

**UNITED STATES AIR FORCE
IERA**

**Solid Waste Management Plan,
Pope Air Force Base, North Carolina**

**Pacific Environmental Services, Incorporated
4700 Duke Drive, Suite 150
Mason, OH 45040**

May 1998

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**Air Force Institute for Environment, Safety
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Risk Analysis Directorate
Environmental Analysis Division
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ACRONYM LIST

ACC	Air Combat Command
AETC	Air Education and Training Command
AF	Air Force
AFB	Air Force Base
AFR	Air Force Regulation
AMC	Air Mobility Command
ANSI	American National Standards Institute
BCH	Bladen, Cumberland, and Hoke
CEO	Civil Engineering Operations Flight
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEV	Civil Engineering Environmental Flight
CFR	Code of Federal Regulations
CONS	Contracting Squadron
CY	Calendar Year
DEHNR	Department of Environmental, Health, and Natural Resources
DMA	Direct Marketing Association
DODD	Department of Defense Directive
DRMO	Defense Reutilization and Marketing Office
EPA	Environmental Protection Agency
EPC	Environmental Protection Committee
GS	General Statute
HDPE	high-density polyethylene
HQ	headquarters
HSWA	Hazardous and Solid Waste Amendments
LAW	Law Environmental, Inc.
LDPE	low-density polyethylene
MFH	multi-family housing
NCDOT	North Carolina Department of Transportation
OFPP	Office of Federal Procurement Policy
P2	pollution prevention
PES	Pacific Environmental Services
PETE	polyethylene
POC	point of contact
PRE	Polymer Reclaim and Exchange, Inc.
QRP	Qualifying Recycling Program
RBAC	Recycling Business Assistance Center
RCRA	Resource Conservation and Recovery Act
SW	Solid Waste
SWMP	solid waste management plan
USPS	United States Postal Service

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Mr. Eric Saylor authored the report. Mr. George Wahl participated in the site visit, assisted in the development, and provided a senior review of the report. Mr. Gary Baker and Mr. Jeffrey Van Atten served as Project Managers.

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EXECUTIVE SUMMARY

This report supports a project commissioned by Pope Air Force Base (Base) to develop a solid waste management plan (SWMP). The SWMP reviews baseline solid waste (SW) generation data, assesses progress made toward SW reduction goals, defines current SW streams, and identifies opportunities for further SW reduction. The 1992 baseline survey, pollution prevention (P2) opportunity assessment reports, the Base P2 plan, and refuse collection and recycling contracts were reviewed in conjunction with site visits during November 1997 and March 1998 which focused on current P2 measures implemented.

The literature reviewed by Pacific Environmental Services, Inc. (PES) provided two significantly different 1992 baseline values for SW disposal. The value given in the 1992 baseline survey was 1,557 tons of SW disposed. Air Combat Command reported a 1992 baseline value of 8,113 tons of SW disposed. Regardless of which baseline value is used, 1996 disposal estimates provided by the Base initially indicated that the Base had successfully met the U.S. Air Force's (USAF's) goal of 30 percent reduction in SW disposal by 31 December 1996 and 50 percent reduction in SW disposal by 31 December 1997. However, PES discovered that the municipal solid waste contractor, Waste Industries, was reporting disposal weight in tons using a density value of 10 pounds per cubic yard. This density is at least an order of magnitude lower than literature values. Without further insight into how and why the density value was established, it is uncertain whether the Base actually met any of the pollution prevention goals for municipal solid waste.

Section 1 presents an introduction which includes the purpose of the SWMP along with the Base location and description. Section 2 presents a discussion of Federal, State, local/county, and USAF regulations pertaining to SW. Section 3 presents the SW reduction goals status at the Base and compares SW generation and disposal between the 1992 baseline year and the years 1996

and 1997. Section 4 presents current SW management procedures at the Base. Recyclable and refuse material pickup locations are given in Appendices A and B, respectively. Appendix C provides a recyclable material price index. Appendix D lists recycling centers in the vicinity of Pope AFB. Future SW reduction options related to source reduction and recycling as well as programmatic issues are presented in Appendix E.



1.0 INTRODUCTION

In the past, the management of solid waste (SW) generated at U.S. Air Force (USAF) bases throughout the United States, simply involved the collection of the SW and disposing of it in an onsite or municipal SW landfill. This practice was inexpensive and large parcels of land were relatively easy to acquire. Today, however, landfills are closing at a rapid pace and tipping fees are projected to increase annually. Availability of land has become more limited, environmental regulations have become more stringent, and concern for the safe and efficient disposal of SW has grown. Efforts must be made to minimize the amount of SW requiring disposal.

To address these issues, the USAF developed a Pollution Prevention (P2) Action Plan and several USAF directives relating to SW. In these documents, the USAF outlined its P2 policies, established numeric reduction goals for SW disposal, and required all bases to prepare a specific Solid Waste Management Plan (SWMP).

1.1 PURPOSE OF PLAN

The purposes of this SWMP are as follows:

- Define current SW streams generated by Pope Air Force Base (AFB).
- Review baseline SW generation data and evaluate its accuracy.
- Determine if Pope AFB has achieved the SW reduction goals established by the USAF.
- Identify SW reduction opportunities.

This SWMP is developed in accordance with: the SW Management Regulations detailed in Title 40 of the Code of Federal Regulations (CFR) Parts 240, 241, 243, 257, and 258; North Carolina SW Law and Regulations; and the Bladen, Cumberland, and Hoke (BCH) Counties SWMP. Additional authority and guidance in the development of this plan are provided in Air Force Instruction (AFI) 32-7042, *Solid and Hazardous Waste Compliance* (dated 12 May 1994), and AFI 32-7002, *Environmental Information Management System*.

1.2 BASE LOCATION AND DESCRIPTION

Pope AFB is located in Cumberland County, approximately ten miles northwest of the City of Fayetteville, NC. Pope AFB is a tenant to Fort Bragg which bounds the Base to the east, south, and west. The Base is home to the 43rd Airlift Wing (AW), 23rd Fighter Group, and 373rd Training Squadron, Detachment 2.

The 43rd AW is part of the USAF Air Mobility Command (AMC) and was reactivated at Pope AFB on 1 April 1997. The wing operates two squadrons of C-130 Hercules. It is part of the 21st AF, McGuire AFB, NJ and AMC, Scott AFB, IL. Pope AFB helps provide the Rapid Global Mobility of the USAF - one of the service's six core competencies outlined in "Global Engagement: A Vision for the Twenty-First-Century Air Force". It is capable of deploying a self-sustaining war fighting package anywhere in the world at a moment's notice, to form our nation's premier forced entry capability with the U.S. Army. It can also provide theater airlift for other contingencies and humanitarian missions around the world, such as Operation Joint Endeavor in Bosnia or Operation Southern Watch in Southwest Asia.

The 23rd Fighter Group headquartered at Pope AFB is part of the USAF Air Combat Command (ACC) and is home of the USAF's legendary Flying Tigers. The group is a unit of the 347th Wing, Moody AFB, GA; 9th AF, Shaw AFB, SC;

and ACC, Langley AFB, VA. The 23rd Fighter Group, in conjunction with the 43rd Wing at Pope AFB, provides the global power of the USAF - capable of deploying a self-sustaining war fighting package anywhere in the world at a moment's notice, to form our nation's premiere forced entry capability with the U.S. Army. To carry out the mission, the group has the 74th and 75th Fighter Operational Squadrons. Both the 74th and 75th are assigned A-10 Thunderbolt aircraft.

The 373rd TRS, Detachment 2 is part of the USAF's Headquarters Air Education and Training Command (AETC). The organization provides aircraft training for A-10 and C-130 weapons systems.

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2.0 REGULATIONS

2.1 FEDERAL

The term "solid waste" is used in the federal regulations generally to refer to both hazardous and non-hazardous solid wastes. Unless stated otherwise, the term "solid waste" or "SW" in this report will refer to non-hazardous wastes only.

2.1.1 Executive Order 12780. Executive Order 12780 requires the Federal government to address the recycling of SW in a more comprehensive manner. It requires each Federal agency to promote cost-effective SW stream reduction and recycling activities in all of its operations and facilities. It further states that these programs shall foster the procurement of recycled materials such as paper, plastic, metals, glass, used oil, lead-acid batteries, and tires, and the composting of organic material such as yard wastes.

Section 502 of Executive Order 12780 requires each Federal agency to annually review the effectiveness of its affirmative procurement program, and provide a report of its findings to the U. S. Environmental Protection Agency (EPA) and the Office of Federal Procurement Policy (OFPP). Beginning with a report covering fiscal year 1992, these reports must be submitted by 15 December each year for the next five years. Reports required by Section 502 are to be made available to the public.

2.1.2 Executive Order 12873. Executive Order 12873 requires all Federal agencies to incorporate waste prevention and recycling in daily operations and work to increase and expand markets for recovered materials through acquisition planning and affirmative procurement programs which emphasize environmentally preferable products and services. Where applicable, Federal

and military specifications, product descriptions and standards shall be reviewed and revised to enhance the use of products made of recovered materials or that are environmentally preferable. Based on guidance from EPA, agencies shall ensure that designated items contain recovered materials. EPA guidance will also be used to identify and purchase environmentally preferable products. Executive Order 12873 and Executive Order 12995 (Amendment to Executive Order 12873) establishes minimum content standards for printing and writing paper. Executive Order 12873 also requires each agency to retain funds from recycling or waste prevention, establish Model Facility Programs, and initiate a program to promote cost effective waste prevention and recycling of reusable materials.

2.1.3 Resource Conservation and Recovery Act (RCRA), Subtitle D. SW is regulated under Subtitle D of RCRA. The primary objective of the Subtitle D program is to encourage SW management practices that promote environmentally sound disposal methods, maximize the reuse of recoverable resources, and foster resource conservation. To achieve these goals, EPA has established technical standards for SW management facilities and a program under which each state may develop and implement a SWMP.

The technical standards established under Subtitle D call for the environmentally safe operation of SW disposal facilities. At a minimum, SW disposal facilities must comply with the Federal standards, although states may adopt more stringent standards. The Federal standards set out mandatory minimum technical requirements for environmentally acceptable facilities. In 1984, the Hazardous and Solid Waste Amendments (HSWA) made these standards even more stringent. Under HSWA, each state is required to establish a permit or prior approval program for facilities receiving small amounts of hazardous waste (HW).

Through state programs, the Subtitle D legislation seeks to encourage all states, counties, and local governments to adopt SWMPs. Although this portion of Subtitle D is voluntary, many states have plans in place.

2.1.4 RCRA, Subtitle C, Hazardous Waste. Subtitle C of RCRA regulates the generation, transportation, treatment, storage, and disposal of HW. Wastes designated as hazardous under Subtitle C are legally excluded from Subtitle D landfill facilities and must be disposed of at facilities permitted under the Subtitle C regulations. Exceptions are made for the disposal of HW in Subtitle D landfills in the case of certain elements of the SW stream and when planning for the disposal of household HW.

2.1.5 RCRA, Subtitle F, Government Procurement. Subtitle F of RCRA, also known as Section 6002, requires the Federal government to actively participate in procurement programs that foster the recovery and use of recycled materials and energy. This requirement, which serves as an example for similar programs at the state and local levels, is required of government agencies and contractors receiving federal funding for a variety of programs.

Subtitle F also requires Federal agencies and other applicable groups receiving Federal funds to procure items composed of the highest percentage of recovered materials practicable. In addition, these agencies are required to delete requirements that products be made from virgin materials or that prohibit the use of recycled materials.

Subtitle F also directs EPA to prepare guidelines for procuring products made from recovered materials. In 1988 and 1989, EPA issued five guidelines for the procurement of paper and paper products, refined lubricating oil, retread tires,

cement and concrete containing fly ash, and building insulation products. These guidelines recommend minimum recovered material content standards.

In compliance with RCRA Subtitle F (Section 6002), Executive Order 12780, and a USAF letter dated September 25, 1992, the USAF has implemented affirmative procurement programs for materials with recycled content. Acquisition of recycled materials will be based on the EPA's procurement guidelines for purchasing recoverable materials.

