  
Flagstaff, AZ 86011  
(520) 523-6729  
**Grant Award \$84,450**

**Proposal**

Northern Arizona University (NAU) requested funding to purchase an in-vessel composting system and biodegradable bags and cutlery for the university dining halls. NAU estimated that 470 tons per year of compostable material would be diverted from the dining halls. The NAU faculty and students would assist in the activities of this project, as well as a private contractor that is responsible for the

management of the dining halls. NAU also received a WRA R and D grant in FY 1999 to research the feasibility of operating a collection and composting program at the university.



**Pinal County**

“Project Waste Diversion in Rural Pinal County”

Kim Silvas

P.O. Box 1747

Florence, AZ 85232

(520) 868-6685

**Grant Award \$35,000**

**Proposal**

Pinal County requested funding to expand their mobile recycling program. The funding would be used to purchase a compartmentalized recycling trailer that would service the rural unincorporated communities of Cottonwood Gardens, MountainBrook, SaddleBrooke and Valley Farms. The trailer would be located in each community for one week a month. The county estimated that an additional 98.5 tons would be diverted each year.



**Southwest Public Recycling Association**

“Joint Purchase of Recycling Equipment”

Nancy Howlett

P.O. Box 27210

Tucson, AZ 85726

(520) 791-4069

**Grant Award \$53,005**

**Proposal**

Southwest Public Recycling Association (SPRA) proposed to facilitate the purchase of recycling equipment for two rural recycling programs 1) Environmental Concerns Organization, Inc. (ECO) of Maricopa and 2) the town of Payson. SPRA would coordinate the purchase and delivery of equipment including a down-stroke baler and containers for ECO. ECO is a successful, non-profit recycling operation that services the rural portion of northern Pinal County. The equipment would assist ECO by processing the increasing volumes of materials that are collecting.

SPRA would also coordinate the purchase of four 40-yard roll-off containers for the town of Payson. The town would like to establish several community drop-offs sites for newspaper and cardboard in order to better serve the community and reduce the amount of solid waste entering the landfill. Cardboard and newspaper constitute the largest portions of the recyclable waste stream.



**City of Tombstone**

“Wood Chipper for Mulch and Composting”

Kathy Miller

P.O. Box 339

Tombstone, AZ 85638

(520) 457-2202

**Grant Award \$17,855**

**Proposal**

The city of Tombstone proposed to purchase a Brush Bandit® nine inch diameter capacity disk-style chipper to grind green and yardwastes for mulch and composting. As part of the proposal, the city would initiate a local education effort to notify its residents of this new recycling option. The city estimated that this project would divert 10 percent of its waste in the first year and 20 percent in the second. The city proposed to use the city’s public works employees to collect the materials and individuals from the DUI public service labor pool would operate the chipper.



**Tucson Roll-Offs**

“Alternative Building Materials”

Fred Brown

P.O. Box 17867

Tucson, AZ 85731

(520) 721-4884

**Grant Award \$100,000**

**Proposal**

Tucson Roll-Offs requested funding to purchase a wood and plastic grinder and transfer conveyors to divert plastic and wood wastes from the landfill. The materials collected would be utilized in the manufacturing of a new building material composed of plastic and wood fiber called “Beyer Blocks.” Tucson Roll-Offs estimated that the project would recycle 24,000 pounds of plastic and wood wastes each day.



**Volunteer Associates, Inc.**

“TeenBuild Recycling Center”

Joanne Stucjus

P.O. Box 2156

Flagstaff, AZ 86003-2156

(520) 214-7195

**Grant Award \$10,714**

**Proposal**

Volunteer Associates, Inc. requested funding to expand the storage capabilities of its TeenBuild Recycling Center, thereby increasing the collection of reusable construction materials in Flagstaff and Northern Arizona. TeenBuild is a program established to provide pre-employment training to the area’s at-risk youth. The funding would be used to provide a permanent, enclosed storage building for construction materials that are collected by TeenBuild. The project would also continue to educate home builders regarding the existing construction materials reuse network and to encourage builders to supply reusable construction materials to the TeenBuild program.

**WASTE NOT RECYCLING CENTERS**  
***Recyclers of carpet and carpet pad***

**Waste Not Recycling Center**

“East Valley Receiving Center for Carpet Recycling”

David LaFountain  
1702 South 19<sup>th</sup> Avenue  
Phoenix, AZ 85009  
(602) 252-7712

**Grant Award \$48,364.50**

**Proposal**

Waste Not Recycling Center proposed to establish a new recycling center in the East Valley area (Tempe and Mesa) to collect carpet and carpet pad. The funds requested would purchase a baler and a forklift. The new facility would provide an additional opportunity and increased convenience for installers, retailers and homeowners to recycle carpet and carpet pad. By opening a facility in the East Valley, Waste Not Recycling Center estimated that 6,000 tons of carpet and carpet pad would be diverted annually. Currently, Waste Not Recycling is diverting approximately 2,500 tons of carpet per year.



**City of Willcox**

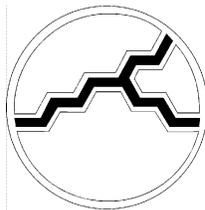
“Greenwaste Reduction Program”

Larry Rains  
101 South Railroad Avenue, Suite B  
Willcox, AZ 85643  
(520) 384-4271

**Grant Award \$55,000**

**Proposal**

As part of a county-wide effort to reduce material going to the Elfida/Eastern Regional Landfill, the city of Willcox proposed to purchase a chipper/shredder for the processing of greenwaste and yardwaste under the greenwaste reduction program. The city would employ a full-time coordinator to establish policies and procedures for this program and to ensure that it fully meets the goals and policies of the city and the Arizona Recycling Program. The city estimated that more than 6.5 percent, or 204 tons of material would be diverted from the regional landfill each year as a result of this program.



**City of Yuma**

“Household Hazardous Waste Facility”

Susanna Hitchcock  
155 West 14<sup>th</sup> Street  
Yuma, AZ 85364  
(520) 343-8827

**Grant Award \$33,040**

**Proposal**

The city of Yuma proposed to construct and equip a permanent household hazardous waste (HHW) collection facility. Currently, the HHW program collects items four times a year. The collection events are very labor intensive and expensive. The new facility would include both a drop-off/collection area and a storage/collection area at the same location. It would also provide larger

storage vessels to reduce the cost of final pick-up and disposal of the HHW material.

### **Waste Reduction Assistance Research and Development Grants**

The Waste Reduction Assistance Research and Development (WRA R and D) Grant was separated from the main WRA Grant in the summer of 1998 in order to evaluate both types of proposals on a more equitable basis. The goal of the WRA R and D Grant is to develop tools and ideas that will divert significant amounts of material from the solid waste stream in the future.

### **FY 1999 Waste Reduction Assistance Research and Development Grant**

The FY 1999 WRA R and D Grant was available to private businesses, non-profit organizations and governmental agencies existing or servicing areas within Arizona. A total of \$203,314 was awarded to 6 projects from 26 submitted proposals. The grant period began January 1999 and concluded January 2000. Each organization was required to match a minimum of 25 percent of the total project cost. The maximum funding request was set at \$50,000. The following is a brief synopsis of each proposal.



#### **Arizona State University**

“Crumb Rubber Added Coating/Paint Materials”

Han Zhu, Ph.D.

P.O. Box 871603

Tempe, AZ 85287-1603

(480) 965-0835

**Grant Award \$22,984**

#### **Proposal**

Dr. Han Zhu proposed to develop and design coating and paint materials containing crumb rubber, along with certain types of polymers and paints. These coatings could be used for the purposes of corrosion and rust prevention, thermal insulation, resistance to cracking, acoustic absorption and others. In addition, the project would develop a portable spray application system for the coatings. This development project would produce an end product that uses recycled crumb rubber derived from used tires and provide a value added product with many beneficial qualities.

#### **Project**

During the initial phase of the project, stucco materials and crumb rubber particle sizes were investigated to find those best suited for the coatings. In addition, possible formulas for the rubber/polymer/stucco mixtures were determined. Testing then began. This included thermal insulation tests, strength tests and freeze/thaw tests to examine each coating mixture's ability to resist cracking. As laboratory testing neared completion, an additional phase was included testing the coatings under real conditions. With this in mind, the project began searching for a field site to test the stucco coating mixtures in a true Arizona desert environment. A partner and site were found in T. J. Roe, who was constructing an earthship, a structure constructed from reamed earth, used tires and adobe. The earthship was being constructed at the Arizona Army National Guard Headquarters in Phoenix. Various stucco coating mixtures containing crumb rubber were applied using the system developed by the project. Specific areas were chosen to test each coating's durability under various long term conditions of sunlight, temperature and use.

