

Spring 1996

Innovations in reuse

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Innovations in Reuse

**Committed to decrease the amount of reusable solid waste that is discarded,
increase resources available for education and build partnerships within the
community to support and promote reuse programs that will improve the
quality of life in Southern Nevada.**

**Thesis submitted in partial fulfillment
of the requirements for the degree of Bachelor of Science
in
Environmental Studies
University of Nevada, Las Vegas**

**by
*Lisa R. Osorio***

Spring 1996

**Thesis Advisor: *Christine Chairsell*
Dean of Special Programs
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ABSTRACT***Innovations in Reuse******by******Lisa R. Osorio***

Material reuse benefits all sectors in the community by decreasing the amount of reusable solid waste that is discarded. It increases the resources available for various programs and builds partnerships with educators, and businesses to support and promote reuse programs that will improve the quality of life in areas in which they operate. Several areas of the country currently have reuse programs that focus on several areas of reuse. Successful projects in several cities have focused on such areas as reuse for education, the arts, or other nonprofit activities. These sustainable programs have benefited other communities and should serve as models for Las Vegas, the fastest growing metropolitan area in the U.S. since 1989. Since the Clark County School District is now the tenth largest in the nation, the development of a reuse warehouse for educational supplies has enormous potential. The transfer of unneeded materials from growing businesses and industries to the burgeoning educational sector would benefit our community by reducing the amount of waste sent to our landfill and increasing the availability of urgently needed classroom supplies. According to results of a survey conducted in October 1995, educators spend an average of \$492.00 per year on additional materials for their classes. Southern Nevada should take examples of reuse currently benefiting communities and apply them to our city to increase the quality of life here in Las Vegas.

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Chapter 1

INTRODUCTION

Las Vegas has been the fastest growing metropolitan area in the United states since 1989 with an annual growth rate of 7 percent. One of the negative effects of this increased growth is the affect it has on the amount of waste generated and the need for larger landfill space. Recently Silver State disposal closed the existing Sunrise landfill and began trucking waste outside of the city limits. The location of the current Apex landfill is approximately 20 miles northeast of Las Vegas. The cost of garbage disposal increased due to the cost associated with the new location. Thus, alternative cost saving solutions would seem feasible to reduce the increasing amount of waste that is discarded.

According to waste managers an effective way to curb garbage is to reduce, reuse and recycle. To have an effective waste management program in a community, reuse along with reduction of waste must be addressed and implemented at a higher level than the individual consumer. Over the past few decades, recycling has become a household word. Reuse, however, has been addressed only recently as a commodity of reusable items. Reuse is emerging as wealth from the waste of various communities (Lewis, Clark, Vandall, & Seldman, 1995). Reuse is defined in the Marin County Solid Waste Management Plan of 1985 as:

The return of a product or waste material to economic use in its original, or nearly original form, without much processing other than separation, sorting, cleaning or repair. Primary reuse is exemplified by the washing and refilling of

salvaged wine bottles, where the product is used in its original form for its original purpose. Secondary reuse, is where a product is recovered for a different use than that for which it was made, such as the splitting of tires for use as dock bumpers" (Schneider, 1995).

Reuse complements a recycling program and reused materials do not require extensive processing to become useful. Material reuse benefits all sectors in the community by:

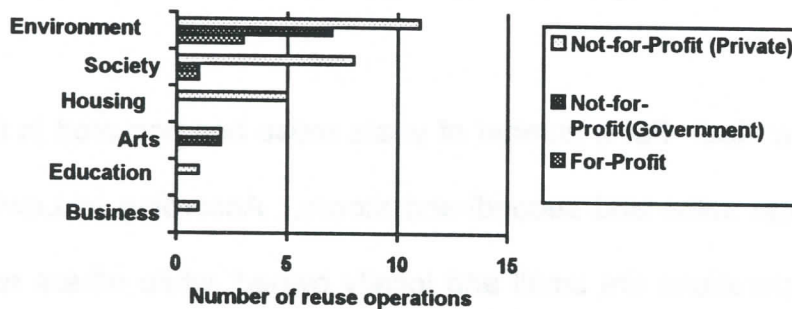
1) decreasing the amount of reusable solid waste that is discarded; 2) increasing the resources available for various programs in the community; and, 3) building partnerships with educators, community organizations, government agencies, media, school districts, public and private corporations, and businesses to support and promote reuse programs that will improve the quality of life in the areas in which they operate.

Reuse is not a new idea. For a number of years reuse has occurred in the form of hand-me-downs, garage sales and secondhand stores. According to Lewis et al. (1995), many of these operations are small and locally owned, while others are large and maintain a national presence such as the Salvation Army and Goodwill. The difference between traditional reuse and the newly emerging reuse centers in various locations in the country is the motivation that initiates the reuse. Traditional reuse centers use the income from the resale of reusable items to help fund their social or religious missions. The Salvation Army stores generate funding that is used to feed the hungry, heal the sick and assist the poor. More recent arrivals on the reuse scene

often list the environment as their primary mission. Representation of the primary mission of the newly emerging reuse operations is displayed in Figure 1.

As Figure 1 shows the typical goals and objectives of the new operations are closely linked to the community, and an environmental and/or social mission guides their activities. These operations are often community-based and collect broad categories of reusable products including furniture, building materials, appliances, office equipment, and other items that are second-hand, overstocked, outdated, "off-spec," or below standard (Lewis et al., 1995).

