



# **Tribal Solid Waste Advisory Network**

## **Tribal Integrated Waste Management Plan (IWMP) Template**

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January 2006  
File #01204206.00

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# Chapter 1 Introduction

### Section 1 Background

#### Purpose of Integrated Waste Management Plan

This plan has been prepared by the *[insert name]* Tribe as a road map to develop and implement an effective integrated solid waste management program specific to the tribe's needs. This plan includes the identification of existing solid waste systems, needs assessments, program design, implementation, and monitoring. This Plan covers all aspects of solid waste planning, including collection, storage, and disposal, source reduction, recycling and composting, facilities, and budgeting and financing.

#### Federal, State, and Other Agencies Involved

The United States has a unique legal relationship with Tribal governments based on specific constitution, treaties, statutes, executive orders, and court decisions. Under the American legal system, Indian tribes have sovereign powers separate and independent from the federal and state governments. This means that Tribal governments have the same powers as the federal and state governments to regulate their internal affairs, with a few exceptions. For instance, tribes have the power to form a government, to decide their own membership, the right to regulate property, the right to maintain law and order, the right to regulate commerce, and so on.

Because of the unique nature of Tribal sovereignty and specific federal legislation recognition, various governmental agencies are involved in assisting Indian tribes. Agencies assisting tribes with solid waste management needs and concerns are listed below.

#### United States Environmental Protection Agency (EPA)

The EPA is entrusted with the responsibility to protect human health and the environment. Working on a government-to-government basis with tribes, the EPA gives special considerations to Tribal interests in making Agency policy, and to insure the close involvement of Tribal Governments in making decisions and managing environmental programs affecting reservation lands. In 1984, EPA became the first federal agency to adopt a formal Indian Policy of working with federally recognized tribes on a government-to-government basis. This policy is intended to provide guidance to EPA staff and managers in dealing with Tribal governments and in responding to the problems of environmental management on Indian reservations in order to protect Tribal health and environments. For further information, go to the website: <http://www.epa.gov/indian/programs.htm>

#### American Indian Environmental Office (AIEO)

The AIEO coordinates an Agency-wide effort to strengthen public health and environmental protection in Indian Country. AIEO oversees development and implementation of the Agency's Indian Policy and ensures that the agency-wide implementation of its Indian Program is consistent with the Administration's policy to work with tribes on a government-to-government basis to protect Tribal health and environments. For further information, go to the website: <http://www.epa.gov/indian>

### Bureau of Indian Affairs (BIA)

The BIA is responsible for the administration and management of 55.7 million acres of land held in trust by the United States for American Indians, Indian tribes, and Alaska Natives. There are 562 federal recognized<sup>1</sup> Tribal governments in the United States. Developing forestlands, leasing assets on these lands, directing agricultural programs, protecting water and land rights, developing and maintaining infrastructure and economic development are all part of the agency's responsibility. For further information, go to the website: <http://www.doi.gov/bureau-indian-affairs.html>.

### Indian Health Services (IHS)

An agency within the Department of Health and Human Services, the IHS is responsible for providing federal health services to American Indians and Alaska Natives. The IHS is the principal federal health care provider and health advocate for Indian people, and its goal is to raise their health status to the highest possible level. The Sanitation Facilities Construction Program (SFC) within the IHS, provides assistance for the cooperative development and continued operation of safe water, wastewater, and solid waste systems, and related support facilities for American Indian and Alaska Native homes and communities. For further information, go to the website: <http://www.ihs.gov>.

### Pertinent Laws & Regulations

#### Federal and State

Native American tribes play an increasingly critical role in regulating the environment on Indian lands. Although tribes are increasing their own regulatory authority, the EPA retains jurisdiction over all pollution sources until a program has been delegated to the tribe. Indian tribes must qualify for the "delegation" of a program under the various environmental protection laws administered by the EPA. A list of Federal laws and regulations concerning solid waste management issues is included in Appendix A.

State power over activities on Indian reservations generally is narrow. Although tribes are required to follow federal laws and regulations, tribes may incorporate state laws and regulations (when applicable) when addressing environmental issues. There is potential for overlap and conflict among tribal, state, and federal regulations. A list of State laws and regulations in ***[name of state where tribe is located]*** is included in Appendix B.

#### Tribal Codes

The ***[insert name]*** Tribe ***[has]*** ***[has not]*** established its own codes relative to solid waste management. A description of the ***[insert name]*** Tribe's solid waste management codes and regulations is included in Table 1-2.

**TABLE 1-2: *[insert name]* TRIBE LAWS AND CODES REGARDING SOLID WASTE MANAGEMENT**

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<sup>1</sup> "Federal recognition" means these Tribes have a special legal relationship with the United States government--a government-to-government relationship.

## CHAPTER 1 - INTRODUCTION

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LAW AND CODE NUMBER	DESCRIPTION



### Section 2 Goals of The integrated Waste Management Plan

#### General Goals Statement

This integrated waste management plan has been developed to provide the tribal decision makers and members with a set of goals and policies to implement, monitor and evaluate future solid waste activities. A problem statement was prepared and a list of issues was developed as a first step in describing the solid waste system. This overview helped to determine where goals and policies should be established. Based on the issues identified, the following goals and objectives for the Integrated Solid Waste Management Plan have been adopted:

- *[goal 1]*
- *[goal 2]*
- *[goal 3]*
- *[goal 4]*

**Section 3 Characteristics of Tribal Reservations**

**General Description (Land Use)**

The Pacific Northwest Region is dominated by several mountain ranges, including the Coast Ranges, the Cascade Range, and the Rocky Mountains. The area remains relatively low in population density and contains some of North America’s most extensive forests. The region contains a diversity of natural resources for industries such as mining, logging, fishing, agriculture, and tourism.

This section contains a general description of the existing land use of the *[insert name]* Reservation. The *[insert name]* Reservation is largely rural in nature, with sparse population over the majority of its area. Urban development is located primarily in *[insert area, such as north, south]*, and to a lesser degree in the *[insert area, such as north, south]*. Table 1-3 contains a breakdown of land use on the *[insert name]* Reservation.

**Table 1-3: Land use in *[insert name]* Reservation**

<b>Land use</b>	<b>Square Miles</b>
Forest lands	Insert #
Pasture	Insert #
Cultivated agriculture	Insert #
Urban areas	Insert #

**Description of *[insert name]* Tribes**

Table 1-4 presents a brief description of the characteristics of the *[insert name]* Tribe.

**TABLE 1-4: DESCRIPTION OF *[insert name]* TRIBE**

TRIBE	FEDERALLY RECOGNIZED/ CREATED	LOCATION	ACREAGE	NATURAL RESOURCES/ INDUSTRIES	POPULATION DATA	INCOME SOURCES	WEBSITE



## Instructions for Completing Chapter 1

### Section 1 Pertinent Laws and Regulations

#### State Laws and Regulations

A description of state laws and regulations pertaining to solid waste management in the states where the tribe is located should be discussed in the paragraph in Section 1 under State Laws and Regulations. As an *EXAMPLE* – we've cited the State department for the State of Washington so you have a sample of what those statements might look like for your state.

#### *For Washington Tribes --*

The Washington Department of Ecology is the principal environmental management agency. Their mission is to protect, preserve and enhance Washington's environment, and promote the wise management of our air, land and water. The Department of Ecology's goals are to clean up and prevent pollution and support sustainable communities and natural resources.

#### **Solid Waste and Financial Assistance Program**

The Solid Waste and Financial Assistance Program is one of the ten major environmental management programs under the Department of Ecology. The Program's mission is to reduce the amount and the effects of wastes generated in Washington State.

A list of Washington laws and regulations concerning solid waste management issues is included in Appendix B-1. For further information go to: <http://www.ecy.wa.gov> .

#### **Tribal Codes**

Many tribes have adopted some type of code, law, or regulation to address solid waste management issues. These codes, laws, or regulations are a formal legal method of promoting or preventing behaviors such as recycling or illegal dumping. These can range from a well-established regulatory program that is actively implemented and enforced, to minimal in nature.

There are several reasons for developing solid waste management codes, ordinances, or regulations. These include promoting Tribal waste management goals, protecting health and the environment, and protecting natural resources. Another important consideration when developing codes, laws, and regulations is to determine if voluntary waste management standards are sufficient to meet tribal needs, or if formal regulations are necessary. Many tribes rely primarily on non-regulatory measures and only use regulatory measures as a last resort.

A list and description of tribal codes and laws for TSWAN tribes is included below. If your tribe has established solid waste codes, laws or regulations to address solid waste management issues, select the appropriate section below, and copy into Section 1, under **Tribal Codes**.





**TRIBE LAW AND CODES REGARDING SOLID WASTE MANAGEMENT**

TRIBE	DESCRIPTION



## Section 2 Goals of The integrated Waste Management Plan

A solid waste management plan includes a set of goals and objectives to provide for the management of solid waste. The goals and objectives give direction for implementing programs to provide cost effective and environmentally acceptable management and disposal options. The development of goals and objectives typically starts with a problem statement and a list of issues as a first step in describing the solid waste system. This overview helps to determine where goals and policies should be established. Issues to be addressed may include the following:

- Solid waste disposal needs
- Solid waste hierarchy of waste reduction, recycling, composting, disposal and incineration
- Waste types, such as municipal solid waste, construction and demolition wastes, and other special wastes (household hazardous waste, ash, sludge, industrial waste, septic tank pumpings, asbestos, white goods/appliances)
- Cost effectiveness
- Environmental protection
- Institutional and organization structures

Examples of goals and objectives that may be included in solid waste management plan are included below:

- Establish a cost effective and efficient system for managing the integrated solid waste management system.
- Provide additional solid waste management services and facilities as the need arises.
- Obtain funding for these solid waste management services and facilities.
- Obtain tribal support for funding, enforcement of solid waste management issues.
- Provide (when possible) convenient recycling opportunities to maximize participation.
- Increase public awareness of solid waste issues through educational and information opportunities.
- Continue and enhance waste reduction/recycling programs in order to achieve a minimum of a 50% waste reduction and recycling goal.
- Manage the system to protect public health and the environment.
- Provide additional facilities as needed.
- Address and support strong enforcement of solid waste issues.
- Manage waste in a manner that promotes the State's waste management priorities.
- Encourage coordination and communication with other jurisdictions, governmental entities to carry out components of this solid waste plan.

Other examples include:

- To reduce solid waste stream through waste reduction, recycling, and energy recovery.
- To ensure reasonable access for all residents to some form of solid waste collection.





- Maintain efficient and environmentally safe landfilling operations.
- Ensure that special wastes are handled, recycled or disposed of in a safe manner.
- Increase public awareness on solid waste issues and provide public education.
- To remove any danger to the public health.
- To improve efficiency, quality, and coverage of service by developing intermediate disposal sites (drop boxes).
- Provide easily available and convenient recycling opportunities for residents and businesses.
- Promote and provide incentives including rate structures to separate, reduce, reuse, and recycle.
- Provide incentives to reduce or eliminate problem wastes.
- Encourage source separation, especially of commercial and industrial waste.
- Target wastes: problem wastes, marketable materials, and major waste stream components.
- Provide cost effective and environmentally sound collection and disposal of solid waste.
- Utilize to the fullest extent possible existing facilities and systems.
- Promote collection services that balance administrative efficiency, cost effectiveness and aesthetics.
- Take advantage of alternatives for yard and wood waste and inert materials that are potentially recyclable, or can be disposed in landfills with less stringent requirements than municipal solid waste landfills.
- Assure the financial solvency of all disposal operations.
- Educate and involve citizens in waste reduction and recycling efforts and in responsible waste management.
- Educate citizens about the benefits of waste reduction and recycling.





### Section 3 Characteristics of Tribal Reservations

#### General Description (land use)

This section of the plan includes a general description of the land use on the reservation, including geography, rural vs. urban nature, and land use types. For this section, the following information should be included:

- General location of development (north, south, east and west)
- General location of rural areas (north, south, east and west)
- Types of land uses and square miles or acreage
  - Forest
  - Pasture
  - Agriculture
  - Urban Areas

Sources of information for land use types and acreage include the following:

- Local tribe planning office
- BIA office
- County Planning Department
- State Resources Agency

#### Description of Tribe

Information on individual TSWAN tribes was assembled during the data collection task of this project. A table containing descriptions of each tribe is included below. For this section of the plan, copy the description of your tribe, and paste into Section 3 **Description of Tribe**.







DESCRIPTION OF *[insert name]* TRIBE

TRIBE	FEDERALLY RECOGNIZED/ CREATED	LOCATION	ACREAGE	NATURAL RESOURCES/ INDUSTRIES	POPULATION DATA	INCOME SOURCES	WEBSITE

---

# Chapter 2

## Waste Characterization

**Section 1 Population**

The total population of the *[insert name]* reservation in *[insert year]* was estimated at *[insert number]* persons, based on data from *[insert reference]*. The table below indicates the breakdown of the current population of the reservation, including total tribal enrollment, numbers living on the reservation, and non-tribal members living on the reservation. Over the past *[insert number]* years, the *[insert name]* reservation has increased at an average annual rate of *[insert number]*%.

**[insert name] Reservation Population, [insert year]**

TOTAL ENROLLMENT	MEMBERS LIVING ON RESERVATION	NON-MEMBERS LIVING ON RESERVATION	TOTAL RESERVATION POPULATION

**Housing**

The existing number of households on the *[insert name]* reservation is *[insert number]*. The table below indicates the types and numbers of existing housing units on the *[insert name]* reservation.

**[insert name] Reservation Housing, [insert year]**

ENTITY	BILLING		OWNERSHIP	
	# UNITS	% OF TOTAL	# UNITS	% OF TOTAL
	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>

**Tenants and Visitors**

The year-round population of the *[insert name]* reservation is *[insert number]* persons. Seasonal visitors include resort/casino/other attractions. The *[insert name]* tribe operates the *[insert name]* casino/resort that attracts visitors from outside the reservation. It is estimated that *[insert number]* persons visit the *[insert name]* casino/resort per year. This population inflow must be considered in the design and implementation of integrated solid waste management program for the *[insert name]* reservation.

**Section 2 Waste Stream Generation**

The majority of solid waste from the *[insert name]* reservation is transported for disposal to the *[insert name]* Landfill in *[County name]*. The figure below indicates historical waste disposed by year from the *[insert name]* reservation through *[insert year]*. As indicated, there has been a steady increase in total tonnage disposed.

**Tons of Solid Waste Disposed, *[insert year]*- *[insert year]***



In *[insert year]*, the amount of waste generated on the *[insert name]* reservation was *[insert number]* tons.

**Waste Generated, by Sector**

SECTOR	TONS DISPOSED	TONS DIVERTED	TONS GENERATED (Disposed + Diverted)
Residential	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>
Commercial	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>
Industrial	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>
<b>Total</b>	<i>[insert number]</i>	<i>[insert number]</i>	<i>[insert number]</i>

**Solid Waste Generation Rate**

The generation rate for the year *[insert year]* was *[insert number]* tons per person per year (*t/pp/yr*) and is calculated using the following formula:

$$\text{Generation Rate} = \frac{\text{Waste Generation (tons)}}{\text{Population (persons)}} = \frac{\textit{[insert number]}}{\textit{[insert number]}} = \textit{[insert number] t/pp/yr}$$

**Projections**

The table below utilizes the population projections from Section 1 and reflects the total waste generation over the 50-year planning period.

**Population and Solid Waste Generation Projections**

YEAR	POPULATION	SOLID WASTE GENERATED (TONS)
2010	<i>[insert number]</i>	<i>[insert number]</i>
2015	<i>[insert number]</i>	<i>[insert number]</i>
2020	<i>[insert number]</i>	<i>[insert number]</i>
2025	<i>[insert number]</i>	<i>[insert number]</i>
2030	<i>[insert number]</i>	<i>[insert number]</i>
2035	<i>[insert number]</i>	<i>[insert number]</i>
2040	<i>[insert number]</i>	<i>[insert number]</i>
2045	<i>[insert number]</i>	<i>[insert number]</i>
2050	<i>[insert number]</i>	<i>[insert number]</i>
2055	<i>[insert number]</i>	<i>[insert number]</i>
2060	<i>[insert number]</i>	<i>[insert number]</i>

The population projections for *[insert name]* reservation predict a growth of approximately *[insert number]* people between 2010 and 2060. In order to maintain current levels of service, the *[insert name]* reservation would need to provide waste management programs for an additional *[insert number]* tons generated by 2060.



## Instructions for Completing Chapter 2

### Section 1 Population

In order to be able to provide a good plan for the future, it is necessary to review population, housing and other data that affects waste generation. The information should be analyzed for a period that spans from 10 years prior to the plan date to up to 50 years in the future. This will assist in determining how much solid waste will need to be handled, and what programs, facilities, other infrastructure will be needed, and will allow for sufficient time to plan for future changes.

#### Step 1: Obtain Data

##### Population

An information checklist is included in Appendix C.

Data on existing and projected population estimates can be obtained from a number of sources, including the following:

- Reservation Planning/Housing Office
- County
- US Census Bureau

Typically, projections are based on annual percentage increases. For purposed of the solid waste plan, this information should be aggregated to provide the data the information in 5-year increments.

##### Housing

Data on housing can be obtained from a number of sources, including the following:

- Reservation planning and/or housing office
- County
- US Census Bureau

If no information is available on population projections, state projections can be used as a basis and the percent change applied to known reservation population data in order to obtain projected reservation data for the planning period. For example, if the population in the State is projected to increase by 1% per year until the year 2055; therefore, the reservation's population can also be projected to increase by 1% per year. Worksheets to be used to project reservation population are provided at the end of this chapter.

Other information to discuss in this section of the plan includes visitors and tenants. If the reservation experiences a large influx of visitors due to the establishment of casinos or other tourist attractions this can impact the quantity of waste generated. Therefore, a discussion of these facilities, either existing or potential, should be included in the plan.

#### Step 2: Calculations and Projections





Utilizing the information obtained in Step 1, calculate the projected growth in population, in terms of number of persons and percentage growth rate. Use the table below to enter the data.

**Projected Population, 2010-2060**

YEAR	POPULATION	GROWTH RATE
2010		
2015		
2020		
2025		
2030		
2035		
2040		
2045		
2050		
2055		
2060		

**Step 3: Prepare Plan Sections**

Sample language for the description of population, housing and visitor sections of the Plan are included at the beginning of this chapter. Tables have been prepared for incorporation of the numeric data.





**Section 2 Waste Generation**

This section of the Plan looks at the overall amount of waste generated on the reservation. Waste generation is calculated as the total waste disposed plus the total waste diverted (including source reduction, recycling, and composting). By calculating waste generation, diversion percentages or rates can be calculated. This is helpful in looking at how effective diversion programs are for the reservation.