## **Assessment**

The project found that the crumb rubber particle size best suited for exterior coatings was 0.5 millimeters and smaller. Tests verified that coatings containing crumb rubber had a five percent better thermal insulation capability than standard coatings. This should be important to Arizona home builders, as crumb rubber containing coatings would increase a structure's ability to keep out heat. Another characteristic of crumb rubber containing coatings should also be of importance to home builders; they are more durable. Because rubber particles are very small, most micro-cracks will stop their progression when encountering the tiny rubber particles. As such, larger cracks, formed by the merging of micro-cracks should be reduced in number. The application process developed worked very well on the adobe walls of the earthship. As adobe is considered a "green building" material, and the crumb rubber containing coatings would increase the recycling of used tires, the material pair should become very attractive to "green builders." Dr. Han Zhu presented his preliminary findings as the invited speaker at *The Annual Arizona Concrete Workshop* held in Phoenix, Arizona in December 1999. The project fell behind schedule, due to the construction schedule of the earthship, and billing discrepancies. The project requested and received two, six month extensions. The first was to apply the chosen coatings to the earthship being constructed at the National Guard facility. Since the time of application was dependent on the construction schedule, an extension was granted. The second six month extension was to allow Dr. Han Zhu to present his findings at *The Sixteenth International Conference on Solid Waste Technology and Management*. This conference will be held in Philadelphia, Pennsylvania in December 2000.



### **Hortec Incorporated**

"Reuse of Dairy Wastewater in the Composting of Wood and Greenwaste"

Sharon R. Petterson

3401 East Baseline Road

Phoenix, AZ 85040

(602) 437-0700

**Grant Award \$50,000**

## **Proposal**

This development project would create an economical and technologically advanced system for the diversion and treatment of dairy wastewater. The treated dairy wastewater could then be used in the composting of greenwaste and curing of mulch created from wood waste. The treated water would retain some nutrients serving as beneficial additives to the compost. The system would also provide a source of water, which is needed by all composting systems, in areas where water is not easily assessable. This would be especially valuable in desert locations where water is a rare resource. In addition, the system would reduce the amount of waste created in dairy operations.

## **Project**

The project required the design and construction of an operational prototype of the dairy wastewater treatment system and a system to deliver the treated water to the compost/mulch windrows. The design of the system was completed with the help of several consultants Dr. Richard Gordon of Arizona State University East (ASU-East) - microbiology, Terry Moore, P.E. of Moore and Associates, Inc. - wastewater and Dr. Larry Olson of ASU-East - environmental sampling. Also, the untreated dairy wastewater and treated water had to be tested for chemical composition, particle sizes and possible pathogens. The treatment system, itself, was composed of a de-watering device, an

effluent pump, an enhanced bio-solid reactor, an aeration basin, a clarifier and the treated water holding tank. In addition to these discrete components, the electrical and plumbing systems had to be designed and installed. The water delivery system consisted of a pump, an automatic reel type sprinkler mechanism with a 390 foot flexible hose and a 200 foot section of pipe with five camlock sprinkler connections. The pump not only delivered the water, but powered a self propelled/self reeling sprinkler that moved along the length of each windrow (up to 390 feet). The sprinkler could be detached and reattached to water five successive windrows by way of the five camlock connections along the 200 foot pipe. Hortec began final testing and the processing of woodwaste using the system in December 1999. The system was installed and fully operational in January 2000.

### **Assessment**

Testing of the dairy wastewater after initial screening indicated that it could be treated fairly easily. After treatment, the water was tested for pH, total dissolved solids, total nitrogen, nitrate, ammoniacal-nitrogen and alkalinity. The results showed the effectiveness of the system and that the treated water could be used for composting. Testing also showed that an input of 15 grams/minute was optimal for the system to function and that this flow rate was sufficient for the needs of the composting operation. Therefore, Hortec produced a fully functional prototype dairy wastewater treatment system that can produce water for composting operations. The company also designed a delivery system that eliminates the need for long sections of hoses and multiple sprinkler heads that are often damaged during turning of windrows. The project started off slowly and the student intern supervising the project was not hired until the third quarter. This put the project six months behind schedule, but hard work made the system operational by the scheduled end of the grant period. Hortec requested a two month extension, which was granted, to finish the final research report.



### **Northern Arizona University**

“Food Waste Composting Research Project”

Kathleen Leonardis

P.O. Box 4130

Flagstaff, AZ 86011

(520) 523-6709

**Grant Award \$6,300**

### **Proposal**

NAU proposed to determine the feasibility of collecting and composting food waste generated in their food service stations. This would require conducting waste audits measuring the amounts of food waste generated on campus. The university would also examine various institutional composting methods and estimate how much carbon-based materials would be required to mix with the food waste to create a suitable compost. NAU would also evaluate uses and markets for the resulting compost. If shown feasible, a working food composting operation on campus would allow NAU to integrate other sources of greenwaste with this food waste, thereby reducing further the waste the university would forward to the area landfill.

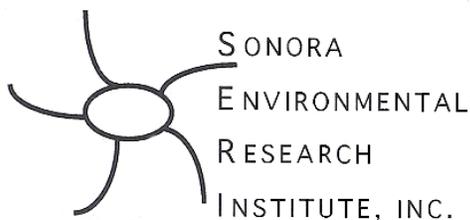
### **Project**

A total of 14 waste audits were conducted during the first and second quarters of the project. These audits measured food and other wastes including polystyrene, recyclables, compostables and non-recyclable/non-compostable trash.

The audits were conducted during specific lunch and dinner periods at the hotel management school, the student union, and the central and south dining halls. During the third and fourth quarters of the project, the NAU team investigated food composting systems currently operating with a focus on food composting systems operated by institutions. This research was presented to decision makers at NAU for consideration in initiating an operational food composting program on campus.

### **Assessment**

NAU found that 79 percent by weight of the waste stream generated at food service locations on campus is compostable. The researchers believed that a food composting program could approach diverting 79 percent of the wastes generated, if it included recovering post-consumer food waste and replaced non-biodegradable polystyrene food containers with biodegradable containers. The audits also found that although NAU currently diverts 200 tons/year of cardboard, steel cans, glass and plastic containers from the dining halls, the university still hauled 591 tons of waste to Cinder Lake Landfill during 1998, costing NAU \$26,261. A food composting program would reduce that cost significantly. The food composting program found most suitable for the campus was a two step system. In the first step, in-vessel composting of the food would take place at three of the dining locations. After the organic material was broken down sufficiently, it would be mixed with wood and greenwaste and formed into windrows for three months of curing. An outside source of wood and greenwaste would be required to reach the proper mixture of nitrogen and carbon needed for effective finishing of the compost. These results were presented at the Southwest Public Recycling Association annual conference in Mesa, Arizona in November of 1999. The research project was also highlighted in an editorial published in the July 1999 issue of *Biocycle* magazine. NAU published the final 53 page research document entitled "Food Waste Composting Research Project" on Dec. 10, 1999. The project was on time throughout the grant period. The final report can and should serve as a reference tool for all institutions considering a food composting program. The university decided to proceed with the food composting program recommended by the project.



### **Sonora Environmental Research Institute, Inc.**

"A New Use for Mixed Glass Cullet"

Ann Marie A. Wolf  
3202 East Grant Road  
Tucson, AZ 85716  
(520) 321-9488

**Grant Award; \$45,062**

### **Proposal**

Sonora Environmental Research Institute, Inc. (SERI) proposed to prove the feasibility of using recycled mixed glass cullet as an alternative abrasive for industrial strength cleansers. This would provide a market for the mixed glass cullet that is produced in the state, as well as develop a value added product that would be more environmentally friendly.

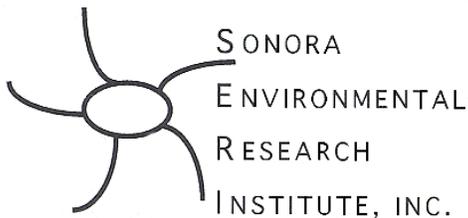
### **Project**

To test the feasibility of ground glass cullet for use as an alternative abrasive, SERI initially had to evaluate the possible laboratories and laboratory methods that might be used to analyze the project's results. In addition, SERI had to select the sample surfaces to stain and clean, the stains to be cleaned, the current abrasives on the market with which to compare the ground glass cullet and the ground glass cullet sizes which were to be tested. The tests SERI conducted included durability

tests to determine how well the ground glass cullet retained its abrasive qualities during use, scratch testing to determine how each chosen size of ground glass cullet would scratch the various surfaces chosen for cleaning, and cleaning comparisons to determine how well the chosen sizes of ground glass cullet performed in comparison to abrasives currently on the market in cleaning products.

### **Assessment**

SERI found that, indeed, a particular mesh size of ground glass cullet was an effective abrasive and could be formulated into marketable cleaning products. The ground cullet was durable, but would not scratch most surfaces including ceramic tile, wood, copper, HDPE plastic, polystyrene and glass. In addition, the ground glass cullet performed as well as current abrasives on the market such as talc, pumice and calcium carbonate. The stains on which the abrasives were tested included food coloring, Kool Aid, asphalt crack sealer, permanent marker, crayon and shoe polish. SERI concluded that ground glass cullet could be used in powder, paste, or liquid cleansers. The organization is now researching formulations and options for bringing their ideas to market. Unlike most other grant projects, SERI developed a task and payment schedule that required monthly reports and monthly payments. This was done to ensure prompt payment of the student interns working on the project. Because of this tight schedule, reports were always on time. An additional outcome of the unique task and payment schedule was that SERI delivered twelve very well written monthly reports, as well as four quarterly reports and a final report. The final report was suitable for publication in a peer reviewed professional journal.