Figure 1 Primary Mission of Reuse Operation



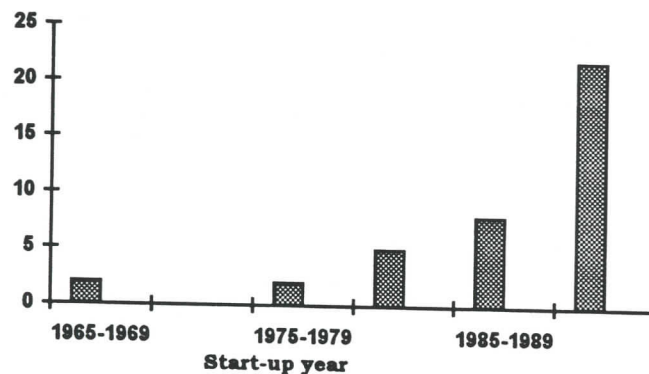
Note: Figure based on responses of 39 reuse operations.

Source: Reuse operations: community development through utilization of used goods by M. Lewis, R. Clark, J. Vandall, and N. Seldman, 1995, Washington, DC, Institute for Local Self-Reliance.

There are basically two types of materials that reuse centers divert from landfills. They are new materials and, of course, used materials. The new materials have never been used, for example, materials that remain when a business goes out of business or leftovers from a construction site. These materials are no longer needed for business

operations and have great potential for reuse. Other materials could be outdated or overstocked. Used materials are materials that a business no longer needs for operation. These items have been used and can still be used by others. Used office supplies and machines would be included in this category. Materials most commonly handled by existing reuse centers are furniture, appliances, construction materials, and office equipment (Lewis, et al., 1995). These materials are then made available to a wide range of recipients at low or no cost. Both the traditional and the emerging reuse centers play an important role in reuse since both are supplying a service to the community. The newly emerging reuse centers have been increasingly successful. Reuse development has been slow and sporadic until the mid 1980's. The concept of reuse has flourished, as shown in Figure 2.

Figure 2 Start-up Year of 39 Surveyed Reuse Operations



Note: Figure based on responses of 39 reuse operations.

Source: Reuse operations: Community development through utilization of used goods by M. Lewis, R. Clark, J. Vandall, & N. Seldman, 1995, Washington, DC, Institute for Local Self-Reliance.

The phrase "Think globally, act locally" is clearly very appropriate in the reuse arena. Most of the reuse centers operate on a local level while only a few of them

operate at a national or international level. With the increased number of people and businesses moving into the Las Vegas Valley, a reuse operation would seem both a feasible and a timely response to community needs. With growth in business and industry and growth in the schools, transferring materials from the business sector to the educational sector would benefit our community as a whole. Southern Nevada should take examples of sustainable practices that have benefited other communities and apply them to our city. In this study, several reuse warehouses will be examined to gain the necessary information to begin a reuse warehouse in the Las Vegas valley.

Chapter 2

AN OVERVIEW OF EXISTING REUSE OPERATIONS

Reuse is most effectively implemented on a local rather than regional basis, and it is attractive to large numbers of small businesses - the sector with the highest job growth (Knapp, 1992). A number of reuse centers are successfully operating and have been for several years. There are several different programs that have varying avenues for reuse. A discussion of these operations will provide background information regarding what has been done in other communities.

FOCUSING ON THE ARTS

Several reuse operations focus on reusable materials that are donated for use in art programs. Material for the Arts in New York is an example. Material for the Arts (MFA) is a waste reduction/reuse program that puts unwanted materials from individual and business donors into the hands of nonprofit cultural organization; social service, health, education and community organizations with arts programming; and individual artists working on public projects.

This operation started in 1979 and has distributed over \$12 million worth of donated materials. Donations have come from 3,000 donors, including large international corporations, small businesses, government agencies, and private citizens (Material for the Arts, {MFA}, 1994). The recipients of the material are nonprofit art organizations, individual artists, and social service and education groups offering arts programs. The operation is funded from city agencies such as the

Department of General Services and the Department of Sanitation. The staff includes seven paid staff positions and occasional volunteers and interns.

Another program that focuses on Art is the City of Atlanta Bureau of Cultural Affairs' Arts Clearing House. This program began in 1992 and has received donations totaling over \$370,000 since its inception. Primarily, the center provides material for loan for special community projects. The material that is on loan has been donated from the area businesses for use in cultural and educational activities (Material for the Arts, 1994). This reuse center also secured a grant from the National Endowment for the Arts to establish a musical instrument lending bank to serve Atlanta Public Schools.

FOCUSING ON NOT-FOR-PROFIT ORGANIZATIONS

Several reuse centers focus their attention on supplying material for other nonprofit organizations. The Community Resource Center (CRC) began in 1986 in Cincinnati, Ohio, allows membership to "any IRS designated 501(c)(3) organization, including social services, arts groups, schools and religious institutions" (CRC, 1992?). A handling fee is charged to the recipient and is based upon the fair market value of the item. Since 1990, goods valued at approximately \$2 million have been passed to nonprofit organization at a cost to them of \$295,000 (CRC, 1992). They received initial funding from The Greater Cincinnati foundation, The Kroger Company, Federated Department Stores, The Cincinnati Bell, and the Cincinnati Bank Consortium.

The Surplus Exchange in Kansas City, Missouri, was formed after the successful completion of a ten year pilot program. Its mission is to divert resources away from the

waste stream, refurbish these materials, then redistribute them back into circulation within the same community (National Surplus Exchange, 1994).