Waste characterization studies are also important in the planning process, since they provide detailed information on what waste material types are generated by the different sectors (residential, commercial, industrial), the quantity of waste generated by each sector, and how effective current waste reduction and recycling programs are. Knowing what materials are currently being disposed of is vital to planning successful diversion programs for the future. It may also help for determining program costs, because calculations for expected revenue from the sale of recyclables can be made.

Conducting a waste characterization study is time consuming, and therefore often data is utilized from a County or Statewide study in lieu of conducting a specific reservation study. Statewide waste characterization data is included at the end of this chapter.

If the reservation wants to conduct its own waste characterization analysis, instructions and worksheets on sampling, sorting, and calculating the data is included at the end of this chapter.

**Step 1: Obtain Data**

**Solid Waste Quantities**

Refer to the Information Checklist in Appendix C for sources of waste generation data. Data on the quantity of waste generated can be obtained from the following sources

Disposal data from haulers and landfills

Recycling data from haulers and recycling centers

Waste haulers data can be used determine the breakdown of generation by sector (residential or commercial). This data is typically based on the type of account and level of service (number of days per week and size of container) information.

**Step 2: Calculations and Projections**

**Waste Generation**

The solid waste quantity data is then used to calculate total waste generation. Waste generation is calculated by adding the annual tons disposed to the annual tons recycled or diverted, as indicated in the following formula:

$$\begin{array}{r}
 \text{Waste} \\
 \text{(tons)}
 \end{array}
 \text{ Generation}
 = \text{Disposal} + \text{Diversion}
 = \begin{array}{l}
 \text{[number of tons} \\
 \text{disposed]} \\
 \text{[number of tons} \\
 \text{diverted]}
 \end{array}
 + \begin{array}{l}
 \text{[Total} \\
 \text{number] of} \\
 \text{tons} \\
 \text{generated}
 \end{array}$$







### Per Capita Waste Generation

The amount of waste generated is typically tied to the population. Therefore, waste generation projections are based on population projections. Per capita waste generation rates can be used to project total future solid waste generation. Per capita waste generation rates are calculated by State solid waste agencies.

Per capita waste generation rates for the states of Washington, Oregon and Idaho are provided at the end of this chapter.

Using the generation rate from the State study, the amount of solid waste that will need to be handled in the future can then be calculated as follows:

$$\begin{array}{r} \text{Waste} \\ \text{(tons)} \end{array} \quad \text{Generation} = \text{Population} * \begin{array}{r} \text{Per} \\ \text{Capita} \\ \text{Generation Rate} \end{array}$$

### Step 3: Prepare Plan Sections

Sample language for inclusion in the Plan for the discussion of waste generation is included at the beginning of this chapter.





## Data Resources

United States

## Population Data

U.S. Census; 2000 Census data

[http://factfinder.census.gov/home/aian/sf\\_aian.html](http://factfinder.census.gov/home/aian/sf_aian.html)

## Oregon/Idaho Solid Waste Composition, 2002

MATERIAL	PERCENTAGE OF TOTAL DISPOSAL	MATERIAL	PERCENTAGE OF TOTAL DISPOSAL
<b>TOTAL PAPER</b>	<b>16.20%</b>	<b>GLASS</b>	<b>2.31%</b>
<b>Paper Packaging</b>	<b>7.02%</b>	Deposit Beverage Glass	0.37%
Cardboard/Brown Bags	2.69%	<b>Other Container Glass</b>	<b>1.16%</b>
Low Grade Packaging	1.78%	Other Clear Bottles	0.43%
Bleached Polycoats	0.37%	Other Colored Bottles	0.27%
Nonrecyc. Packaging	0.93%	Clear Container Glass	0.41%
Mixed Paper / Materials	1.25%	Colored Container Glass	0.04%
<b>Other Paper</b>	<b>9.18%</b>	<b>Window + Nonrecyc. Glass</b>	<b>0.78%</b>
Newspaper	1.63%	Flat Window Glass	0.27%
Magazines	1.23%	Fluorescent Tubes	0.01%
Hi Grade Paper	1.67%	Compact fluorescent lights	0.01%
Hardcover Books	0.11%	Other Nonrecyc. Glass	0.49%
Low Grade Paper	1.99%	<b>METALS</b>	<b>7.28%</b>
Other Nonrecyc. Paper	2.55%	Alum. Beverage Cans	0.12%
Low-grade Recyc. Paper combined	4.24%	Alum. Foil / Food Trays	0.10%
Nonrecyc. Paper combined	4.73%	Other Aluminum	0.07%
<b>TOTAL PLASTICS</b>	<b>8.86%</b>	<b>Tinned Cans</b>	<b>0.81%</b>
<b>Plastic Packaging</b>	<b>4.20%</b>	Tin Food Cans	0.73%
Rigid Plastic Containers	1.31%	Other Tin Cans	0.08%
Other Plastic Packaging	2.89%	<b>Other Metal</b>	<b>6.19%</b>
Other Rigid Packaging	0.79%	Other Nonferrous Metal	0.06%
Plastic Film Pkg Est. 2000	2.11%	Other Ferrous Metal	1.75%
<b>Plastic Products</b>	<b>4.66%</b>	White Goods	0.05%
Rigid Plastic Products	2.09%	<b>Computer, Brown, Sm. Appl.</b>	<b>1.91%</b>
Plastic Film Prod. Est. 2000	1.14%	<b>Computers &amp; Monitors</b>	<b>0.56%</b>
Mixed Plastic / Materials	1.44%	Computers excl. monitors	0.32%
( <i>Film plastic combined</i> )	3.24%	Comp. Monitor CRTs	0.24%
Plastic Film Recyclable	1.01%	<b>TVs, CRTs, &amp; Brown goods</b>	<b>0.71%</b>
Plastic Film Nonrecyclable	2.23%	TVs / Other CRTs	0.43%
<b>OTHER ORGANICS</b>	<b>45.78%</b>	<b>Other Brown Goods</b>	<b>0.28%</b>
<b>Yard Debris</b>	<b>6.61%</b>	Small Appliances-non elec.	0.64%
Leaves / Grass	5.49%	Empty Aerosol Cans	0.11%
Small Prunings under 2"	0.83%	Mixed Metal / Material	2.30%
Large Prunings over 2"	0.24%	<b>OTHER INORGANICS</b>	<b>12.92%</b>
Stumps	0.05%	Rock / Concrete / Brick	2.58%
<b>Wood</b>	<b>8.59%</b>	Soil / Sand / Dirt	1.10%





MATERIAL	PERCENTAGE OF TOTAL DISPOSAL	MATERIAL	PERCENTAGE OF TOTAL DISPOSAL
<b>Clean lumber &amp; hog fuel</b>	<b>3.33%</b>	Pet Litter / Animal Feces	1.69%
Untreated Lumber	1.91%	<b>Gypsum wallboard</b>	<b>4.64%</b>
Clean Hog Fuel Lumber	1.42%	Gypsum Wallboard OLD	2.18%
<b>Painted &amp; Treated lumber</b>	<b>1.57%</b>	Gypsum Wallboard NEW	2.46%
Painted Lumber	1.17%	Fiberglass Insulation	0.59%
Chemically-treated Lumber	0.40%	Other Inorganics	2.33%
Wood Pallets / Crates	1.19%	<b>"MEDICAL WASTES"</b>	<b>0.09%</b>
Wood Furniture	0.41%	<b>OTHER HAZ. MATERIALS</b>	<b>0.71%</b>
Other Wood Products	0.11%	Latex Paint	0.11%
Mixed Wood / Materials	1.98%	Oil Paints / Thinners	0.06%
Food	16.43%	Pesticides / Herbicides	0.02%
Tires	0.12%	Motor Oil	0.03%
Rubber Products	0.63%	Used Oil Filters	0.04%
Disposable Diapers	2.09%	Fuels (gas/kero/diesel)	0.00%
Carpet	1.93%	Adhesives / Sealants	0.06%
<b>Textiles + mixed</b>	<b>2.91%</b>	Caustic Cleaners	0.02%
Textiles	1.62%	Lead-Acid Batteries	0.07%
Mixed Textile / Material	1.29%	Dry-cell Batteries	0.08%
Roofing / Tarpaper	3.81%	Asbestos	0.00%
Furniture	1.27%	Other Hazardous Chemicals	0.22%
Other Organics	1.39%		





## WASTE CHARACTERIZATION

***Use this worksheet if you need a more detailed profile of the amounts and types of waste generated on the reservation.***

This worksheet provides step-by-step instructions for sorting, weighing and recording data on the waste stream your reservation generates.

Two different types of sampling methods can be used during a waste audit. The first method is to collect and sort all the waste generated during the day. This is the most practical method for smaller reservations. The second method is to use a representative sample of approximately 50 pounds of waste from each collection container (i.e., dumpster) at the reservation. This is more appropriate for larger reservations.

**If you elect to analyze a representative sample, be sure your sorting sample is truly representative. Waste generation and waste components can vary significantly from day to day, season to season and year to year. In addition, periodic events such as holiday parties and special orders can affect your facility's waste stream. If you suspect that the waste sample being sorted is not truly representative of your reservation's waste generating practices, consult with your representative trash collection or operations manager for input on the accuracy of the data. Make a note on this worksheet of any results you believe are not accurate. When sorting a sample, you will still need to weigh or estimate one day's worth of waste in order to extrapolate annual estimates for each waste category.**

Determine the size and location of the area in which you will sort the waste. For smaller facilities (less than 50 employees), it might be easier to sort the sample in a large indoor room after normal operating hours. If large quantities of waste will be sorted, a large, flat area such as a parking garage or shipping and receiving area is preferable. It is advisable to sort in a sheltered area to provide cover from adverse weather. Be sure to consider health and safety issues as well. All members of the waste reduction team should wear protective clothing (such as leather or thick gloves, heavy-duty shoes, safety glasses and coveralls) and precautions should be taken to ensure that the waste does not come in contact with food or drink.

You will need several containers for holding the sorted wastes and a scale for weighing the samples. The size of the containers depends on the amount of waste to be sorted.

Office wastebaskets might work well for small sorts. For larger facilities, 30- to 50-gallon plastic containers, garbage cans, or large corrugated cardboard boxes will be needed. If there are no large scales at your reservation, they often can be rented. In addition, you also will need shovels or push brooms, a clipboard, labels, pens and a first aid kit.

A three- or four-person waste reduction team in a small- to medium-size reservation can probably complete the sorting and weighing in a few hours. Waste sorts at a larger reservation will take longer, depending on the size of the team and the amount of waste to be sorted.





## Waste Characterization Worksheet

### 1 Beginning the Waste Audit

- A. Assemble the waste sample to be sorted, using either one day's worth or an otherwise representative sample of waste from your reservation.
- B. Weigh the empty containers that the sorted wastes will be placed into and record these weights on a label on each container.
- C. Sort the waste sample by major waste component (paper, plastics, glass, metal, compostable organics, other).
- D. If needed, further sort each major waste component into more specific component subcategories (e.g., glass into: clear, green, amber or other).
- E. Place the sorted materials into separate weighed and labeled (with weight) containers.

### 2 Calculating Net Component Weights

- A. Weigh each filled waste container and subtract the weight of the container (from 1-B) to obtain the net component weight. Record the net component weight on the spaces provided on the Waste Sort Form, if you did not sort these waste component subcategories, proceed to Step 2-C.
- B. If you sorted the waste components into subcategories, add their weights together and record the total waste component weight on the Waste Sort Form.
- C. Add all the total waste component weight figures to determine the total sample weight and record this total on the Waste Sort Form.

### 3 Calculating Percent of Total Sample Weight

Use the following formula and the figures recorded in the Net Component Weight column of the Waste Sort Form to compute the percentage each component constitutes the total weight of the sample. Repeat the calculation for each waste component under consideration and record the results in the Percent of Total Sample Weight column on the Waste Sort Form. (Note: If you sorted the waste components into component subcategories, you also may choose to calculate the percentage of the sample occupied by each waste component subcategory, depending on the level of information you are interested in).

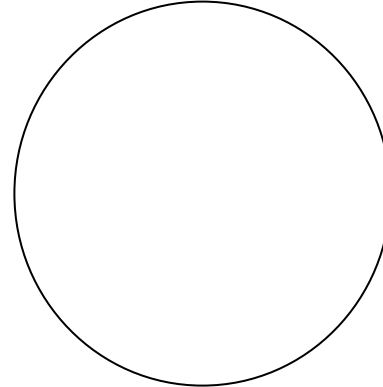
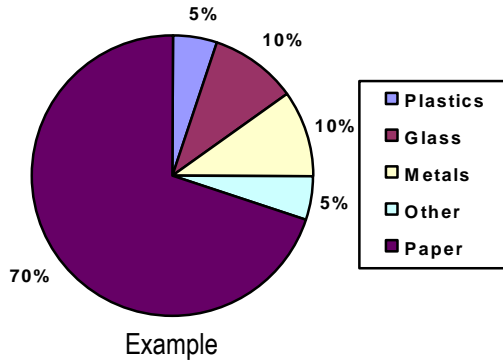
$$\frac{\text{Net component weight}}{\text{Total sample weight}} \div \frac{\text{Total sample weight}}{\text{Total sample weight}} \times 100 = \$ \frac{\text{Percentage of Total Sample Weight}}{\text{Total Sample Weight}} \%$$





## Waste Characterization Worksheet

- A.** Use the data listed in the Percent of Total Sample Weight column on the Waste Sort Form to create a pie chart to help compare the percentages of the difference waste components.



### 4 Calculating Weight of Waste Generated Annually

- A.** If you sorted one day's worth of waste, calculate the weight of waste generated for each waste component using the following formula:

$$\frac{\text{Net component weight (in percent)}}{\text{Total sample weight (total pounds)}} \times \text{Total sample weight (total pounds)} = \text{Weight of Waste Generated Annually}$$

(Example: metals .10 x 100 lbs = 10 lbs of metal generated annually)

- B.** If you sorted a representative sample, first weigh or estimate all of the waste generated by your reservation that day. Calculate the amount of waste generated annually for each waste component using the following formulas:

$$\frac{\text{Total component weight generated/day}}{\text{Total sample weight (all components)}} = \text{Percentage of sample weight}$$

$$\text{Net component weight} \times \text{Multiplier (fraction of normal operation)} \times \text{Number of work days per year} = \text{Annual waste per component}$$

- C.** Repeat the appropriate calculation for each waste component under consideration and record the figures in the Weight of Waste Generated Annually column on the Waste Sort Form. (Note: if you sorted the waste components into component subcategories, you may choose to calculate the amount of waste generated annually by each waste component subcategory, depending on the level you are interested in obtaining.)





### Waste Characterization Worksheet

Date of Waste Sort:	Department:
Source of Sample (if different from department)	
Sample Collected Over: <input type="checkbox"/> One Day <input type="checkbox"/> Two Days <input type="checkbox"/> Other Technique (specify) _____	
Sample Collected: <input type="checkbox"/> All Waste at Source <input type="checkbox"/> Representative Sample (specify weight)	
Team Members Conducting Waste Sort: _____ _____ _____	
Factors Affecting Representation of Sort: _____ _____ _____	

	Waste Component	Net Component Weight	Percent of Total Sample Weight (all components)	Weight of Waste Generated Annually
<b>PAPER</b>	Uncoated Corrugated Cardboard			
	Paper Bags			
	Newspaper			
	White Ledger			
	Colored Ledger			
	Computer Paper			
	Other Office Paper (mixed)			
	Magazines and Catalogs			
	Phone Books and Directories			
	Other Miscellaneous Paper			
	Remainder/Composite Paper			
		<b>Total Component V</b>		
<b>PLASTICS</b>	HDPE Containers (plastic milk jugs)			
	PETE Containers (plastic soda bottles)			
	Miscellaneous Plastic Containers			
	Film Plastic			
	Durable Plastic Items			
	Remainder/Composite Plastic			
	Styrofoam			
		<b>Total Component V</b>		
<b>GLASS</b>	Clear Glass Bottles and Containers			
	Green Glass Bottles and Containers			
	Brown Glass Bottles and Containers			
	Other Colored Glass Bottles and Containers			
	Flat Glass			
	Remainder/Composite Glass			



	<i>Total Component V</i>		
--	--------------------------	--	--

### Waste Characterization Worksheet

	Waste Component	Net Component Weight	Percent of Total Sample Weight (all components)	Weight of Waste Generated Annually
<b>METALS</b>	Tin/Steel Cans			
	Major Appliances			
	Other Ferrous			
	Non-Ferrous Metals			
	Aluminum Cans			
	Other Non-Ferrous			
	Remainder/Composite Metal			
	<b>Total Component Weight</b>			
<b>OTHER ORGANIC</b>	Food			
	Leaves and Grass			
	Prunings and Trimmings			
	Branches and Stumps			
	Agricultural Crop Residues			
	Manures			
	Textiles			
	Remainder/Composite Organic			
	<b>Total Component Weight</b>			
<b>CONSTRUCTION AND DEMOLITION DEBRIS</b>	Concrete			
	Asphalt Paving			
	Asphalt Roofing			
	Lumber			
	Gypsum Board			
	Rock, Soil, Fines and Bricks			
	Remainder/Composite Construction and Demolition			
		<b>Total Component Weight</b>		
<b>HOUSEHOLD HAZARDOUS WASTES</b>	Paint			
	Vehicle and Equipment Fluids			
	Used Oil			
	Batteries			
	Remainder/Composite Household Hazardous			
		<b>Total Component Weight</b>		
<b>SPECIAL WASTE</b>	Ash			
	Sewage Solids			
	Industrial Sludge			
	Treated Medical Waste			
	Bulky Items			
	Tires			
	Remainder Composite Special Waste			
	Mixed Residue			
	<b>Total Component Weight</b>			



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# Chapter 3

## Existing Solid Waste System

### Section 1 - Solid Waste Collection and Disposal

This chapter presents a description of the existing solid waste system for the *[insert name]* Tribe. A thorough evaluation of the existing collection and disposal system was conducted in order to determine the types of contracts, facilities, and infrastructure that will be needed over the planning period.

#### Existing Program

The existing solid waste collection system was evaluated for its ability to meet existing and projected needs within the framework of the following goals:

- *[insert goals from Chapter 1]*
- *[insert goals from Chapter 1]*
- *[insert goals from Chapter 1]*
- *[insert goals from Chapter 1]*

These goals were developed to address solid waste collection needs for *[insert name]* reservation and are derived from the overall ISWMP goals identified in **Chapter 1**.