### **Sonora Environmental Research Institute, Inc.**

“Low Cost Sorter of Recyclable Materials”

Ann Marie A. Wolf  
3202 East Grant Road  
Tucson, AZ 85716  
(520) 321-9488

**Grant Award \$43,730**

### **Proposal**

Sonora Environmental Research Institute (SERI) proposed to take a prototype low cost optical sorter and upgrade it into a rigorous practical field unit. SERI would then investigate ways of incorporating this practical field unit into material recovery facility (MRF) operations to mechanically separate various materials. The primary goal was to prove that the instrument could efficiently separate materials such as glass, plastics and ceramics out the municipal solid waste stream and from each other. This automated sorting mechanism would benefit communities by providing an efficient yet low cost method to sort these materials into marketable recyclables.

### **Project**

The steps to complete the project were straightforward. The optical sorter was first upgraded. Then laboratory tests were conducted to determine whether the instrument was stable over the light frequencies being used, the time period of its expected operation and the electrical currents required by the instrument. A material separation apparatus was then designed. Once that step was completed, the separation apparatus design was tested in conjunction with the optical sorter. A market analysis of the feasibility of starting a plastics recycling facility using the optical sorting design developed by the project was also conducted and expanded to include starting a recycling program

for low end materials, such as glass, in small communities with up to 20,000 residents.

### **Assessment**

SERI was able to develop and test the rigorous practical field unit. During testing they found that temperature and orientation of the container being analyzed affected the readings. Orientation of the container ended up being the most difficult obstacle to overcome. The solution SERI developed incorporated a set of three optical assemblages consisting of an array of four color light emitting diodes (LED) and two detectors; one for light reflectance and one for light transmission. This three assemblage system eliminated the orientation problem, because if one or two assemblages are oriented poorly, or reading a container's label or neck, the third assemblage could still obtain a reliable reading. The three assemblage system also ensures more accurate sorting as each assemblage is able to substantiate the readings of the others. In addition, the three assemblage system does not significantly increase the cost of the unit. In practice, as a container passes through the sorter the readings from the assemblages are compared to sets of data representing known material types at various orientations. Once a match is made, a signal is sent to mechanically open or close gates directing the container to its appropriate destination. If the instrument is not able to determine what the material is, the container is directed to the "unsorted" bin and passes through the sorter a second time. The system has a large degree of flexibility. For example, two sets of assemblages can be used with the first sorting translucent and transparent materials, such as glass and most plastics, while the second can sort opaque materials including metals, paper and colored HDPE. SERI has determined that the cost to purchase, install and train personnel to use the sorting equipment would be \$6,304 or less. The results of their cost analysis indicated that even under worst case scenarios of glass prices, transportation costs and landfill disposal fees, small communities with no recycling program in place could institute a recycling program that would pay for the sorter in less than five years. Overall the project ran particularly smooth. As SERI opted for a monthly payment structure, the organization was, without exception, on schedule. The deliverables from the project include not only extremely well written quarterly reports, but twelve monthly reports and a professionally done final report suitable for publication in a technical journal.



### **Southwest Public Recycling Association**

"Waste Characterization Studies for Selected Rural Communities"

Nancy Howlett

P.O. Box 27210

Tucson, AZ 85726

(520) 791-4069

**Grant Award \$35,238**

### **Proposal**

The Southwest Public Recycling Association (SPRA) proposed to determine the waste stream characteristics of rural communities in the state through systematic waste audits in selected representative rural jurisdictions. The information obtained would be invaluable to the state's waste reduction efforts. It would allow local and state recycling coordinators to identify the types and amounts of recyclable materials that comprise their waste stream and then focus their efforts on the best plan to reduce that waste.

### **Project**

The first step of the project was to determine which rural Arizona communities were best representative of all of rural Arizona. This was completed by the Economic Development Research Project (EDRP) at the University of Arizona. Based on demographics and socioeconomic characteristics, all rural communities fell into one of eight categories. Two categories had only three communities each (agricultural places and utility places) and one group corresponded closely with native American communities that had already had waste characterization studies completed (specialized service or government places). As the proposal planned to conduct waste audits on only six communities, alternative ways to handle these three groups were devised. This allowed two communities in the largest category to be audited. The six communities chosen were Willcox (diversified trade, service, or government places), Casa Grande (manufacturing places), Williams (transportation and wholesale places), Hayden (mining places), and Patagonia and Parker (diversified construction, finance, insurance, or real estate places). The systematic auditing of the residential waste streams of these communities was then conducted by the Garbology Project, also at the University of Arizona. As these audits were being completed, funding became available from the Arizona Department of Commerce to include a border community. Therefore, the residential and commercial waste streams of Nogales were audited, analyzed and included in the resulting reports.

### **Assessment**

The project resulted in a large quantity of quality data describing the waste streams of six representative communities in rural Arizona. In addition, a seventh jurisdiction, Nogales (a transportation and wholesale place) was included to represent border communities. Two research papers were finished as deliverables of the Project EDRP wrote "A Description and Typology of Selected Arizona Places" and SPRA completed "Rural Waste Characterization." SPRA's preliminary analysis has uncovered several general trends of the rural waste stream. Rural communities have a lower percentage of paper in their residential waste stream than urban communities. Plastic comprises a larger fraction of the rural waste stream (though this may be due to a much wider use of plastics in packaging during recent years). Glass also comprises a larger fraction of the rural waste stream. Finally, organics represent a much larger portion of the rural waste stream, while construction and demolition debris is much lower than in urban areas. SPRA requested and received a six month extension to complete the additional waste audits required for Nogales. In addition, there was turnover in the personnel in charge of the project at SPRA and at the University of Arizona. In the case of the Garbology Project at the University of Arizona, the personnel change had two repercussions. The final research report was completed without the expertise provided by an experienced member of the Garbology Project and the delivery of the report was delayed.

### **FY 2000 Waste Reduction Assistance Research and Development Grant**

The FY 2000 WRA R and D Grant was available to private businesses, non-profit organizations and governmental agencies existing or servicing areas within Arizona. A total of \$81,915 was awarded to two projects selected from 13 proposals requesting a total of \$523,152. The grant period began January 2000 and will conclude January 2001. Each organization was required to match a minimum of 25 percent of the total project cost. The maximum funding request was set at \$50,000. The following is a brief synopsis of each proposal.



**Greenlee County**

“Greenlee County Waste Stream Study”

Phillip Ronnerud

P.O. Box 908

Clifton, AZ 85533

(520) 865-4762

**Grant Award \$31,915\***

**Proposal**

Greenlee County proposed to research the amount of waste that is received at the Loma Linda Landfill. The research would determine the amount of waste landfilled, the amount of material recycled and the recycling opportunities available to county residents. In addition, the research would identify the amount of material the county could recycle with the expansion of its activities. The data would be used to determine which materials would be economically feasible to include in the recycling program. *\*Funding was awarded, but Greenlee County declined the award due to internal circumstances.*



**Universal Entech, LLC.**

“Develop and Test Innovative Waste Paper Recovery Technology”

Daniel Musgrove

5501 North 7<sup>th</sup> Avenue, PMB 233

Phoenix, AZ 85013-1755

(602) 268-8849

**Grant Award \$50,000**

**Proposal**

Universal Entech, LLC. in alliance with Resource Strategies Corporation (RSC), proposed to develop and test an innovative and cost effective material recovery technology designed to capture recyclable waste paper from mixed municipal solid waste (MSW). The project included the design, construction, testing and evaluation of a first generation waste paper classification unit that would work in concert with the company's existing fourth generation, patented MSW pulverizer. The goal of the project would be to develop a prototype pulverizer-classifier system and evaluate the technical and economic feasibility of marketable waste paper recovered from mixed MSW.

**Waste Reduction Initiative Through Education Grants**

***FY 1999 Waste Reduction Initiative Through Education Grant***

The FY 1999 WRITE grant was available to governmental entities, private sector and non-profit organizations. The Arizona Recycling Program awarded a total of \$258,723 to nine recycling education projects. The grant period began July 1998 and concluded August 1999, unless an extension was provided. Each project description includes a summary of the proposal, an account of the actual project activities up to June 1999 and an assessment of the overall project. Organizations awarded up to and including \$25,000 were required to match a minimum of 20 percent of the total project cost. Proposals requesting over \$25,000 were required to match a minimum of 35 percent of the total project cost. The maximum funding request was set at \$60,000.



## **Cochise County**

“Community Education Program on Waste Reduction”

Bruce Springer

1415 West Melody Lane

Bisbee, AZ 85603

(520) 432-9479

**Grant Award \$60,000**

### **Proposal**

The Cochise County Department of Facilities and Solid Waste proposed a county-wide project to organize a community education program with the ultimate goal of reducing the solid waste stream by at least ten percent by 1999. The project involved the hiring of a full-time waste reduction educator to implement and coordinate a public awareness and education program for the selection, training and support of community coordinators and school teams throughout the county. The waste reduction education program would be conducted through a partnership between several cities, organizations, the local recycler, local utilities, local media and civic groups.