L.A. Shares is a non-profit reuse program which takes corporate and individual donations of reusable materials, manufacturer overages and discontinued items, and makes them available at no cost to non-profit groups and schools throughout Los Angeles County (Ball, 1995 ?). The program first was established in 1991 as Materials for the Arts, a pilot program of the City of Los Angeles Cultural Affairs Department. In order to expand beyond the Los Angeles city limits and service all non profits, The program was expanded to L.A. Shares. By utilizing L.A. Shares, California businesses adhere to Assembly Bill 939 which requires them to reduce their landfill-bound waste 25% by 1995 and 50% by the year 2000 (Ball, 1995 ?). The city loans Bert Ball, director of L.A. Shares, the use of the warehouse to store and disburse the supplies, and a private foundation underwrites the salaries and expenses for Bert Ball and his workers (McCarthy, 1993). They have provided materials valued in excess of 10 million dollars, free of charge to over 2,500 organizations and schools throughout the Los Angeles County.

FOCUSING ON EDUCATION

The Recycle Center for the Boston Public Schools is one of the most successful and unique business/education partnerships in the United States (Institute for Self Active Education, 1991-92). The Boston Recycle Center was the first center that focused on the needs of education. It began in 1972 by supplying reusable materials for education. Recycled into educational materials, these items go a long way toward

making up for the teaching resources urban schools cannot afford to purchase (The Recycle Center, 1990?). The focus of the center is to enhance creativity and self-discovery among students and teachers. Many of the new reuse centers have used this center as a model when creating their reuse programs. The Institute for Self-Active Education had developed a successful program known as the National Schools Recycle Center Network. The network started with the Boston Recycle Center and currently affiliate programs are operating in St. Louis, Albuquerque, and Chicago, as well as in cities in Rhode Island, Florida and California (Lewis et al., 1995).

Partners in Education in Sparks, Nevada, began a reuse warehouse in 1993. The project was titled the From Crayons to Computers warehouse. In its first full year of operation, the warehouse has been a strong success. The warehouse accepts material donations from businesses and individuals and makes them available free to Washoe County School District staff for use in their schools and departments (Partners in Education, 1993-94).

In San Francisco, a reuse center titled SCRAP (Scroungers' Center for Reusable Arts Parts) began in 1977. Due to lack of funding they closed temporarily and resumed operations in 1991. SCRAP acts as a nonprofit conduit for unwanted materials from businesses and individuals to students and other groups who can re-use them (SCRAP, 1995). SCRAP conducts a number of free workshops on reuse and repair. These programs are nonprofit organizations and do not charge a fee to the recipient or donor of the goods.

The East Bay Center for Creative Reuse is located in Oakland, California. The East Bay Depot collects unwanted materials from businesses, manufactures, and individuals and makes them available to teachers, artists, community programs and the public for reuse. Their educational mission is to "increase the awareness of students and the general public concerning the personal satisfaction and environmental benefits gained from creatively reusing industrial, commercial and residential materials" (East Bay, 1995). The Depot has helped begin the "From Crayons to Computers" warehouse in the Tri-Valley area. This effort is a collaboration among the school districts of Dublin, Livermore Valley, Pleasanton, Sunol Glen, ROP, and Los Positos Colleges. The reuse center will be open only to the teachers of these districts and not to the public.

More information about the reuse operations that focus on Education will be discussed in Chapter 3.

FOCUSING ON BUILDING MATERIALS

Most of the reuse centers operate as nonprofit organizations but a few are successful as for-profit business ventures. An example of a for-profit business is Urban Ore. They started salvaging materials in 1979. Urban Ore's primary purpose is to keep reusable materials in circulation and out of the dump (Urban Ore, 1993). Urban Ore, Inc., is a working prototype for an industry that can and should be interposed between the demolition and hauling, and the recycling industry. Reuse on this scale would prevent reusable building materials and other products from being destroyed by providing a cost-effective way to get them into the hands of people who can use them

(Knapp, 1992). Urban Ore receives drop-offs of salvage material from the transfer station and also purchases material from contractors and haulers. The reusable materials are sold to a number of individuals ranging from students to homeowners.

Another successful building material reuse facility is The Loading Dock in Baltimore, Maryland. Started from a non-profit building contractor's garage a decade ago, the company now employs 16 people, many of whom live in the surrounding inner-city Baltimore neighborhood (Ruben, B., 1994). The materials collected by the loading dock are sold to non-profit, religious or low-income people for 25-33 percent of the retail cost. The loading dock also hosts home repair and energy conservation workshops for the surrounding community.

There are several other successful used building material stores. The creation of the Used Building Materials Association (UBMA) is currently being formed by a number of people involved with material reuse. The Interim Board members consist of 10 people who currently run some type of used building material reuse center. They have approximately 60 people interested in joining the association that is currently in the infancy stage. This first annual meeting of the UBMA is tentatively set in September 1996.

The success of the oldest used building material stores in Canada (from four to five years old) as well as older U.S. building material stores shown in Table One demonstrates the likelihood of long-term viability. The rapid increase of for-profit and nonprofit used building material stores in the last few years (from a handful to more than

100) also seems to indicate that many of these stores may become profitable (Adres, 1994).

Table 1. Successful Used Building Material Stores

<i>Store name</i>	<i>Location</i>	<i>Status</i>
Re-Store	Winnipeg, Manitoba	Non-profit
Happy Harry's Used Building Materials	Winnipeg, Manitoba	For-profit
Architectural Clearinghouse	Edmonton, Alberta	For-profit
Loading Dock	Baltimore, Maryland	Non-profit
Urban Ore	Berkeley, California	For-profit
Garbage Reincarnation\Beyond Waste	Santa Rosa, California	For-profit
Re-Uze Building Centre	Toronto, Ontario	For-profit
Rehab Resources	Indianapolis, Indiana	Non-profit
Construction Closet	Tucson, Arizona	Non-profit
Home Resource	Atlanta, Georgia	Non-profit
Renovators Resource	Halifax, Nova Scotia	For-profit
Surplus de Matériaux Beauport Inc.	Beauport, Quebec	For-profit

Source: Points to consider when setting up a used building material store by A. Andres, Spring 1994 Winnipeg, Manitoba, Environment Canada.