2.1.6 Other Federal Regulations. 40 CFR 240 through 258 cover all aspects of SW management. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), more commonly referred to as "Superfund", must also be considered due to the potential for long-term liability for current and past SW disposal practices. The Clean Water Act affects SW disposal facilities that generate ash-quench water, landfill leachate, and surface water discharges. The Safe Drinking Water Act affects SW disposal facilities by protecting existing or future wellhead areas.

2.2 STATE

The State of North Carolina does not have a mandatory SW recycling program. The State agency responsible for enforcing SW regulations is the North Carolina Department of Environment, Health, and Natural Resources (DEHNR). The following State SW General Statute (G.S.) are those applicable to Pope AFB:

- G.S. 130-166.16 et seq addresses SW management.
- G.S. 130A-39.04(c) indicates the SW reduction goal of the state -- 40 percent by 30 June 2001.
- G.S. 130A-309.09(a) instructs counties to prepare SWMPs.

- G.S. 130A-309.09(d) addresses SW management reporting requirements.
- G.S. 136-18.3 addresses garbage collection containers on highway rights-of-way.
- G.S. 130A-390.10(f) lists items that are banned from landfills and/or incinerators.
- G.S. 130A-309.70 states that lead acid batteries are banned in landfills and incinerators.
- G.S. 153A-136 provides counties with the authority to regulate storage, collection, transportation, use and disposal of SW.
- G.S. 153A-149(c)(31) provides counties with the authority to levy taxes to provide SW collection and disposal services.
- G.S. 153A-274 et seq provides authority to the counties to operate their own SW collection and disposal systems and facilities.

2.3 LOCAL/COUNTY

In January 1998, Pope AFB began sending its SW to the Ann Street Landfill; located in the city of Fayetteville, NC and Cumberland County, NC. The Counties of Bladen, Cumberland, and Hoke (BCH) have developed a SWMP in accordance with NC G.S. 130A-309.09A(b) for the purpose of meeting local SW needs and protecting public health and environment. The BCH Counties long range planning goal is to develop and coordinate for a comprehensive SW management program. This program should provide cost effective collection services, SW reduction programs, and disposal capacity and options to all residents in the BCH Counties. The program's goal also works toward reducing the improper and illegal disposal of SW. The following are the goals of the BCH Counties:

- To protect public health and the environment.
- To provide planning area residents with collection services, SW reduction opportunities, and disposal capacity.
- To decrease improper disposal.
- To work toward the State SW reduction goal.
- To increase efficiency and cost-effectiveness of area SW programs.

2.4 U.S. AIR FORCE

According to the United States Department of Defense Directive (DoDD) 4165.60, each installation must establish a Qualifying Recycling Program (QRP). AFR 91-8, Chapter 3, instructs installations to develop a SWMP. All receptacles and collection routes, schedules, and equipment are required to meet DoDD 4165.60 and AFR 91-8 criteria, as well as State and local requirements.

Guidance on developing a SW strategy is given in USEPA's Decision-Maker's Guide to Solid Waste Management (EPA/530-SW-89-072). In the event legal requirements or economic factors drive bases to implement unprofitable recycling programs, the base Civil Engineer, as a function of managing waste disposal, is responsible for operation of the recycling effort.

AFI 32-7045 contains the requirements for performing internal and external environmental compliance assessments.

AFI 32-7080 provides instruction on developing and operating a *Pollution Prevention Program*. Each MAJCOM must establish calendar year (CY) 1992 baselines for purchasing ozone depleting chemicals, and EPA 17 industrial toxins, disposing of SW, and disposing of HW. Bases must report quarterly on these four baseline areas and affirmative procurement efforts. Bases are

required to include municipal SW issues and procurement of recycled materials in their P2 Management Plans and integrate cost-effective SW reduction and recycling programs into their municipal SW management plan. Recycling of materials must include, but is not limited to, paper, plastic, metals, glass, used oil, lead acid batteries, and tires. This instruction contains the SW requirements for preventing pollution through source reduction, resource recovery, and recycling. Each installation will have a single QRP to serve all USAF and tenant organizations occupying space on the installation, including leased space. Each base will, as appropriate, operate a composting program or participate in a regional composting program; at a minimum, the composting program will include yard wastes. Items purchased under affirmative procurement programs for materials with recycled content will include, but are not limited to: paper; retread tires; building insulation; cement/concrete containing fly ash; and re-refined oils.

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3.0 SOLID WASTE REDUCTION GOALS STATUS

3.1 SOLID WASTE PERCENT REDUCTION GOALS

The overall goals of the USAF SWMP are to reduce SW, prevent pollution, and conserve natural resources. The USAF Chief of Staff has established the following SW reduction goals based on a CY1992 baseline:

- 30 percent reduction in SW disposal by 31 December 1996; and
- 50 percent reduction in SW disposal by 31 December 1997.

3.2 SOLID WASTE 1992 BASELINE SURVEY

Law Environmental, Inc. (Law) performed a CY 1992 baseline survey of air emissions, HW, non-hazardous waste, and oil/water separators at Pope AFB. Law gathered data on SW from reviews of Base records and interviews with personnel at Pope AFB. Law determined that Pope AFB disposed of 1,557 tons of SW in 1992. In a later report (*Pollution Prevention Opportunity Assessment for Pope Air Force Base, 2 June 1995*), PES discovered that ACC reported a disposal baseline number of 8,113 tons of SW. ACC did not do a detailed survey of the Base but created its baseline data from other bases similar in size and mission to Pope AFB. The ACC report provided no explanation for the wide discrepancy between the two different baseline values.

Another certain reason for the difference in baseline values is that ACC used a conversion rate of 180 pounds per cubic yard of refuse to convert cubic yards to pounds. Waste Industries, the refuse contractor for Pope AFB since October 1992, uses a conversion rate of 10 pounds per cubic yard of refuse to convert cubic yards to pounds.

3.3 SOLID WASTE GENERATED IN 1996

Based on 1996 quarterly data provided by the Civil Engineering Squadron, Environmental Flight (CES/CEV), 688 tons of SW were disposed in the Fort Bragg landfill, 246 tons of SW were recycled, 78 tons were composted, and approximately 750 tons of unusable liquid petroleum products were transported to Fort Bragg for energy recovery. The amount transported for energy recovery is estimated based on the volume of used oil tanks and oil/water separators (OWSs) given in the current oil pumping contract. Before 1997, the contract was not based on the quantity pumped; rather the contractor was paid a standard price each time a tank or OWS was serviced. It is estimated that 180,000 gallons of used oil were generated during 1996.

3.4 SOLID WASTE GENERATED IN 1997

Based on 1997 quarterly and monthly data provided by CEV, 630 tons of SW were disposed in the Fort Bragg landfill, 148 tons of SW were recycled, 112 tons were composted, and 635 tons of unusable liquid petroleum products were transported to Fort Bragg for energy recovery. Refuse collection and disposal information provided by the contractor to the Civil Engineering Operations Flight (CEO) and Civil Engineering Environmental Flight (CEV) for each quarter include refuse figures which are converted from cubic yards to pounds.

According to the refuse collection and disposal records for the months of April, May, and June, a density value of 10 pounds per cubic yard is used to determine the quantity disposed in pounds given the volume in cubic yards. This value seems quite low compared to literature values for uncompacted SW which range from 100 to 300 pounds per cubic yard. Subsequent conversations with Mr. George Minor of Waste Industries (910-436-6574) on 27 April 1998 revealed that the density value of 10 pounds per cubic yard was established with the previous

contractor. Waste Industries could not substantiate the validity of the density value, yet they have continued to use it since October 1992. The contractor is not obligated to employ weigh tickets for estimating disposal in pounds or tons. The density value used to convert from volume to mass has a major impact on the estimates for disposal and the calculation of percent reduction versus the baseline.

3.5 1992 AND 1996/1997 SOLID WASTE DISPOSAL COMPARISONS

Table 3.1 summarizes the quantities of SW generated by Pope AFB in 1992 versus data for 1996 and 1997.

YEAR	Generated (tons)	Disposed (tons)	Recycled (tons)	Composted (tons)	Energy Recovery ^b (tons)	Percent Reduction in Disposal Using Law Baseline (%)	Percent Reduction in Disposal Using ACC Baseline (%)
1992 Baseline (Reported by Law) ^a	2,014	1,557	457	0	0	NA	NA
1992 Baseline (Reported by ACC)	8,697	8,113	584	0	0	NA	NA
1996	1,762	688	246	78	750 ^c	56	92
1997	1,525	630	148	112 ^b	635	60	92

Source: Pollution Prevention Opportunity Assessment for Pope AFB, 2 June 1995

a Values as reported by Law Environmental, Inc. in the Waste Baseline Survey.

b In 1992 oil/water separator sludge was handled as a hazardous waste.

c Estimated based on service requirements for oil/water separators and used oil tanks.

NA - Not applicable.

Using the 1992 baseline SW disposal value determined by Law (1,557 tons), SW disposal was reduced nearly 56 percent for 1996 and 60 percent for 1997. If the

1992 baseline SW disposal value reported by ACC (8,113 tons) is used, the percent reduction in SW disposal is approximately 92 percent for both 1996 and 1997.

Deciding which baseline value to use for comparison greatly impacts the determination of the current status at Pope AFB. However, regardless of which baseline is used the SW reduction goals of 30 percent reduction in disposal by 31 December 1996 and 50 percent reduction in disposal by 31 December 1997 have both been met.

The calculations for percent reduction are based on disposal estimates provided by Pope AFB. It should be noted that a density factor of 10 pounds per cubic yard was used by the SW contractor in reporting the total estimated tons each month. Increasing the density by an order of magnitude would mean that the quantity disposed was 6,880 tons rather than 688 tons in 1996 and 6,300 rather than 630 tons in 1997. Likewise the percent reduction using the 1992 baseline value reported by ACC would be 15 percent for 1996 and 22 percent for 1997. Obviously, the P2 goals for SW would not be met using either baseline. It is essential that the density of the municipal SW be verified.

4.0 CURRENT SOLID WASTE MANAGEMENT PROCEDURES

4.1 PROGRAM ROLES AND RESPONSIBILITIES

Subsections 4.1.1 through 4.1.3 summarize the responsibilities of the key offices and personnel in the solid waste management program.

4.1.1 Pope Base Commander. USAF has established guidelines for implementing a successful Qualified Recycling Program (QRP) in the *Air Force Recovery and Recycling Program Guide* (May 1995). According to the Guide, the Base Commander has overall responsibility for implementing the QRP. The QRP is an umbrella organization comprised of appropriated funded activities, non-appropriated activities (Services), Army/Air Force Exchange Service (AAFES), and the Defense Commissary Agency. The Base Commander is ultimately responsible for ensuring the program meets or exceeds the USAF goals.

4.1.2 Support Group Commander/ Logistics Group Commander/ Environmental Protection Committee. The Support Group Commander, Logistics Group Commander, and the Environmental Protection Committee (EPC) are responsible for the decision making in the management of the program. The P2 Subcommittee (comprised of the organizations in the QRP) is responsible for improving and expanding recycling operations, addressing audit and inspection findings, providing input into budget and execution, and sponsoring recycling education and promotional activities.

4.1.3 Base Civil Engineer. The Base Commander has delegated the responsibility for handling, collection, disposal, and recycling of SW to the Base Civil Engineer (43rd CES). Mr. Garland Evans (4-1635) of CES/CEVQ has been designated by the Base Commander as the Base QRP Manager. Mr. Evans is

responsible for program data collection and reporting and for overseeing the work of the 43rd CES, 43rd CES/CEV, and the 43rd Contracting Squadron (CONS) as it relates to the QRP.

The 43rd CES is responsible for the collection and disposal of all municipal SW and for the tracking and reporting of recycled materials. The 43rd CES/CEV documents SW generation and recycled materials procurement and provides these data to headquarters (HQ) AMC on a quarterly basis. The CES/CEV Flight shall coordinate with the (DRMO) to obtain monthly recycling data for items being recycled through it (e.g., ferrous, non-ferrous, and wood). CES/CEV shall also ensure that routine inspections of SW refuse containers, compost, and recycling bins are conducted at least annually. In addition, CES/CEV shall conduct annual reviews of the SW program to evaluate contract status, substantial changes in the quantity and/or composition of SW, data management issues, and staffing. The CES/CEO Flight shall ensure that all contractors are performing to the standards of their respective contract.