#### Collection

##### Current Collection System

*[Insert option selected that best describes existing collection services on your reservation.]*

##### Available Inventory & Equipment

*[Insert option selected that best describes available inventory and equipment on your reservation.]*

*[if applicable insert table 3-1 here]*  
**TABLE 3-1: TYPES OF EQUIPMENT AVAILABLE  
 FOR THE SOLID WASTE COLLECTION PROGRAM**

Program Element	Bought/Leased	Year	Cost	Remaining Life (years)
<b>Equipment:</b>				
<ul style="list-style-type: none"> <li>• 96-gallon waste containers</li> <li>• 2,4,6,8 cubic yard waste containers</li> </ul>				
<b>Vehicles:</b>				
<ul style="list-style-type: none"> <li>• 30-cubic yard front-load compaction style waste truck</li> <li>• Rear-load compaction style waste truck</li> <li>• 1- ton box truck</li> <li>• Pick-up truck</li> <li>• Flatbed rotator truck</li> <li>• Truck equipped with hook-lift System</li> </ul>				
<b>Structures:</b>				
<ul style="list-style-type: none"> <li>• Garage</li> <li>• Maintenance Shed</li> </ul>				

**Section 2 - Existing Solid Waste Facilities**

This section includes a description of the existing solid waste facilities utilized by the *[insert name]* tribe for solid waste transfer, processing, composting and disposal.

**EXISTING CONDITIONS**

**Transfer Stations**

*[Insert option selected that best describes the existing conditions for transfer stations for your tribe.]*

**Landfills**

*[Insert option selected that best describes the existing conditions for landfills for your tribe.]*

**Recycling Facility**

*[Insert option selected that best describes the existing conditions for recycling facilities that is appropriate for your tribe.]*

**Compost Facility**

*[Insert option selected that best describes the existing conditions for composting facilities for your tribe.]*

### Section 3 - Illegal Dumping

#### TYPES OF ILLEGAL DUMPING

Sources of illegal dumping on the *[insert name]* reservation include the following:

- *[insert options here]*

People observing illegal dumping of solid waste (the action, the presence of improper materials in collection containers, or waste materials dumped in inappropriate locations) on the reservation's property are to notify *[insert name of proper authority]*.

#### Existing Conditions

*[insert the option that best describes existing conditions for illegal dumping on your reservation]*

#### Actions for Cleanup

To successfully deal with illegal dumping problems, the *[insert name]* Tribe has implemented a comprehensive approach that includes:

- Site Cleanup and Monitoring
- Community Outreach

#### Site Cleanup and Monitoring

Site cleanup and monitoring includes planning, budgeting, and implementing cleanup projects at current sites and the monitoring of these sites to prevent future illegal dumping. Proper planning is a key element in the success of cleanup efforts. The *[insert name]* Tribe will make sure they have the proper equipment, labor, and arrangements in place for the transportation and disposal of the removed waste.

Monitoring of cleaned up sites is crucial to eliminating the occurrence of illegal dumping. Signs will be posted along with fencing, landscaping or other barriers to limit site access and discourage future dumping at the site. Standard adhesive backed "decals" warning of the prohibition against and the intent to prosecute unauthorized users could be made available.

#### Community Outreach

Educating tribal members, visitors, and the surrounding community members about proper waste disposal will help limit future illegal dumping incidents. Tribal members are more likely to support solid waste management programs if they understand the new waste disposal options and the dangers of open and illegal dumping.

The following measures will be implemented by the *[insert name]* tribe to educate tribal members on new waste disposal options and the dangers of open and illegal dumping. Further information on education and outreach efforts are included in **Chapter 6**.

- *Insert options selected for outreach and education*
- *Insert options selected for outreach and education*
- *Insert options selected for outreach and education*

### **Surveillance & Control Program**

Once policies are in place for actions addressing illegal dumping, program enforcement and measurement are needed for evaluation of how policies are working.

### **Enforcement**

The establishment of solid waste tribal codes, ordinances, and regulations are the foundation for enforcement actions against illegal dumping and set the stage for strong support from tribal council members. Beyond that, support is needed to remind tribal members, visitors, and the local community that illegal dumping is prohibited.

The *[insert name]*Tribe will implement the following enforcement measures as deterrents for illegal dumping.

- *[insert enforcement options selected for implementation]*
- *[insert enforcement options selected for implementation]*
- *[insert enforcement options selected for implementation]*

### **Program Measurement**

Integral to any program is measurement of effectiveness. The *[insert name]*Tribe will implement the following methods to measure the effectiveness of deterrents to illegal dumping.

- *[insert selected measurement options here]*
- *[insert selected measurement options here]*
- *[insert selected measurement options here]*

**Section 4 - Solid Waste System Needs**

Based on the review of the existing collection and disposal system, and the inventory of solid waste facilities, the *[insert name]* has identified solid waste management needs that are crucial in planning to alter, extend, modify, or add to the existing solid waste management systems and facilities. These needs incorporate data on the types of waste in its waste stream, and the activities taking place in the tribe. In addition, the needs are also based on the goals and objectives stated in **Chapter 1** of this Plan, and how best to achieve these goals.

**Operation & Collection**

A key component of a strong tribal solid waste management program is setting up a collection and disposal system that is compatible with the existing and future needs of the tribe.

**Operation Costs**

An evaluation of the estimated annual operating costs for solid waste operations was prepared, and is included in **Table 3-2**

**TABLE 3-2: ESTIMATED ANNUAL OPERATING COSTS FOR SOLID WASTE MANAGEMENT FOR THE *[insert name]* TRIBE \***

<b>Labor:</b>	
Administration	\$__ per hour
Other	\$__ per hour
Benefits	__% of salary
<b>Vehicles:</b>	
Maintenance	\$__ per mile
Fuel	\$__ per mile
Roll-off containers	\$__ each load
Contingency	\$__ per year
* In addition, there will be annual capital costs for items such as household containers (5-year average life expectancy), roll-off containers (10-year life expectancy), buildings (25-year life expectancy), or collection trucks (150,000 miles life expectancy).	
Source: Tribal Decisions-Maker's Guide To Solid Waste Management	

**Collection Costs**

Decisions about what materials to collect, as well as the methods to collect, transport, and ultimately dispose of waste materials are all interrelated. **Table 3-3** includes the capital costs associated with the *[insert name]* tribe collection systems.

**TABLE 3-3: ESTIMATED WASTE COLLECTION CAPITAL COSTS\***

	Waste Drop-Off Sites	Curbside Collection
<b>Site Development</b>		
Household solid waste		
Other solid waste		
8 cubic yard drop-off container (e.g., green box)		
Large plastic container (<90 gallons)		
40-cubic yard roll-off container (for bulky items and C&D)		
30-cubic yard front loading packer/collection truck		
Other equipment		
Maintenance shop (optional)		
Transfer station		

\* Source: Tribal Decisions-Maker's Guide To Solid Waste Management





## Instructions for Completing Chapter 3

### Section 1 - Solid Waste Collection and Disposal

The purpose of this chapter is to evaluate the existing solid waste collection and disposal systems, in order to determine the types of contracts, facilities, and infrastructure that will be needed over the planning period.

#### Existing Program

The existing solid waste collection system should be evaluated for its ability to meet existing and projected needs within the framework of the goals established in Chapter 1.

#### Collection

Solid waste collection can be provided through a variety of means from drop-off locations to full service curbside collection programs. There are three basic types of collection systems:

- Drop-off sites.
- Direct access to transfer stations.
- Curbside collection.

These types of collection systems can be provided to residents and businesses, and offer a variety of options in how collection can be performed.

#### Current Collection System

For this section of the chapter, select the option(s) below that best describes collection services on your reservation.

#### Option 1--

**No Current Means Of Waste Collection.** Residents/businesses must either take their waste to appropriate disposal facilities outside the reservation, or they perform backyard burning or illegally dispose of their waste.

Existing laws in the states of Washington, Oregon and Idaho restrict the burning of household waste. The Washington Administrative Code either prohibits certain types of burning or requires a permit in specific circumstances. Certain materials may not be burned in any outdoor fire, including garbage, plastics, paper, cardboard, construction and demolition debris, metal or any substance that normally releases toxic emissions, dense smoke or obnoxious odors when burned.

In Idaho, it is illegal to burn garbage and most human-made substances that emit hazardous pollutants into the air when they are burned. Specifically burning of the following substances is prohibited (certain exemptions may apply):

- Garbage (defined as "any waste consisting of putrescible animal and vegetable materials resulting from the handling, preparation, cooking and consumption of food including, but not limited to, wastes materials from households, markets, storage facilities, handling and sale





of produce and other food products.")

- Dead animals, animal parts, or animal feces
- Motor vehicle parts or any materials resulting from a salvage operation
- Tires or other rubber materials or products
- Plastics
- Asphalt or composition roofing or any other asphaltic material or product
- Tar, tar paper, waste or heavy petroleum products, or paints
- Lumber or timbers treated with preservatives
- Trade (business-generated) waste
- Insulated wire
- Pathogenic wastes

The Rules for the Control of Air Pollution in Idaho allow the use of open outdoor fires under certain conditions and for certain purposes. Unless a burn ban is in effect and/or other restrictions apply, residents may burn:

- Solid waste (rubbish, tree leaves, yard trimmings, gardening waste, etc.) if no scheduled house-to-house solid waste collection service is available and the burning is conducted on the property where the waste was generated
- Tree leaves, yard trimmings, or gardening waste if allowed by local ordinance or rule and conducted on the property where the waste was generated
- Fires for the preparation of food or recreational purposes, such as campfires and barbecues
- Ceremonial fires
- Small fires set for handwarming purposes
- Weed control along fence lines, canal banks, and ditch banks

State of Oregon regulations prohibit the open burning of any material that creates dense smoke and noxious odors. This includes the following materials:

- Plastics
- Asbestos
- Tires or other rubber products
- Garbage and food waste
- Wire insulation
- Waste oil and other petroleum products
- Automobile parts





- Dead animals

In addition, burning household waste is prohibited altogether in certain areas by DEQ rules or local city and county ordinances.

[This is the most limited form of waste service for a reservation and often times can lead to a variety of violations of environmental laws and regulations such as illegal dumping, air pollution, groundwater pollution, and health and safety issues. Tribes selecting this option should strive to set goals for waste collection services provided through **Option 2**.]

#### Option 2--

**Drop-Off Services Are Provided.** Residents must take their waste to a designated drop-off/transfer location. There are centrally located areas with containers where tribal members deposit their waste.

[Some tribes also facilitate direct access to transfer stations so tribal members can take their trash to these larger facilities themselves. Drop-off services are less convenient for residents than other types of collection services, but keep costs down for the tribe. Tribes can own and operate these facilities or make arrangements with neighboring communities to use their facilities.]

[Examples of how this option works are listed below:

- The Bois Forte Band has drop-off boxes at two locations on its northern Minnesota reservation. Through an agreement with the tribe, St. Louis County owns the drop-off boxes and collects trash and recyclables from the tribe.
- Members of the Red Cliff Tribe of Wisconsin take their trash directly to a tribally owned transfer station. The tribe funds the transfer station operations through a Pay-As-You-Throw (PAYT) program. Tribal members must bring their trash to the transfer station in special trash bags that they can purchase from the tribe. The PAYT system encourages residents to reduce the solid waste they dispose of, as members must purchase more trash bags to throw away larger volumes of trash.]

#### Option 3--

**Curbside Collection Is Provided Through Contracted Services.** Residents are responsible for placing their trash at curbside for waste collection on their assigned waste collection days. Businesses are responsible for disposing of their waste in a waste collection container, typically located adjacent to their building. A contracted waste hauler collects and transports the waste to an appropriate disposal facility located off the reservation.

#### Option 4--

**Curbside Collection Is Provided Through Reservation Services.** Residents are responsible for placing their trash at curbside for waste collection on their assigned waste collection days. Businesses are responsible for disposing of their waste in the nearest waste collection container, typically located adjacent to their building. A tribal member collects and transports the waste to an appropriate facility [*insert where: located off the reservation or to a transfer station located on the reservation*].

[Options 3 & 4 are more convenient than drop-off services, but more expensive than other programs





because it has higher transportation and labor costs. These options are the most flexible in that they can be performed through a variety of combinations depending on tribal needs and layout.

Examples of how these options are working are provided below:

- **3a. Collection provided free of charge to all residents.** The Jicarilla Apache Nation in New Mexico provides free, weekly curbside collection to all residents. The nation owns two 14-cubic yard capacity compactor vehicles that collect and transport the waste to a tribally owned and operated transfer station.
- **3b. Collection provided by a fee to all residents.** Collection can either be provided by a contracted private hauler or by the tribe. The Fort Peck Reservation pays a private hauling company to collect waste at curbside in two of the towns on the reservation. Operation and maintenance charges to residential customers occur as a monthly fee, which is added to the residents' utility bills.
- **3c. Collection provided by a fee to residents and businesses for combination of services.** The Assiniboine and Sioux Nations in Montana obtained funding from the Department of Housing and Urban Development (HUD) and IHS to build roll-off sites for five of the towns on their reservation. Residential and business customers pay a monthly permit fee to dispose of waste at these sites. The nations' Operations and Maintenance Department hauls waste from two of the sites to a landfill in Roosevelt County, where they pay a tipping fee. The nations pay for a private trucking company to haul waste from other sites to a landfill in Valley County.

### Available Inventory & Equipment

Equipment for waste collection and disposal is valuable to a program's existence. Tribes may purchase equipment through grants, loans, or revenues from their solid waste facilities or other revenue sources. Select the option(s) below that best describes collection services on your reservation.

#### Option 1--

**Do Not Have Solid Waste Collection Equipment.** Currently, the reservation does not own any solid waste management equipment.

#### Option 2--

**Do Not Currently Have Solid Waste Collection Equipment, But Future Plans.** Currently, the reservation does not own any solid waste management equipment, but there are plans for the purchase of *[insert type of equipment purchase]*.

#### Option 3--

**Currently Have Available Inventory & Equipment.** The *[insert department or person]* uses the following equipment that it owns to collection, transport, process, and store solid waste and recyclables. Examples of the type of solid waste collection equipment the reservation has is shown in **Table 3-1**.





**TABLE 3-1: TYPES OF EQUIPMENT AVAILABLE FOR THE SOLID WASTE COLLECTION PROGRAM**

Program Element	Bought/Leased	Year	Cost	Remaining Life (years)
<b>Equipment:</b>				
<ul style="list-style-type: none"> <li>• 96-gallon waste containers</li> <li>• 2,4,6,8 cubic yard waste containers</li> </ul>				
<b>Vehicles:</b>				
<ul style="list-style-type: none"> <li>• 30-cubic yard front-load compaction style waste truck</li> <li>• Rear-load compaction style waste truck</li> <li>• 1- ton box truck</li> <li>• Pick-up truck</li> <li>• Flatbed rotator truck Truck equipped with hook-lift system</li> </ul>				
<b>Structures:</b>				
<ul style="list-style-type: none"> <li>• Garage</li> <li>• Maintenance Shed</li> </ul>				





## Section 2

### Existing Solid Waste Facilities

In the past, many tribes throughout the United States disposed of their waste in open pits or by burning it. Due to changes in the types and volumes of waste generated today, these practices are no longer safe or effective ways to manage waste. Permitted solid waste facilities exist for waste acceptance and disposal. These facilities include:

- Transfer Stations
- Landfills
- Recycling Facilities
- Composting Facilities

### Transfer Stations

A transfer station is a facility where waste materials are taken from smaller collection vehicles and placed in larger vehicles for transport to their ultimate site of disposal, often a landfill. Transfer stations can be designed for versatility, to accept anywhere from 1 ton of waste per week to several hundred tons of waste per day.

Transfer stations are part of the disposal system in that they are a consolidation point for waste from different jurisdictions, thereby making the travel to a distant landfill more economical. Privately owned and operated transfer stations can be established and permitted if they are found to meet the Federal RCRA law.

### Current Conditions

Select one of the options below that best fits your reservation's assessment.

#### Option 1--

**No transfer station facility and no future plans.** Due to lack of funding resources and the current method of waste collection, the reservation will not pursue the option of building a transfer station.

#### Option 2--

**No transfer station facility but future plans.** The reservation is in the process of pursuing the necessary funding resource to build a facility on the reservation. The facility will be built to accommodate present and future waste quantities.

[An example of how this option is working is listed below:

- Sovereignty and community size were major factors in the New York-based Onondaga Nation's decision to construct a small transfer station on the reservation. The community's low waste generation rate and reluctance to rely on grants or loans for construction helped tribal leaders rule out building a landfill or larger transfer station. The nation decided to build a small, low-maintenance transfer station and worked with a private waste management company to develop a construction and operation plan.]



**Option 3--**

**Currently Operates A Transfer Station.** The reservation has an established transfer station facility designed and permitted to accommodate ***[insert tons]*** per day capacity. The facility has been in operation since ***[insert year]***. Waste accepted at the facility comes from ***[insert where waste comes from]***. Waste is placed into ***[insert truck/trailer type]*** and is then transported by ***[insert name]*** to a landfill located ***[insert where]*** to be disposed of. The reservation charges ***[insert amount]*** per ton at the transfer station to cover the cost of disposal and operation and maintenance costs.

**LANDFILLS**

A landfill is a disposal site for non-hazardous solid wastes spread in layers, compacted to the smallest practical volume, and covered by material applied at the end of each operating day.

Landfills located on a reservation can be a technically and economically feasible option for a tribe under certain circumstances, such as if the tribe is located far from available waste management facilities or the tribe generates enough waste to make an onsite facility viable.

**Current Conditions**

Select one of the options below that best fits your reservation's assessment.

**Option 1--**

**No Landfill And No Future Plans.** Due to lack of funding resources and the current method of waste collection, the reservation will not pursue the option of building a landfill.

**Option 2--**

**No Landfill But Future Plans.** The reservation is in the process of pursuing the necessary funding resource to build a landfill on the reservation. The facility will be built to accommodate present and future waste quantities.

**Option 3--**

**Currently Operate A Landfill.** The reservation has an established landfill designed and permitted to accommodate ***[insert tons]*** per day capacity. The facility has been in operation since ***[insert year]***. Waste accepted at the facility comes from ***[insert where waste comes from]***. Waste is taken to the working face of the landfill and compacted by ***[insert type of vehicle]***. A cover material consisting of ***[insert type of cover]*** is placed over the waste to prevent animals from getting into the waste.





## RECYCLING FACILITY

Recycling facilities can be run through a variety of means, ranging from drop-off locations to full-scale materials recovery facilities. There are three basic types of recycling facility classifications:

- Drop-Off Centers.
- Buy-Back Centers.
- Materials Recovery Facility.

### Current Conditions

Select one of the options below that best fits your reservation's assessment.