### **Project**

To eliminate a delay while conducting interviews for the waste reduction educator position, Cochise County requested a change in personnel funding that provided for a program leader to assume the initial project responsibilities. The Arizona Recycling Program approved and allowed the program leader to begin the implementation of the project. In addition, a citizens task force was established by resolution of the Cochise County Board of Supervisors to provide community input during the coordination of the program. Specific recycling and source reduction strategies were targeted to reach the adopted waste reduction goals. Cochise County utilized their task force to target waste reduction and recycling strategies for the seven communities including Benson, Bisbee, Douglas, Huachuca City, Sierra Vista, Tombstone and Willcox. The cities of Bisbee, Tombstone and Huachuca City and Cochise County made a budget commitment to purchase approximately seven recycling bins to establish recycling drop-off sites at various locations. An assessment of county recycling opportunities was conducted to assist in developing a recycling infrastructure for the local recycler, Sierra Huachuca Association of Retarded Citizens (SHARC). As soon as the waste reduction educator was hired, a reporting mechanism was established to document the waste diversion resulting from the public's increased awareness of local recycling activities. In cooperation with other educational institutions, age-specific educational materials were integrated into school curricula and used in area schools. Recycling directories for Douglas, Willcox, Sierra Vista and Tombstone were printed and distributed. The Cochise County Department of Facilities and Solid Waste supervised and managed this project. Each directory described how to prepare recyclables, where to take them and provided contact information for the waste reduction educator. A theme titled, “Let's Talk Trash,” was developed to provide consistency in the education program. Community presentations were made to civic organizations and schools. Newspaper and radio campaigns utilized the theme as well.

### **Assessment**

After the county-wide recycling education program was underway, the county realized a cost savings in its printing and advertising budget. With the Arizona Recycling Program's approval, the county transferred the cost savings to the recruitment of community speakers for a speakers bureau. If the speakers committed 25 volunteer hours to the project, they would be paid a stipend for their time and energy. Although this new approach provided assistance to the waste reduction educator, it

required initial training workshops that delayed other tasks in the project. In addition, school contacts took a while to establish and this prolonged the scheduling of the presentations. These obstacles prompted the county to request a six-month extension through Dec. 31, 1999, which assisted the county in achieving their goal of completing the tasks of the grant project. The county also realized a 45 percent increase in tons recycled over the past year. The target audience of the education campaign included all residents of Cochise County and incorporated age-specific curricula for children and adults. New drop-off sites were established in Bisbee, Tombstone, Elfrida, Sunsites, Palominas and Huachuca City to address the demand for more collection sites. Cochise County credits the 1999-2000 waste reduction campaign for the increased recycling rate at all the sites.



### **Environmental Concerns Organization**

“Maricopa Education Project”

Gina D’Abella

4921 West Mayer Boulevard

Maricopa, AZ 85239

(520) 568-9428

**Grant Award \$ 19,989**

### **Proposal**

In rural unincorporated areas of Arizona, residents are handling their own refuse disposal, that often involves hauling their own trash to distant landfills. Several residents have chosen to illegally burn or dump their household waste on their own land or in the surrounding deserts. Without an effective solid waste management system to handle the proper disposal of solid waste, illegal dumping has become a serious problem. In Pinal County, 43 percent of residents reside in unincorporated communities. The Environmental Concerns Organization (ECO), a local non-profit organization that operates a recycling facility in the community of Maricopa, proposed an education project, working in partnership with the Southwest Environmental Seminars (SES), to provide elementary schools with up-to-date information about their local recycling program. The project proposed to educate students and their families about the impact of their current disposal habits on their local community’s environment by including workshops in 26 classrooms, field trips to the local recycling center and visits to illegal dump sites.

### **Project**

As mentioned in the project proposal, ECO and SES formed a partnership to implement this recycling education project in the Community of Maricopa. ECO surveyed the illegal dumpsites in the area and located three sites in which to conducted the field trips for the elementary students. During the course of the project, ECO was able to place signs discouraging illegal dumping at additional sites, allowing the project to impact a total of seven illegal dumpsites. The signs were printed on the front and back sides to take advantage of the sign space. The English and Spanish wording on each sign directed the reader to stop polluting and to take their household waste to the Recycling Association of Maricopa (RAM). An illustrated map showing RAM’s location was also included, as well as local phone numbers for solid waste and recycling information.

### **Assessment**

SES conducted workshops in each of the 26 classrooms, providing 550 students with a one-hour experience that included games and entertaining stories of trash reduction. Curriculum packets were

developed in the early stages of the project to incorporate information regarding the negative impacts of illegal dumping in their community and the positive impacts of their participation in the local recycling program. Education materials were also designed to take home and share with their families. ECO also included bus rides to the local area illegal dumpsites to give the students the opportunity to see the harmful effect of illegal dumping. Field trips to the RAM recycling center were also provided.

As a follow up to the workshop schedule that ended in December 1998, SES provided the teachers with education packets to replicate a similar program for their future students. The remaining portion of the project involved ECO's monitoring of the recycling education program. By videotaping the illegal dumpsites prior to the signs being erected, ECO was able to track the amount of material dumped after the signs were in place. ECO also documented the project's promotional aspect, that involved the continual placement of local newspaper articles. The recycling rate, which increased, was documented by the volume of materials received and served as another indicator of the project's effect on the recycling center and the community as a whole.



**EM Technologies, Inc.**

“Educating Arizona Recycling School Lunchroom Waste through the EM Bokashi Network”

Monica Durand

1802 West Grant Road, Suite 122

Tucson, AZ 85745-1232

(520) 629-9301

**Grant Award \$57,292**

**Proposal**

The EM Bokashi Network has its roots in Japan, where over one million people participate in a nationwide effort to divert organic waste from the landfills for placement into gardens, parks, green belts and farms. The program sponsor in the United States is EM Technologies, Inc., a non-profit Arizona corporation dedicated to promoting the use of EM (Effective Microorganisms) to achieve a sustainable agriculture and environment. The EM Bokashi Network was established by EM Technologies, Inc., as an environmental education initiative, to promote food waste as a valuable resource that can be recycled back into the soil. The proposed project would involve the representatives in the existing network to help introduce the program to others. The EM Bokashi Network planned to increase community awareness of organic waste recycling by producing bilingual and multi-cultural education materials, sponsoring workshops and developing pilot projects to expand the community of participants including households, schools, restaurants and businesses throughout Arizona. By demonstrating the reuse of organic waste through demonstration gardens and landscaping techniques at schools, EM Technologies would promote sustainability and the recycling of organic waste.

**Project**

With the advanced funds received by the Arizona Recycling Program, EM Technologies purchased the equipment needed to construct demonstration gardens and subsequently found a cost savings that covered additional equipment needed for the project. EM Technologies planned to develop three demonstration gardens, but exceeded their goal by setting up seven different sites. Therefore, their priority was placed on providing technical support and maintenance to the seven

demonstration gardens. The gardens were established to illustrate that the reuse of organic waste that could be introduced into the school setting.

EM Bokashi Network activities were featured in several educational and community publications, and presentations and workshops were scheduled in communities throughout Arizona. Some schools that participated in the project include Kyrene de la Brisas in Chandler, the Miles Exploratory Learning Center in Tucson and the Arizona School for the Deaf and Blind. During the second and third quarters, the promotional and networking efforts expanded to Phoenix and Flagstaff, which generated requests for school demonstration projects. Presentations were held at the Women for Sustainable Technology Conference held in Phoenix and the Coconino County Board of Supervisors.

### **Assessment**

The EM project managers invited the teachers who were involved in the education program to co-author the instructional manual and education materials. The demonstration gardens continue to be used by the teachers as an outdoor classroom to create and impart life science curriculum. EM Technologies began filming some of the segments of the video at the beginning of the project to capture the before and after stages of the demonstration gardens.

In June 1999, EM Technologies requested an extension to April 2000 to complete the above-referenced materials. The overwhelming response from Arizona schools to implement the EM Bokashi composting effort caused a delay in the production of the video and printed material.



**City of Flagstaff**  
"Ready for Recycling"  
Ellen Ryan  
211 West Aspen  
Flagstaff, AZ 86001  
(520) 779-0488  
**Grant Award \$32,922**

### **Proposal**

The city of Flagstaff proposed to coordinate a community education campaign to provide consistent information to the area population in order to increase recycling participation and to reduce the amount of refuse taken to the landfill. With the opening of the Flagstaff Material Recovery Facility (MRF) and the beginning of the curbside recycling program planned for July 1998, Flagstaff needed to have full participation from the community. In order to educate the community as to what could be recycled, the city proposed to produce a video specific to the operations of their MRF, the implementation of the curbside program and other waste reduction efforts that existed in the area. The project would include several different types of multilingual education, such as media advertising, posters, brochures and copies of the video. In addition, the education materials would be the catalyst for recycling practices to begin and create widespread knowledge of how the MRF could be utilized through other recycling efforts in the greater northern Arizona region.

### **Project**

The city of Flagstaff coordinated the production schedule of the video in the first quarter. The design of the posters, newspaper ads, television ads and radio ads was completed and finalized early to allow

time to create a full media campaign with the local newspaper, the city's quarterly publication, *Cityscape* and radio and television stations. Flagstaff's Recycling Mascot, "Curby," was incorporated into all aspects of the advertising campaign so the public could associate "Curby" with curbside recycling, glass drop-off sites, proper household hazardous waste disposal, commercial and multi-family housing recycling. The posters were laminated to protect them from weather conditions and were designed for reuse at various events to designate recycling bins. The brochure design was drafted in the third quarter and later translated into German, Japanese and Spanish to address the tourist population in the area. The French version is planned for completion in the fourth quarter.