4.1.4 Base Contracting. The 43rd CONS is responsible for procuring contracts and ensuring they are performed according to the statement of work.

4.2 REFUSE AND RECYCLING CONTRACTS

There are three SW contracts at Pope AFB. One contract is for the administrative and industrial shop refuse; a second for the multi-family housing (MFH) units on the Base; and a third for the recyclables generated by administrative offices, industrial shops, and the MFH.

Collection of refuse from the administrative and industrial shops on the Base is performed under a Pope AFB contract by a private refuse hauler, Waste Industries. The hauler maintains a permit from the State of North Carolina. The

Quality Assurance Evaluator (QAE) at the Base for this contract is Mr. Bob Herring (4-2824). TSgt Mike Simpson (4-2824) is the alternate QAE. Mr. Garland Evans (4-1635) is the point of contact (POC) for CES/CEVQ and Mr. Tommy Miller (4-6284) is the Contracting Officer. The hauler is paid on a per ton basis. See Figure 4-1 for the contract's organizational chart.

Refuse from the MFH units at Pope AFB is collected by Waste Industries under a contract to Fort Bragg. MFH refuse at Pope AFB is often mixed with the MFH refuse generated at Fort Bragg prior to its ultimate disposal. Under an Inter-Agency Agreement, Pope AFB has agreed to incur approximately 10 percent of the total costs and regularly reimburse Fort Bragg for its share of the cost of the contract. The MFH contract POC is Ms. Marty Palmer (910/396-5535) of Fort Bragg. Ms. Palmer coordinates with Mr. Bill Squire of Fort Bragg (910/396-3372). Mr. Squire coordinates with Mr. Garland Evans (4-1635) of Pope AFB. See Figure 4-2 for the contract's organizational chart.

Recyclable materials throughout the Base are collected by Waste Management (a private contractor) under a contract with Pope AFB. The contract POCs are TSgt Mike Simpson (4-2824) and Mr. Garland Evans (4-1635) of Pope AFB. Mr. Garland Evans (4-1635) is the POC for CES/CEVQ, TSgt Mike Simpson (4-2824) is the QAE, and Mr. Tommy Miller (4-6284) is the Contracting Officer. See Figure 4-3 for the contract's organizational chart.

A copy of all permits required for SW handling, storage, and collection (including SW transfer facilities) are maintained in the CEO Office (Ms. Rita Greson, 4-2824) and at Base Contracting (Mr. Tommy Miller, 4-6824/6286).

FIGURE 4-1

**POPE AFB ADMINISTRATIVE AND INDUSTRIAL REFUSE CONTRACT
ORGANIZATIONAL CHART**

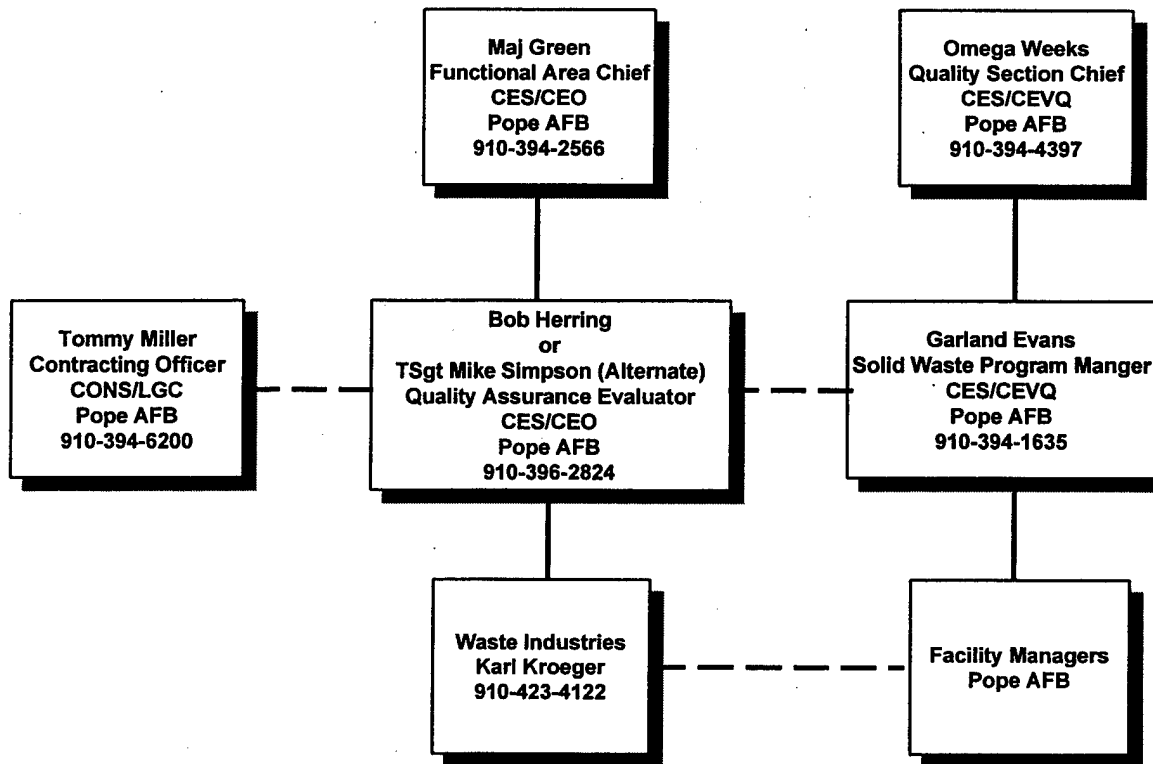


FIGURE 4-2

POPE AFB MFH REFUSE CONTRACT ORGANIZATIONAL CHART

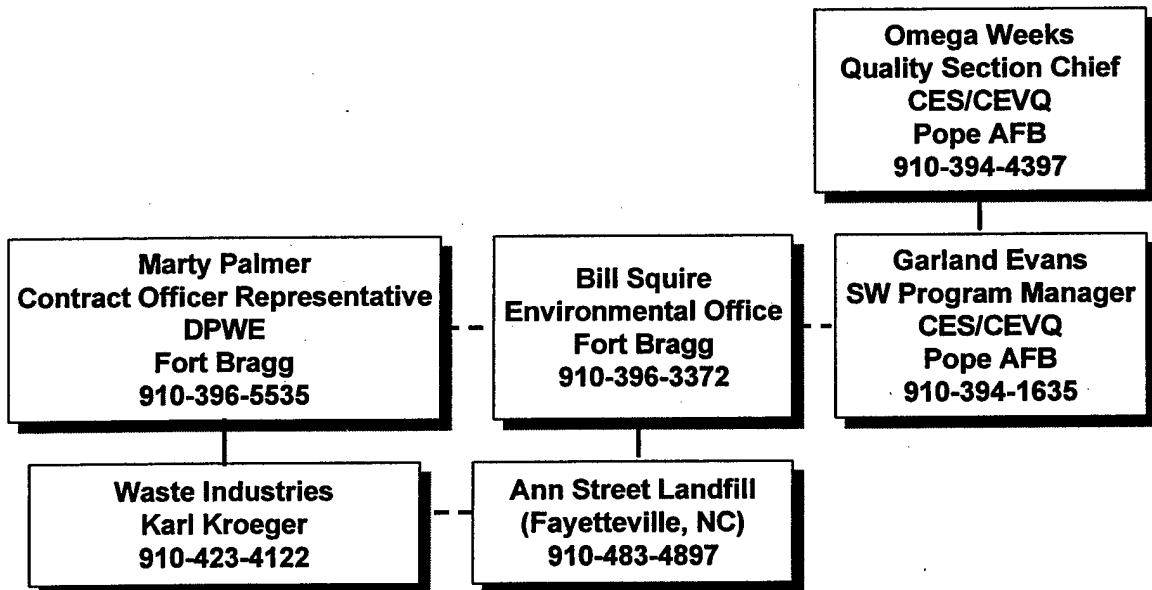
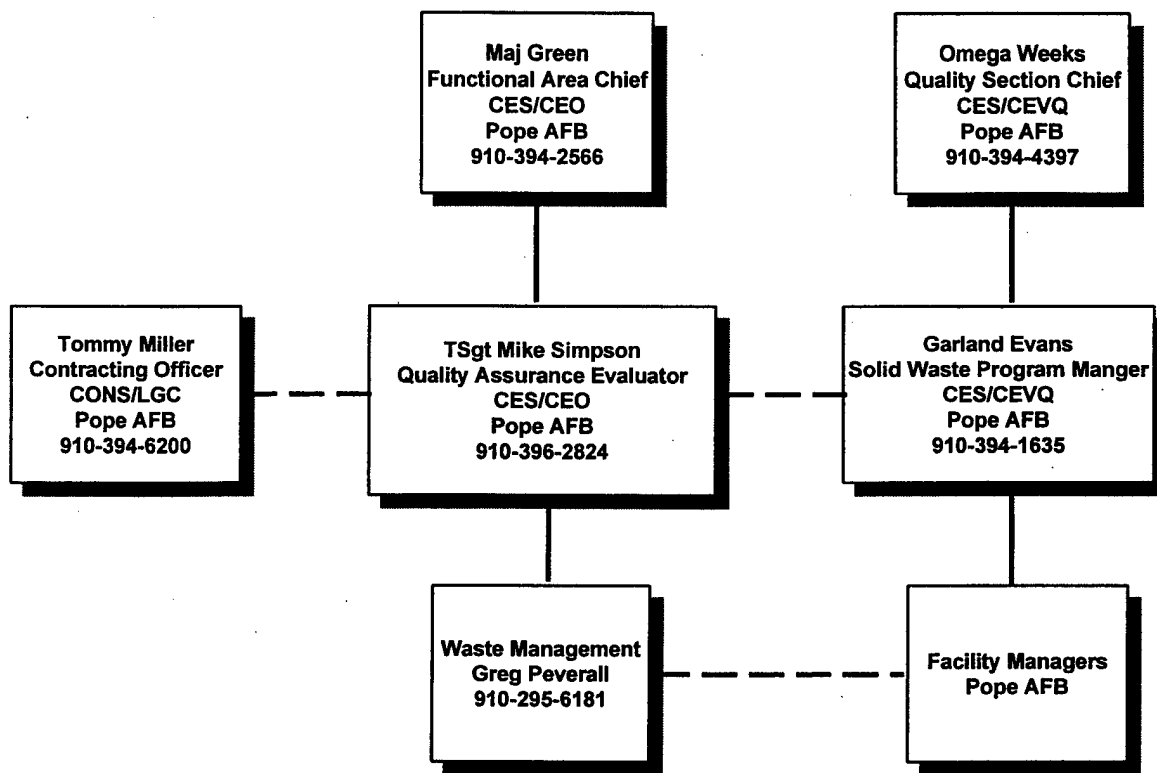


FIGURE 4-3

POPE AFB RECYCLING CONTRACT ORGANIZATIONAL CHART



4.3 SOLID WASTE RECOVERY AND REUSE

Recycling is the primary recovery and reuse method at Pope AFB. A recycling program is currently in place at the Base. Subsection 4.3.1 through 4.3.12 present the materials accepted for recycling at Pope AFB. Section 4.3.13 summarizes the quantity of materials recycled in 1996 and 1997.

4.3.1 Office Paper. Office paper includes computer paper, bond paper, white paper, etc. Approximately 42.3 and 60.6 tons of office paper was recycled in 1996 and 1997, respectively. This stream is picked up by a contractor at administrative offices and industrial shops and curbside at MFH units.

4.3.2 Newspaper. Approximately 24.0 and 20.7 tons of newspaper was recycled in 1996 and 1997, respectively. This stream is picked up by a contractor at administrative offices and industrial shops and curbside at MFH units.

4.3.3 Cardboard. Approximately 46.4 and 43.6 tons of cardboard was recycled in 1996 and 1997, respectively. This stream is picked up by a contractor at administrative offices and industrial shops and curbside at MFH units.

4.3.4 Aluminum Cans. Approximately 2.1 and 1.5 tons of aluminum cans were recycled in 1996 and 1997, respectively. This stream is picked up by a contractor at the shops and curbside at MFH units.