#### Option 1--

**No Recycling Facility, No Future Plans.** Due to lack of funding resources and the current method of waste collection, the reservation will not pursue the option of building a landfill. Residents/businesses must either take their recycling to appropriate recycling centers outside the reservation or do not recycle materials.

Although there is no recycling facility on the reservation, educating residents/businesses that taking materials to recycling centers off the reservation will help to reduce cost for waste disposal. Tribes selecting this option should strive to set goals for waste collection services provided through **Option 3**.

#### Option 2--

**No Recycling Facility, But Future Plans.** The reservation is in the process of pursuing the necessary funding resource to build a recycling facility on the reservation. The facility will be built to accommodate present and future recyclable quantities.

#### Option 3:

##### **Established Recycling-Type Facility.**

Below are several types of recycling facilities in which tribes have established recycling-type of facilities. For widely dispersed populations, drop-off centers or buy-back centers might be the most economically feasible options for collecting recyclable materials.

**3a. Drop-Off Center.** Drop-off facilities are located in centralized areas that members can easily access (i.e. grocery stores, shopping areas, tribe-sponsored sites, transfer stations, or residential/business areas). Labels can be used at drop-off centers to direct members to place the correct material in the proper areas. Materials taken are ***[insert material accepted such as: newspaper, white office paper, aluminum cans, and cardboard]***.

- The Zuni Pueblo Tribe of New Mexico set up nine recyclable collection centers in areas frequented by tribal residents and established a processing and marketing system for the materials it collected. The Zuni Pueblo takes the plastic, newspaper, aluminum cans, and glass the tribe collects to nearby processing centers.







### **3b. Buy-Back Centers.**

Tribe takes materials to commercial operations (Buy-back centers) and is paid for the materials. Materials taken are ***[insert materials such as: aluminum cans, newspaper, white office paper, cardboard]***. Materials are first collected on the reservation.

[An example of how this option is working is listed below:

- The Shoshone-Paiute Tribes of the Duck Valley Reservation in Idaho and Nevada pays residents for aluminum cans brought to its transfer station for recycling.

### **Option 4--**

**Currently Operate A Recycling Facility.** The reservation has an established recycling facility (materials recovery facility) designed and permitted to accommodate [insert tons] per day capacity. The facility has been in operation since ***[insert year]***. Materials accepted at the facility come from [insert where recyclables come from]. Materials are sorted and placed into [insert type of container or baler]. When enough has accumulated, the tribe [contracts with or transports] the recyclables to local markets.

### **COMPOST FACILITY**

Composting is the controlled decomposition of organic materials, such as leaves, grass, and food scraps, by microorganisms. The result of this decomposition process is compost (a crumbly, earthy-smelling, soil-like material). Compost can be used in gardens and other landscaping application or even sold to individuals and businesses.

There are two main types of compost facilities:

- Small scale operations such as residential backyard composting programs; or
- Community composting facilities.

### **Current Conditions**

Select one of the options below that best fits your reservation's assessment.

### **Option 1--**

**No Compost Facility, No Future Plans.** Due to lack of funding resources and need for organic debris removal, the reservation will not pursue the option of building a compost facility.

### **Option 2--**

**No Compost Facility, But Future Plans.** The reservation is in the process of pursuing the necessary funding resource to build a compost facility on the reservation. The facility will be built to accommodate present and future organic waste quantities.





### Option 3--

**No Compost Facility, But Have Backyard Composting Programs.** Residents leave cut grass clippings on their lawn, and collect other yard trimmings and gather them into a backyard mulch pile.

An example of an existing backyard-composting program operated by a tribe is described below.

- The Oneida Tribe of Indiana in Wisconsin sells backyard-composting bins to residents to promote backyard composting among members and also teaches adult education classes on backyard composting. Residents have less trash to dispose of and gain a soil amendment product that will improve the consistency of the soil in their own gardens.

### Option 4--

**Currently Operates A Compost Facility Or Community Facility.** The reservation has an established facility designed and permitted to accommodate organic materials such as *[insert material types such as grass clippings, leaves, branches, or trees]*. The facility has been in operation since *[insert year]*. Organic waste accepted at the facility comes from *[insert where waste comes from]*. Organic waste is *[insert what happens to material: mulched, chipped, ground up, placed in piles]*. Once the material has turned to compost, it is then *[insert what happens to material: used on the reservation for landscaping, sold to residents and businesses, used as cover material for a landfill, etc]*.

Examples of successful composting programs operated by other tribes are described below:

- The Eastern Band of Cherokee Indians' pilot casino composting program in North Carolina was to integrate the composting process into employee training and routine procedures at the casino. The tribe also hired an additional employee to handle some of the composting responsibilities.
- The Sitka Tribal Enterprises in Alaska designed a composting program to produce marketable products from organic wastes of Alaskan industries. Aerated, turned windrows produce high-quality, nutrient-rich, organic, soil-like compost from fish and timber wastes. The result is certified organic products, such as potting soil and transplant mix, from Alaska's own land and water. The project has provided jobs for village residents and serves as a model for other Alaskan Native communities.

### Future Planning & Permitting

Operational costs, markets, reservation building expansions, and expected population increases should always be considered for planning purposes. Evaluation of existing and alternative long-term disposal opportunities, such as opening a new solid waste landfill on the reservation or contracting with a hauler/landfill for future disposal needs, should also be considered.

Some tribes choose to locate solid waste facilities, such as landfills or transfer stations, on tribal lands. When appropriate, tribal regulations might include criteria for siting, permitting, and operating these facilities.





An example of how this option is working is listed below:

- An ordinance adopted by the Cheyenne River Sioux Tribe in South Dakota designates the Cheyenne River Sanitary Landfill for temporary or permanent disposal for garbage and waste materials in the community of Eagle Butte. Additionally, the Rosebud Sioux Tribe of South Dakota has adopted landfill location, design, and operation standards as part of its Solid Waste Code.

Once waste management issues have been identified and prioritized, important issues should be addressed through tribal codes or regulations.

An example of how this option is working is listed below:

- The Lac du Flambeau Tribe of Wisconsin uses compliance with the federal RCRA regulations as a requirement for issuance of a solid waste facility permit under its Solid Waste Code.





## Section 3 - Illegal Dumping

### BACKGROUND

For years, many Native Americans disposed of their waste through open dumps and burning in pits and barrels. Since 1991, federal regulations have made open dumping illegal. Open dumps attract wild animals and insects that can spread disease, and can leak hazardous liquids into the groundwater and streams, contaminating drinking water supplies and impacting commercial or subsistence fishing.

A large number of tribes have since become more environmentally aware of the dangers to their health from this type of waste disposal, and have passed tribal ordinances and regulations banning open dumping and open burning. Unfortunately, many tribes, especially in rural areas, are faced with illegal dumping on their reservations, even after providing accessible and convenient collection and disposal programs. Types of materials that can be found at illegal dumpsites include tires, appliances, furniture, car batteries, and abandoned cars.

### TYPES OF ILLEGAL DUMPING

Illegal dumping may occur from two sources. The first source can be from visitors. Reservations having a large variety of recreational facilities and casinos have a large amount of visitors. These visitors are often not familiar with how to properly dispose of solid waste on the reservation. The second source can be from employees and residents of the reservation who are not aware of the proper procedures or the implications of not following them.

### Current Conditions

Select the option(s) below that best describes illegal dumping on your reservation.

#### Option 1--

**Do Not Have Problems With Illegal Dumping.** Under the current conditions, there are no problems with illegal dumping throughout the reservation.

#### Option 2--

**Occasional Problems With Illegal Dumping.** Although not a common occurrence, the reservation does experience illegal dumping along roadsides and in rural areas. These dumping areas are cleaned up soon after reporting.

#### Option 3--

**Frequent Problems With Illegal Dumping.** The reservation experiences frequent illegal dumping. Due to budget constraints, these illegal sites cannot be cleaned up as frequently as they happen.

### JUNK VEHICLES/BULKY ITEMS

Junk vehicles/bulky items consist of furniture, mattresses/boxsprings, large appliances, and other large items not contained in waste bags. Typically, these wastes are generated through discarding



old furniture, appliances, or vehicles with the replacement of new items.

Often times, tribal members or area residents do not know how to properly dispose of these items, and often abandon them along a roadside or in a rural area. If not disposed of properly, junk vehicles/bulky items can easily become eyesores around the reservation.

Select the option(s) below that best describes junk vehicles/bulky items on your reservation.

#### Option 1--

**Do Not Have Problems With Junk Vehicles/Bulky Items.** Under the current conditions, there are not problems with these items throughout the reservation.

#### Option 2--

**Occasional Problems With Junk Vehicles/Bulky Items.** Although not a common occurrence, the reservation does experience large items along roadsides and in rural areas. These dumping areas are cleaned up soon after reporting.

#### Option 3--

**Frequent Problems With Junk Vehicles/Bulky Items.** The reservation experiences frequent dumping of these items. Due to budget constraints, these illegal sites cannot be cleaned up as frequently as they happen.

### ACTIONS FOR CLEANUP

To successfully deal with illegal dumping problems, tribes need to adopt a comprehensive approach that includes:

- Site Cleanup and Monitoring; and
- Community Outreach

#### Site Cleanup and Monitoring

Site cleanup and monitoring includes planning, budgeting, and implementing cleanup projects at current sites and the monitoring of these sites to prevent future illegal dumping. Proper planning is a key element to the success of cleanup efforts. Tribes must make sure they have the proper equipment, labor, and arrange for the transportation and disposal of the removed waste. Some tribes fund cleanup project while others have partnered with local government or worked with IHS and BIA staff to clean up sites.

Examples are listed below:

- One the Cherry Lake Road cleanup project at the White Earth Band of Chippewa in Minnesota, the tribe hired a contractor that used heavy equipment to clean up large items, and hired local residents to pick up remaining items by hand.
- The Pawnee Nation in Oklahoma partnered with BIA to clean up most of its open dump sites.
- The Seminole Nation of Oklahoma also works with neighboring Seminole County to clean up



illegal dumpsites.

- The Stockbridge-Munsee Nation of the Mohican Band in Wisconsin has a Tribal Solid Waste Management Ordinance that specifically states that discarded appliances are not accepted for collecting, and their disposal is the responsibility of the owners.
- Other tribes, such as the Eastern Band of Cherokee Indians and Jicarilla Apache Nation, accept white goods at their transfer stations for scrap metal recycling.

Monitoring of cleaned up sites is crucial to eliminating the occurrence of illegal dumping. Signs should be posted, along with fencing, landscaping or other barriers to limit site access and to discourage future dumping at the site. Standard adhesive backed “decals” warning of the prohibition against and the intent to prosecute unauthorized users should be available.

Examples are listed below:

- The Red Lake Band of Chippewa in Minnesota post “No Dumping” signs at cleaned areas that state illegal dumping is punishable by fine and cite the tribal resolution banning illegal dumping.
- The Wyandotte Nation in Oklahoma installed a fence at one cleaned dumpsite to limit access and prevent future dumping.
- At the Cherry Lake Road cleanup, the White Earth Band of Chippewa planted more than 1,000 trees donated by the state to beautify the area and discourage illegal dumping.

### Community Outreach

Educating tribal members, visitors, and the surrounding community members about proper waste disposal can help limit future illegal dumping incidents. Tribal members are more likely to support solid waste management programs if they understand the new waste disposal options and the dangers of open and illegal dumping. See **Chapter 6** for further ideas on education and information.

Examples of how this option is working are included below:

- To educate tribal members about proper waste disposal, the Keweenaw Bay Indian Community in Michigan developed an illegal dumping pamphlet that details the environmental problems associated with illegal dumping and directs residents to proper waste disposal facilities. The tribe distributes the pamphlet in public buildings on the reservation and at public events such as the annual pow-wow.
- To address the problems of open dumping on tribal lands, the Fallon Paiute-Shoshone Tribe of Nevada adopted an Open Dump Ordinance, with the following purpose: “The tribe is enacting this ordinance to provide a process and standards for the prevention of open dumps within tribal lands or adjacent boundaries. The tribe is compelled to act because of the threat open dumps pose to the environment, health, safety, and economic security of the tribe and its members. In order to protect the tribe’s limited natural resources, the tribe is required to address the threat posed by open dumps through the exercise of its inherent sovereign power and constitutional authority to protect and preserve the tribal health, safety, welfare, customs and traditions, lands and environment.”

### Surveillance & Control Program



Once policies are in place for actions addressing illegal dumping, program enforcement and measurement are needed to evaluate how the policies are working.

### **Enforcement**

The establishment of solid waste tribal codes, ordinances, and regulations are the foundation for enforcement actions against illegal dumping, and set the stage for strong support from tribal council members. Beyond that, support is needed to remind tribal members, visitors, and the local community that illegal dumping is prohibited. Strong penalties, fines, and consequences should be enforced consistently and equitably, and can be a powerful deterrent for illegal dumping.

Examples are listed below:

- The Seminole Nation of Oklahoma gives an illegal dumper the opportunity to clean up the mess before a citation is issued.
- The Gila River Indian Community of Arizona developed an aggressive strategy to deter illegal dumping. Under the tribe's Solid Waste Ordinance, tribal rangers and police officers can fine illegal dumpers up to \$10,000. Law enforcement officials also have the power to confiscate vehicles involved in illegal dumping incidents.

One difficulty many tribes experience when attempting to enforce illegal dumping ordinances is the inability to prosecute non-tribal members for illegal acts. Checkerboard land patterns and Indian lands being surrounded by multiple jurisdictions further complicate enforcement issues.

An example of how this option is working is listed below:

- The Pawnee Nation in Oklahoma have worked out mutually beneficial enforcement agreements with their neighboring communities. Under agreements with Pawnee and Payne Counties, tribal rangers and the Pawnee Environmental Regulatory Commission share enforcement and prosecution duties with the Pawnee and Payne County courts.

### **Program Measurement**

Integral to any program is a measurement of its effectiveness. In order to establish whether or not a particular strategy should be used, revised, or eliminated, a means of measuring the effectiveness of the approach should be developed first. A variety of approaches are available, and the approach should be chosen based on its ability to fit the approach.

Examples are:

- Establish a baseline of the quantities of recyclables collected before implementation of new programs; and
- Once the illegal dumping cleanup, monitoring, and enforcement has begun, monitor the number of sites before and after education and enforcement activities are conducted.

EPA Region 5 created the IDEA (Illegal Dumping Economic Assessment) cost estimating model to assess and measure the costs of illegal dumping activities. The model allows tribes to compare the cost of different cleanup methods, equipment investments, and surveillance and prevention techniques. Tribes can apply the model to a single dumpsite, specific groups of sites, or all of the sites on the reservation.

Examples are listed below:



- The Pawnee Nation Department of Environmental Conservation and Safety in Oklahoma performs a yearly site assessment to identify dump sites. In 1996, department staff identified 40 illegal dumping sites on the reservation. The most recent assessment shows that only four illegal dumpsites remain.
- The Cheyenne River Sioux Tribe, located in South Dakota, has established specific service fees for collecting and disposing of automobiles, pickup trucks, utility trailers, and trucks according to a fee schedule in the tribe's Solid Waste Ordinance.





**Section 4**

**Solid Waste System Needs**

Understanding tribal solid waste management needs is crucial in planning to alter, extend, modify, or add to the existing solid waste management systems and facilities. Each tribe also generates a variety of types of waste in its waste stream, depending on its size, geographic location, and the activities taking place on the reservation. In addition to needs, tribes must evaluate how well the goals and objectives stated in **Chapter 1** of this Plan are being met.

**Operation & Collection**

A key component of a strong tribal solid waste management program is setting up a collection and disposal system that is compatible with the needs of the tribe.

**Operation Costs**

Assessing a tribes waste is the first step in the development and operation of collection and disposal systems. It can also assist in the decision as to whether or not to collect recyclable materials; compost organic wastes; or to develop a management system for household hazardous waste, bulky items, and construction and demolition debris. **Table 3-2** shows an example of operating costs for solid waste management systems.

Some tribes prefer to hire private haulers or contract with local waste management districts to provide service for reservation residents.

**TABLE 3-2: ESTIMATED ANNUAL OPERATING COSTS FOR SOLID WASTE MANAGEMENT SYSTEMS\***

<b>Labor:</b>	
Administration	\$10 per hour
Other	\$5 - \$7 per hour
Benefits	30% of salary
<b>Vehicles:</b>	
Maintenance	\$0.20 – 0.35 per mile
Fuel	\$0.10 – 0.20 per mile
Roll-off containers	\$100 - \$300 each load
Contingency	\$10,000 - \$30,000 per year
* In addition, there will be annual capital costs for items such as household containers (5-year average life expectancy), roll-off containers (10-year life expectancy), buildings (25-year life expectancy), or collection trucks (150,000 miles life expectancy).	
Source: Tribal Decisions-Maker's Guide To Solid Waste Management	



**Collection Costs**

Decisions about what materials to collect, as well as how to collect, transport, and ultimately dispose of them, are all interrelated. **Table 3-3** compares some of the capital costs associated with drop-off sites and curbside collection systems in rural areas. Tribal collection can be affected by factors outside the scope of the tribe’s control. Winter weather can make rural curbside collection impractical in some areas.

**TABLE 3-3: ESTIMATED WASTE COLLECTION CAPITAL COSTS\***

	Waste Drop-Off Sites	Curbside Collection
Site Development		
Household solid waste	\$3,000 - \$4,000	
Other solid waste	\$30,000 - \$40,000	\$30,000 - \$40,000
8 cubic yard drop-off container (e.g., green box)	\$4,000 - \$5,000 each	N/A
Large plastic container (<90 gallons)	N/A	\$50
40-cubic yard roll-off container (for bulky items and C&D)	\$3,000 - \$5,000	\$3,000 - \$5,000
30-cubic yard front loading packer/collection truck	\$100,000 - \$110,000	\$40,000 - \$60,000
Other equipment	\$25,000 - \$30,000	\$0
Maintenance shop (optional)	\$40,000 - \$50,000	\$40,000 - \$50,000
Transfer station	\$200,000 - \$400,000	N/A

\* Source: Tribal Decisions-Maker’s Guide To Solid Waste Management

Planning a waste collection system also should include consideration of how to manage recyclable materials and special wastes. Collecting recyclables will be feasible for some tribes and can offer benefits such as lowering disposal costs, preserving resources, supplying the tribe with manufacturing feedstocks and materials such as compost, and generating revenue. Other tribes, however, might find that collecting recyclables is infeasible or too expensive, especially if they are located far from processing centers and markets.

**Transfer and Disposal Options**

For tribes that choose to locate solid waste facilities, such as landfills or transfer stations, on tribal lands, there is often a gap between the time that a tribe closes its open dumps and opens a new transfer station or landfill. If residents do not have a convenient and affordable waste disposal alternative in the meantime, they might resort to illegal dumping.