### **Assessment**

The grant project originally included a mass mailing to all city of Flagstaff residents, but the city re-evaluated the mass mailing due to its high printing cost and time intensive handling. The alternative choice, to use a flyer in the utility bill, offset costs. The cost savings was used to purchase additional radio and television advertising. The video included two local community members who walked the viewer through various methods of waste reduction and thoroughly explained ways to correctly participate in the city's recycling, composting and buying recycled products efforts. The business and hotel recycling education program had a delayed start due to the difficulty in contacting decision makers in corporate offices. The city of Flagstaff hired a new marketing person to initiate the commercial program by placing start-up recycling bins at the businesses and coordinating their recycling programs. The city of Williams has also expressed interest in utilizing the recycling education tools produced from Flagstaff's program. The final tasks of the grant project were completed in December 1999. The television, radio and print advertisements that were produced during the grant project have continued to be used beyond the grant term.



### **City of Phoenix**

"Household Hazardous Waste Program"

Terry Gellenbeck

101 South Central Avenue

Phoenix, AZ 85004

(602) 256-5607

**Grant Award \$5,500**

### **Proposal**

The city of Phoenix Solid Waste Education office proposed a project that would utilize a mascot, named Captain Toxic, to provide a new school presentation for the 200 elementary and middle schools in Phoenix. The project would also incorporate the distribution of 30,000 activity books at the school presentations. Captain Toxic would provide a fun and interactive approach to communicating the proper disposal of household hazardous waste and other environmental issues, such as composting and buying recycled products.

### **Project**

Within the first quarter of the project, the city of Phoenix secured the contract for the mascot costume so that the school presentations could be scheduled. The activity book was drafted and reviewed by the city of Phoenix and Arizona Recycling Program. The city capitalized on their goal to print 30,000 activity books and actually printed 50,000 based on the economies of scale for printing in quantity. The remaining tasks of the project focused on distributing the activity books and conducting 200 school presentations with the assistance of Captain Toxic. The project manager used

the next three quarters to complete three series of shows, concentrating a higher number of shows during the Earth Day 1999 time frame.

### **Assessment**

The city of Phoenix exceeded their goal of distributing 30,000 activity books and also exceeded the number of school presentations by performing 371 presentations. With the help of Captain Toxic, presentations were conducted at elementary and middle schools and at various civic events that were held throughout the city of Phoenix. Captain Toxic was used to present information on how to properly dispose of household hazardous waste, including batteries, oil, paint, antifreeze. The character also presented information on the "Phoenix Recycles" residential recycling program, composting techniques and buying recycled goods. The efforts of the city staff and Captain Toxic introduced good habits of solid waste management to elementary-aged students, who influence the habits of their families at home. The presentation program and activity book are available to other municipalities and government entities throughout the state.



### **Southwest Public Recycling Association**

"Recycling Technical Assistance to Rural Communities and Development of Rural Case Studies"

Nancy Howlett

P.O. Box 27210

Tucson, AZ 85726

(520) 791-4069

**Grant Award \$ 31,150**

### **Proposal**

In the FY 1997 Recycling Program Annual Report, surveys from Arizona jurisdictions indicated their impediments to recycling. Those impediments included the cost of programs, infrastructure and logistical problems, community attitude and education, lack of resources and lack of staff. The development of an alternative solid waste management option, such as recycling, requires significant planning, education of elected officials and professional staff and funding. The Southwest Public Recycling Association (SPRA) proposed a project that would offer direct technical assistance to 20 rural communities and recycling entities. The technical assistance would be provided through one-on-one consultations with rural Arizona communities on various recycling program options, cost benefits and efficient recycling program operation guidance. In addition, the project would involve the development of ten case studies from these communities, focused on the recycling best practices in rural Arizona. Of the ten case studies, six would include slide show presentations that will document specific waste reduction programs and/or efforts throughout the state of Arizona.

### **Project**

At the start of the grant project, the Arizona Recycling Program and SPRA selected ten communities and organizations as subjects to highlight rural recycling case studies. After the initial efforts were made to research the selected programs, a few of the organizations did not prove to be conducive to the goals of the project. Other organizations were selected, but in order to avoid delay, it was determined that nine detailed case studies would be developed within the project term.

The format of each case study includes a description of the organization's history and key features, education efforts, funding sources, future plans and the lessons learned. Of the nine case studies that

are listed below, SPRA developed six slide show presentations for each of the case studies that are printed in bold lettering.

1. Environmental Concerns Organization, Inc., "Recycling/Illegal Dumping Education Program," located in Pinal County;
2. **Sedona Recycles**, "Grass Roots Recycling Program," located in Yavapai and Coconino Counties;
3. **City of Williams**, "Municipal Curbside Recycling Program," Coconino County;
4. **Sierra Huachuca Association of Retarded Citizens (SHARC)**, "Job Training Through Recycling," Cochise County;
5. Pinal County, "Mobile Drop-off and Office Recycling Program;"
6. **City of Sierra Vista, Municipal Composting Program**, Cochise County;
7. **Pima, Cochise and Graham Counties**, "Regional Household Hazardous Waste Facility," located in Pima County;
8. **Winner's Circle Soils, Inc.**, Private Organics Processing Business, located in Navajo County;
9. Springerville Auto Wreckers, Private Commercial Drop-off Program, located in Apache County.

As SPRA compiled the case studies for the nine organizations, they also conducted technical assistance for other communities throughout Arizona. Rural communities received support through one-on-one meetings and through written correspondence. During the third quarter (April, May, June 1999), SPRA encountered delays due to staffing changes, including the resignation of the Acting Executive Director. A new Executive Director, Nancy Howlett, was hired in April 1999, and requested an extension to December 1999 to ensure that the project would be implemented as it was originally described in the proposal. The grant project was extended to December 1999.

As the end of the grant term approached, SPRA reported over 20 communities that had received technical assistance through the course of the project. During their outreach efforts, it became apparent that several other communities were in need of initial support. SPRA also determined that the draft case studies would prove to be more useful if they had more detail. ADEQ realized the benefits of SPRA's technical expertise and amended the grant contract to include \$21,600 with assistance provided to an additional 20 communities. The grant term was extended through December 2000 for this second phase of statewide community support.

As of June 2000, the slide show presentations were completed and the final draft of the case studies were submitted to the printer. A final assessment of the technical assistance will be included in the FY 2001 Annual Report.



## **Southwest Public Recycling Association**

"Household Hazardous Waste Education Brochure"

Nancy Howlett

P.O. Box 27210

Tucson, AZ 85726

(520) 791-4069

**Grant Award \$14,000**

### **Proposal**

Often times, when people are relocating their household, they do not consider the proper disposal of their household hazardous wastes. The Southwest Public Recycling Association (SPRA) proposed to compile and distribute an educational brochure that would provide information and direction for the appropriate actions to take. SPRA planned to work with the jurisdictions within Maricopa and Pima Counties, the Arizona Association of Realtors and selected commercial moving van companies to distribute the brochures and implement a consistent message of the proper disposal of household hazardous wastes.

### **Project**

By working with the recycling coordinators, household hazardous waste inspectors and representatives of the Arizona Association of Realtors, a technical review committee was formed. Meetings were held during the first and second quarters of the project to review household hazardous waste information contained in other brochures. The actual brochure was based on a brochure developed by the state of Indiana. The artwork and overall format was adopted by all of the participating communities. The committee decided to delay printing until the new area codes in the Valley were established. This caused a slight delay in the printing timeline, because the new area codes were not announced until March 1999.

One hundred thousand (100,000) brochures were printed on paper made with at least 10 percent recycled content. The printing costs were slightly less than what was originally budgeted. Therefore, the remaining funds were used to duplicate the negatives for all of the communities to use at any time in the future. This will allow for the project partners, including the Arizona Association of Realtors, the Arizona Recycling Program and all of the participating communities to reproduce the artwork with their own wording or with the current wording.

### **Assessment**

The Association advertised the availability of brochures in their monthly newsletter, at monthly regional meetings and by word of mouth. After completing the project, the project partners will be asked to evaluate their method of disseminating the brochures and their responses to questions regarding the brochures. The city of Flagstaff took advantage of the offer to participate in the development of the brochure and included their contact information with the other communities of Maricopa and Pima counties.

Distribution of the brochure was handled through the Arizona Association of Realtors, who advertised the availability of brochures in their monthly newsletter, at monthly regional meetings and by word of mouth. After completing the project, the project partners were asked to evaluate their method of disseminating the brochures and their responses to questions regarding the brochures. Most of the jurisdictions indicated that they would distribute the brochures to provide options for proper disposal of HHW. This brochure has served the state well due to its transferability.



### **Starr Communications**

“Radio Public Service Advertisements Campaign”

Belle Starr

1281 Burnside Road

Sebastopol, CA 95472

(707) 829-6469

**Grant \$24,180**

### **Proposal**

Starr Communications proposed to coordinate a statewide Radio Public Service Advertisement (PSA) campaign to increase the awareness of reducing, reusing and recycling. The campaign will promote the 1-800-CLEANUP phone number and Web site ([www.1800cleanup.org](http://www.1800cleanup.org)). Starr Communications planned to research, write, produce and distribute a total of 12 sixty-second PSAs to radio stations throughout the state of Arizona, including the production and distribution of Spanish PSAs. Starr Communications would join forces with the Environmental Media Association, an organization of people in the media industry who focus on the importance of recycling and a variety of environmental issues. This collaboration would enable the project to include voice-overs from famous stars.