4.3.5 Glass. Approximately 12.2 and 14.0 tons of glass were recycled in 1996 and 1997, respectively. The types of glass include clear, amber, and green. This stream is picked up by a contractor at the shops and curbside at MFH units.

4.3.6 Plastics. Approximately 7.6 and 7.9 tons of plastics were recycled in 1996 and 1997, respectively. The types of plastic include polyethylene (PETE) and high-density polyethylene (HDPE). This stream is picked up by a contractor at the shops and curbside at MFH units.

4.3.7 Styrofoam. Approximately 60 and 55 pounds of styrofoam were recycled in 1996 and 1997, respectively. This stream is picked up by a contractor at the shops and curbside at MFH units. Due to the minimum amount of this stream and the expense associated with recycling it, this stream will no longer be recycled after 1997.

4.3.8 Wood. Approximately 17.4 tons of wood were recycled in 1996. There were no records for wood recycling in 1997 due to changes in reporting requirements.

4.3.9 Ferrous and Non-Ferrous Metals. Industrial shops at Pope AFB generate non-ferrous and ferrous metals from various maintenance activities. The metals are turned into DRMO where they are sold. Approximately 57 tons of the metals were recycled in 1996. Pope AFB had no such records for 1997 due to changes in reporting requirements for P2 metrics data. The information exits at DRMO, but would need to be determined manually. Given the volume of data that would need to be analyzed for a single month, it was not feasible for PES to determine ferrous and non-ferrous recycling quantities for 1997.

4.3.10 Tires. Pope AFB reported that 0.86 tons of used tires were recycled in 1996. There was no tire recycling data reported for 1997.

4.3.11 Used Oil. Pope AFB reported recycling a total of 36.1 tons of used oil in 1996. No used oil recycling was reported for 1997. Used oil is generally collected and sent to Fort Bragg for energy recovery.

4.3.12 Special Wastes. Fluorescent tubes, medical wastes, and lead-acid batteries are considered special wastes in the State of North Carolina. Fluorescent tubes are picked up by a contractor and recycled. A permitted contractor picks up the medical waste, properly disposes of the pharmaceutical waste, and incinerates biological (i.e., sharps) waste. Lead-acid batteries are generally recycled on a contract basis or have been replaced with gel cell batteries. These wastes are segregated from ordinary SW at Pope AFB. Records for disposal of special wastes for 1996 and 1997 were not available.

4.3.13 Summary of Base Recycling Program. Table 4.1 summarizes the Base recycling program as discussed in Subsections 4.3.1 through 4.3.12.

Material	1996	1997
Office Paper	42.3	60.6
Newspaper	24.0	20.7
Cardboard	46.4	43.6
Aluminum Cans	2.1	1.5
Glass	12.2	14.0
Plastics	7.6	7.9
Styrofoam	0.03	0.03
Wood	17.4	NA
Ferrous	36.49	NA
Non-Ferrous Metals	20.55	NA
Tires	0.86	NA
Used Oil	36.1	NA
Special Wastes	NA	NA
Total	246.03	148.3

NA - Records for disposal were not available.

4.4 HANDLING, COLLECTION, AND SEPARATION

4.4.1 Frequency of Collection. The contractors pickup refuse and recyclable materials at least once per week for every location. Recyclable materials from the MFH unit are collected curbside. The pickup points for the administrative and industrial shops at Pope AFB are summarized in Appendix A.

4.4.2 Storage Containers. Each of the 459 MFH units at Pope AFB have two 32-gallon containers for recyclable materials. The size of storage containers for recyclable materials at administrative and industrial shops is as follows:

- Paper -- 32 gallons
- Aluminum Cans -- 40 gallons
- Cardboard -- 8 cubic yards
- Glass, Newspaper, Styrofoam, and Plastics -- 32 gallons

The 8 cubic yard refuse containers are located at administrative and industrial shops throughout Pope AFB. Thirty-six 30-gallon refuse containers are located in various office buildings, parks, and bus stops, softball fields, and playgrounds. The location of each recyclable and refuse container is presented in Appendices A and B, respectively.

4.4.3 Equipment. Receptacles and collection equipment meet the criteria of 40 CFR 243, DoD 4165.6, AFI 32-7042, and state and local requirements. The vehicles used for collecting and transporting the SW are supplied by the contractor and meet all applicable carrier safety standards (49 CFR Parts 390 through 396), noise emission standards for motor carriers engaged in interstate commerce (40 CFR Part 202), federal motor vehicle safety standards (49 CFR Parts 500 and 580 for collection equipment owned by the federal government only), and achieve the standards established by the American National Standards Institute (ANSI).

4.5 MATERIALS PROHIBITED FROM SOLID WASTE DISPOSAL STREAM

The disposal of SW from Pope AFB meets the criteria of 40 CFR 240 and 241, DoD 4165.6, and AFI 32-7042, as well as state and local requirements. White goods, used oil, lead acid batteries, whole tires, yard waste (tree limbs, grass clippings, etc.), and construction/demolition debris are prohibited from entering

RCRA, Subtitle D landfills. Waste generated by the MFH is excluded under 40 CFR 261.40.

Used oil is collected by a contractor and burned for energy recovery at Fort Bragg. Lead acid batteries and whole tires are collected and turned in at the DRMO at Fort Bragg. White goods are collected in family housing by contract on a weekly basis. Construction/demolition debris is disposed of at Fort Bragg's C&D landfill. The C&D landfill is permitted by the State of North Carolina. The permit (Number 26-C) was issued 28 August 1987. A copy of the permit is located in the 43rd CES/CEV office at Pope AFB.

4.6 ENFORCEMENT OF PROGRAM AND COMPLIANCE INSPECTIONS

CEO performs random inspections on containers to ensure the refuse or recycling contractor is complying with contract requirements. Internal and external audits are performed in accordance with AFI 32-7045, Environmental Compliance Assessment and Management Program (ECAMP). Inspection findings are documented and corrective actions promptly implemented.

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APPENDIX A
RECYCLABLE MATERIAL
PICKUP LOCATIONS

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**TABLE A-1
RECYCLABLE MATERIAL PICKUP LOCATIONS
AND NUMBER OF POINTS
PAPER PRODUCTS**

Address	Facility Number	Facility Name	Number of Pickup Points ^a
503 Surveyor St.	738	SHP A/M ORGL	2
413 Surveyor St.	715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	1
248 Fortress St.	606		5
422 Surveyor St.	650	AEROMED STG FACILITY	1
393 Surveyor St.	708	HG MAINT SHP A/M ORGL OPS, BSE TRML, AIR F/P HG MAINT SHP A/M ORGL WHSE SUP & EQUIP BSE HSG SUP & STOR FCLTY VEH OPS ADMIN TRAFFIC MGT FCLTY HQ GROUP	2
413 Fortress St.	715	SHP JET ENG I/MT SHP JET ENG I/MNT SHP, WPN & RLSE SYS	5
248 Fortress St.	706	FLT SIMLTR TNG	5
1443 Reilly Rd.	560	HQ GROUP	3
1411 Reilly Rd.	558	VEH MAINT SHP	1
1415 Reilly Rd.	550	VEH OPS ADMIN	5
449 Surveyor St.	718	SQ OPS SQ OPS	1
541 Surveyor St.	754	SHP A/M ORGL	2
286 Fortress St.	731	SHP ACFT GEN PURP SHP NON-DESTR INSP	2
301 Fortress St.	736	MAINT DOCK, FL SYS	3
294 Fortress St.	734	MAINT DOCK, FL SYS	2
514 Fortress St.	742	SQ OPS SHP A/M ORGL	2
474 Fortress St.	729	SHP, AVIONICS WPN SYS/M MGT FCLT	1
477 Fortress St.	730	SQ OPS SHP A/M ORGL	1
480 Fortress St.	739	LAB, PME	1
560 Surveyor St.	764	AERIAL DLVR FCLTY TRML, FLEET SVC HQ GROUP	1

TABLE A-1 (Continued)

Address	Facility Number	Facility Name	Number of Pickup Points ^a
1182 Hurst Dr.	900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG HQ GROUP	1
806 Armstead St.	457	HQ GROUP	1
494 Virgin St.	378	SP OPERATIONS	1
511 Virgin St.	346	COMM FCLTY	5
514 Virgin St.	347	DPI	1
374 Maynard St.	306	HQ GROUP COMM FCLTY LAW CENTER HQ GROUP HQ WG AFOSI OFFICE SP OPERATIONS FAM SPT CEN	2
384 Maynard St.	308	BASE PERSONNEL OFC AF CLINIC SOCIAL ACT FCLTY EDUCATION CEN SP CON IDENT	2
394 Maynard St.	300	MED STOR (WRM)	1
236 Boxcar St.	180	HQ GROUP WHSE, FORM & PUB BSE	2
302 Ethridge St.	235	HQ GROUP	1
315 Ethridge St.	317	CHAPEL, BASE REF	1
5446 Reilly Rd.	289	RECREATION CENTER	1
5451 Reilly Rd.	315	HQ WG	12
259 Maynard St.	309	HQ WG HQ GROUP ADMIN OFC, NON-AF	1
354 Sabrejet St.	141	OPS, SP	1
359 Sabrejet St.	140	OPS, SP	1
794 Armistead St.	450	VEH MAINT SHP	1
902 Armistead St.	25	CHILD CARE CEN	1
51 Skytrain St.	1525	YOUTH CEN	1
560 Interceptor Rd.	280	BSE ENGR ADMIN	4
5424 Reilly Rd.	260	DEN CLINIC	1
803 Armistead St.	415	BSE PACKAGE STOR EXCH, SALES STORE	1
1105 Hurst St.	803	PETROL OPS BLDG	1
276 Boxcar St.	251	BE MAINT SHOP BSE ENGR ADMIN	1

TABLE A-1 (Concluded)

Address	Facility Number	Facility Name	Number of Pickup Points^a
577 Inteceptor Rd.	276	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
571 Inteceptor Rd.	282	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
5464 Reilly Rd.	283	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
567 Inteceptor Rd.	284	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
5452 Reilly Rd.	285	NCO PROF ED CEN HQ WG	4
561 Inteceptor Rd.	286	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
5454 Reilly Rd.	287	DORM, VAQ LOUNGE, DAYROOM	4
553 Inteceptor Rd.	288	DORM AM PP/PCS-STD HQ GROUP	4
397 Maverick St.	397	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4
399 Maverick St.	399	DORM AM PP/PCS-STD LOUNGE, DAYROOM	4

^aEach pickup point has one 32-gallon container.

**TABLE A-2
RECYCLABLE MATERIAL PICKUP LOCATIONS
AND NUMBER OF POINTS
ALUMINUM CANS**

Address	Facility Number	Facility Name	Number of Pickup Points ^a
763 Armistead St.	402	GYMNASIUM	2
751 Armistead St.	404	BOWL CEN	4
393 Surveyor St.	708	HG MAINT SHP A/M ORGL OPS, BSE TRML, AIR F/P HG MAINT SHP A/M ORGL WHSE SUP & EQUIP BSE HSG SUP & STOR FCLTY VEH OPS ADMIN TRAFFIC MGT FCLTY HQ GROUP	2
257 Fortress St.	712	HG MAINT SHP ACFT GEN PURP	3
413 Surveyor St.	715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	2
422 Surveyor St.	650	AEROMED STG FCLTY	3
1411 Reilly Rd.	558	VEH MAINT SHOP	2
449 Surveyor St.	718	SQ OPS SHP A/M ORGL	2
541 Surveyor St.	754	SHP A/M ORGL	2
301 Fortress St.	736	MAINT DOCK, FL SYS	1
474 Surveyor St.	729	SHP, AVIONICS WPN SYS/M MGT FCLT	2
477 Surveyor St.	730	SQ OPS SHP A/M ORGL	2
503 Surveyor St.	738	SQ OPS SHP A/M ORGL	2
527 Surveyor St.	747		1
541 Surveyor St.	754	SHP A/M ORGL	1
560 Surveyor St.	764	AERIAL DLVR FCLTY TRML, FLEET SVC HQ GROUP	2
1183 Hurst St.	900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG	4
354 Sabrejet St.	141	OPS, SP	1
227 Explorer St.	193	GOLF CLUBHSE/EQUIP	4

TABLE A-2 (Concluded)

Address	Facility Number	Facility Name	Number of Pickup Points^a
5504 Reilly Rd.	236	OPEN MESS, OFF OPEN MESS, NCO	1
302 Ethridge St.	235	HQ GROUP	3
5464 Reilly Rd.	283	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
5452 Reilly Rd.	285	NCO PROF ED CEN HQ WG	1
5454 Reilly Rd.	287	DORM, VAQ LOUNGE, DAYROOM	1
5446 Reilly Rd.	289	RECREATION CENTER	5
5451 Reilly Rd.	315	HQ WG	2
259 Maynard St.	248	FR STN BE STOR CV FCLTY	4
379 Maynard St.	307	AF CLINIC	1
5424 Reilly Rd.	260	DEN CLINIC	1
384 Maynard St.	308	BASE PERSONNEL OFC AF CLINIC SOCIAL ACT FCLTY EDUCATION CEN SP CON IDENT FAM SPT CEN	7
374 Maynard St.	306	HQ GROUP COMM FCLTY LAW CENTER HQ GROUP HQ WG AFOSI OFFICE SP OPERATIONS FAM SPT CEN	4
511 Virgin St.	346	COMM FCLTY	2
503 Surveyor St.	738	SQ OPS SHP A/M ORGL	1
794 Armistead St.	454	H/SHP, AUTOMOTIVE ARTS & CRAFT CENTER MWR SUKP/NAF C-STOR	2
806 Armistead St.	457	HQ GROUP	1

^aEach pickup point has one 40-gallon container.