**Transfer Stations**

A transfer station is a facility where waste materials are taken from smaller collection vehicles and placed in larger vehicles for transport to their ultimate site of disposal-often a landfill. It is important to know how much you are generating and what you are generating when you choose a transfer station design.

Although these transfer station facilities require funds for construction, they can lower waste



management costs over the long term. Typically, transfer stations are less expensive than landfills because they require less money for construction, operation and maintenance, and do not require the expensive closure and post closure care that landfills do. A waste assessment should be used to estimate waste generation rates and properly size transfer stations. Transfer stations can be designed for versatility, to accept anywhere from 1 ton of waste per week to several hundred tons of waste per day.

**Table 3-4** presents construction and equipment costs and the expected life for the common structures and equipment used at a transfer station.

**TABLE 3-4: TRANSFER STATION CONSTRUCTION AND EQUIPMENT COSTS AND LIFE EXPECTANCY\***

Item	Cost	Life (years)
Ramp and retaining wall	Varies with size	25
Building	\$42 per square foot	25
Fencing – chain link (installed)	\$10 per linear foot	20 - 30
Rolling gate (chain link)	\$400 each	20 – 30
Fencing – wood (installed)	\$9 per linear foot	15
Crushed rock	\$10,760 per acre (\$2.25 per square yard)	5
Concrete (6 inches thick, no labor)	\$46,760 per acre (\$9.50 per square yard)	25
Concrete (4 inches thick, no labor)	\$10,760 per acre (\$6.50 per square yard)	25
Asphalt (7 inches thick, no labor)	\$10,760 per acre (\$13 per square yard)	10 – 15
Stabilization (8 inches deep)	\$10,760 per acre (\$3.50 per square yard)	10 – 15
Dumpster (6-8 cubic yards)	\$450 - \$600	5
Roll-off boxes, 40 cubic yards, open top	\$3,200 - \$5,000	10
Roll-off boxes, 42 cubic yards, closed top	\$4,250 - \$6,400	10
Stationary compactor, 2 cubic yards	\$6,000 - \$9,000	10
Roll-off truck with hoist	\$60,000 - \$83,000	10
Yard waste chipper	\$20,000 - \$25,000	10
* These costs are provided as reasonable examples.		
Source: Tribal Decisions-Maker's Guide To Solid Waste Management		

**Landfills**

An onsite landfill can be a technically and economically feasible option for a tribe under certain circumstances, such as if the tribe is located far from available waste management facilities or generates enough waste to make an onsite facility viable. An important factor to remember when making this decision is that costs for a Subtitle D compliant landfill include not only construction and operation and maintenance, but also closure and post-closure care expenses.

Costs for a Subtitle D compliant landfill includes not only construction and operation and maintenance, but also closure and post closure care expenses. Many tribal members often object to siting a landfill close to their homes or businesses. Building an economically viable small landfill that meets federal regulation requirements is challenging to most tribes because they do not generate enough waste to make building a large landfill worth the cost and effort. The Tribal Association of Solid Waste and Emergency Response (TASWER) and Solid Waste Association of North America (SWANA) estimate that the typical cost of construction per acre of landfill space is



between \$150,000 and \$250,000. Tribes generating less than 100 tons of waste per day will find building and operating a Subtitle D compliant landfill is not an economically feasible option.

The federal government created two exemptions to regulations for tribes; one for small communities in cold regions and one for small communities in dry regions. These exemptions are based upon weather related issues such as rainfall and snowfall amounts. Though most tribes do not qualify for these two exemptions, tribes can apply to the EPA for site-specific flexibility.

Below is an example of a situation in which this flexibility has worked.

- In 1994, members of the Oglala Sioux Tribe (OST) met with representative from SWANA and the state of Nebraska to discuss hauling trash from the Pine Ridge Reservation, located in South Dakota, to a state landfill in Nebraska. Based upon this meeting, a full-scale Subtitle D landfill seemed to be the best solution because the tribe wanted to retain complete control of its waste and tipping fees. The tribe acquired a \$561,000 grant from the EPA to plan a landfill and bale building (a building where waste is compacted into bales). The OST applied for a site-specific flexibility and asked the federal government to waive the composite liner requirement. The tribe demonstrated that the clay soils would perform the same role of an engineered composite liner and would prevent liquids from leaching out of the landfill into the reservation's groundwater supply.

### **Recycling Facilities**

The major costs of a recycling facility are capital costs to set up the program, and operation and maintenance costs to keep the program running, such as new equipment purchases and staff salaries. Money to pay for these expenses can come from user fees, tribal general funds, and some federal and state grants and loans.

The amount of funding available will affect the type of collection program to be implemented and the size and type of facility a tribe needs. Tribes might be limited by how much members are willing to pay for recyclable collection services. In addition, if a tribe is located in a remote area or has a small population, the economic feasibility of the recycling program might be limited, especially when given other tribal concerns.

### **Composting Facilities**

Composting is the controlled decomposition of organic materials, such as leaves, grass and food scraps, by microorganisms. The result of the decomposition process is compost: a crumbly, earth-smelling, soil-like material. Residents are usually required to either leave yard trimmings at the curbside for collection or drop off waste at a designated site. Factors to consider when selecting a drop-off site are similar to those for choosing a recyclables drop-off site, including convenience for tribal members and low impact of odors, dust, or noise on tribal members. Tribes will need to train and hire staff to run the facility.

Examples are listed below:

- One factor that contributed to the success of the Eastern Band of Cherokee Indians' pilot casino composting program in North Carolina was integrating the composting process into employee training and routine procedures at the casino. The tribe also hired an additional employee to handle some of the composting responsibilities.
- The Sitka Tribal Enterprises in Alaska designed a composting program to produce



marketable products from organic waste of Alaskan industries. Aerated, turned windrows produce high-quality, nutrient-rich, organic, soil-like compost from fish and timber wastes. The result is certified organic products, such as potting soil and transplant mix, from Alaska's own land and water. The project has provided jobs for village residents and serves as a model for other Alaskan Native communities.

## **BUDGETING & FINANCING**

After choosing a waste collection and disposal option, you must figure out how to finance it. There are a variety of financing mechanisms. Depending on the needs of tribes, the following options may be selected.

### **Option 1--**

#### **Subsidizing the program from the tribal general fund.**

An example of how this option is working is listed below:

- The Gila River Indian Community in Arizona subsidizes curbside collection by public works to make waste disposal cheap and convenient for tribal members.

### **Option 2--**

#### **Charging residents a flat fee for services.**

An example of how this option is working is listed below:

- The Fort Peck Tribes in Montana charge residents \$15 per month to use tribal roll-off sites. Community members drop off their trash at a few bins scattered throughout the reservation. The tribes are considering switching to a Pay-As-You-Throw system.
- The Shoshone-Paiute Tribes of Duck Valley, which straddles land in Idaho and Nevada, charges residents a solid waste fee, which appears on their monthly electrical bill.

### **Option 3--**

#### **Ask residents to work directly with a private hauler or local government for services.**

An example of how this option is working is listed below:

- Members of the Delaware Nation in Oklahoma pay a private hauler for curbside collection.

### **Option 4--**

#### **Instituting a Pay-As-You-Throw program.**

Communities with Pay-As-You-Throw programs charge residents for solid waste collection based on the amount they throw away, creating a direct economic incentive to recycle more and to generate less waste.



An example of how this option is working is listed below:

- The St. Regis Mohawk Tribe of New York charges residents based on how much they throw out. Under this Pay-As-You-Throw program, tribal members purchase 30-gallon blue disposal bags from the tribe. The blue bags are picked up weekly by the tribe.

### **Funding and Other Non-Monetary Resources**

#### **Option 1--**

**Identify and pursue existing and potential funding and non-monetary resources for developing and implementing solid waste systems.** These resources may be local county or city support; state or federal grant programs, contributions or donations from private entities, in-kind contributions, or any other resources, including volunteer activities. These may include, but are not limited to, funds from the USEPA and State Department of Ecology, such as:

#### **Option 2--**

**Identify and pursue existing and potential funding and non-monetary resources for training, technical assistance, planning, implementation, closure, and post-closure activities.** These resources can be found through support and assistance from the EPA, BIA, HIS, and the USDA Rural Development offices. Funding can be used for any of the following:

- Closing open dumps
- Cleaning up waste on tribal land
- Developing safe solid waste management practices

## **DEFICIENCIES IN SYSTEM**

### **Program Development**

One important aspect that many times is overlooked is planning for now and in the future. Tribes must take the time to project what is to happen 5, 10, even 20 years into the future. In order to do that, tribal members must be informed of what is happening currently on the reservation and determine what long-term goals they wish to set.

**Tables 3-5 and 3-6** give information on what collection and disposal options should be considered.



TABLE 3-5: WEIGHING WASTE COLLECTION OPTIONS

Collection Options	Cost- Effective		Criteria Important To Tribes		
	Cost-Effective for Tribe	Affordable for Community Members	Convenience for Community Members	Minimizes Litter, Odor, Dust, Noise, and Vermin	Potential for Source Reduction and Recycling
<p><b>Curbside Collection</b></p> <p>(Individual household or shared with neighbors)</p>	<ul style="list-style-type: none"> <li>• Cost-effective if paid for by tribal members through fees.</li> <li>• Tribally operated service can lower costs, but requires investment in collection vehicle and staff</li> </ul>	<ul style="list-style-type: none"> <li>• Typically costs more than drop-off sites or transfer stations.</li> <li>• Tribal subsidies can make it affordable for community members.</li> <li>• Community participation increases as disposal options become more affordable.</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely convenient for community members.</li> <li>• Minimal effort to place trash outside of a home or business for collection.</li> <li>• Fosters high participation rates and reduces illegal dumping incidents.</li> </ul>	<ul style="list-style-type: none"> <li>• Waste is stored outside for a short time before it is collected, reducing litter, odor, and vermin problems.</li> <li>• Noise and dust from collection vehicles are limited.</li> </ul>	<ul style="list-style-type: none"> <li>• Convenience encourages recycling.</li> <li>• Combining with Pay-As-You-Throw waste disposal creates incentive for recycling.</li> <li>• Requires separate containers and possibly separate collection vehicles.</li> <li>• Sorting of recyclables needed before sale to processors.</li> </ul>
<p><b>Drop-Off Sites</b></p>	<ul style="list-style-type: none"> <li>• Costs for transporting waste from consolidated points (drop-off sites) to transfer station/ landfills are lower than costs transporting waste from individual homes and businesses to transfer station/ landfills.</li> </ul>	<ul style="list-style-type: none"> <li>• If not subsidized, tribal members will pay more for curbside collection than to use drop-off sites or transfer stations.</li> <li>• Direct access to a single, centrally located transfer station is less expensive than consolidating and transporting materials from multiple drop-off sites.</li> </ul>	<ul style="list-style-type: none"> <li>• Less convenient than curbside pickup service, but more convenient than direct access to transfer station.</li> <li>• Convenience increases with multiple drop-off sites.</li> <li>• As convenience increases, participation increases and illegal dumping decreases.</li> </ul>	<ul style="list-style-type: none"> <li>• Storing large quantities of waste at one site for more than a few hours can produce litter, odor and vermin problems.</li> <li>• Litter can accumulate if sites are not cleaned frequently.</li> <li>• Staffing, fencing, or enclosed sites minimizes these problems.</li> <li>• Appropriate site selection can minimize noise and dust impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Separate collection bins required eliminating need for sorting of recyclables before sale to processors.</li> <li>• Providing free recycling with Pay-As-You-Throw waste disposal creates incentive to recycle.</li> <li>• Convenience dependent upon number of sites, locations, and hours of operation.</li> <li>• Can arrange for direct pickup from sites by processors.</li> </ul>





Collection Options	Cost- Effective		Criteria Important To Tribes		
	Cost-Effective for Tribe	Affordable for Community Members	Convenience for Community Members	Minimizes Litter, Odor, Dust, Noise, and Vermin	Potential for Source Reduction and Recycling
<b>Direct Access to Transfer Station</b>	<ul style="list-style-type: none"> <li>• If the tribe does not operate its own transfer station, it can enter an agreement with a surrounding town or county.</li> <li>• Tribe can compensate surrounding town or county for direct access to a transfer station off the reservation.</li> <li>• Collection costs increase if tribe compensates town or county from tribal funds.</li> </ul>	<ul style="list-style-type: none"> <li>• Tribe can reduce the tipping fees or solid waste fees it charges tribal members.</li> <li>• Tribe does not have to pay for transportation to a consolidation point.</li> <li>• Although these costs are not reflected in the tipping fees or solid waste fees, tribal members absorb them.</li> </ul>	<ul style="list-style-type: none"> <li>• Not convenient if transfer station is located far away from the tribal members who will be using it.</li> </ul>	<ul style="list-style-type: none"> <li>• Storing large quantities of waste at one site for more than a few hours can produce litter, odor and vermin problems.</li> <li>• Litter may accumulate if sites are not cleaned frequently.</li> <li>• Staffing, fencing, or enclosing sites minimizes these problems.</li> <li>• Appropriate site selection can minimize noise and dust impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires separate areas and containers for recyclables.</li> <li>• Combining free recycling with Pay-As-You-Throw waste disposal creates incentive to recycle.</li> <li>• Can sort to reduce contamination, bale for easier handling, or store at facility until find acceptable market price.</li> </ul>

Source: Tribal Decisions-Maker's Guide To Solid Waste Management





TABLE 3-6: WEIGHING WASTE DISPOSAL OPTIONS

Disposal Options	Short-Term Startup Costs	Long-Term Operation/Maintenance Costs	Costs for Individual Tribal Members	Minimizes Controversy Over Siting	Minimizes Liability	Minimizes Litter, Odor, Dust, Noise, and Vermin
<b>Outsourcing: Using a transfer station or landfill located off the reservation</b>	Low. No funds required for planning or construction	Low. No equipment for the tribe to maintain	Low to High. Tribe has no control over transfer station or landfill tipping fees, unless it has a long-term contract	Tribe does not have to site a transfer station or landfill on tribal land.	The town, county, state, or company that operates the facility is liable for any health and environmental problems.	Outsourcing reduces potential health, environmental, and aesthetic problems associated with storing large quantities of waste in a single location on the reservation.
<b>Building a transfer station</b>	Moderate. Tribe must obtain funding for transfer station equipment. Building a transfer station costs less than building a landfill.	Moderate. Requires continuous funding for operation and maintenance.	Low to Moderate. Tribe sets disposal rates for residents; however, tribe is subject to tipping fee increases because it transports trash to a landfill or incinerator.	Requires less space and is easier to site than a landfill. Residents sometimes object to siting a transfer station close to their community.	Tribal liability for any problems that might occur at the transfer station. People may leave hazardous waste or start fires at small, un-staffed transfer stations.	Trucks entering and leaving can produce dust and noise. Waste can produce foul odors and attract vermin. Paving nearby roads and building an enclosed facility and fencing the site can reduce impacts.
<b>Building a landfill</b>	High. Even if tribe obtains a waiver from some federal requirements, costs can be high.	High. Unless tribe obtains a waiver from some federal requirements, it is expensive to operate and maintain a landfill both while open and after closure.	Low to High. Tribe dictates disposal rates for residents. If the landfill is too expensive to operate and maintain, then higher rates might be needed.	Typically, residents object to siting a landfill near their community.	Tribe assumes liability for problems associated with the landfill during both active life and the post-closure care period.	Building the landfill and disposing waste on a daily basis produces dust, noise, odors, and litter. IT also attracts birds, animals, and vermin. Paving nearby roads and covering waste at the end of each day prevents impacts.

Source: Tribal Decisions-Maker's Guide To Solid Waste Management



Planning a waste collection system also should include consideration of how to manage recyclable materials and special wastes. Collecting recyclables will be feasible for some tribes and can offer benefits such as lowering disposal costs, preserving resources, supplying the tribe with manufacturing feedstocks and materials such as compost, and generating revenue. Other tribes however, might find that collecting recyclables is not feasible or too expensive, especially if they are located far from processing centers and markets. See **Chapter 4** for further information on recycling programs.

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# Chapter 4

## Recycling Programs

Section 1 Existing Recycling Program

**CURRENT CONDITIONS**

**Determining Recycling Rate**

The recycling rate is the ratio of recycled materials to the total waste stream. In *[insert year]* the recycling rate for *[insert name]* Reservation was *[insert rate or percentage]*. Over the past *[insert number]* years, the recycling rate has *[select either increased or decreased]* at an annual rate of *[insert number]* percent.

**Available Inventory**

*[Insert option selected from instructions]*

Below is a listing of the available equipment *[insert name]* Reservation currently owns or uses.

*[insert listing or table of available equipment]*

**IDENTIFICATION OF RECYCLABLE MATERIALS**

Recyclable materials were identified and separated into three tiers using the following criteria:

**Tier 1:** Materials feasible (i.e., current market, ease of collection, size of waste stream) for current regular recycling programs.

**Tier 2:** Materials that can be recycled, but for which there are limitations in collecting or marketing on a regular basis. These materials may be collected for recycling on an irregular basis, seasonally, at special events, or at selected locations as feasible or necessary.

**Tier 3:** Materials for which recycling may become feasible in the future.

The identified list of materials by tier is presented below:

*[insert list of tiered materials into table below]*

**TIERED DESIGNATION OF RECYCLABLE MATERIALS**

<b>TIER 1: ROUTINE COLLECTION</b>	<b>TIER 2: LIMITED COLLECTION</b>	<b>TIER 3: POTENTIALLY RECYCLABLE</b>

**RESIDENTIAL RECYCLING COLLECTION FACILITIES**

This section presents a description of how recyclable materials are collected from residents.

[Insert your selection from Step 4]

**COMMERCIAL RECYCLING COLLECTION FACILITIES**

This section describes how recyclable materials are collected from commercial businesses on the Reservation.

*[Insert your selection from Step 5]*

**OTHER RECYCLING PROGRAMS**

This section includes a description of other recycling programs presently operating on the *[insert name]* Reservation.

*[Insert write-up from Step 5. Other Recycling Programs.]*

**Section 2     New Recycling Programs**

Based on the evaluation included in Section 1, the *[insert name]* Tribe has determined that new or expanded recycling programs are necessary in order to increase the quantities and types of materials that are recycled on the Reservation.

**Recycling Program Goals**

The following goals have been adopted by the *[insert name]* Tribe to enhance recycling.

***[Insert goals selected from Section 2 instructions]***

***Recycling Goal 1***

***Recycling Goal 2***

***Recycling Goal 3***

**New or Expanded Recycling Programs**

The *[insert name]* Tribe has determined that existing recycling programs should be expanded to improve the effectiveness of the overall solid waste management system. The following changes will be implemented on the *[insert name]* Reservation.