### **Project**

Starr Communications moved very quickly into production for the first set of PSAs. Originally, the project was outlined to produce three PSAs per quarter, but Starr Communications developed the scripts and acquired celebrity talent faster than anticipated. A total of six PSAs, both in English and Spanish, were completed ahead of schedule and were distributed in the Fall of 1998. The topics focused on timely issues such as precycling, products made from recycled material, waste reduction during the holidays and new year's resolutions to save the earth. The participating celebrities included Wendie Malick, from *Just Shoot Me*, Julia Louis-Dreyfus, from *Seinfeld*, and recording artist Kenny Loggins. This first release featured an elaborate CD jewel box cover and plastic case that included artwork and introductory information about the campaign and its partners. The second and third release of PSAs included the voices of Wendie Malick, Michael T. Weiss, from *The Pretender*, Wayman Tisdale, former Phoenix Suns Forward and recording artist, and the talent of Belle Starr. The issues focused on Earth Day, the importance of composting and the proper disposal of used oil for the spring and summer months.

### **Assessment**

Because the overall costs of the jewel box and artwork exceeded the project's budget, the CD packaging was modified. The radio PSA releases produced later in the project were listed on the actual CD to save on artwork, design and printing costs. Environmental Media Association (EMA) worked well for the first release of PSAs, but shortly after experienced a turnover in key personnel. Complications arose with this change, so Starr Communications requested a subcontractor change, which the Arizona Recycling Program approved, to use Citizen Planet to recruit celebrity voices.

Starr Communications monitored the distribution and air time of the 12 PSAs by contacting the news directors, programming staff and receptionists. The PSAs have since been used beyond the grant project in statewide campaigns and by other communities to promote general recycling information. Starr Communications made creative changes to the radio campaign in terms of packaging and distribution to effectively work within the boundaries of the project's budget when unexpected costs arose.



## **Tuba City Family Wellness Center**

“The Protective Circle Project”

Fran Kosick

P.O. Box 1488

Tuba City, AZ 86045

(520) 283-2932

**Grant Award \$ 13,690**

### **Proposal**

With the new solid waste management system operated by the Coconino County Public Works Department, the western Navajo Nation has access to transfer stations for refuse and recycling opportunities. The six Navajo Nation communities with transfer stations in Coconino County are as follows Tuba City, Cameron, Leupp, The Gap, Kayenta and Tonalea. The solid waste disposal fees that are currently being paid to Coconino County by the residents of western Navajo Nation have enabled the Tuba City Wellness Center to apply for this recycling grant. Therefore, the Tuba City Wellness Center, a nonprofit education organization, proposed to educate the residents with a strong message, integrated from within the culture, to change prevailing attitudes toward waste disposal in this region. The education project would encompass a diverse number of elements that would include informing the public about the new transfer station system, the impacts of illegal dumping, waste reduction and the production of recycling curricula for both the Navajo and Hopi nations. Various recycling education tools would be developed as a reminder of the new services being offered by the county and the tribe.

### **Project**

In order for this project to be effective, it was necessary for the Tuba City Family Wellness Center to coordinate the project's tasks between the city of Flagstaff, the western Navajo Nation and Coconino County. A Waste Reduction Advisory Committee was formed to provide oversight and to assist the Tuba City Wellness Center with the project.

In the first and second quarter of the “Protective Circle Project,” the focus was on the contest promotion to develop the Native American recycling logo and theme. The Tuba City Wellness Center conducted a Navajo language theme and logo contest that involved K-12 students from 12 schools. The selected logo and theme was later used on the magnets, brochures and the transfer station signs to provide a recognizable image for the “Protective Circle Project.” Grand opening events took place at the transfer stations to signify the importance of their existence to the area. The “Protective Circle Project” also took advantage of advertising the new recycling opportunities by placing signs at the transfer stations. Brochures provided detailed descriptions of the types of items, such as newspaper, aluminum, steel, scrap metal, cardboard, chipboard, magazines, junk mail and plastic that can be collected at the transfer stations and then taken to the Flagstaff Materials Recovery Facility. In addition, the brochures also highlighted household hazardous waste disposal and local recycling contact information.

After researching various sources for curriculum choices, the Waste Reduction Advisory Committee selected specific curriculum packets for preschool and kindergarten through 12<sup>th</sup> grade. The Science Education for Public Understanding Programs (SEPUPS) were used by the junior high and high school students for more complex assignments that emphasized decision making skills. The Tuba City High School science students created display boards for use in each of the schools that contained

samples of metal, plastic and paper items. Teacher training was conducted in February and March 1999 to familiarize the teachers with the curriculum packets. The teachers were also guided through the use of the display boards.

### **Assessment**

As part of the project, a video was to be created and distributed to schools, libraries, chapter houses and video stores. Students at the Grey Hills High School were selected as the actors in the video. Unfortunately, the point of contact at the high school changed twice and this prolonged the coordination of the student actors and the finalized video script. In May 1999, the Tuba City Wellness Center realized that the many delays in the video production would put them behind schedule. Navajo Nation EPA agreed to provide supplemental funding if they could be incorporated into the video's script as well. The Arizona Recycling Program approved a 2-month extension for the completion of the video in August 1999.

All of the project's goals were achieved, but not without problems along the way. The distance between each member of the Protective Circle staff caused travel budget restraints, which created a lack of consistent communication within the group as a whole. While partnerships can create a sustainable program for the future, the Protective Circle's project leaders realized that multiple partners can create service gaps when individuals and/or agencies do not fulfill their commitments.

### ***FY 2000 Waste Reduction Initiative Through Education Grant***

The FY 2000 WRITE grant was available to governmental entities, private industry and non-profit organizations. The Arizona Recycling Program awarded a total of \$253,012 to eight recycling education projects. The grant period was July 1999 through August 2000, unless otherwise indicated. Each project description includes a summary of the proposal, an account of the actual project activities up to June 2000 and an assessment of the overall project.



**AzRC**  
Arizona Recycling Coalition  
Reduce ❖ Reuse ❖ Recycle

**Arizona Recycling Coalition**  
"Arizona Recycling Conference"  
Nancy Howlett  
P.O. Box 27210  
Tucson, AZ 85726  
(520) 791-4069

**Grant Award \$34,700**

### **Proposal**

The Arizona Recycling Coalition (AzRC) is a non-profit organization of professionals and citizens pledged to promoting recycling efforts in the public and private sectors. The Coalition promotes the reduce, reuse and recycling ethic through education and membership involvement. It is an affiliate of the National Recycling Coalition. The AzRC proposed to coordinate and conduct the first comprehensive recycling conference focused on Arizona issues and program needs. The two-day conference would combine the educational efforts of the AzRC's Composting and Buy Recycled conferences. In addition, the educational tracks would include 1) recycling and household hazardous waste program development and expansion, 2) recycling and household hazardous waste program education, 3) waste reduction benefits, 4) composting, 5) buying recycled, 6) source reduction and reuse strategies. AzRC will market the conference to local solid waste and recycling managers,

elected officials, educators, recyclers, composters and students. Of the total amount of funding set aside for this grant project, \$7,000 was earmarked for scholarships to cover the expenses of communities that could not otherwise pay for their own registration and lodging costs.

### **Project**

Due to delays in hiring a conference coordinator, the timeline for the grant project was modified to start August 1, 1999 and end August 31, 2000. Although most of the conference was coordinated by the board members of AzRC, the conference coordinator, Katherine Christensen & Associates, was hired to serve as a point of contact for the administrative planning. The coordinator's duties included hotel and site negotiations, meeting room set-up, food and beverage planning, pre-registration billing and funds collection, brochure layout and design, etc.

A conference committee of 25 AzRC members was formed. From that committee, coordinators were selected to oversee the four education tracks including community, institutional, organics and tire management. Notification of the conference included a "Hold the Date" card that was sent out to over 600 potential attendees, event calendar listings in all major recycling and waste reduction publications and Web site promotion focused on the conference information. An invitation to submit a scholarship application was mailed out to over 200 targeted public sector and non-profit organizations in local Arizona jurisdictions with populations of less than 100,000. Approximately 4,800 brochures were mailed to individuals and organizations within the recycling industry, but distribution included groups that have not been targeted for recycling conferences in the past. Two advertisements were placed in the Arizona Business Journal in April 2000.

The Arizona Recycling Coalition's first annual conference entitled "Arizona Recycles! Get into the Loop" was held on May 15 and 16, 2000, at the YWCA of the USA Leadership Development Center in Phoenix, Arizona. Approximately 200 attendees from various sector groups had access to over 27 educational sessions on green waste, institutional recycling, urban and rural community recycling issues, waste tire management, recycling markets and recycling education programs. The conference attracted a wide range of prominent speakers and several Arizona companies provided sponsorship. A full assessment of the budget and conference evaluation results cannot be determined until the final report is received in September 2000.