**TABLE A-3
RECYCLABLE MATERIAL PICKUP LOCATIONS
AND NUMBER OF POINTS
CARDBOARD**

Address	Facility Number	Facility Name	Number of Pickup Points ^a
251 Apollo St.	381	STORE, COMMISSARY HQ GROUP POST OFFICE CEN SP OPERATIONS	1
794 Armistead St.	450	VEH MAINT SHP	1
803 Armistead St.	415	BSE PACKAGE STOR EXCH, SALES STORE	1
1443 Reilly Rd.	560	WHSE SUP & EQUIP BSE BSE SUP ADMIN TRAFFIC MGT FCLTY HQ GROUP	1

^aCardboard will be loose but bundled at all sites except for Building 794 Armistead St. This location has a 8-cubic yard container.

TABLE A-4
RECYCLABLE MATERIAL PICKUP LOCATIONS
AND NUMBER OF POINTS
GLASS, NEWSPAPERS, STYROFOAM, AND PLASTICS

Address	Facility Number	Facility Name	Number of Pickup Points ^a
503 Surveyor St.	738	SQ OPS SHP A/M ORGL	1
413 Surveyor St.	715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	1
248 Fortress St.	706	FLT SIMLTR TNG	1
422 Surveyor St.	650	AEROMED STG FCLTY	1
393 Surveyor St.	708	HG MAINT SHP A/M ORGL OPS, BSE TRML, AIR F/P HG MAINT SHP A/M ORGL WHSE SUP & EQUIP BSE HSG SUP & STOR FCLTY VEH OPS ADMIN TRAFFIC MGT FCLTY HQ GROUP	1
413 Fortress St.	715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	1
248 Fortress St.	706	FLT SIMLTR TNG	1
1443 Reilly Rd.	560	WHSE SUP & EQUIP BSE BSE SUP ADMIN TRAFFIC MGT FCLTY HQ GROUP	1
1411 Reilly Rd.	558	VEH MAINT SHP	1
1415 Reilly Rd.	550	VEH OPS ADMIN	1
449 Surveyor St.	718	SQ OPS SHP A/M ORGL	1
541 Surveyor St.	754	SHP A/M ORGL	1
288 Fortress St.	731	SHP ACFT GEN PURP SHP NON-DESTR INSP	1
301 Fortress St.	736	MAINT DOCK, FL SYS	1
294 Fortress St.	734	MAINT DOCK, FL SYS	1
514 Fortress St.	742	SQ OPS SHP A/M ORGL	1
474 Fortress St.	729	SHP, AVIONICS WPN SYS/M MGT FCLT	1
477 Fortress St.	730	SQ OPS SHP A/M ORGL	1
480 Fortress St.	739	LAB, PME	1

TABLE A-4 (Continued)

Address	Facility Number	Facility Name	Number of Pickup Points ^a
560 Surveyor St.	764	AERIAL DLVR FCLTY TRML, FLEET SVC HQ GROUP	1
1182 Hurst Dr.	900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG	1
806 Armistead St.	457	HQ GROUP	1
494 Virgin St.	378	SP OPERATIONS	1
511 Virgin St.	346	COMM FCLTY	1
514 Virgin St.	347	DPI COMM FCLTY	1
374 Maynard St.	306	HQ GROUP COMM FCLTY LAW CENTER HQ GROUP HQ WG AFOSI OFFICE SP OPERATIONS FAM SPT CEN	1
384 Maynard St.	308	BASE PERSONNEL OFC AF CLINIC SOCIAL ACT FCLTY EDUCATION CEN SP CON IDENT FAM SPT CEN	1
394 Maynard St.	300	MED STOR (WRM)	1
236 Boxcar St.	180	HQ GROUP WHSE, FORM & PUB BSE	1
302 Ethridge St.	235	HQ GROUP	1
315 Ethridge St.	317	CHAPEL, BSE	1
5446 Reilly Rd.	289	RECREATION CENTER	1
5451 Reilly Rd.	315	HQ WG	1
259 Maynard St.	309	HQ WG HQ GROUP ADMIN OFC, NON-AF	1
354 Sabrejet St.	141	OPS, SP	1
359 Sabrejet St.	140	OPS, SP	1
794 Armistead St.	450	VEH MAINT SHP	1
902 Armistead St.	25	CHILD CARE CEN	1
51 Skytrain St.	1525	YOUTH CEN	1
560 Inteceptor Rd.	280	BSE ENGR ADMIN	1

TABLE A-4 (Concluded)

Address	Facility Number	Facility Name	Number of Pickup Points^a
276 Boxcar St.	251	BE MAINT SHP BSE ENGR ADMIN	1
577 Inteceptor Rd.	276	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
571 Inteceptor Rd.	282	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
5464 Reilly Rd.	283	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
567 Inteceptor Rd.	284	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
5452 Reilly Rd.	285	NCO PROF ED CEN HQ WG	1
561 Inteceptor Rd.	286	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
5454 Reilly Rd.	287	DORM, VAQ LOUNGE, DAYROOM	1
553 Inteceptor Rd.	288	DORM AM PP/PCS-STD HQ GROUP	1
397 Maverick St.	397	DORM AM PP/PCS-STD	1
399 Maverick St.	399	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1

^aEach pickup point has one 32-gallon container.

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APPENDIX B

**REFUSE MATERIAL
PICKUP LOCATIONS**

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**TABLE B-1
COLLECTION SCHEDULE - REFUSE (Without Garbage)**

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)	Cleaning Frequency
140	OPS, SP	Monday	8	Qtr1, W1
141	OPS, SP	Tuesday	8	Qtr1, W1
162	PETROL OPS BLDG	Thursday	8	Qtr1, W1
178	BE STOR CV FCLTY	Mon/Wed	16	Qtr1, W1
182	BSE ENGR ADMIN	Tue/Thur	16	Qtr1, W1
193	GOLF CLUBHSE/EQUIP	Mon/Wed/Fri	24	Qtr1, W2
229	DORM, VAQ TLF (APPR)	Mon/Wed/Fri	24	Qtr1, W2
233	VOQ (O1-O10) OQ	Mon/Wed/Fri	24	Qtr1, W2
246	VOQ (O1-O10)	Thursday	8	Qtr1, W2
250	FR STN	Mon thru Fri	40	Qtr1, W3
251	BE MAINT SHP	Mon thru Fri	40	Qtr1, W3
260	DEN CLINIC	Mon/Wed	16	Qtr1, W3
276	DORM AM PP/PCS-STD LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr1, W3
283	DORM AM PCS-STD LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr1, W3
284	DORM AM PP/PCS-STD LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr1, W3
Bldg 287	DORM, VAQ LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr1, W3
Bldg 288	DORM AM PP/PCS-STD HQ GROUP	Mon/Wed/Fri	24	Qtr1, W4
Bldg 306	HQ GROUP COMM FCLTY LAW CENTER HQ WG AFOSI OFFICE SP OPERATIONS FAM SPT CEN	Mon/Wed/Fri	24	Qtr1, W4
Bldg 307	AF CLINIC	Mon/Wed/Fri	24	Qtr1, W4
Bldg 308	BASE PERSONNEL OFC SOCIAL ACT FCLTY EDUCATION CEN SP CON IDENT FAM SPT CEN	Mon/Wed/Fri	24	Qtr1, W4
Bldg 309	HQ WG HQ GROUP ADMIN OFC, NON-AF	Wed/Fri	16	Qtr2, W1

TABLE B-1 (Continued)

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)	Cleaning Frequency
Bldg 317	CHAPEL, BASE REF	Thursday	8	Qtr2, W1
Bldg 355 (1-2)	THRIFT SHP FAM SPT CEN EXCH,SVC OUTLET	Mon/Wed/Fri	48	Qtr2, W1
Bldg 381 (1-2)	STORE, COMMISSARY HQ GROUP POST OFFICE CEN SP OPERATIONS	Mon/Wed/Fri	48	Qtr2, W1
Bldg 397	DORM AM PP/PCS-STD LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr2, W2
Bldg 399	DORM AM PP/PCS-STD LOUNGE, DAYROOM	Mon/Wed/Fri	24	Qtr2, W2
Bldg 400	EXCH, SVC STN	Tue/Thur	16	Qtr2, W2
Bldg 415	BSE PACKAGE STOR EXCH, SALES STORE	Tue/Thur	16	Qtr2, W2
Bldg 457	HQ GROUP	Mon thru Fri	40	Qtr2, W2
Bldg 521	SHP A/M ORGL	Friday	8	Qtr2, W3
Bldg 550	VEH OPS ADMIN	Tue/Thur	16	Qtr2, W3
Bldg 558	VEH MAINT SHP	Tue/Thur	16	Qtr2, W3
Bldg 560 (1-2-3)	WHSE SUP&EQUIP BSE BSE SUP ADMIN TRAFFIC MG FCLTY HQ GROUP	Mon thru Fri	120	Qtr2, W3
Bldg 570	SHP, SRVLL INSP	Friday	8	Qtr2, W3
Bldg 610	HAZARD STOR, BSE	Thursday	8	Qtr2, W4
Bldg 617	HQ GROUP	Mon/Wed	16	Qtr2, W4
Bldg 650	AEROMED STG FCLTY	Mon/Wed	16	Qtr3, W1
Bldg 704	TRML, AIR F/P	Friday	8	Qtr3, W1
Bldg 706	FLT SIMLTR TNG	Mon/Wed	16	Qtr3, W1
Bldg 710	TRML, FLEET SVC	Mon/Wed/Fri	24	Qtr3, W1
Bldg 712	HG MAINT SHP ACFT GEN PURP	Mon/Wed/Fri	24	Qtr3, W1
Bldg 715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	Mon/Wed/Fri	24	Qtr3, W1
Bldg 718	SQ OPS SHP A/M ORGL	Mon/Wed	16	Qtr3, W1
Bldg 719	SHP SURV EQUIP	Mon/Wed	16	Qtr3, W2
Bldg 720	WHSE SUP&EQUIP BSE	Mon thru Fri	40	Qtr3, W2
Bldg 723	SHP A/SE STOR FCLT	Mon thru Fri	40	Qtr3, W2

TABLE B-1 (Concluded)