The potential for reuse operations has never been greater, as the waste stream of the U.S. grows in size. In 1993, the U.S. Environmental Protection Agency estimated that 13 percent by weight of municipal waste was appliances, furniture, carpets and miscellaneous durables (not including construction and demolition debris)—all are candidates for recovery and reuse (Lewis, et al., 1995). All of these centers are taking an active approach in taking reuse seriously. They have provided varying examples of what can be done and what has been done in reducing waste and reusing materials. Pavitra Crimmel of Garbage Reincarnation has addressed reuse and has successfully run a Landfill Reuse/Recycling program since 1985. She notes that:

"Reuse isn't really a waste management strategy, designed to manage what others have destroyed. Reuse is an act of attention, it's looking after, maintaining, repairing, and nourishing the tools of our lives. Reuse involves a kind of responsibility and acceptance of the changing nature of the material resources of life. Human activity does not need to involve the use of virgin materials to be productive. that is the illusion of the gross national product

economists. If we wish to find a way to marry environmental needs with economic concerns we need to look at a new kind of economy, an economy that no longer looks at the destruction of resources as growth; an economy that values renovation, restoration and repair; an economy that values the real needs of people to participate in their own lives, rather than the unrealistic and inflated desires of consumerism induced into them by the supporters of the Gross National Product (Crimmel, 1991)."

As seen from the previous examples, a number of organizations have developed centers that reduce and reuse materials from businesses. A closer look at reuse operations that focus on education will be discussed in the next chapter.

Chapter 3

A CLOSER LOOK AT EXISTING REUSE FOR EDUCATION WAREHOUSES

Reuse centers face some basic questions regarding their day-to day operations. These include: how to control the flow of materials; how to staff the center; and how to market their services (Lewis et al., 1995). A closer look at the operations of three reuse centers that focus on materials for education will provide information on how these centers answer these questions.

CRAYONS TO COMPUTERS

In Sparks, Nevada, Partners in Education (PIE) began a program called From Crayons to Computers. The warehouse opened in December 1993 and has been more successful than anyone had imagined.

Partners in Education hosts a variety of other programs that provide support for the Washoe County School District. The Adopt-a-School program which creates a mutually beneficial partnership between the business community, or agencies and a school. They also serve as a liaison between businesses and schools. They have a mentor program which matches students with a positive role model in the community and provides a number of one-on-one programs to help keep children in school.

The Crayons to Computers warehouse is located at the same property of the other programs. The warehouse falls under the umbrella of the existing programs which allows for warehouse space at a minimal cost. The landlord of the warehouse properties, Chris Nelson of Trammell Crow, has provided them with low cost space for the warehouse through an in-kind contribution. The warehouse is approximately 3,000

square feet, full of shelving and materials donated from the local industries and businesses. Other businesses and individuals provided services to help the warehouse begin their operations. Ross Barker of Barker Business Systems provided assistance with brochures that were distributed to the business community, and forms that were necessary for accurate documentation of donations and teacher requests.

According to Judy Simpson, Program Coordinator, over \$1,000,000 worth of gifts, services, merchandise and monetary donations have been distributed throughout the district. The materials that are collected are available to the school district teachers and staff at no cost. Donations range from a van donated from the Washoe County School District to assist in picking up materials, to hula hoops that a teacher used for a performance with her students. PIE has received donations from over 400 donors and continues to receive the support of business for several reasons. Business donors receive a charitable tax deduction for contributing materials to the warehouse. Another reason is that the warehouse is set up with the donor appreciation in mind. Teachers are strongly encouraged to send a thank you to the businesses that donate materials. In the front of each shelf or stack of materials, a pack full of paper tags is found. The teacher selects an item on that shelf and takes a tag. The tag contains the information of the material donor. Teachers write a thank you letter which maintains a constant relationship with the business. Several other agencies provide assistance by providing labor for the warehouse as well. The Washoe County Sheriff's Department provides volunteers to pick up materials and to stock the warehouse. Several teachers within the district also donated a number of hours assisting in warehouse operations.

The warehouse initially did not have a manager. The staff at PIE juggled the warehouse until they realized the program was growing enough to warrant a warehouse manager. Through fundraising activities they raised enough money to provide a temporary paid position lasting six months. The program had proved to be successful, and in November 1995, the Washoe County School District provided the funds for a permanent position. The success of the warehouse and the benefits the school district and the businesses received proved the importance of this reuse warehouse to their community. "The From Crayons to Computer concept has been successful beyond anyone's expectations," according to Judith F. Simpson. "It is extremely satisfying to place much needed furniture and supplies into the hands of teachers, and at the same time supporting community recycling efforts."

EAST BAY CENTER FOR CREATIVE REUSE

The East Bay Center for Creative Reuse, referred to as The Depot, began in the early 1970's to provide materials collected from businesses to assist in educational needs in the Oakland Unified School District. The Depot also offers on-site craft workshops that foster creativity and self expression by artistic use of reclaimed materials. They also provide workshops at schools and conferences.