***[insert option selected from Section 2 instructions]***

### Section 3 Outreach and Community Involvement

For a recycling program to remain successful, the recycling coordinator must ensure continued awareness of the program including types of materials collected and proper methods to be used for recycling the various materials. Resources to aid in this approach include techniques such as flyers and brochures, workshops, print ads, and presentations. Further information on outreach and education can be found in Chapter 6.

*[insert any techniques currently used]*

### Section 4 Program Monitoring and Incentives

The recycling coordinator will continually monitor the recycling program to identify any needs or deficiencies and obtain tribal council support to address and manage these areas. Methods the tribe will use for monitoring and evaluating the effectiveness of the recycling program are described below.

*[insert any techniques currently used]*







## Instructions for Completing Chapter 4

### INTRODUCTION

The purpose of this Chapter is to help tribes evaluate their existing recycling program, and to either improve on existing programs or to establish new recycling programs that better fit their needs. As part of this process, long term and short term goals must also be considered.

### REASONS TO IMPLEMENT RECYCLING PROGRAMS

Competing interests, such as clean drinking water and sanitary living conditions, often influence tribal member acceptance of recycling programs. To gain program support, tribal members must understand why recycling is worthwhile and what are the environmental benefits associated with recycling.

#### Recycling Is Beneficial

Recycling turns materials that would otherwise become waste into valuable resources. Collection of recyclables is just the first step in a series of actions that generate a host of financial, environmental, and societal returns. There are several key benefits to recycling, including:

- Prevents emissions of many greenhouse gases and water pollutants.
- Conserves natural resources such as timber, water, and minerals.
- Helps sustain the environment for future generations.
- Saves energy.
- Creates jobs.
- Stimulates the development of more environmentally friendly (greener) technologies.
- Reduces the need for new landfills and incinerators.

Recycling not only makes sense from an environmental standpoint, but also makes good financial sense. For example, creating aluminum cans from recycled aluminum is far less energy-intensive, and less costly, than mining the raw materials and manufacturing new cans from scratch.





**Section 1 Existing Recycling Program**

**CURRENT CONDITIONS**

**Step 1: Determine Current Recycling Rate**

Use information from Chapter 2; input data into the formula below to determine your recycling rate.

$$\text{Recycling Rate (\%)} = \frac{\text{Tons Recycled}}{\text{Tons Generated}}$$

Where tons generated = Total Tons Disposed + Total Tons Recycled

Included are a few worksheets from the EPA that can be used to further break down the recycling rate of each material and between residential and commercial rates. Tribes may also wish to develop their own worksheet to accommodate their materials and needs.

Complete the paragraph below and insert into Section 1.

The recycling rate is the ratio of recycled materials to the total waste stream. In *[insert year]* the recycling rate for *[insert name]* Reservation was *[insert rate or percentage]*. Over the past *[insert number]* years, the recycling rate has *[select increased or decreased]* at an annual rate of *[insert number]* percent.

It is helpful to determine if recycling rates have increased or decreased over time. If information is available from previous years, complete the formula for each year available, and insert into the table below.

**Table 4-1. Historic Recycling Rates**

YEAR	RECYCLING RATE	PERCENT INCREASE OR DECREASE FROM PREVIOUS YEAR

**Step 2: Inventory of Available Equipment**

It is important that tribes maintain an inventory record of the types of equipment they have for their recycling program. Equipment can range from simple desk-side plastic containers for collecting paper to a full-scale materials recovery and transfer station facility.

Equipment for recycling is integral to a program’s existence. Tribes may purchase equipment through grants, loans, or revenue gained from the sale of materials to area markets.





*[An example of this option is described below]*

- The Warm Springs Tribe received a grant from the Oregon DEQ to purchase forklifts, recycling trailers, totes, and materials to build bins.<sup>2</sup>

Select the option(s) below that best describes your reservation. Insert your choice into the appropriate place in Section 1 under the **Available Equipment** heading.

**Option 1--**

**Do Not Have Recycling Equipment.** Currently, the reservation does not own any recycling equipment.

**Option 2--**

**Do Not Currently Own Recycling Equipment, But Future Plans.** Currently, the reservation does not own any recycling equipment, but there are plans for the purchase of ***[insert type(s) of equipment to purchase]***.

**Option 3--**

**Have Available Inventory Of Equipment.** The types of equipment used in the recycling program operated by the ***[insert name]*** tribe for the collection, processing, and storage of materials is included in Table 4-2.

A sample of how tribes could display their information is presented below in a table.

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<sup>2</sup> Recycling Guide For Native American Nations, June 1995, EPA website: <http://www.epa.gov>.





TABLE 4-2. TYPES OF AVAILABLE EQUIPMENT FOR THE RECYCLING PROGRAM

DESCRIPTION OF EQUIPMENT	QUANTITY	DATE OF PURCHASE/LEASE	COST	REMAINING USEFUL LIFE
<b>VEHICLES</b>				
1- ton box truck	2	6/15/2000	\$5,000	5 +
Duel wheel truck	1	3/28/1998	\$13,000	3 +
Flatbed rotator truck	1	4/4/2002	\$12,000	8 +
Dodge Ram 1500	1	12/10/04	\$18,000	10 +
<b>BALERS</b>				
Vertical down-stroke baler	2		\$2,000	3 +
Horizontal baler (no conveyer)		10/1/1999	\$3,000	1 +
Horizontal baler (with conveyer)		6/1/1999	\$4,000	1 +
Forklifts (5,000 lb. paddles)		1996	\$4,500	2 +
<b>CAN CRUSHERS</b>				
DAC 300 (for aluminum cans)		1/1/1999	\$700	4 +
DAC 800 (for steel food cans)		1/3/2002	\$1,100	7 +
<b>PLASTIC RECYCLING MACHINE</b>				
30- gallon blue	50	1/5/1999	\$450	4 +
30-gallon green	50	4/24/1999	\$450	4 +
10-gallon desk-top compactors	500	6/1/2000	\$300	5 +
4 cubic yard metal compactors for cardboard, steel food cans, and newspaper)	70	10/17/2001	\$900	6 +
1 cubic yard laundry carts for sorting materials	30	7/19/2005	\$1,500	10 +
Floor scale (holds up to 9,999 lbs.)	1	3/12/2000	\$3,000	5 +
Recycling Center & Warehouse	1	1/2/1995	\$1.5 million	10+

SAMPLE



**Step 3: Classify Materials by Tiers**

Recyclable materials can be identified and separated into three tiers using the following criteria:

**Tier 1:** Materials feasible (i.e., current market, ease of collection, size of waste stream) for current regular recycling programs.

**Tier 2:** Materials that can be recycled, but for which there are limitations in collecting or marketing on a regular basis. These materials may be collected for recycling on an irregular basis, seasonally, at special events, or at selected locations as feasible or necessary.

**Tier 3:** Materials for which recycling may become feasible in the future.

By classifying materials by tiers, tribes can begin focusing goals and objectives to include materials in their recycling program. Although tribes may not generate large quantities of select materials, seasonal collection may result in a large amount generated for transport to area markets. The sample table shows how materials can be classified in the different tiers. Tribes should try to develop their own table based upon market availability and the types of materials the tribe generates.

**TIERED DESIGNATION OF RECYCLABLE MATERIALS**

<b>TIER 1: ROUTINE COLLECTION</b>	<b>TIER 2: LIMITED COLLECTION</b>	<b>TIER 3: POTENTIALLY RECYCLABLE</b>
Aluminum	#2 – HDPE Plastic (colored)	#4 – LDPE Film Plastic
Clear Glass Cullet	Brown Glass Cullet	#6 – Polystyrene
Corrugated Cardboard	High Grade Paper	Green Glass Containers/Cullet
Magazines	Mixed Waste Paper	Window Glass
Newspaper	Ferrous Metals	
Tinned Cans	Motor Oil	
Yard Debris	Vehicle Batteries	
#1 – PETE Plastic	Non-Ferrous Metals	
#2 – HDPE Plastic (clear)	Polyurethane Foam	
	Textiles	
	Tires	
	Wood Waste	
	Polycoated Paper	
	Construction/Demolition Debris	
	Non-Vehicle Batteries	

**Step 4: Describe how recyclable materials are collected from residents**

There are many ways in which recycling services can be provided to tribal residents. Some tribes elect to have a voluntary program, while others elect to have a mandatory program. This section should describe how recyclable materials are collected from tribal residents. A variety of options exist from drop-off areas to curbside collection. These services may be voluntary or mandatory.



Select one of the options below that best describes the existing collection system for recyclables for your tribe. Insert your choice into the appropriate place under the heading: **Residential Recycling Collection Facilities.**

#### Option 1--

**No Current Means Of Recycling Collection.** Residents must either take their recyclables with their other waste, to appropriate disposal facilities outside the reservation, or illegally perform backyard burning or dumping of their waste.

[This is the most limited form of recycling service for a reservation and often times can lead to a variety of violations of environmental laws and regulations such as illegal dumping, air pollution, groundwater pollution, and health and safety issues. Tribes selecting this option should strive to set goals for waste collection services provided through Option 2.]

#### Option 2--

**Drop-Off Services Are Provided.** Residents must take their recyclables to a designated drop-off/transfer location. There are centrally located areas with containers where tribal members deposit their recyclables.

#### Option 3--

**Curbside Collection Is Provided Through Contracted Services.** Residents are responsible for placing their recyclables at curbside for waste collection on their assigned days. A contracted hauler(s) collects and transports the recyclables to appropriate area market(s).

#### Option 4--

**Curbside Collection Is Provided Through Tribal Services.** Residents are responsible for placing their recyclables at curbside for collection on their assigned days. A tribal member collects and transports the waste to an appropriate area market [insert where the materials are taken].

### Step 5: Describe how recyclable materials are collected from commercial businesses

Commercial waste can be a significant portion of the waste stream. Due to the large amounts of materials generated from commercial businesses, larger waste and recycling containers are needed to accommodate materials. Although business may have access to drop-off containers, like residents, a more convenient method of collection should be provided. Placing designated containers adjacent to most buildings (i.e., cardboard container next to convenient market) will help to accommodate the large amount of materials generated and make it convenient for business to participate in the recycling program.

This section should describe how recyclable materials are collected from commercial businesses. A variety of options exist from drop-off areas to contract collection services. These services may be voluntary or mandatory.

Select one of the options below that best describe your tribe. Insert your choice into the appropriate place in under the heading: **Commercial Recycling Collection Facilities.**

**Option 1--**

**No Current Means Of Recycling Collection.** Businesses must either take their recyclables to appropriate disposal facilities outside the reservation, or do not recycle.

[This is the most limited form of recycling service for a reservation. Tribes selecting this option should strive to set goals for waste collection services provided through Option 2.]

**Option 2--**

**Drop-Off Services Are Provided.** Businesses must take their recyclables to designated drop-off/transfer location.

**Option 3--**

**Collection Is Provided Through Contracted Services.** Businesses are responsible for placing their recyclables in a designated collection container, typically located adjacent to their building. A contracted hauler collects and transports the recyclables to an appropriate processing facility located off the reservation.

**Option 4--**

**Collection Is Provided Through Reservation Services.** Businesses are responsible for placing their recyclables in a designated collection container, typically located adjacent to their building. A tribal member collects and transports the recyclables to an appropriate area market ***[insert where the materials are taken]***.

**OTHER RECYCLING PROGRAMS**

Many non-profit organizations through the country collect recyclables as a fund-raising function (i.e., churches, schools, scout troops). Accounts are typically established as buy-back centers (markets) so that the person(s) taking materials to the center can allocate any funds generated from those materials to the specific organization. Since these groups are operating in a fund-raising capacity, the recycling activity is market driven and therefore not continuous.

Tribes unable to obtain funding to provide a recycling program to the reservation, but are willing to recycle, could team up with a local area non-profit organization. For convenience, designated collection containers can be placed at key locations throughout the reservation for residents and businesses to utilize.

Describe other recycling programs that are presently operating on the reservation.



## Section 2 Establishing a New Recycling Program

With an understanding of the benefits of recycling, and following completion of an evaluation of the existing program, tribes can begin setting up or expanding a recycling program. Although tribal recycling programs will vary depending on funding, available manpower, and needs, there are basic steps to take toward the implementation process.

### Step 1: Begin a Recycling Program

Before setting up a recycling program, tribes must ask themselves why they want a program.

Is it because they want to help the environment?  
Do they think they can generate revenues from the sale of the materials?  
Do they want to portray themselves as “good neighbors”

For whatever reasons a tribe has for establishing a recycling program, tribes must carefully plan out the process for the program and address the following questions:

- What are the laws and regulations that must be complied with?
- What type of program best suits the reservation?
- What costs are involved in the program?
- How will the program be funded?
- Who will staff the program?
- Has there been a program in the past and have we learned anything?
- Can the reservation partner with local community?
- What materials will be collected?
- How will materials be collected?

Tentative goals should also be included in the planning process. Tribes can use these goals to help them achieve program implementation and improvements to the reservation.

Sample goals for the recycling program can include:

- Prevent recyclables from entering the disposal stream.
- Expand the current recycling program to include all types of paper or other materials.
- Obtain maximum participation and support in the recycling program from all tribal residents, businesses, and visitors.
- Generate revenues from the sale of recyclable materials.

Select the goals appropriate for your tribe and insert into the section under **Recycling program goals** heading.

### Step 2: Obtain Tribal Support

Obtaining support from the tribal council and other community members is critical to the success of a recycling program. Support can be in the form of developing, implementing, and enforcing solid





waste codes, laws, and regulations. This will help to make tribal members more serious about the program and show that recycling is important. One example would be to give a presentation to the tribal council explaining the need and benefits for implementing a recycling program.

### **Step 3: Appoint a Recycling Coordinator and Team Members**

A Recycling Coordinator needs to be appointed to oversee the implementation and operations of the program. The responsibilities of a coordinator can include determining what materials are to be collected, researching potential markets, acting as a liaison to the tribal council and educating tribal members about the program. A recycling team should also be appointed and made up of interested tribal members. This team can range from one person to a group of people from different departments and businesses. Each team member will be able to help monitor the program, provide input to its success, and encourage others to participate.

Members should meet regularly to develop a plan and begin program implementation. The time needed to design and implement a waste reduction program will vary and can range from a few days to several months. The team must also establish specific, preliminary goals for the program. These goals might include enhancing the reservation's image or decreasing waste disposal costs. The goals should be based primarily on how much waste reduction is possible given the level of effort the tribal members are willing to dedicate to the task. The goals set by the team will provide a framework for specific waste reduction efforts to follow. It is important to keep in mind that preliminary goals should be flexible, as they might need to be re-examined and adjusted as specific waste reduction options are considered later on.

### **Step 4: Get Tribal Members Input**

Tribal community involvement is another crucial link to the recycling programs success. If this is a new program, there may be some resistance to change. The recycling coordinator and recycling team could organize a special community gathering inviting all tribal members and the local community to discuss starting a recycling program. This is a good opportunity to get tribal members excited about the new program and generate some momentum behind the efforts involved. This type of forum will enable the recycling coordinator to communicate why the program will be implemented, listen to concerns and issues, and solicit suggestions from tribal members. This is also a good time to announce that the tribal council and management support the program and have given it a high priority for the reservation.

Involving tribal members and the community will allow everyone to feel appreciated by contributing to the program instead of being told what to do. Ongoing educational efforts are also needed to inform tribal members what is happening with the program.

***An example of this is included below.***

- When the Nez Perce Tribe of Idaho received a grant from the USDA to fund a tribal recycling program, one of its first steps was to go to the schools. The Lapwai grade school was designated as a recyclables drop-off center. Educators worked with fifth and sixth graders to teach them about recycling and instituted a Saturday afternoon class covering various environmental issues for elementary school children. The tribe invited professionals from natural resources fields to teach children about environmental conservation.



### Step 5: Identify Area Markets

Once identification of the types and the amounts of recyclables in the waste stream have been made, tribes can begin planning on what types of recyclables should be collected and how they should be collected. Identifying what area markets are accepting is the first step in the collection process. Examples of possible markets include recycling centers, processors, scrap yards, and solid waste haulers offering recycling services. In addition, there are several considerations that must be made. These include, but are not limited to:

- Should the tribe contract with a commercial hauler for collection of recyclables?
- Should the tribe provide their own collection of recyclables? How? (curbside collection, drop-off center, etc)
- Does the tribe need to build a recycling facility for storage and processing of recyclables?

Other important points when identifying area markets:

1. If no markets in the tribal area exist for a particular material, then that material should not be collected.
2. Not all markets will pay for recyclables; some may require tribes to pay a small fee for the material (i.e., tires). This method may be more cost effective than paying for disposal of the material in the regular waste stream.
3. If the tribe does not generate a large amount of recyclable materials, check with local city or county governments or other tribes to see if they would like to participate in a cooperative recycling program.
4. Talk to the local markets to find out how they would like materials brought to them. Oftentimes they may require materials to be baled or separated, and there may be quality and quantity issues. This may restrict the types of materials tribes are willing to collect and process.
5. Oftentimes a commercial waste hauler will also provide recyclable collection services.
6. For some tribes, collection of recyclables is feasible and can provide benefits such as lowering disposal costs, preserving resources, supplying the tribe with materials such as compost, and even generating revenue. For other tribes, however, collection of recyclables may not be feasible and too expensive, especially if they are located a great distance from processing centers and markets.

#### ***An example of this option is included below]***

- The Eastern Band of Cherokee Indians in North Carolina discovered through a waste audit that the tribe generates large quantities of cardboard. Fortunately, a steady demand for recycled cardboard exists in the area, which allows the tribe to make a small profit from its sales.
- The St. Regis Mohawk Reservation in New York also sells recyclables to help fund its collection program and transfer station operations.

### Resources

The resources listed below are ways in which tribes can find recycling markets in their areas. Good communication and a clear understanding of what is required from the markets will help tribes in their planning process for the recycling program.



1. Check local business listings in the phone book. Many times markets can be found listed under "Recycling Centers or Services or Trash Hauling."
2. Earth's 911 is a helpful resource that allows you to type in your ZIP code or find your state on a map to locate recycling centers in your community for all types of recyclables. This website can be found at: <http://www.earth911.org/master.asp>.
3. The Global Recycling Network provides comprehensive recycling information and trading resources. It includes information on the different categories of recyclables and their grades, as well as directories of recycling associations, publications, exchanges, and recyclers. Market prices can also be found for the different commodities. This website can be found at: <http://grn.com/indes.html>.
4. You can also go to the National Recycling Coalition website for a list of state recycling organizations. The website can be found at: <http://www.nrc-recycle.org/default.htm>.
5. The State of Washington maintains a database, 1-800-RECYCLE, that contains information provided by the organizations that operate recycling sites and services in the State. The database can be found at: <http://1800recycle.wa.gov/>.