### **Cochise County**

"Cochise County Community Education Program on Waste Reduction" - Year 2

Bruce Springer

1415 West Melody Lane

Bisbee, AZ 85603

(520) 432-9479

**Grant Award \$22,080**

### **Proposal**

The Cochise County Department of Facilities and Solid Waste was awarded a WRITE Grant during the FY 1998-1999 to conduct a county-wide project to organize a community education program on waste reduction. Cochise County proposed to expand this county-wide education program to further increase the public's awareness of how to conduct (1) a business audit/waste diversion program, (2) office paper recycling, (3) school recycling projects, (4) yard waste diversion,

(5) and home composting. Cochise County planned to redesign the county transfer stations into mini-Material Recovery Facilities with the use of a tracking system to document the amount of material diverted from the waste stream. The waste reduction education program would be conducted through a partnership of several cities, organizations, local utilities, local media and civic groups. In addition, a citizens task force would be established by resolution of the Cochise Board of Supervisors to provide grassroots input and coordination. Specific recycling and source reduction strategies would be targeted to reach the adopted waste reduction goals. The Cochise County Department of Facilities and Solid Waste planned to supervise and manage this proposed project by using grant funding to support the Waste Reduction Educator position for an additional 12 months.

### **Project**

In its second year, the county was able to complete all of the goals set forth in this expanded waste reduction education program through the employment of the waste reduction educator. The grant project was set up to implement those waste reduction techniques that were not implemented within the previous year. The classroom presentation schedule was expanded to include every fourth, fifth and sixth grade class in Cochise County. The curricula were also redesigned to offer five new programs for the kindergarten through third grade and the fourth through sixth grade learning levels.

The waste reduction program instituted waste audits for local area businesses, hotels, grocery stores and government agencies. The program coordinator researched their current waste handling methods and found efficient ways to recycle or reuse the previously discarded materials. For example, Walmart has diverted seven 7 tons of dog food to an animal rescue service as well as 299 tons of other merchandise to family shelters.

This year's media campaign focused heavily on the composting opportunities available to county residents. Two composting workshops coordinated by the county, with the assistance of Tucson Organic Gardeners, increased awareness to recycle yard trimmings and kitchen waste. The newspaper advertisements continued to promote the local drop-off locations and appeared in every newspaper in the county each month throughout the year. Annual events, such as America Recycles Day, resulting in 1,400 pledge cards submitted by students and the Treecycle Campaign, resulting in 1500 trees being diverted, proved to be a great success for Cochise County.

The county-wide recycling directory was also revised to include current drop-off locations and waste reduction advice. It is available in English and Spanish.

### **Assessment**

The goal of the county-wide community education program was to reduce the solid waste stream by at least 10 percent by the end of 1999. The second year of the education program resulted in reducing the county's solid waste stream by 24 percent at the end of June 2000. Various methods were used to accomplish these results. Approximately 20 new drop-off recycling bins were distributed among the communities of Bisbee, Ft. Huachuca and in unincorporated areas of the county.

The "Let's Talk Trash" theme was used as the premise for all of the presentations provided to audiences of both children and adults. The same theme was used in all of the newspaper columns and advertisements as well as radio advertisements. This consistent message became recognizable for many of the Cochise County residents who needed to locate a drop-off recycling site or for those seeking lifestyle changes for reducing waste. On March 3, 2000, the Cochise County rate review and advisory board decided to continue the "Let's Talk Trash" education program. The program and the

waste reduction educator position were unanimously supported by the advisory board. A van was also added to the program for hauling presentation materials to classrooms and exhibits. The education coordinator has developed new school programs for the 2000/2001 school year and has created various resources for continuing the waste reduction education into the future.



**Town of Eagar**

“Community Education Program”

Rick Pinckard

P.O. Box 1300

Eagar, AZ 85925

(520) 333-4128 ext.241

**Grant Award \$41,521**

**Proposal**

The town of Eagar proposed to establish a community education program in southern Apache County, with the goal of reducing the solid waste stream through recycling and waste reduction. Blue Hills Environmental Association, the Apache County landfill operator, agreed to provide support for the recycling collection program to include the provision of bins and the transportation of recyclable materials. With the grant assistance, the town of Eagar would hire a part-time community educator to implement a county-wide public awareness and community education program on waste reduction. The project would be designed to notify the public of the importance of waste reduction, the current recycling opportunities and/or the needs for development of a recycling infrastructure. By involving a citizens task force, the town would develop recycling and source reduction strategies to be implemented within Apache County. A public awareness campaign would include various types of media, such as newspaper, radio, posters, recycling bulletins and a directory that would be developed and published in English and Spanish. Volunteers and teachers would be recruited to serve as local catalysts for the education program in the schools and in the community.

**Project**

The town of Eagar was able to hire a community educator at the start of the grant project. There were a few changes to the project's original format. Blue Hills Environmental indicated their support of the project by offering their recycling services. As the project got underway, it was discovered that a local recycler, Springerville Auto Wreckers, had been maintaining approximately 80 recycling drop-off bins in both the towns of Eagar and Springerville. Therefore, Blue Hills Environmental decided to withdraw from the original project plan, instead of competing with the local business. The goal of the grant project was to implement a recycling education program for southern Apache County, but the towns of Concho, St. Johns and Greer do not provide opportunities for their residents to recycle. The community educator has been communicating with the towns of Show low, Pinetop-Lakeside, Holbrook and Winslow to establish a regional effort in the near future.

The community educator produced a directory of waste reduction activities within southern Apache County, including the public drop-off locations managed by Springerville Auto Wreckers. The directory lists those known businesses that buy back appliances and antiques as well as those companies who repair and sell used items. Options for properly disposing of automotive fluids are also provided. A newspaper campaign was also developed to run on a regular basis. The America Recycles

Day celebration and the Earth Day event sparked a grassroots interest in the current recycling program and have generated community support. Volunteer groups have been assisting the community educator in promoting the waste reduction education campaign, because of the distances between the towns. Classroom presentations were not scheduled as expected, so an extension was provided to the town of Eagar to complete that portion of the grant project by October 31, 2000.

As a means of measuring the success of the educational efforts, the community educator works with Springerville Auto Wreckers to compile the recycling tonnages on a monthly basis. The amount of materials collected by the local recycler has increased dramatically since the grant project started. A final report is to include the remaining tasks of the grant project and will be described in the FY 2001 annual report.



**Next Wave Productions, LLC**

“Hip-Hop Public Service Announcements”

Brian Canning

468 North Camden Drive, Suite 200

Beverly Hills, CA 90210

(310) 659-2999

**Grant Award \$60,000**

**Proposal**

Too frequently, in both the public and private sector, advertising campaigns are created for a “one size fits all” umbrella effect. But with today’s lifestyles, understanding a target market is more important than ever because there are so many choices for entertainment. Next Wave Production, LLC is a company that specializes in cause-related environmental promotional programs and television specials. Next Wave, LLC proposed to target the 16-24 year old age group with a paid commercial campaign that would focus on the “hip-hop” lifestyle. While effectively reaching both the male and female audience, this campaign would seek to address specifics of waste diversion including 1) recycling motor oil, 2) reducing, reusing, recycling and 3) properly disposing of solid waste. This program planned to create and maintain a recycling message that would reach the targeted demographics through the use of hip-hop music, musicians, personalities and images to create effective, penetrating, on-target announcements. The television commercials would be guaranteed to air, using cable television for the greatest penetration and frequency.

**Project**

One of the main objectives of this grant was to reach out to a younger, “urban audience,” with an environmental education campaign which was designed to increase awareness. After selecting the messages that would be most effective in targeting the urban audience and also considering other environmental awareness campaigns that would be running concurrently, it was determined that the grant project would focus on two specific areas, buying recycled products and recycling used motor oil. The messages and the delivery of the messages were aimed at the core audience of 16 to 24 year old male and females. The advertisements were created with a “lifestyle” theme and were presented from the viewpoint of a peer to another peer. It was Next Wave’s primary goal to air the message as much as possible. The media coverage included all possible Metro Phoenix areas such as East Valley, West Valley, Phoenix, Scottsdale, Mesa and more. Basically, the penetration was exceptional for the targeted audience and others. Exposure was given on the top tier of cable channels including MTV, Comedy Central, ESPN, TNT, SCI-FI Network, VH-1, Speedvision and local cable news.

The “buy recycled” advertisement aired during the months of November 1999 through February 2000 and the “recycle used oil” advertisement aired during the months of March through June 2000.

As a deliverable of the grant project, Next Wave Productions submitted a final report, which included a guide for designing a campaign that will prompt successful sponsorships, like that offered by Cox Communications.

### **Assessment**

Although the campaign was able to secure airtime with the grant funding, Next Wave Productions concentrated on cultivating sponsors, such as Checker Auto Parts, to carry the campaign beyond the original media purchase. There was great success in working with COX Communications. The cable company undertook the entire campaign as a sponsor due to the look and appeal of the messages. Cox Communications felt that the messages were in line with the networks that were selected. The campaign delivered almost \$200,000 worth of exposure on a media investment of \$20,000.

The 1-800-CLEANUP phone number and Web site were promoted in both messages of the campaign. While response to the 1-800-CLEANUP phone number and Web site was lower than expected, Next Wave believes that the audience was impacted by the repetitive air time. The guide that was developed as part of the grant project has already turned out to be useful for another recycling campaign that is targeted for the Phoenix metro area in FY 2001.