In 1992, the Depot began an educational outreach program titled Project Create. Project Create is funded by the Alameda County Waste Management Authority and the Recycling Board. Through Project Create, students learn about waste reduction by participating in hands-on creative reuse projects. They provide this waste reduction curriculum to students, their families and teachers (East Bay, 1995) According to Pat

Claus, Principal at Loom Elementary, " the impact of Project Create on our school was extremely positive. The hands-on, creative structure of the program seemed to significantly increase awareness about waste among participants, as well as the community into which they took their creations". Project Create, along with Hayward Unified School District, sponsors the Reuse Room, a satellite materials reuse center at the former Brinkwitz High School site in Hayward. Teachers can buy supplies for classroom projects, at a very low cost, and know that they are diverting waste at the same time (Project Create, 1995 ?).

The East Bay Center for Creative Reuse and Project Create have been successful and have recently required the programs to look for a larger warehouse. The Depot moved in January, 1995 into a larger warehouse. The previous warehouse was approximately 700 square feet for materials storage and an additional 200 square feet for office activities. The new warehouse is a two story building on the city borders of Oakland and Berkeley. The downstairs warehouse portion of the building is leased from the University of California, while the upstairs portion is an "in kind" donation from the City of Berkeley. The total space is approximately 5,000 square foot which will allow the projects to expand and take additional donations that required more space than previously available. The previous warehouse was located in a residential warehouse which lessened the exposure to the population that it intends to serve. The new warehouse is located on San Pablo Boulevard, which is a main thoroughfare for most of the commuters in the area. Most of the donations are brought to the Depot since the operation does not have the vehicles to assist in material pick-ups.

The material warehouse currently employs one full time employee, with a numerous number of volunteers. Some of the volunteers are provided by Project 22. Project 22 is a program that allows persons with traffic violations to do various community service programs. This program provides a steady flow of volunteers to help man the warehouse. Other volunteers are from the school district. Several teachers are involved with the warehouse. Project Create employs two full time personnel and approximately 5 part time employees.

The warehouse originally was created as a service to the teachers that would provide free materials to assist with the cost of school supplies. The program has progressed with a price system that has allowed the warehouse to have an element of self sufficiency. There are several items in the warehouse, that are considered "baggage". The baggage items can be bagged and the teacher is charged one price for the bag. The current price is \$5.00 per bag. Teachers can roam through the warehouse and pick items that they can use for their projects and be charged a single price for several different baggage items. Other items are sold by the piece, yard or inch. Various cards and stickers are priced per item, while material, ribbon and yarn are priced by the yard. Various paper materials are priced by the stacked inch. This system is easier than having to count the number of sheets. The Depot also handles computers. A typical system, 286 CPU, with keyboard, monitor and printer would have a ceiling price of \$250.00.

The depot collects an average of \$500.00 per week in sales. These sales were based on the previous location. In the first week of opening at the San Pablo location,

sales were over \$1,000.00. According to Amy Killus of the Depot, this is most likely due to the increase in the ability to display stock and the increased exposure that the new location has created.

SCROUNGERS' CENTER FOR RE-USABLE ART PARTS

In the heart of San Francisco, South of China Town and Fisherman's Wharf, an organization began that would reduce unwanted reusable materials from going to the landfill. By breathing new life into old objects, Scroungers' Center for Re-usable Art Parts (SCRAP) is helping to reduce the amount of waste going to crowded landfills. San Francisco schools and nonprofit organization benefit by receiving badly needed art supplies (SCRAP, 1995). Like other reuse centers, SCRAP collects unwanted materials from businesses, institutions and individuals and makes them available to art and education groups. Recipients of the materials include schools, daycare centers, museums, homeless shelters, senior citizens groups, Girl Scouts, colleges, playgrounds and recreation sites, groups putting on parades and fairs, neighborhood centers, summer camps, theater groups and many other nonprofit groups (SCRAP, 1995).

SCRAP is sponsored by the San Francisco Recycling Program and by the Zellerback Family Fund. Support is also received by the San Francisco Unified School District, the San Francisco Conservation Corps and the Goodwill industries. Other funding is provided by the people who shop at the warehouse. Patrons are charged a minimal price for the items that they receive. Charges for material by the yard or paper by the stacked inch, provides additional support for the staff and overhead expenses to

operate the warehouse. SCRAP has a vehicle to pick up materials from businesses. They require a minimum of three boxes to justify the expense of picking up the material.

SCRAP also sponsors free workshops on how to fix things and make functional art from re-usable & recycled materials. Workshop titles include "50 Things You Can Make With a Drawer" and "Fixing, Rewiring, and Building Lamps". These workshops provide the knowledge for individuals to repair items and use other alternatives to throwing materials away.

RESOURCE AREA FOR TEACHERS

The RAFT, Resource Area for Teachers, a non-profit organization just celebrated their first anniversary. The RAFT is a warehouse full of creative materials for teachers, community leaders, and nonprofit organizations. Access to the warehouse is provided by proof of affiliation with a qualified organization, plus a \$25 processing fee. This system allows the materials to be used for community and educational purposes. According to Linda Hambrick, workshop coordinator at RAFT, businesses are more likely to donate materials if they know the materials are being used for educational and community service organizations.

RAFT currently has 13,000 members and have provided materials for over 200,000 children. The RAFT's warehouse is 20,000 square feet and is not donated. The warehouse employs 3 full time staff (director, office manager, and warehouse manager), and three part time staff (volunteer coordinator, workshop coordinator and warehouse coordinator). They have received funding from the Silicon Valley Charity Ball Foundation, The Varian Foundation and Intel Corporation, among others.

The RAFT recognizes their volunteers. Several businesses help by providing volunteers to the warehouse. Utilization of community service workers also add to the number of helping hands that sort, package and display new items at the RAFT.

Several communities have had numerous benefits from the creation of reuse warehouses. The concept of reuse could be implemented in a number of cities to enhance the community and provide additional resources for education and non-profit agencies that assist in improving the community as well. With the increased number of people and businesses moving into the Las Vegas valley, a reuse operation would seem beneficial both to businesses and to the growing educational needs of Southern Nevada.