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)	Cleaning Frequency
Bldg 731	SHP ACFT GEN PURP SHP NON-DESTR INSP	Mon/Wed/Fri	24	Qtr3, W2
Bldg 732	MAINT DOCK, M/A	Mon/Wed/Fri	24	Qtr3, W2
Bldg 736	MAINT DOCK, FL SYS	Mon/Wed	16	Qtr3, W2
Bldg 740		Mon/Wed	16	Qtr3, W3
Bldg 758	SHP A/M ORGL	Mon thru Fri	40	Qtr3, W3
Bldg 760	PAD, ACFT WASH RK	Mon thru Fri	40	Qtr3, W3
Bldg 764	AERIAL DLVR FCLTY TRML, FLEET SVC HQ GROUP	Mon/Wed/Fri	24	Qtr3, W3
Bldg 766	VEH MAINT SHP	Mon/Wed	16	Qtr3, W3
Bldg 792	SHP JET ENG I/MNT	Wednesday	8	Qtr3, W3
Bldg 810	PETROL OPS BLDG	Wednesday	8	Qtr3, W3
Bldg 900 (1-2)	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TRG	Mon/Wed/Fri	48	Qtr3, W4
Bldg 1525	YOUTH CEN	Tue/Fri	16	Qtr3, W4
Range		Friday	8	Qtr3, W4
Pope Park (1-2)		Mon/Fri	32	Qtr3, W4
Woodland Park		Mon/Fri	16	Qtr3, W4

NOTE:

1. Qtr1-Jan, Apr, Jul, Oct / Qtr2 - Feb, May, Aug, Nov / Qtr 3 - Mar, Jun, Sep, Dec
2. Cleaning shall be accomplished on Tuesday. The first Tuesday in the month being W1, the second being W2, etc

**TABLE B-2
COLLECTION SCHEDULE - REFUSE (With Garbage)**

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)	Cleaning Frequency
30	---	Mon - Fri	40	W
191	OPEN MESS, OFF	Mon - Fri	40	W
236 (1-2)	OPEN MESS, OFF OPEN MESS, NCO	Mon - Fri	80	W
289	RECREATION CENTER	Mon - Fri	40	W
350 (1-2-3)	DH, AMN(DET)	Mon - Fri	120	W
404 (1-2)	BOWL CEN	Mon - Fri	80	W
430	FAM SPT CEN OPS, SP	Mon - Fri	40	W
717	HQ GROUP KITCHEN, IN-FLT	Mon - Fri	40	W
School	---	Mon - Fri	40	W

W = Weekly

NOTE: Cleaning shall be accomplished WEEKLY on Tuesdays

**TABLE B-3
COLLECTION SCHEDULE - 30 Gallon Containers^a**

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)
344	AREA DEF CNSL OFC	Mon/Wed/Fri	1.2
708	HG MAINT	Mon/Wed/Fri	0.6
900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG	Mon/Wed/Fri	1.2
1525	YOUTH CEN	Mon/Wed/Fri	0.6
Pope Park		May-Oct Mon - Fri Nov-Apr Monday	15 3.0
Woodland Park		Apr-Sep Mon - Fri Nov-Apr Mon	3.0 0.6
Softball Fields		Apr-Sep Mon - Fri	 30.0
MFH Bus Stops		Friday	6.0
MFH Playgrnds		Friday	2.4

^aCleaning shall be accomplished once every three months.

**TABLE B-4
YARD WASTE COLLECTION SCHEDULE**

Facility Number	Facility Name	Pickup Frequency	Requirement (Cubic Yds/Wk)
Hercules Dr (Behind School)	---	Mon/Thur	40
739	LAB, PME	Wednesday	40

NOTE: Cleaning shall be accomplished twice yearly, during the months of January and July

**TABLE B-5
COLLECTION SCHEDULE - SPECIAL**

Event Location	Pickup Requirement	Requirement (Cubic Yds/Wk)	Length of Event
Air Show -- Open House	Yearly at all sites (approx late summer, early fall)	1,000 Cu Yds per event	1 Day
Commanders Facility Inspection	Yearly at all sites	2,000 Cu Yds per event	Approx 3 Days
Operational Readiness Inspection (ORI)	Yearly at all sites	1,000 Cu Yds per event	Approx 10 Days
Operational Readiness Inspection (ORE)	Yearly at all sites	1,000 Cu Yds per event	Approx 10 Days
Refuse Adjacent to Refuse Containers (See Note 1)	Weekly on Mondays	10 Pickups per week	N/A
Additional Refuse Container Collection (See Note 2)	As Required	10 Pickups per week	N/A
Additional 40 CY Container Collection (See Note 3)	As Required	Up to 15 Containers per Fiscal Year	N/A

NOTE 1: This refuse may include, but will not be limited to, wood, pallets, scrap wood, fiberboard pallets, tree limbs, wooden boxes, and unsalvageable furniture items

NOTE 2: Additional 8 cubic yard refuse containers shall be emptied within four hours from QAE notification if received before 12:00 P.M. or the next day if received after 12:00 P.M. The contractor shall make every attempt to empty these containers within the same due day as notified.

NOTE 3: Additional 40 cubic yard refuse containers, up to a maximum quantity of 15 total per fiscal year, shall be placed at various facilities as directed by the QAE. These containers shall be emptied, as required.

**TABLE B-6
GOVERNMENT-FURNISHED EQUIPMENT
REFUSE COLLECTION**

Facility Number	Facility Name	Number of Containers
8-Cubic Yard Bulk Containers		
130	---	1
140	OPS, SP	1
141	OPS, SP	1
162	PETROL OPS BLDG	2
178	BE STOR CV FCLTY	1
182	BSE ENGR ADMIN	2
191	OPEN MESS, OFF	1
193	GOLF CLUBHSE/EQUIP	2
229	DORM, VAQ TLF (APPR)	1
233	VOQ (01-010) OQ	1
236	OPEN MESS, OFF OPEN MESS, NCO	3
246	VOQ (01-010)	1
250	FR STN	3
251	BE MAINT SHP BSE ENGR ADMIN	1
260	DEN CLINIC	1
275	HSG SUP & STOR FCLTY	1
276	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
283	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
284	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
287	DORM, VAQ LOUNGE, DAYROOM	1
289	RECREATION CENTER	1
306	HQ GROUP COMM FCLTY LAW CENTER HQ GROUP HQ WG AFOSI OFFICE SP OPERATIONS FAM SPT CEN	1
307	AF CLINIC	1

TABLE B-6 (Continued)

Facility Number	Facility Name	Number of Containers
308	BASE PERSONNEL OFC AF CLINIC SOCIAL ACT FCLTY EDUCATION CEN SP CON IDENT FAM SPT CEN	1
309	HQ WG HQ GROUP ADMIN OFC, NON-AF	1
317	CHAPEL, BSE REF	1
350	DH, AMN (DET)	1
355	THRIFT SHP FAM SPT CEN EXCH, SVC OUTLET	1
381	STORE, COMMISSARY HQ GROUP POST OFFICE CEN SP OPERATIONS	1
397	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
399	DORM AM PP/PCS-STD LOUNGE, DAYROOM	1
400	EXCH, SVC STN	1
404	BOWL CEN	1
415	BSE PACKAGE STOR EXCH, SALES STOR	1
430	FAM SPT CEN OPS, SP	1
457	HQ GROUP	1
521	SHP A/M ORGL	1
550	VEH OPS ADMIN	1
558	VEH MAINT SHP	1
560	WHSE SUP & EQUIP BSE BSE SUP ADMIN TRAFFIC MGT FCLTY HQ GROUP	1
570	SHP, SRVLL INSP	1
610	HAZARD STOR, BSE	1
617	HQ GROUP	1
650	AEROMED STG FCLTY	1
704	TRML, AIR F/P	1

TABLE B-6 (Continued)

Facility Number	Facility Name	Number of Containers
706	FLT SIMLTR TNG	1
710	TRML, FLEET SVC	1
712	HQ MAINT SHP ACFT GEN PURP	1
715	SHP JET ENG I/MNT SHP, WPN & RLSE SYS	1
717	HQ GROUP KITCHEN, IN-FLT	1
718	SQ OPS SHP A/M ORGL	1
719	SHP SURV EQUIP	1
720	WHSE SUP & EQUIP BSE	1
723	SHP A/SE STOR FCLT	1
729	SHP, AVIONICS WPN SYS/M MGT FCLT	1
731	SHP ACFT GEN PURP SHP NON-DESTR INSP	1
732	MAINT DOCK, M/A	1
736	MAINT DOCK, FL SYS	1
740		1
758	SHP A/M ORGL	1
760	PAD, ACFT WASH RK	1
764	AERIAL DLVR FCLTY TRML, FLEET SVC HQ GROUP	1
766	VEH MAINT SHP	1
792	SHP JET ENG I/MNT	1
810	PETROL OPS BLDG	1
900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG	2
1525	YOUTH CEN	1
Pope Park	---	2
Woodland Park	---	1
Range	---	1
School	---	1
30-Gallon Garbage Containers		
344	AREA DEF CNSL OFC	2

TABLE B-6 (Concluded)

Facility Number	Facility Name	Number of Containers
708	HG MAINT SHP A/M ORGL OPS, BSE TRML, AIR F/P HG MAINT SHP A/M ORGL WHSE SUP & EQUIP BSE HSG SUP & STOR FCLTY VEH OPS ADMIN TRAFFIC MGT FCLTY HQ GROUP	1
900	HQ GROUP OPS, SP USAF COMMAND POST TGT INTEL TNG	2
1525	YOUTH CEN	1
Pope Park	---	5
Woodland Park	---	1
Softball Fields	---	10
MFH/Bus Stops	---	10
MFH/Playgrounds	---	4

**TABLE B-7
CONTRACTOR-FURNISHED EQUIPMENT
REFUSE COLLECTION**

Facility Number	Facility Name	Container Capacity (cubic yards)	Number of Containers
Hercules Dr. (behind school)	---	20	1
739	LAB, PME	40	1

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APPENDIX C

RECYCLABLE MATERIAL PRICE INDEX

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1 Forwarded by: "Eric Saylor" <ESAYLOR@cin.pes.com>
2 Forwarded to: gwahl@cin.pes.com
3 Date forwarded: Wed, 8 Apr 1998 08:53:11 -0500
4 From: "John Nelms" <John_Nelms@p2pays.org>
5 Organization: ENR/DPPEA
6 To: "Eric Saylor" <ESAYLOR@cin.pes.com>
7 Date sent: Thu, 18 Dec 1997 14:41:04 -0500
8 Subject: Re: Recyclable Material Price Index for NC
9 Priority: normal

10
11 Eric:
12 Here goes:
13 Aluminum cans - \$0.53 to \$0.61 lb
14 Steel cans - \$50-\$73 gross ton
15 PET - \$0.06 - \$0.08 lb
16 HDPE - \$0.20 - \$0.24 lb
17 ONP - \$20- \$35 ton
18 OCC - \$40-\$80 ton
19 White Office - \$145 ton
20 Mixed - \$0-\$10 ton
21 Glass
22 Clear - \$25 - \$42 ton crushed
23 brown - \$21-\$32
24 green - \$2-\$15

25
26 These are all that we keep track of ourselves. See Recycling Times for a more comprehensive
27 list.

28
29 From: "Eric Saylor"
30 <ESAYLOR@cin.pes.com> Organization: Pacific Environmental
31 Services
32 To: John_Nelms@owr.ehnr.state.nc.us
33 Date: Thu, 18 Dec 1997 12:36:52 -0500
34 Subject: Recyclable Material Price Index for NC
35 Priority: normal

36
37 John:

38
39 We have spoken a couple of times in the last few months. I am putting together a Solid
40 Waste Management Plan for Pope AFB.

41
42 Can you send me a fairly current price index for recyclable materials in the State of NC?