Tribes can subscribe to the resources listed below to find current market prices for recyclable materials. This information can be used to determine when to sell materials to markets or when to stockpile them until they can demand a better price. Prices fluctuate daily for markets. A good rule of thumb would be to look at prices once per month.

- The Official Board Market - <http://www.packaging-online.com/paperboardpackaging/>
- Waste News - <http://www.wastenews.com/headlines.html>
- American Metals Market - <http://www.amm.com/>

#### **Step 6: Select Materials to be Collected**

After identification of an area market and data from the waste audit and sort has been analyzed, the tribal recycling coordinator and team can begin to select the materials to be collected. It may be easier to only begin collection of one or two materials and add others as the popularity and participation of the program grows.

Common recyclable materials typically collected in recycling program include:

- Aluminum cans
- Corrugated cardboard
- Plastic bottles - #1 PET and #2 HDPE
- Newspaper
- Glass
- Magazines



- Phone books
- Paper

Other select materials may be collected either through the recycling program or other tribal programs (i.e., Household hazardous waste program, construction and demolition debris recycling program, composting program, etc) include:

- Scrap metals (both ferrous and non-ferrous)
- Antifreeze
- Used motor oil
- Asphalt/concrete
- Wood pallets
- Fluorescent lighting
- Household batteries
- Oil filters
- Paint
- Tires
- Lead-acid batteries
- Cooking grease
- Wood waste

Many times private contractors or haulers collect and dispose of the selected materials. As long as the materials are taken to a facility that recycles them, the quantities should be recorded and added to the overall recycling program tonnage. Frequently, tribes are unaware that these materials are already being recycled.

***[An example of this option is described below]***

- Of the paper products generated by the Quechan Tribe, office paper appeared to be the most marketable material because it was very clean, although the paper varied in color and quantity. The Quechan Tribe contacted potential collectors and buyers, but found none were interested in the office paper. The tribe then pursued the idea of recycling the paper itself and established a papermaking business that would not only use the recycled office paper, but also create jobs and generate income for the tribe.

**Step 7: Collect Recyclable materials**

Once the material type and markets have been selected, the tribal recycling coordinator and team must plan for how the materials will be collected. There are many options for collection such as:

1. Drop-Off Centers;
2. Buy-Back Centers;
3. Curbside Collection;



4. Special Events; or
5. Contracting with private haulers.

**Chapter 3** contains an in-depth description of recycling collection systems and facilities.

### **Step 8: Purchasing and Placement of Recycling Containers**

Whether a tribe contracts with a private hauler for recyclables collection or provides their own collection, recycling containers are needed. Containers can range in various sizes from 3 to 4 gallons in capacity to 40 cubic yard containers. Select containers based on the tribes needs including durability, cost, capacity, ease of handling, and attractiveness. Also, while containers need to be convenient to maximize participation, tribes need to consider the work involved in emptying them. Limiting the locations to the most effective places is necessary to handle the quantities generated. If using a private contractor for collection, ask if they can provide recycling collection containers.

#### **Residents--**

For curbside programs, have tribal residents place recycling containers at the curb on designated collection days. Ideas for recycling containers include:

- Use cardboard boxes as recycling bins, or whatever container tribal residents have available.
- Require participating tribal members to purchase their own recycling containers from a local store.

#### **Offices/Retail Establishments--**

Place recycling containers in convenient locations as close as possible to areas where recyclables are generated. Containers should look distinctly different from trash containers, and they should be labeled clearly to show what material goes in them. Place regular trash cans nearby to avoid unwanted trash getting mixed in with the recyclables.

1. Place small bin containers next to each desk (i.e., 3-4 gallon sizes). Employees can then empty their desk-side containers into larger central collection containers (i.e., 35 gallon sizes) when full.
2. Copy machines are excellent locations for recycling containers. Also place containers in areas that generate large amounts of recyclables, such as data centers, printing facilities, behind the bar, and in receiving departments. Typically, recycling collection containers at copier sites are around 35 gallons in capacity.
3. Containers could be placed in lunchrooms, cafeterias, or near building exits.
4. If collecting cardboard boxes, a 2, 4, 6, or 8 cubic yard container is needed since cardboard is bulky. These containers are typically placed adjacent to the regular garbage containers outside buildings. Breaking down the boxes before placing them in the container will minimize the frequency of pickup and the chances of the container overflowing prior to pickup.

**Hotels/Casinos--**

Recycling containers could be placed in similar areas as specified in Offices/Retail Establishments. Containers could be placed in areas where hotel or casino patrons have access to them. Large hotels and casinos also generate a large amount of recyclables from their kitchens. Items may include cardboard, steel and aluminum cans, plastic, and/or glass bottles. Containers should be clearly labeled for each of the materials if collected.

Corrugated boxes can often represent 40 to 50% of the waste stream of a hotel or casino. Cardboard should be broken down and placed into large recycling containers (i.e., 2, 4, 6, or 8 cubic yards), baled on-site, or placed in a dedicated compactor for recycling. Recycling cardboard in a hotel or casino can help to reduce solid waste disposal costs.



### Section 3: Outreach and Community Involvement

It is important for tribes to continually reinforce any new and existing recycling practices. This may be done through a variety of means, but should always include keeping the tribal members involved and motivated. A variety of educational and information methods are described in Chapter 6. At a minimum, tribes should provide quarterly flyers or mail reminders to member on program issues, contamination problems, or changes in the recycling program.

It is also important to teach tribal members how to properly participate in recycling by providing simple and concise information on what to do. A 20-minute training session for small groups can be very effective in explaining the details of the program.

Select one of the options below that best describes your tribe. Insert your choice into the appropriate place in under the heading: **Outreach and Education**. Examples of flyers and brochures for recycling materials are included with this chapter. Tribes should strive to develop their own materials based upon their needs.

#### Option 1—

**No existing education and outreach materials.** No education or outreach is presently provided for recycling programs.

#### Option 2 --

Established education and outreach efforts. The Tribe provides recycling education and outreach to residents and businesses. These include:



## Section 4: Program Monitoring and Incentives

### Step 1 Measuring Effectiveness

Integral to any recycling program is a measurement of its effectiveness. In order to establish whether or not a particular strategy should be used, revised, or eliminated, a means of measuring the effectiveness of the approach should be developed first.

- Establish a baseline of the quantities generated before implementation of a new recycling program.
- Monitor the quality of contaminants in recycling containers before and after educational activities are conducted.

### Step 2 Monitoring

Monitoring and evaluating the program should be done on a regular basis. The Recycling Coordinator should maintain accurate and up-to-date statistics, such as the types, amounts, and percentages of materials collected, prices paid by vendors, and contaminant levels. This information, as well as feedback from tribal members, should be used to evaluate the program and make changes as needed. Measuring the effectiveness of a program will allow tribes to review other areas of the waste collection system, such as:

- Can trash collection frequencies be reduced now that waste is being diverted through the recycling program?
- Is the recycling program cost-effective?
- Are there improvements to be made to make the program more efficient?
- Should more materials be added to the collection program?



# Chapter 5

# Special Wastes

### Section 1 - Introduction

#### Special Waste

Wastes that require special handling or consideration when it enters the solid waste management system are labeled special waste. These wastes may include, but are not limited to:

- Household Hazardous Waste (HHW)
- Construction and Demolition (C&D) Debris
- Electronic Wastes (E-Waste)
- Tires
- Asbestos Wastes
- Vehicle Fluids
- Petroleum Contaminated Soil
- Medical/Infectious Wastes
- Veterinary Wastes
- Liquid Wastes

For this plan, only C&D, HHW, and Tires will be discussed in this Chapter.



**Section 2 - Construction and Demolition Waste**

**Introduction**

Construction and demolition (C&D) debris is generated by the construction, demolition, and renovation of existing structures, clearing of land, removal or construction of roads and utilities, and other activities that produce bulky wastes. General characteristics, regulatory requirements, landfilling options, and recycling opportunities for C&D debris differ from those for MSW, and therefore, should be managed differently.

Some C&D debris may be classified as hazardous waste because it contains hazardous materials, such as lead or chromium, or has been contaminated by other hazardous waste. Hazardous C&D debris must be disposed of in a hazardous waste landfill. Other toxic materials, such as asbestos and polychlorinated biphenyls (PCBs), must also be managed in accordance with federal regulations, as spelled out by the Toxic Substances Control Act (TSCA).

**C&D Existing Practices**

Factors affecting quantities of debris generated, collected, and disposed of include the type of construction (i.e., office buildings, recreational facilities, and housing) and the type of project (i.e., new construction, remodeling, renovation, road repair).

**Generation**

C&D debris is generated from a variety of construction and demolition activities. Sources and representative composition are discussed in this subsection. Depending on the type and amount of activities occurring on a reservation, the amount of C&D debris generated can vary greatly.

***[Insert the option(s) that best describes C&D debris generation practices on your reservation.]***

**Collection**

A variety of practices exist for the collection of C&D debris.

***[Insert the option(s) that best describes C&D debris collection practices on your reservation.]***

**Disposal**

Managing construction and demolition (C&D) debris presents a major challenge for Native American Indian tribes.

***[Insert the option(s) below that best describes C&D debris disposal practices on your reservation.]***

**Contracted Services**

Many tribes choose to use private contractors for the disposal C&D debris due to the materials' size and weight. Other tribes having proper equipment and facilities often use their own tribal members



for disposal services.

***[Insert the option that best describes your use of contracted services for disposal of C&D debris.]***

**Contract Surveillance**

Contract surveillance is crucial to making sure the contractor is adhering to the contracts for services performed.

***[Insert the option(s) that best describes collection services on your reservation.]***

**Diversion Strategies**

Diversion strategies vary depending on the method of recovery (manual or mechanized) and the level of sorting of the material.

**Insert a description of the diversion strategies employed by your reservation.**

**Program Development**

The major potential benefits of C&D debris recycling are to reduce the cost of materials used in construction and to reduce the volume and cost of disposal of waste materials. Other benefits that can be gained through waste management include a more accurate prediction of waste generation rates for building projects, increased revenue from the sale of the recovered materials, and the conservation of valuable natural resources.

The ***[insert name]*** reservation has selected the following options for implementation:

***[Insert selected program options for C&D diversion here.]***



**Section 3 - Household Hazardous Waste**

**Existing Programs**

Household Hazardous Waste (HHW) collection programs ensure the materials are properly handled and sent to facilities designed to treat or dispose of hazardous waste. HHW collection programs include one-day periodic events throughout the year, curbside programs, or permanent community collection facilities. More than 3,000 HHW collection programs exist in the United States.

***[Insert the option that best fits your reservation.]***

**Contracted Services and Agreements**

Many tribes choose to use private contractors for HHW disposal. Contractors hired to manage an HHW collection program are trained in hazardous waste handling and manifesting requirements, and can be available on an as-needed basis. This can be an ideal solution for reservations with periodic collection events which do not require full time staff to manage the program on a year round basis.

***[Insert the option that best fits your reservation].***

**Program Development**

The primary goal of the ***[insert name]*** tribe is to minimize environmental and health impacts associated with HHW. Efforts will be directed at educating the public about the potential hazards of household products, as well as proper handling and disposal methods.

***[Insert program development options here.]***



### Section 4 - Scrap Tires

#### INTRODUCTION

Scrap tires are generated from passenger cars, trucks, or farm equipment when tires are changed because they are worn or damaged. Often scrap tires are accumulated by commercial businesses that sell or change tires. Scrap tire piles are not treated as hazardous waste.

A tire's physical structure, durability, and heat-retaining characteristics make tire stockpiles a potential threat to human health and the environment. The curved shape of a tire allows rainwater to collect and creates an ideal habitat for disease carrying pests such as rodents and mosquitoes.

Prone to heat retention, tires in stockpiles also can ignite, creating fires that are difficult to extinguish and can burn for months, generating unhealthy smoke and toxic oils. Illegal tire dumping pollutes ravines, woods, deserts, and empty lots. However, once a tire fire occurs, tires break down into hazardous compounds including gases, heavy metals, and oil, which may then trigger other cleanup requirements.

#### Existing Program

Some organizations encourage proper tire disposal by allowing citizens to drop off limited numbers of tires at recycling centers, or conduct tire amnesty days where any citizen can bring a limited number of tires to a drop-off site free of charge. State or federal scrap tire programs may provide financial help to fund such events.

***[Insert the option that best fits your reservation's assessment.]***

#### Contracted Services and Agreements

Many tribes choose to use private contractors for scrap tire disposal. Contractors hired to manage scrap tires collection and disposals are trained in hazardous waste handling and manifesting requirements, and can be available on an as needed basis.

***[Insert the option that best fits your reservation's assessment.]***

#### Program Development

Programs designed for scrap tire management may include permanent drop-off collection sites, fees for collection and disposal and other options. In order to develop a program that meets the needs of the reservation, a number of factors were considered, including the types and quantities of tires generated on the reservation, availability of collection, hauling, and processing operations, and available markets or permitted disposal sites

***[Insert the option that best fits your reservation's assessment.]***





## Instructions for Completing Chapter 5

### Section 1 Introduction

The purpose of this chapter is to evaluate the existing Special Waste collection and disposal programs, in order to determine the types of contracts, facilities, and infrastructure that will be needed over the planning period.

### Section 2 Construction and Demolition Debris

#### Sources and Composition

C&D debris is generated from a variety of construction and demolition activities. Sources and representative composition are discussed in this subsection.

#### Construction Debris

Construction debris is discarded material generated from exterior and interior construction. This waste includes packaging and containers that manufacturers use to ship building materials, wood scraps, drywall, masonry, paint and other coatings, roofing scrap, and numerous other materials. **Table 5-1** presents a list of typical construction debris materials.

#### Demolition Debris

Demolition debris is generated from demolishing buildings, other structures, and roadways. Demolition material composition is similar to that of construction debris, except that wall and other structural materials, such as concrete, steel, and masonry, are present in larger quantities. Additional sources include materials from foundations and other substructures when buildings are completely removed.

#### Renovation Debris

Renovations generate a combination of materials from demolition and removal activities and shipping cartons, scrap, and excess materials from construction sites. Recycling of renovation debris has additional challenges because the waste may be a combination of old materials and new scrap and waste materials that require different recovery approaches. For example, painted lumber removed during renovation may have to be managed differently than scrap from uncoated lumber used for the construction phase.



TABLE 5-1: CONSTRUCTION DEBRIS MATERIALS <sup>1</sup>

MATERIALS	CONTENT EXAMPLES
<b>Wood</b>	Forming and framing lumber, stumps, plywood, and laminate scraps
<b>Gypsum</b>	Sheetrock, drywall, plaster
<b>Metals</b>	Pipe, rebar, flashing, steel, aluminum, copper, brass, stainless steel
<b>Plastics</b>	Vinyl siding, doors, windows, floor tile, pipes
<b>Roofing</b>	Asphalt and wood shingles, slate, tile, roofing felt
<b>Inerts</b>	Asphalt, concrete, cinder blocks, rock, earth
<b>Brick</b>	Bricks and decorative blocks
<b>Glass</b>	Windows, mirrors, lights
<b>Misc.</b>	Carpeting, fixtures, insulation, ceramic tile, and paper

<sup>1</sup> Source: <http://www.epa.gov> website, 2004.

### Land Clearing Debris

Land clearing waste is generated by site clearing activities prior to site work and construction of structures. Trees, stumps, brush, soil, and rock, as well as litter (i.e., tires, metal, and paper) may be on the site.

### Road Materials

Road demolition materials include asphalt, concrete, rock, and soil generated by removal of roadways, curbs, gutters, and sidewalks, or waste generated by construction of similar improvements. Materials generated by these types of projects are fewer in number but they are heavier.

### C&D EXISTING PRACTICES

Factors affecting quantities of debris generated, collected, and disposed of include the type of building (i.e., office buildings, recreational facilities, and housing) and the type of project (i.e., new construction, remodeling, renovation, road repair).

### Generation

Depending on the type and amount of activities occurring on a reservation, the amount of C&D







debris generated can vary greatly.

Select the option(s) below that best describes C&D debris generation practices on your reservation.

**Option 1--**

**C&D is not generated on the reservation.** The reservation does not have any construction, demolition, or renovation projects to generate C&D debris.

**Option 2--**

**Small quantities of C&D debris are generated on the reservation.** Small quantities of C&D debris are generated on the reservation. *[Insert how and who generates it – an example would be: tribal members and/or contractors generate small quantities of C&D debris.]*

Projects that have occurred over the last few years, include *[Insert projects – an example would be: new tribal member housing, a new health clinic, a new school.]* Future projects include *[Insert types of future projects – examples would be: new tribal member housing, a new casino, a new hotel]*

**Option 3--**

**Large quantities of C&D debris are generated on the reservation.** Large quantities of C&D debris are generated on the reservation. *[Insert how and who generates it – an example would be: tribal members and/or contractors generate large quantities of C&D debris.]*

Projects that have occurred over the last few years, including *[Insert projects – an example would be: new tribal member housing, a new school.]* Future projects include *[Insert types of future projects – examples would be: new tribal member housing, a new casino, a new hotel]*

**Collection**

In general, *[Insert one: tribal members / contractors / tribal members and contractors]* perform the majority of construction, demolition, and renovation activities.

Select the option(s) below that best describes C&D debris collection practices on your reservation.

**Option 1--**

**There is no collection of C&D debris.** No collection of C&D debris is provided. *[insert why-select one of the following:]*

- 1a. [Because there is no C&D debris generated.]
- 1b. [Because the reservation does not provide C&D debris collection services.]
- 1c. [Tribal members combine C&D debris with MSW.]



**Option 2--**

**Tribal members are responsible for providing containers to collect C&D debris.** C&D debris is collected in *[Insert what type of container or where it is transported to – an example would be: Tribal members collect C&D debris generated at construction sites in open-top roll-off containers. Normally, roll-off containers are 20-, 30-, and 40-cubic yard units].*

**Option 3--**

**Contractors are responsible for providing their own containers.** In general, construction contractors generating C&D debris provide their own containers. The material is typically collected in open-top roll-off containers. Normally, roll-off containers are 20-, 30-, and 40-cubic yard units.

**Disposal**

Managing construction and demolition (C&D) debris presents a major challenge for many tribes. Due to the size and weight of much of this debris, co-managing C&D debris with MSW can be cost prohibitive. Many tribes have found that managing C&D debris separately is the most cost-effective approach.

Select the option(s) below that best describes C&D debris disposal practices on your reservation.