Chapter 4

THE ECONOMICS OF REUSE

The various reuse centers demonstrate a relationship between the supply of surplus and used goods and the demand that communities have for additional materials that can be supplied by a reuse warehouse. This relationship creates a market situation. Matching donors who have the materials with people who need materials makes economic sense. Existing reuse centers couple environmental benefits with job creation and community involvement and play a vital role in shaping the local economy (Ruben, B, 1994). According to the Institute of Local Self-Reliance, "Reusable goods often are directed to low-income people, public interest entities, and government agencies who pay a small fee or nothing for them. Recipients therefore save money they would otherwise have had to spend on new, full-priced goods. This avoided purchasing cost averaged \$250 per ton of goods handled by seven responding reuse operations. Annually, the reuse organizations delivered an average of \$250,000 in avoided purchase costs for their recipients". There are a number of benefits associated with material reuse. Jobs are created, materials are redistributed to the community and there is a decrease in the number of reusable materials going to the landfill. Where markets provide efficient distribution, planning allows for the incorporation of externalities and protection of the future. Both planning and markets are useful tools for managing materials (Geiser, K. & Irwin, F., 1993). Societies that recycle and reduce waste can more efficiently and less expensively allocate scarce energy and materials among a growing population. Bringing about the necessary

changes will require coordinated efforts on the part of businesses, governments, and consumers (Geiser, K, 1993). Reuse operations provide the coordination of material exchange within a number of communities. Growth will continue in the reuse field which will in turn provide rich opportunities for community development (Lewis, et al, 1995).

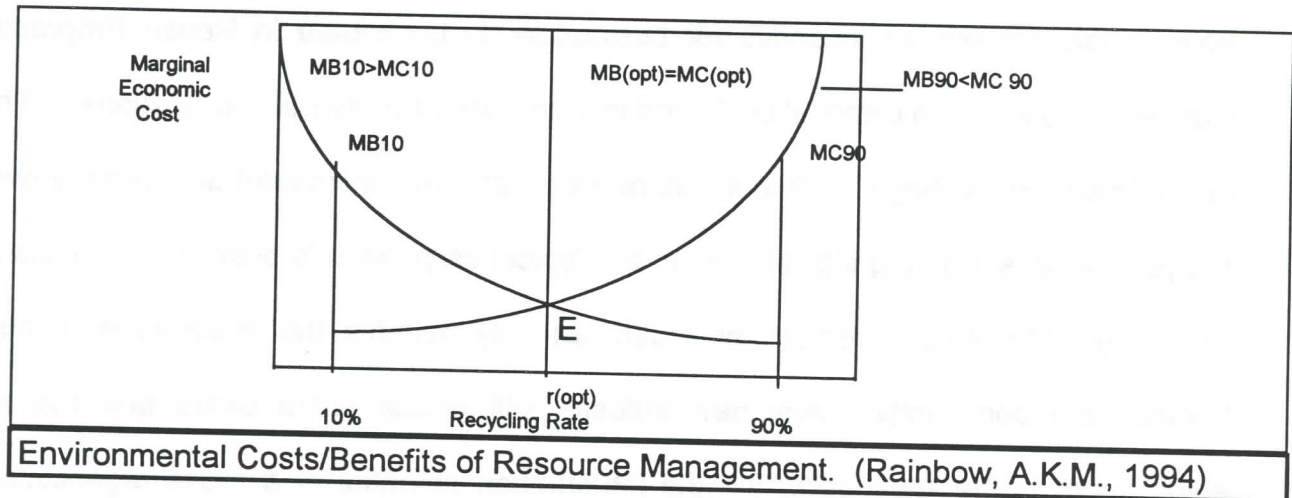
Reuse corresponds to the idea of the Material Balance Approach. The Law of Thermodynamics is the basis of the concept of material balance. The first law of thermodynamics states that energy cannot be created or destroyed. The second law states that all physical processes proceed in a way that the availability of the energy involved. The useful amount of energy is decreased through a variety of processes, leaving the same amount of energy with more energy that is not as efficient or usable. During any process, there will be waste associated with it. With the materials balance approach, waste is inevitable and a by-product of production. Recycling decreases the amount of waste that is sent to a landfill, but as noted in the Laws of Thermodynamics, it is not 100% efficient. There is still waste. Reuse would compliment recycling by minimizing the amount of waste that is disposed of. Lower levels of waste will be a result of material recycling and reuse.

Along with other programs to reduce waste, the benefits and costs must be analyzed. Reuse centers would need to address the costs and benefits associated with this diversion of waste materials. The costs associated with a reuse warehouse would include the following. Warehouse space would need to be obtained to provide storage space for materials. Transportation costs for transporting materials to the center and

salaries for workers would contribute to the costs of reuse. The benefits include diverting material from the landfill, charitable contribution for businesses, creation of jobs and materials that would enhance the education of children and other worthwhile community programs. With the decrease of available landfill space, reuse provides another avenue for materials originally destined for disposal. The charitable contribution, creates an incentive for businesses to participate in Reuse Programs. Businesses also avoid disposal costs and increase their positive public relations. The cost of sending "garbage" to the landfill or incinerator has increased dramatically over the past decade, figuring significantly in the typical corporation's bottom line (Lewis et al, 1995). Donating materials for reuse not only benefits the businesses, it also benefits the community. Any new industry will create some direct and indirect employment in the community, but the job-creation potential of a reuse organization depends on its structure and mission. Surveyed reuse operations employ a combination of skilled and unskilled laborers, paying an average wage, according to the 18 operations that responded to the question, of \$9.75 an hour (Lewis, et al, 1995). Materials no longer needed can be used to supplement educational activities and other programs that benefit the surrounding area. Materials and goods whose useful lives have not been fully exhausted are diverted from the landfill, saving space for the unrecoverable portions of the waste stream. Reuse also reduced the need for the production of new products, averting the extraction, processing, and transportation of additional natural resources (Lewis, et al, 1995).