43
44 Thank You

45
46
47 Eric Saylor
48 Pacific Environmental Services
49 John Nelms
50 Market Development Specialist
51 NCDEHNR
52 ph:919-715-6514; fax:919-715-6794
53 E-Mail:John_Nelms@owr.ehnr.state.nc.us

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APPENDIX D

RECYCLING CENTERS IN THE VICINITY OF POPE AFB

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RECYCLING CENTERS IN THE VICINITY OF POPE AFB

COMPANY	RECYCLED MATERIALS	LOCATION	PHONE NUMBER
Cape Fear Comm. Food Bank	"Other Food Stuffs"	Fayetteville	910-485-8809
Cohen and Green Salvage	Appliances Automobiles Aluminum Cans Bi-metal Cans Steel Cans Electric Motors Electronic Equip. and Scrap Metal Radiators Scrap Machinery Scrap Metal - Aluminum Scrap Metal - Bismuth Scrap Metal - Brass Scrap Metal - Bronze Scrap Metal - Chromium Scrap Metal - Cobalt Scrap Metal - Gold Scrap Metal - Iron Scrap Metal - Magnesium Scrap Metal - Manganese Scrap Metal - Mercury Scrap Metal - Molybdenum Scrap Metal - Nickel Scrap Metal - Platinum Scrap Metal - Silver Scrap Metal - Steel Scrap Metal - Tantalum Scrap Metal - Tin Scrap Metal - Titanium Scrap Metal - Tungsten Scrap Metal - Zinc Turck Bodies and Trailers Wire - Aluminum Wire - Copper Wire - Steel	Fayetteville	910-483-1371
Cumberland Shelt. Wkshop	Wooden Pallets	Fayetteville	910-323-5471
Geary Mattress Co.	Mattresses	Fayetteville	910-488-9393
Lonnie's Used Cars/Salv.	Automobiles	Fayetteville	910-425-7121
Paper Stock Dealers	Corrugated Cardboard Magazines Newspapers Paper - Card Stock Paper - Colored/Blended Paper - Greenbar Paper - Kraft Paper - Mixed Paper - White Office Paper Tubes Paperboard	Fayetteville	910-767-0000

RECYCLING CENTERS IN THE VICINITY OF POPE AFB

COMPANY	RECYCLED MATERIALS	LOCATION	PHONE NUMBER
Plastic Materials Group	Plastic - HDPE	Fayetteville	1-800-752-5237
Reed's Recycling	Plastic - polypropylene Plastic - polystyrene Plastic - PVC Plastic - HDPE Plastic - LDPE Plastic - PETE	Fayetteville	910-433-2337
Raeford Salvage Co.	Appliances Automobiles Aluminum Cans Bi-metal Cans Steel Cans Electric Motors Electronic Equip. and Scrap Iron/Steel Foundry Sand Metal Radiators Scrap Machinery Scrap Metal - Aluminum Scrap Metal - Bismuth Scrap Metal - Brass Scrap Metal - Bronze Scrap Metal - Chromium Scrap Metal - Cobalt Scrap Metal - Copper Scrap Metal - Gold Scrap Metal - Iron Scrap Metal - Magnesium Scrap Metal - Manganese Scrap Metal - Molybdenum Scrap Metal - Nickel Scrap Metal - Platinum Scrap Metal - Silver Scrap Metal - Steel Scrap Metal - Tantalum Scrap Metal - Tin Scrap Metal - Titanium Scrap Metal - Tungsten Scrap Metal - Zinc Truck Bodies and Trailers Wire - Aluminum Wire - Copper Wire - Steel	Raeford	910-875-3480

RECYCLING CENTERS IN THE VICINITY OF POPE AFB

COMPANY	RECYCLED MATERIALS	LOCATION	PHONE NUMBER
Sandhills Recycling	Glass Containers - Brown Glass Containers - Clear Glass Containers - Green Aluminum Cans Bi-metal Cans Steel Cans Electronic Equip. and Scrap Metal Scrap Machinery Scrap Metal - Aluminum Scrap Metal - Brass Scrap Metal - Copper Scrap Metal - Iron Scrap Metal - Lead Scrap Metal - Stainless Steel Scrap Metal - Tin Steel Drums Wire - Aluminum Wire - Copper Corrugated Cardboard	Aberdeen	910-944-5601
Cherokee Environ. Group	Industrial Sludges Sludge Iron/Steel Foundry Sand Scrap Metal - Manganese	Sanford	919-774-5344
Hallman Foundry	Scrap Metal - Steel	Sanford	919-775-3628

RECYCLING CENTERS IN THE VICINITY OF POPE AFB

COMPANY	RECYCLED MATERIALS	LOCATION	PHONE NUMBER
Lee Iron and Metal	Glass Containers - Brown Glass Containers - Clear Glass Containers - Green Appliances Automobiles Aluminum Cans Bi-metal Cans Steel Cans Compressors Electronic Equip. and Scrap Metal Scrap Machinery Scrap Metal - Aluminum Scrap Metal - Brass Scrap Metal - Bronze Scrap Metal - Chromium Scrap Metal - Cobalt Scrap Metal - Copper Scrap Metal - Lead Scrap Metal - Magnesium Scrap Metal - Manganese Scrap Metal - Molybdenum Scrap Metal - Nickel Scrap Metal - Tantalum Scrap Metal - Tin Scrap Metal - Titanium Scrap Metal - Tungsten Scrap Metal - Zinc Truck Bodies & Trailers Wire - Aluminum Wire - Copper Wire - Steel Corrugated Cardboard Newspapers Paper - Card Stock Paper - Color/Blended Paper - Greenbar Paper - Kraft Paper - Mixed Paper - White Office Paper Tubes Plastic - HDPE Plastic - PETE	Sanford	919-775-7951
Rubber Granules, L.L.C.	Plastic - ABS Plastic - LDPE Plastic - PETE	Sanford	919-774-6559

RECYCLING CENTERS IN THE VICINITY OF POPE AFB

COMPANY	RECYCLED MATERIALS	LOCATION	PHONE NUMBER
Sanford Recycling Div.	Glass Containers - Brown Glass Containers - Clear Glass Containers - Green Bi-metal Cans Steel Cans Electric Motors Corrugated Cardboard Paper - Card Stock Paper - Color/Blended Paper - Greenbar Paper - Kraft Paper - Mixed Paper - White Office Plastic - HDPE Plastic - PETE	Sanford	919-775-7951
Smith Farms	Enzymes Manure Sawdust and Bark Wood Waste Fluid Dairy Products	Princeton	919-734-6102
Best Pallet Recycling/Dist.	Wooden Pallets	Dunn	910-892-0825
Tart's Recycling	Scrap Machinery Scrap Metal - Aluminum Scrap Metal - Tin	Dunn	910-892-0417
T.D.M. Pallets/Wood Prod.	Wooden Pallets	Stedman	910-483-5153
Young's Auto Center	Appliances Automobiles Truck Bodies & Trailers Wire - Steel	Benson	919-894-4525
Add Paper Cores	Plastic - propylene Plastic - HDPE Plastic - LDPE	Hamlet	910-582-3200
Todd's Scrap & Metal	Automobiles Aluminum Cans Compressors Electric Motors Metal Scrap Metal - Aluminum Scrap Metal - Brass Scrap Metal - Copper Scrap Metal - Lead Scrap Metal - Steel Wire - Aluminum Wire - Copper	Hamlet	910-582-5963

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APPENDIX E

FUTURE SOLID WASTE REDUCTION OPTIONS

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FUTURE SOLID WASTE REDUCTION OPTIONS

SOURCE REDUCTION AND RECYCLING

Reduce Junk Mail. The amount of junk mail in the U.S. is staggering. The following methods are recommended to reduce the quantity of junk mail being sent to Base personnel:

First Class Mail. Cross out the address and bar code, circle the first class postage and write "refused: return to sender". Drop in any mail box, it will be returned to the sender.

Bulk Mail. The U.S. Postal Service (USPS) throws away bulk mail it cannot deliver, so returning it does no good. Bulk mail is the hardest to deal with because the USPS actively provides addresses, support and encouragement to mailers. However, if "address correction requested" is written on the label, circle "address correction requested" and treat like first class mail.

Direct Mail. Send a postcard or letter to Direct Marketing Association (DMA) Mail Preference Service, PO Box 9008, Farmingdale NY 11735-9008. Include your complete name, address, zip code and a request to "activate the preference service". DMA estimates that listing with the preference service will stop 75 percent of all national mailings.

Add Mixed and Shredded Paper to Recycling Program. Currently, high-grade office paper is collected from offices throughout the Base. However, low-grade mixed paper is not collected but disposed of as SW. As an example for Pope AFB, a waste characterization study performed at MacDill AFB showed that approximately 2.7 percent of that Base's SW is high-grade

office paper and computer paper and 24.9 percent is mixed paper. (Source: MacDill AFB Internal PPOA, 2 June 1995 Report).

Local waste paper purchasers (Paper Stock Dealers, Inc., at 910-423-8700) have indicated that they will purchase shredded paper as long as it is in large enough pieces to be baled. This would include conventionally shredded paper. However, pulverized paper cut into less than quarter-inch squares cannot be baled and would not be included.

Alter Office Practices.

Electronic-mail and CD ROMs. E-mail should be used for messages in place of written pages whenever possible. Personnel should be instructed to retain the message on their computer for their records and print out only if necessary. Personnel should also have the ability to electronically sign all documents. The entire Base should be connected to one e-mail system. This would allow anyone who will be disposing of SW in the near future to alert personnel basewide and give them an opportunity to retrieve the item(s) for their use. Internal items at the Base such as telephone books, dictionaries, etc. should all be placed on/purchased as CD ROMs.

Purchase Printer Adaptors. Adaptors can be purchased for many of the current printers that will cause them to print 2-sided copies. The adaptors generally cost between \$200 to \$300 and thus could have a potentially short payback period. Personnel should then be instructed to print double-sided unless necessary to do otherwise.

Recondition Laser Printer Toner Cartridges. A private firm was reconditioning laser printer toner cartridges up to 17 times, which saved \$13,000 annually since 1992. Each reconditioning avoids 2.5 pounds of SW.

Document routing. Only one copy of a document should be routed whenever possible. This will reduce copying efforts and disposal quantities as well as preserve office and/or storage space.

Copying. Personnel should only make double sided copies unless it is necessary to have single-sided copies of a document, letter, etc.

Disallow Disposal of Non-Government Items at the Base. Personnel should be instructed not to dispose of SW they brought in from outside of the base (i.e., magazines, etc.). These items can vary in size and weight and thus could potentially impact the quantity of SW disposed by the Base.

Use Reusable Materials. Personnel should reuse file folders as often as possible. This will reduce purchase and disposal costs and allow for more office storage space. All individuals should have their own reusable (i.e., ceramic or plastic) coffee and/or other beverage cups. A supply should also be kept on hand for visitors.

Software Recycling. Determine if a basewide program for collecting obsolete software packages and diskettes would be feasible. A company called GreenDisk Inc. of Woodinville, WA reuses program disks and recycles non-program disks. To close the loop, recycled disks could be returned to Pope AFB as a supply item.

Increase Cardboard Recycling. During the site visit, PES randomly inspected several of the SW dumpsters. The dumpsters located outside Buildings 736 and 740 contained cardboard boxes. The 1997 ECAMP had a similar finding (Improper Disposal of Recyclables in Dumpsters, Finding #103). These boxes should be baled and recycled rather than being disposed in a landfill. In order to increase participation in cardboard

recycling, it is recommended that more bins for cardboard recycling be placed either in or just outside several of the shops generating the majority of the cardboard. The June 1995 PPOA recommended collecting cardboard at small shops for recycling. Pope AFB has a cardboard baler at the commissary which is operational and another at the BX which has not yet been installed.

Add Steel Cans and Plastic Jars to Recycling Program. Many food products are sent to the dining facilities in large steel cans or plastic jars. A SW characterization study performed at MacDill AFB indicated that approximately 0.5 percent and 0.1 percent of the SW is bi-metal cans and HDPE plastic containers, respectively, from dining facilities with an additional 0.9 percent being other plastics, such as polystyrene and low-density polyethylene (LDPE). The June 1995 PPOA estimated this option would result in a 0.5 to 1 percent reduction in SW disposal.

Expand Glass Recycling to All Clubs and the Bowling Alley. Glass recycling at all clubs and the bowling alley should be added to the recycling contract. Currently, aluminum is collected at the clubs at the Base, but glass is not. Multiple bins should be purchased in order to keep the different types of glass properly segregated. The June 1995 PPOA estimated this option would reduce SW by less than 0.5 percent.

Minimize Paper Towel Usage in Bathrooms. CES personnel should do a basewide inspection of bathrooms and ensure that electric hand dryers are available at each location. Notices should be posted in each bathroom instructing personnel to only use the paper towels if absolutely necessary.