### **Town of Payson**

“Town of Payson Recycling Education and Awareness”

Colin “Buzz” Walker

303 A North Beeline Highway

Payson, AZ 85541

(520) 474-5242 ext. 289

**Grant Award \$13,160**

### **Proposal**

The town of Payson proposed to develop a community-wide recycling implementation plan. The plan would be based on research of the barriers to recycling in Payson, case studies of other recycling programs and potential recycling options. The town of Payson currently has a material recovery facility located in the area, Community Recycling Services, that can accept several types of recyclables, but public education is needed to increase recycling awareness and community buy-in of the recycling process. The grant funds would assist in developing recycling education material for distribution throughout the community. The town also plans to form an advisory committee of local and county officials; community groups such as the Payson Women’s Club; private haulers and the local recycler to address the town’s recycling program design and implementation. The result will be a better-informed committee that will produce a well thought out plan.

### **Note**

On May 27, 1999, the Arizona Recycling Program was notified by the town of Payson that Community Recycling Services had decided to close down their operations. Due to this change in the proposal, the ARAC and ADEQ Evaluation Team decided to award grant funding to the town of Payson contingent upon the town’s effort to substantiate that recycling opportunities existed prior to

starting the education project. Based on the above mentioned condition, the project had a delayed start date of Jan. 1, 2000.

### **Project**

The Southwest Public Recycling Association (SPRA) has moved forward to increase recycling awareness by establishing a plan to inform and educate the Payson residents and town council regarding the benefits of recycling.

The town applied for a Waste Reduction Assistance Grant in August 1999, and was awarded grant funding for the purchase of collection bins. The drop-off program will now be promoted with the education campaign. A brochure was designed and printed and will be distributed by community volunteers. SPRA continues to update the town council on current recycling legislation for Arizona general law municipalities that will be used to develop a solid waste management plan. A full update of this grant project will be provided in the FY 2001 annual report.



### **Phoenix Clean and Beautiful**

“Solid Waste Collection Vehicle Signs”

Tina Allen

101 South Central Avenue

Phoenix, AZ 85004

(602) 262-4820

**Grant Award \$14,500**

### **Proposal**

Currently, 1.2 million people reside in the city of Phoenix, a 3 to 4 percent increase over last year. In 1998, the number of single family dwellings in Phoenix increased by 3 to 4 percent and Maricopa County received the distinction of being the fastest growing county in the nation. As the number of people increase, the amount of waste generated also increases, which puts additional demands on economic and environmental concerns. In 1982, Phoenix Clean and Beautiful (PC and B) established a partnership with the city of Phoenix Public Works Department. PC and B offers many programs, provides various services and organizes special events that result in a cleaner, more beautiful community. The Public Works Department and PC and B proposed to place vehicle signs on the city’s solid waste vehicle fleet of 50 trucks to convey messages that inform Phoenix residents on ways to handle solid waste. The vehicle signs will have messages to promote the reduce, reuse and recycle concepts in either English or Spanish depending on the predominant language spoken in each residential area.

### **Project**

A project committee, including the city of Phoenix staff, the Phoenix Clean and Beautiful Executive Director and the Arizona Recycling Program staff, was formed to determine the messages that were placed on the solid waste truck signs. The campaign focused on those areas of the Phoenix solid waste reduction program that were lacking promotional appeal. The “Buy Recycled-Look for this symbol,” message was printed in English, while the messages of “Recycle Right! Recycle Smart!,” “Bulk Trash is Collected Quarterly,” and “Recycle Household Hazardous Waste at BOPA Events” were all printed in both English and Spanish. After the signs were developed, a schedule was designed to allow each sign to run every two months, with the first sign running during the months of January and February 2000. At the beginning of March, the Arizona Recycling Program provided an

extension to the project to accommodate the city of Phoenix's request to utilize the truck brackets for Census 2000 signs during the months of March and April. Therefore, the schedule resumed in May 2000 and will be completed in October 2000. A final assessment will be provided in the FY 2001 Annual Report.



**Southwest Public Recycling Association**  
"Arizona Recycling Coordinator's Workshop"

Nancy Howlett  
P.O. Box 27210  
Tucson, AZ 85726  
(520) 791-4069

**Grant Award \$25,250**

**Proposal**

The Southwest Public Recycling Association (SPRA) has been conducting technical assistance for the Arizona recycling industry for the past eight years. Statewide, solid waste officials and recycling coordinators have indicated that they are in need of professional training. Municipal recycling programs are sometimes staffed with personnel with little or no recycling experience. As a consequence, local programs suffer and take longer to become sustainable. In order to provide this needed information and training, SPRA proposed to develop a comprehensive Arizona Recycling Coordinators Manual and present two, 2-day training workshops. The training workshops would be offered in northern Arizona and in southern Arizona and would provide an overview of the following topics 1) educating residents, local officials and businesses to increase participation in recycling; 2) developing efficient and sustainable collection and processing systems; 3) maintaining an effective marketing and transportation system; and 4) evaluating the success of the program.

**Project**

SPRA originally scheduled the two workshops during the month of June 2000 in Sedona and in Casa Grande, Arizona, but was notified by the Casa Grande facility, Francisco Grande, that structural changes would be taking place during the summer and the training rooms would not be suitable for the workshop. In their efforts to schedule both workshops within two weeks of each other, SPRA found that November 2000 was the best time for conference room rates and off-season availability. With this timeline change, SPRA requested an extension to conduct the workshops in Casa Grande, Ariz. on Nov. 2 and 3, 2000, and in Sedona, Arizona on Nov. 7 and 8, 2000. As of June 30, 2000, approximately eight of the 16 chapters in the Recycling Coordinators' Manual have been drafted and reviewed by designated committee members. A complete assessment of the workshops and manual will be provided in the FY 2001 annual report.



**Stardust Building Supplies**  
"Public Awareness and Promotion Program"

Alan Goodyke  
3840 North 28<sup>th</sup> Avenue  
Phoenix, AZ 85017  
(602) 604-0605

**Grant Award \$41,900**

## **Proposal**

Everyday, builders, manufacturers, distributors, remodelers and homeowners throw out reusable building materials that ultimately end up in the landfills or otherwise pollute our environment. In the past, there has been no direct benefit for these companies to recycle materials. Stardust Building Supplies (Stardust) provides a means for the above mentioned donor sources to recycle materials while at the same time helping others desperately in need of those very same materials. Stardust solicits reusable building materials from a number of donors, picks up the materials, brings them to its 25,000 square foot warehouse, refurbishes the materials and then displays them in its facility for resale at 50 percent to 80 percent off the retail price. Stardust proposed to use grant funding to promote the benefits of donating reusable materials to the "green builders," and the benefits of purchasing the building supplies to the general public. This would be promoted to the general public through the development of a newsletter and continuous press releases emphasizing the locations of the drop-off sites. The proposal also included the request for partial funding of a pick up truck, specifically, for collecting the recycled material. By adding the pick up truck, Stardust would be able to advertise the recycling program and pick up the increased amount of recyclables generated by the awareness program. Stardust proposed to coordinate the recycling awareness program by hiring personnel to develop and implement the project.

## **Project**

Stardust Building Supplies hired a project coordinator who had previously volunteered for the organization. One of the first tasks that the project coordinator undertook was to compile a listing of the local recycling outlets that would accept materials collected by Stardust. Some of the material that is collected by the Stardust truck and trailer was not reusable, so an effort was made to recycle these materials. Using the yellow pages, Arizona Recycling Program resources and word-of-mouth, Stardust developed a comprehensive list of local recyclers of building materials. To generate awareness among the contractors and building professionals, Stardust contacted various companies to encourage them to place the Stardust collection trailer at their building site. A television advertising campaign was professionally developed by a local advertising agency prior to the start of the grant project. This campaign aired during the first few months of the scheduled project. Shortly thereafter, the project coordinator developed a newspaper campaign to continue the momentum of the building materials reuse and recycling message. Most of the advertisements emphasized the 50 percent off sales events that were scheduled three times throughout the grant period. At each event, Stardust coordinated an awareness program, which included a display of recycling information, promotional booths supported by other agencies and organizations, and a prize drawing of impressive reused building materials or a credit for store purchases. One event was held on Earth Day and another was held during National Composting week. As part of the campaign, a newsletter was developed to document the results of the sales events and to increase the awareness level for products that were never used by building contractors or by reusing slightly used building materials. The newsletter also acknowledged the work of community members who submitted the before and after pictures illustrating refurbished rooms through the use of reused doors, flooring, tile and light fixtures.

## **Assessment**

Overall, the project was effective in completing their goals and it was successful in creating awareness of their facility's location and services, and with recycling in general. Their newsletter currently has a mailing list of 138 residents and businesses. Stardust reported several increases in their organization's operations due to the awareness program. When they compared their 1998 figures to 1999 figures, the materials diverted from the landfill increased by 78 percent, materials donated to the store increased by 47 percent, sales increased by 75 percent, and materials donated to other organizations, such as Habitat for Humanity, increased by 1,400 percent. A few lessons were learned when they

tried to establish contacts with the local recycling companies. They found that many of the recyclers that advertised in the phone book did not recycle the items they advertised. The cost for picking up the recyclables also needed to be negotiated, as this was something for which the non-profit organization was not prepared. After several attempts, Stardust was able to locate recyclers for all of their recycled materials except broken glass, porcelain and rubber. In addition, Stardust realized that the storage containers, which were constructed after delivery, were too large and too heavy to be used at the construction sites. To solve this problem, an additional forklift was rented for the delivery and removal of one of the containers. One storage container was sold and replaced by a storage trailer for easy removal. Stardust would not recommend a shed type storage container due to the size and awkwardness of the unit and the logistical problems it would cause.