To have an effective waste management plan, the benefits must equal the costs of reducing waste. This state of equilibrium where marginal benefits equals marginal cost represents an efficient allocation of resources. This relationship is represented in Figure 3. An efficient allocation of resources is represented at point E.

Figure 3: Efficient Allocation of Cost and Benefits of Reuse



Larger communities would receive the greatest benefits from material reuse. Larger communities have a diverse array of materials available within a given region along with a more concentrated number of organizations that would benefit directly from the material reuse. Growing communities would greatly benefit by curbing waste before they become a problem. The Las Vegas community is a fast growing community that would indeed benefit from the establishment of a reuse center.

Chapter 5

DEMOGRAPHICS OF THE LAS VEGAS VALLEY

The quality of life in Southern Nevada is very favorable. The superior lifestyle offered in Las Vegas is just one of numerous reasons the area is leading the nation in population growth. Nevada is the fastest growing state in the country. Las Vegas has been the fastest growing metropolitan area in the U.S. since 1989. Las Vegas' population is growing at an annual rate of 7%. With the increase of population and business growth, waste must be managed to preserve the quality of life in Southern Nevada.

Las Vegas has increased the number of businesses due to the maintenance of a pro-business attitude. The Las Vegas valley has become a primary consideration for companies throughout the nation seeking to relocate. Several large corporations such as Ocean Spray Cranberries, Levi Strauss, Kidd Marshmallow and Sweetheart Cup Company take advantage of Southern Nevada's business climate. "The Arrival of Ocean Spray, as well as dozens of other highly respected national companies in recent years, makes it clear that Las Vegas is changing its image once again. Besides its evolution from an adult playground to a family-oriented theme park, the city has grown into a business mecca for a variety of expanding corporations that have little to do with the world of dice and cards (Sheehan, 1995).

The business growth has affected the growth in population as well. According to the Nevada Development Authority, the population is growing in Las Vegas. In July of

1994 the Clark County population was 985,827. One year later, July 1995, the population increased to 1,040,688 people.

The increase in population has brought more students into the school system. Las Vegas is the home of the tenth largest school district, the Clark County School District. The growth rate from fall 1982 to fall 1994 was 66 percent, the second fastest of the nation's largest district. From fall 1989 to fall 1994, the district was the fastest growing district of the top 50 (Insider, 1995). The only other western state to rank in the top ten was in Los Angeles, the second largest school district. The largest district in the country is New York City, with more than one million students. In both of these areas they have existing reuse centers. LA Shares in Los Angeles California and Material for the Arts in New York. Las Vegas does not currently have a center similar to the other programs that are coming into existence in the larger cities of the country.

Chapter 6

CREATION OF INNOVATIONS IN REUSE FOR EDUCATION

The concept of a reuse warehouse was created at Earth Fair. The past four years Channel 3 has had the Science and Art Exposition. I have been the coordinator of the Recycled Art Exposition for the past three years. Various materials no longer used by the business, such as poker chips and mattboard, were donated for use in the Recycled Art exhibit and hands on activity. Area school children created artwork to be displayed in the Science and Art exposition tent. Over 8,000 southern Nevada children visited the Recycled Art activity and transformed trash into beautiful expressions of art. Each year an estimated 1,500 pounds of material originally destined for the landfill has been collected and processed for use in the recycled art.

As coordinator of the project, I collected the materials to be used in the art exhibit. We collected mattboard from frame shops, paper from printer shops, wallpaper and carpet scraps from interior design shops and a number of other items. In the art projects children created masterpieces from these materials. This experience developed an awareness of the reusable materials that were available in our community.

As dedicated educators with limited funds, teachers take advantage of any materials to enhance the learning experience of children. According to results of a 1995 survey of Clark County school teachers, 98.9 percent spent part of their income on supplies for their classrooms. The mean amount spent annually by teachers was \$493.00. the Innovations in Reuse for Education warehouse could reduce out-of-

pocket expenditures and provide a myriad of materials suitable for classroom use. Out of the teachers surveyed, 95.5 percent responded that they would use a reuse warehouse and expressed great support for the project. Some of the materials that teachers requested from businesses range from computers to pens; scrap fabric to Plexiglas. A list of over 120 items were requested by teachers. The results of the survey are detailed in Appendix A.

Since the survey in October, a pilot program for the Innovations in Reuse has been established. The University of Nevada has provided some space for the Reuse center. The location is on campus and will provide the needed space, approximately 1,100 square feet for material storage. The Nevada Department of Environmental has provided partial funding for the pilot program along with a number of Environmental Studies students that will volunteer their time to help run the warehouse.

Donations have been received from a number of businesses. The range of materials we received have been from office supplies to sheepskin scraps. Most business have expressed an interest in future donations and are willing to donate their unusable items. We have received donations valued in excess of \$9,000.00 from area businesses. We received donations from two business that were closing their doors who would have thrown most of the materials away, burdening our landfill. Some of the donors did not wish to value their materials and an estimate of weight have been established. We received 800 pounds of lumber from Nellis Air Force Base and several hundred pounds of Plexiglas scraps from a local resident. The lumber will be

used for warehouse shelving to establish some type of order for teachers to shop the warehouse. The anticipated opening of the warehouse is August 1996.