Purchasing Procedures and Inventory Control. The two primary categories of source reduction applicable to Pope AFB include: 1) purchasing procedures and inventory control; and 2) housekeeping and office practices. Improved ordering and inventory controls can reduce the waste resulting from excess, out-of-date, and obsolete raw goods. Options for SW reduction include the following:

- Order bulk supplies.
- Terminate useless packaging from the vendor.
- Refuse samples that will become waste.
- Work with suppliers to return shipping materials and packaging.
- Purchase reusable items.
- Purchase only the amount of raw goods needed for a set period of time. This practice will help eliminate out-of-date and excess goods and products.
- Develop a review and approval procedure for all raw goods and products purchased. The primary purchaser can regulate the quantity of materials purchased by other personnel to reduce excess and out-of-date inventory.
- Clearly label all materials. Labels can indicate contents, storage and handling, and expiration dates.

The Base should also consider the purchase of a simple grinder to cut unwieldy freight packaging bands into pieces usable by scrap metal dealers. A private firm realized a savings of \$5,000 per year through this effort.

Yard Waste Composting. Pope AFB is currently sending all of its yard waste to the Fort Bragg C&D Landfill. Since January 1993, there has been a ban on yard waste from entering sanitary landfills in North Carolina. Yard waste, including such items as leaves, grass clippings, brush and tree prunings, can be transformed through controlled decomposition into a stable

humus material suitable for use as a soil amendment. The rate of decomposition depends on biological factors (e.g., oxygen, moisture, temperature, nutrients, minerals, and microorganisms). During the decomposition process, the material typically undergoes a weight loss of about 50 percent for composting and 30 percent for mulching. Several established technologies can be employed to achieve composting of yard waste. Those technologies designed for optimized throughput generally require higher investments in equipment, supplies (e.g., fertilizer), and labor. Composted or mulched material should be considered for such applications as agricultural, landscaping, nurseries, public agencies, residential use, and land reclamation/landfill cover. The June 1995 PPOA suggested a capital project for backyard composting of food and yard waste that would cost \$10,200 and reduce SW by about 0.7 percent. The same report also proposed curbside collection for composting of yard waste as an option with an estimated 0.8 percent reduction in SW. CES/CEVQ informed PES that Pope AFB has had preliminary discussions with Fort Bragg about purchasing a tub grinder to process compost material at the C&D landfill.

Food Wastes.

Donation of Excess Food. Excess edible food should be kept separate from waste food and routed to a local food bank or food donor program. Excess edible food can be donated to a local food bank in Fayetteville. Inquires for donations should be directed to:

Walter Hair
Cape Fear Community Food Bank
P.O. Box 2009
Fayetteville, NC 28302
910-485-8809

Solid food waste should be segregated from waste oils and greases. Hog, cattle, and poultry producers are interested in collecting food waste to use as

animal feed. Dairy and bread waste may be fed to hogs without further handling, but other food waste or mixed food waste must be cooked before use as feed. Farmers who utilize other or mixed food materials must be licensed garbage feeders. Facilities generating food wastes may work with grease renderers, animal food manufacturers, local hog farmers, or composters who can collect food materials and utilize them in their operations. The 1995 PPOA estimated a five to eight percent reduction of SW by donating food waste to farmers.

Wood Pallets

Standardize Pallet Sizes. Standardizing the size of incoming and outgoing pallets will reduce the number of pallets which must be handled. Vendors are required to supply incoming materials on pallets that can also be used to ship out products and equipment. In addition to handling and disposal costs for each pallet not reused, the Base could pay up to \$8.50 or more for each new full-sized pallet. A similar option was discussed in the June 1995 PPOA. It was estimated that this option would reduce SW by less than 0.5 percent.

Exchange Pallets. Arrangements can be set up between facilities with unwanted pallets and facilities and/or businesses who need them. These arrangements can be set up by the facilities and/or businesses themselves or facilitated by local government recycling coordinators and groups such as a Chamber of Commerce. The Pitt County Solid Waste Department initiated this type of exchange. Contact Joy Hudson or John Weaver of the Pitt County Solid Waste Department at 919 830-6354 for more information on this type of exchange program.

Repair Pallets. Facilities which regularly use pallets may realize a cost savings of up to \$3 to \$4 per pallet by purchasing high quality rather than cheaper pallets and repairing them in-house.

Donate/Sale Pallets. Pallets could be given or sold to facilities that chip pallets for use as fuel, mulch, compost, or animal bedding if the pallets are not treated or contaminated with hazardous or toxic residuals. Contact Tim Cole at (919) 341-4340 for information about New Hanover County's program to construct backyard composting bins out of used pallets. Also, several county SW management facilities and some private facilities have the capability to grind and process pallets to remove nails and fasteners.

Recycle Pallets. A number of private recyclers rebuild pallets. Call the NCDENR's Division of Pollution Prevention and Environmental Assistance at (919) 715-6500 or (800) 763-0136 for lists of pallet recyclers in North Carolina and out-of-state and North Carolina recyclers of general wood. Local recycling centers which handle wood pallets include Cumberland Sheltered Workshop in Fayetteville and Best Pallet Recycling/Distribution in Dunn.

C&D Waste Recycling

Gypsum wallboard recycling. Gypsum wallboard is constructed of gypsum (calcium sulfate) and a paper backing. The paper can be separated and recycled for use in other paper products. Gypsum has been used successfully as a soil amendment (similar to limestone). Gypsum is capable of absorbing odors and liquids and could potentially be recycled into such products as kitty litter and oil absorbent. The North Carolina Recycling Business Assistance Center (RBAC) has contracted with the North Carolina State University Department of Animal and Poultry Waste Management

Center to investigate the feasibility of using gypsum as part of a dry bed system in swine houses. Depending on test results, commercial trials are planned.

Concrete and Asphalt Recycling. Concrete and asphalt from demolition projects at the Department of Energy's Pantex Plant, a nuclear weapons assembly and disassembly facility in Texas, were crushed into an aggregate suitable for building parking lots and roads on-site using a portable rock crusher. The cost to grind demolition debris was about \$9 per ton and roughly equal to the purchase of new material. The crusher processed 661 tons of concrete and 1,750 tons of asphalt. Crushers ranging in size from 50 to several 1,000s of tons per hour are readily available from heavy equipment rental companies. The system used at the Pantex Plant could process brick, mortar, concrete and cinder block, and any other stone-like material in pieces as large as two feet in diameter. Stray metal was removed using an electromagnet. Debris piles should be kept free of dirt, and in some instances, dust suppression may be required. This technology is transportable and could be used on-site at Pope AFB for processing concrete and asphalt. For information on Pantex's experience with the use of this technology, contact Mike Luhman at (709) 477-6863.

Use of Recovered Asphalt Shingles in Road Pavement. In 1995, the North Carolina Department of Transportation (NCDOT) utilized asphalt shingles in several pilot paving projects in the Raleigh area. The pilot projects were a cooperative arrangement between Certain Teed Corporation, an asphalt shingle manufacturer in Oxford; Ross & Associates, a paving engineering firm; and C.C. Mangum, Inc., an asphalt paving contractor. NCDOT has approved the use of post-industrial asphalt shingles at five percent of the hot pavement mix. Under a grant awarded to the National Center for Asphalt Technology at Auburn University, additional performance testing is being

conducted on mixes containing 0-, 5- and 10-percent shingle material. If the test results are positive, NCDOT could authorize the use of increased shingle content in specifications for asphalt paving mix. Testing would be required to verify the asphalt shingles do not contain asbestos. It would be preferable to try to use shingles on base for pavement for driveways and parking lots. Ben Ross of Ross & Associates can be contacted at 919 782-7070.

Textile Recycling. Textiles/garments can be recycled at a local recycler. This type of waste stream is estimated to be about 0.8 percent of the SW at Pope AFB. The material does not have to be baled, but must be clean and separated from other types of SW. This type of waste would likely be accepted without any tipping fee. Other financial options (e.g., tipping fees with profit sharing from sale of recyclables) are negotiable depending on the quantity and quality of waste generated. The recycler does not provide transport service or collection containers. Pope AFB might consider placing collection containers at base laundry facilities. Pope AFB would need to provide transport to the recycling location (less than 10 miles). If government vehicles and personnel could not be used for transport, a contractor would be required. The contact for the local textiles/garments recycler is:

Darrell E. Reed (Owner)
Reed's Recycling
817 Gillespie Street
Fayetteville, NC 28306
(910) 433-2337

Waste-to-Energy Facilities. There are currently four permitted Waste-to-Energy (WTE) incineration facilities in North Carolina which can accept SW. These permitted facilities are listed in Table E.1.

TABLE E.1 PERMITTED WTE FACILITIES IN NORTH CAROLINA		
Facility Name	Permit	Status
New Hanover County WTE Facility	6505	Treated 133,438 gross tons in FY1995.
ECH Energy Generation Facility	903	Pilot project treated 65,532 gross tons during first quarter of 1996. Energy used to produce steam for nearby DuPont facility. Experienced material handling and equipment problems and ceased operation. May resume operation sometime in 1998 or later.
Northeast WTE Facility	6010	Treated 51,311 net tons in FY 1994-95.
Town of Wrightsville Beach	6506	Treated 198,971 gross tons in FY1995.

PROGRAMMATIC ISSUES

Inspections and Enforcement of Recycling Program. During the data collection site visit, PES randomly inspected several SW refuse dumpsters at a variety of facility types throughout the Base. PES observed recyclables in some of the refuse dumpsters. The recyclables included, but were not limited to, cardboard, aluminum cans, office paper, plastics, and glass. Random inspections of recycling bins by PES also revealed that some refuse was being mingled with the recyclable material. Conversations with CES/CEV personnel indicated that routine inspections of SW refuse containers or recycling bins were not being conducted.

PES recommends that more frequent inspections of the refuse dumpsters and recycling bins and greater enforcement of the recycling program occur.

Revise Refuse and Recycling Contracts. PES suggests three primary recommendations regarding the refuse and recycling contracts. First, PES

recommends that Pope AFB become more independent of Fort Bragg in its refuse contracts. Since the Base is no longer using the Fort Bragg SW landfill, there is less of an incentive to remain contractually tied with Fort Bragg. PES recommends that Pope AFB open up the refuse contracts for competitive rebids as soon as the contracts will allow. This may result in a cost savings for Pope AFB and allow a more accurate charge by a contractor, not just a percentage of a mutual contract with Fort Bragg as is currently the case.

Second, PES recommends that once the refuse contracts have been opened up for competitive bids, the contracts should be restructured. Currently, the hauler is paid per dumpster emptied. The contractor empties every dumpster on a weekly basis and is paid the same amount no matter the volume of refuse inside. PES recommends that the payment method be restructured to pay the hauler per ton of refuse transported and disposed of at the landfill. In this scenario, the hauler's truck would be required to be weighed by scale at the municipal landfill each time it transports and disposes of refuse. The hauler would then be required to obtain a receipt from the landfill as to the weight of each load of refuse from Pope AFB being disposed in that particular landfill and send a copy of that receipt to Pope AFB. In order to cross-check the hauler's weight receipts, Pope AFB should also request that the landfill send a copy of each receipt to the Base independently of the hauler. In order for this recommendation to work properly and be less costly, each facility manager must play a larger role by daily or bi-weekly inspecting their refuse dumpster to ensure that the items inside are not recyclable or banned for disposal in landfills.

Third, PES recommends that the recycling contract also be opened up for competitive bids as soon as possible. Currently, the hauler is paid a flat rate for the recyclables no matter the quantity of recyclable material. The hauler

sells the recyclables and keeps all the profits from the sale of the materials. Pope AFB has a couple of options to consider when bidding a new recycling contract:

- Obtain a contract with a hauler that would be at no charge to the Base. In this case, the hauler would pickup recyclable material weekly and not charge Pope AFB for the service, but would receive all monies from the sale of the recyclable materials.
- Obtain a contract with a hauler that would share the monies from the sale of the recyclable materials. In this scenario, the hauler would be paid to come on the Base weekly to pickup recyclable materials and divide the monies from the sale of them with Pope AFB CES/CEV.

Appendix C presents a recent sale price index for various recyclable materials.

Improve Data Management Procedures. Pope AFB personnel are not able to accurately track the quantities of C&D, inert debris, and housing refuse being landfilled. Copies of weight tickets for the C&D and inert debris landfills should be retained by Pope AFB. PES believes that implementation of the recommendations made in this Appendix will enable the Base to more accurately track and better manage its SW generation data.