There are two foreseeable options for the reuse warehouse to continue its operations. The first is to be managed and supported by the Clark County School District. This would allow the warehouse to exclusively serve teachers in the district. The feasibility of this project will be determined through the pilot program. Partners in Education's From Crayons to Computers program is currently funded through the Washoe County School District. The second option is to create a non-profit status for the Reuse warehouse. This non-profit status would allow the reuse warehouse to continue to operate along with the creation of opportunities to serve more than just the school district.

Chapter 7

CONCLUSION

The examples provided in Chapter 2 and Chapter 3 will provide ideas for a successful reuse operation in southern Nevada. Other agencies across the country have promoted reuse for education and for the arts. These warehouses have taken reuse seriously and have provided varying examples of what can be done and what has been done in reducing waste and reusing materials. According to the Institute of Local Self-Reliance, the potential for reuse operations has never been greater. In these times of money shortages and material surplus, reuse makes an excellent community development tool addressing not just economics, but social and environmental problems as well.

The Las Vegas valley will indeed benefit from a reuse warehouse. The warehouse would provide a benefit to both the businesses and the educators in southern Nevada. There are several different programs that have varying avenues for reuse. The Innovations in Reuse for Education will introduce to the Las Vegas valley the value of reusable materials and will hopefully spawn a number of entrepreneurs to explore different avenues of reuse within our community.

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Appendix A

Innovations in Reuse for Education Survey Summary of Findings December 1995

In order to successfully start a program designed to make use of waste products from business and industry for education, it was determined that a survey of educators was necessary to determine the need for the reuse center.

The survey was administered by mail through the Clark County School Partnership Office in October 1995. Four hundred surveys were sent out to Vice principals and to Art teachers within the district. The survey included a statement at the bottom to allow them to copy the survey and pass it on to any another interested teacher.

Table 1

Question: Do you spend part of your income on supplies?

Response	Frequency	Percent
Yes	175	98.9
No	2	1.1
	<hr/>	<hr/>
Total	177	100.0

Almost all of the teachers spent part of their income on supplies.

Table 2

Question: If you spend part of your income on supplies, approximately how much do you spend per year?

Amount	Frequency	Percent
\$1-499.00	96	54.4
500-999.00	11	6.3
1,000-1,499.00	12	6.8
1,500-1,999.00	5	2.8
2,000-2,499.00	3	1.7
2,500-2,999.00	0	0.0
3,000-3,499.00	2	1.1
3,500-3,999.00	0	0.0
4,000-4,499.00	0	0.0
4,500-4,999.00	0	0.0
5,000-5,999.00	1	0.6
No response	20	11.3
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Total	177	100.0

Mean \$492.69

Table 3

Question: Would you use the reuse center if free materials were available for your classroom?

Response	Frequency	Percent
Yes	169	95.4
No	4	2.3
No response	4	2.3
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Total	177	100.0

Table 4

Question: The reuse center will be open approximately 10 hours a week. What days and times would be convenient for you to use this center?

Monday

Response	Frequency	Percent
No time indicated	10	5.6
Morning (8-12)	1	0.6
Middle of the day	0	0.0
Afternoon (12-3)	0	0.0
Evening (3-9)	63	35.6
All day	1	0.6
No response	102	57.6
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Total	177	100.0

Tuesday

Response	Frequency	Percent
No time indicated	11	6.2
Morning (8-12)	1	.6
Middle of the day	0	0.0
Afternoon (12-3)	1	0.6
Evening (3-9)	63	35.6
All day	1	0.6
No response	100	56.4
	-----	-----
Total	177	100.0

Wednesday

Response	Frequency	Percent
No time indicated	14	7.9
Morning (8-12)	0	0.0
Middle of the day	0	0.0
Afternoon (12-3)	1	.6
Evening (3-9)	57	32.2
All day	1	0.6
No response	104	58.8
	-----	-----
Total	177	100.0

Thursday

Response	Frequency	Percent
No time indicated	9	5.1
Morning (8-12)	0	0.0
Middle of the day	0	0.0
Afternoon (12-3)	0	0.0
Evening (3-9)	61	34.5
All day	1	0.6
No response	106	59.9
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Total	177	100.0

Friday

Response	Frequency	Percent
No time indicated	10	5.6
Morning (8-12)	0	0.0
Middle of the day	0	0.0
Afternoon (12-3)	0	0.0
Evening (3-9)	50	28.2
All day	1	0.6
No response	116	65.6
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Total	177	100.0

Saturday

Response	Frequency	Percent
No time indicated	24	13.6
Morning (8-12)	23	13.0
Middle of the day	2	1.1
Afternoon (12-3)	7	4.0
Evening (3-9)	7	4.0
All day	63	35.6
No response	51	28.8
	-----	-----
Total	177	100.0

- Teachers indicated that weeknights and all day Saturday would be the best times for them to utilize the materials available in the reuse warehouse.

Table 5

Question: What grade do you teach?

Response	Frequency	Percent
Kindergarten	11	6.2
1st grade	21	11.9
2nd grade	17	9.6
3rd grade	6	3.4
4th grade	19	10.7
5th grade	12	6.8
6th grade	5	2.8
7-8th grade	14	7.9
9-12 grade	14	7.9
Art	20	11.3
No specific grade	5	2.9
Librarian	3	1.7
G.A.T.E. (2-5)	2	1.1
K-12 grade	7	4.0
Music	3	1.7
Special Education	2	1.2
K-5 grade	12	6.8
Elementary PE	1	0.6
ESL	1	0.6
K-2 grade	2	1.1
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Total	177	100.0