**Option 1--**

**C&D debris is not disposed of properly.** Tribal members and/or contractors dispose of C&D debris illegally throughout the reservation or place C&D debris in MSW containers. This has become a significant dumping problem and *[Insert department or person in charge]* is trying to work to clean up the dumping sites and find alternative ways to properly dispose of the waste.

Note: Reservations selecting this option should strive to achieve one of the following options.

**Option 2--**

**All C&D debris is taken off the reservation.** Tribal members and contractors must transport all C&D debris off the reservation for disposal at area landfills.

**Option 3--****C&D debris is taken to the tribal transfer station.**

- 3a.) Tribal members transport all C&D debris to the tribal transfer station where it is stored until enough has accumulated for transport off the reservation to area landfills. Contractors are required to take all C&D debris they generate off the reservation for proper disposal. A limited quantity of debris from contractors is accepted at the transfer station on a case-by-case basis.
- 3b.) Tribal members and contractors transport all C&D debris to the tribal transfer station where it is stored until enough has accumulated for transport off the reservation to area landfills.



**Option 4--****C&D debris is taken to the landfill located on the reservation.**

- 3a.) Tribal members transport all C&D debris to the landfill located on the reservation. Contractors are required to take all C&D debris they generate off the reservation for proper disposal. A limited quantity of debris from contractors is accepted at the landfill on a case-by-case basis.
- 3b.) Tribal members and contractors transport all C&D debris to the landfill located on the reservation. This landfill is permitted to accept C&D debris. All people using the landfill must pay a tipping fee per ton of material to cover the cost of disposal.

**Contracted Services and Agreements**

For many tribes, C&D debris comprises a significant portion of the solid waste stream. Many tribes choose to use private contractors for the disposal C&D debris due to size and weight. Other tribes that have proper equipment and facilities may use their own tribal members for disposal services.

**An example of this is included below:**

- The Fort Peck Tribes of Montana had problems with contractors placing bulky construction and demolition debris in tribal roll-off bins. The bins filled up quickly, forcing the tribes to pay thousands of dollars in landfill tipping fees. To address this issue, the tribes decided to manage construction and demolition debris separately from MSW. The Fort Peck Operation and Maintenance Department now rents construction and demolition debris dumpsters to contractors, and transports their waste to a special C&D debris landfill.

Select one of the options below that best fits your reservation's assessment.

**Option 1--**

**Currently No Contracted Services and Agreements.** The tribe does not use outside contractors for C&D debris management services on the reservation.

**Option 2--**

**On-Call Services and Agreements.** *[Insert hauler name]* performs C&D debris collection on the reservation. A contract was set up on an as-needed basis. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: amount of containers, size of job, etc]*.

**Option 3--**

**Ongoing Contracted Services and Agreements.** *[Insert hauler name]* performs C&D debris collection for the reservation. The contract is renewed *[insert time frame- i.e., annually, 2-years, etc]*. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: option years, missed collections, etc]*.





### **Contract Surveillance**

Contract surveillance is crucial to making sure the contractor is adhering to the contracts for services performed.

Select the option(s) below that best describes collection services on your reservation.

#### **Option 1--**

**No Contracted Services and Agreements, So No Contract Surveillance Needed.** The tribe does not use outside contractors for C&D debris management services on the reservation, therefore, there is no need for contract surveillance.

#### **Option 2--**

**Have Contract Surveillance.** The *[insert department or person]* oversees and monitors the performance and adherence of the contractor to the C&D debris contract.

### **DIVERSION STRATEGIES**

Diversion strategies vary depending on the method of recovery (manual or mechanized) and the level of sorting the material. Appendix D contains examples created for uses in recording disposal, reuse, or recycling of C&D materials.

### **Material Recovery Approaches**

Approaches for recovering C&D debris can be classified as either manual recovery, which relies on equipment and/or manual labor to separate or sort materials, or mechanized recovery, which uses machinery in addition to equipment and manual labor. Each process can produce materials ready for designated markets.

#### **Manual Recovery--**

Manual recovery typically is accomplished at the source of generation (source separation). Once materials are mixed together, it normally is too labor-intensive to separate the materials manually. A major exception may be made for soil, concrete, asphalt and road base material, masonry, rock and other inert materials which are handled with heavy equipment, stored in piles, and then loaded into dump trucks to haul away for reuse or further processing (e.g., concrete crushing). Another exception may be chipping wood for use as mulch. A feasible approach may be to have a separate container only for the largest quantity material, with remaining materials mixed in another container.

On large or moderate size construction and renovation projects and on demolition projects, source separation typically is the most cost effective way to recycle or reuse material (although it might be bothersome for the contractors). To source separate, at least one container is needed for mixed waste, and one or more containers or piles are needed for the separated material(s). For smaller construction and renovation projects, source-separating materials typically is not feasible; i.e., all waste material is placed in one container for landfill disposal.





## **Mechanized Recovery and Processing--**

Mechanized processing normally is done at a central facility dedicated to receiving and recovering materials from C&D debris. Mechanized processing of mixed loads of construction and demolition waste requires a tipping floor or area, a wheeled or track-type bucket loader, conveyors, screens, magnets, and often size reduction equipment. Size reduction equipment could include shear or hammer mill type equipment with built-in screens and magnets. These facilities require large capital investments, and operating costs are substantial. C&D debris is abrasive and causes rapid wear on handling and processing equipment.

### **Material Types**

#### **Concrete and Asphalt--**

Due to their weight, concrete and asphalt generated on demolition projects can increase the quantities of solid waste generated (and recycled or reused) during the year. Each of these materials should be kept in separate piles to facilitate reuse or recycling. Examples of reuse include stockpiling of large pieces for use in stabilization of fill slopes or drainage ways; or crushing concrete, which can be used as an alternative to crushed stone; e.g., utility trench backfill, road and parking lot base or sub-base, etc. Likewise, asphalt can be crushed and reused as base or embankment material. If quantities are sufficiently large, the commercial concrete and asphalt recyclers can bring crushing equipment to the reservation to crush the material rather than having it hauled to their yards. Small amounts of concrete and asphalt can be stored on-site for use as fill materials on roadways and pathways.

#### **Metals--**

Steel and other ferrous and non-ferrous metals can be marketed to local metal markets, or can be taken to the Tribal Recycling Center (if applicable) for storage until enough has accumulated to be marketed to local metal markets. Except for reinforcing bar, steel attached to other materials would require mechanical processing, which may not be available. Thus, not all steel generated as C&D debris can be recycled.

#### **Paper Products--**

Paper can be generated in significant quantities on construction and renovation projects. Corrugated cardboard boxes used to ship products are usually the largest quantity of paper generated. Contractors could separate OCC and deliver it either to a local market or to the Tribal Recycling Center (if applicable). This would be especially applicable to future construction projects. Other waste paper typically has to be disposed with the other mixed waste, unless there are large quantities of certain grades of paper.

#### **Wood--**

Wood in C&D debris could be marketed when separated from mixed wastes. In certain circumstances, dimensional lumber may be reused. More often, it is processed to make mulch. Waste wood typically requires the use of a roll-off container due to its bulky nature. When the quantities of wood waste are significant, a separate container can be justified.



**Soil--**

Soil is generated by grading and excavation activities associated with various types of construction, renovation, and demolition projects. Construction contract specifications should be written to require contractors to use excess clean soil on other reservation sites, rather than hauling it off site.

**PROGRAM DEVELOPMENT**

The major benefits of C&D debris recycling are to reduce the cost of materials used in construction, and to reduce the volume and cost of disposal of waste materials. Other benefits that can be gained through C&D waste management efforts include a more accurate prediction of waste generation rates for building projects, increased revenue from the sale of the recovered materials, and the conservation of valuable natural resources. Proper development of a C&D debris program should include the following practices:

**Program Development Options**

1. Strive to separate types of C&D debris (i.e., concrete, asphalt, wood, soil, etc.) for reuse or recycling.
2. Incorporation of recycling clauses into contracts that requires tribal members/contractors to separate out and recycle or reuse much of the C&D debris generated on various projects. Reservations can develop specific criteria for minimum levels of salvage or recycling, in lieu of generalizations such as “to the maximum possible.”
3. Have a tribal representative attend pre-construction meetings for projects. This representative should provide information and guidance regarding the reservation’s requirements for disposal, recycling, or reuse of C&D debris.
4. Develop a standard technique for estimating quantities of C&D debris that are reused and recycled. This would aid in tracking tonnage in the event that weights from the contractor cannot be obtained.
5. Encourage contractors to use the Tribal Recycling Center containers such as cardboard or metals to recycle small or moderate quantities of recyclables (if applicable).
6. Provide incentives for materials recovery. Providing incentives to contractors and crews can create project buy-in.





**Section 3**

**Household Hazardous Waste (HHW)**

**INTRODUCTION**

Hazardous wastes generated by tribal residences are exempt from federal laws and regulations; these wastes are classified as household hazardous waste (HHW). HHW can include mercury and mercury-containing items (thermostats, thermometers, fluorescent bulbs), paints (latex or oil-based), electronic wastes, organic solvents, household cleaners, fuels, lead-acid batteries, motor oil, antifreeze, herbicides and pesticides. **Table 5-2** shows common household items containing potentially hazardous ingredients that are commonly found throughout the home.

**TABLE 5-2: COMMON RESIDENTIAL HHW ITEMS**

CLEANING PRODUCTS	INDOOR PESTICIDES	AUTOMOTIVE PRODUCTS	WORKSHOP/PAINTING SUPPLIES
Oven cleaners	Ant sprays and baits	Motor oil	Adhesives and glues
Drain cleaners	Cockroach sprays and baits	Fuel additives	Furniture strippers
Wood and metal cleaners and polishers	Flea repellents and shampoos	Carburetor and fuel injection cleaners	Paint strippers and removers
Toilet cleaners	Bug sprays	Air conditioning refrigerants	Stains and finishes
Tub, tile, shower cleaners	Houseplant insecticides	Starter fluids	Paint thinners and turpentine
Bleach (laundry)	Moth repellents	Automotive batteries	Oil or enamel based paint
Pool chemicals	Mouse and rat poisons and bait	Antifreeze	Photographic chemicals
		Transmission and brake fluid	Fixatives and other solvents

Source: Environmental Protection Agency website: [www.epa.gov](http://www.epa.gov)





TABLE 5-2: COMMON RESIDENTIAL HHW ITEMS (continued)

LAWN AND GARDEN PRODUCTS	MISCELLANEOUS	OTHER FLAMMABLE PRODUCTS
Herbicides	Batteries	Propane tanks and other compressed gas
Insecticides	Mercury thermostats or thermometers	Gas cylinders
Fungicides/wood preservatives	Fluorescent light bulbs	Kerosene
	Driveway sealer	Home heating oil
		Diesel fuel
		Gas/oil mix
		Lighter fluid

HHW can harm the environment and human health if it is not properly handled and disposed. For example:

- **Product Use** – Some pesticides, when used improperly (for example, at high application rates), may enter surface waters and kill aquatic life and contaminate drinking water
- **Product Storage** – Improperly stored products can result in accidental poisonings of children and animals. Similarly, storage of flammable products (solvents, fuels, oil-based paint) in homes may start fires, add to the fuel load of buildings, and endanger firefighter safety
- **Waste Handling** – There have been several reported incidents at solid waste facilities where collection workers have been injured or endangered as a result of hazardous waste disposal from households. For example, some pool chemicals are highly reactive and can release a poisonous gas. Alternatively, flammable products may ignite inside the collection vehicle or disposal facility
- **Product Disposal** – Many hazardous products, unless segregated and collected separately from other wastes, can damage the environment, including contamination of soil and water, and pollution of air. Environmental damage can occur in several ways, including direct releases to the environment (dumping outside), releases from disposal sites (landfills and incinerators), and releases from wastewater treatment facilities. Used oil dumped on the ground, automotive batteries thrown in a roadside ditch, and herbicides dumped down the storm drain are all examples of direct releases that may harm the environment. Even disposal of some types of HHW in lined landfills can result in environmental damage. For example, mercury disposed of with regular garbage will eventually leach out of the landfill. If collected, the leachate is typically treated on-site or sent to a wastewater treatment facility. In either case, the mercury is eventually released back into the environment.







## Existing Programs

To deal with HHW, many communities have set up collection programs to discourage it from being disposed of in MSW landfills and combustors. HHW collection programs ensure the materials are properly handled and sent to facilities designed to treat or dispose of hazardous waste. HHW collection programs include periodic one-day events held throughout the year, curbside programs, or permanent collection facilities. More than 3,000 HHW collection programs exist in the United States.

Select one of the options below that best fits your reservation's assessment.

### Option 1--

**No HHW program on the reservation.** The reservation does not provide a HHW program nor does it partner with the local community for HHW events. It is left to the discretion of each resident to properly dispose of HHW.

Note: Reservations selecting this option should strive to achieve one of the following options.

### Option 2--

**No HHW Program, but partner with local community.** The reservation does not provide a HHW program, but does partner with the local community when they have HHW events. Residents are encouraged to take their waste to these events for proper disposal.

### Option 3--

**Periodic HHW Event on reservation.** The reservation participates in a HHW event held on the reservation *[insert how many times per year]*. Residents are encouraged to take their waste to these events for proper disposal. Types of waste accepted during these events include: *[insert types of waste]*. All waste is handled by *[insert how the waste is handled (i.e., contractor, tribal members and local businesses partnering, tribal members and local governments partnering)]*.

### Option 4--

**Permanent HHW Facility on reservation.** The reservation has established a permanent HHW facility located *[insert where this facility is located (i.e., at the Tribal Recycling Center, Transfer Station, Drop-off area, etc.)]* Residents and businesses are encouraged to take their waste to these events for proper disposal. Types of waste accepted during these events include: *[insert types of waste]*. All waste is handled by *[insert how the waste is handled (i.e., contractor, tribal members and local businesses partnering, tribal members and local governments partnering)]*.

## Contracted Services and Agreements

Many tribes choose to use private contractors for HHW disposal. Contractors hired to manage an HHW collection program are trained in hazardous waste handling and manifesting requirements, and can be available on an as needed basis. This can be an ideal solution for reservations with





periodic collection events that do not require full time staff to manage the program on a year round basis.

Select one of the options below that best fits your reservation's assessment.

#### Option 1--

**Currently No Contracted Services and Agreements.** The tribe does not use services by outside contractors for HHW management services on the reservation.

#### Option 2--

**On-Call Services and Agreements.** *[Insert hauler name]* performs HHW collection on the reservation. A contract was set up on an as-needed basis. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: amount of containers, size of job, etc]*.

#### Option 3--

**Ongoing Contracted Services and Agreements.** *[Insert hauler name]* performs HHW collection for the reservation. The contract is renewed *[insert time frame- i.e., annually, 2-years, etc]*. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: option years, missed collections, etc]*.

### Contract Surveillance

Contract surveillance is crucial to making sure the contractor is adhering to the contracts for services performed.

Select the option(s) below that best describes collection services on your reservation.

#### Option 1--

**No Contracted Services and Agreements, So No Contract Surveillance Needed.** The tribe does not use services by outside contractors for HHW management services on the reservation, therefore, there is no need for contract surveillance.

#### Option 2--

**Have Contract Surveillance.** The *[insert department or person]* oversees and monitors the performance and adherence of the contractor to the HHW contract.

### Program Development

The primary goal of any tribe should be to minimize environmental and health impacts associated with HHW. Efforts should be directed at educating the public about the potential hazards of household products, as well as proper handling and disposal methods.





## HHW Program Options

Many options exist for the collection of HHW. Below are four types of programs that should be considered as alternatives for proper disposal.

- **Periodic Collection Programs** – Periodic collection events are defined as one-day collection events that do not require permanent structures. These collections are usually operated by contractors and held at municipal facilities such as transfer stations, public works facilities, school parking lots, etc.

On the scheduled collection day, the contractor sets up a receiving area at a pre-designated site. The event is frequently scheduled during the weekend, and is organized by employees and volunteers. In some instances, residents must pre-register so that communities can estimate the waste types and quantities that will be received. At the end of the event, the collected waste is transported to designated disposal facilities.

One-day events have low fixed costs because they do not require a permanent structure. However, participation rates and amounts collected can be affected by weather on collection day, travel distance, promotion level, receiving area wait time, and ease of access to event location.

- **Semi-Permanent Collection Programs** – Semi-permanent programs are defined as HHW collection operations that are held at a regularly scheduled time, but that have no permanent structures or facilities associated with that collection day. For example, a semi-permanent collection facility can be located at a landfill and operate on a year-round basis collecting wastes every Sunday. The collection site houses no permanent structures. Temporary storage lockers can be set up on-site and are maintained by tribal members or a private contractor.

In a study conducted by the Maine Department of Environmental Protection, it was estimated that one-day collection events had the lowest cost, but also have the lowest amount of HHW collected. These collections also required the highest cost for program promotion and advertising, and had the lowest customer satisfaction rate of any type of HHW collection program<sup>3</sup>.

- **Permanent Collection Programs** - Permanent HHW collection programs are increasing in number across the country as many communities have transitioned to providing more convenient collection options for their residents. Permanent programs are defined as having an established location with a permanent structure(s) dedicated for the collection of HHW. It is common for permanent programs to have a covered shelter area, cabinets for storage of flammable and reactive materials, drum storage pads, and office space for managing paperwork.

Hours of operation vary depending on the size and participation rates of the community. Most permanent programs provide at least three days a week for acceptance, often operating some time during the weekends. Contractors, reservation employees, or a combination of both can staff these programs. Many permanent programs also choose to continue with periodic community collection days. While this provides additional convenience for residents, it also has a significant cost factor.

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3 Files, Andrew and Criner, George, "Poison Control," June 1, 2003 edition of *WasteAge Magazine*





A copy of the Oregon DEQ's Household Hazardous Waste Collection Facility Design and Operations Guidance can be found in Appendix B-2. This document gives guidance on what type of siting and structural requirements and operations plans are needed when designing a permanent HHW collection facility.

### **Program Costs**

Table 5-3 shows an estimated breakdown of costs between the three different HHW collection programs. Tribal run programs are compared with contractor run programs to show the difference in costs. HHW program cost savings could be realized by partnering with neighboring communities, sharing contract and marketing expenses, and establishing periodic collection events, which are generally less expensive than a permanent facility.





TABLE 5-3: ESTIMATED COSTS FOR DIFFERENT HHW COLLECTION PROGRAMS

HHW Collection Options	Estimated Participants <sup>1</sup>	Estimated Annual Tonnages <sup>2</sup>	Tribal Run Program		Contractor Run Program		Pros of Program	Cons of Program	
			Tribal Staffing	Annual Disposal Costs <sup>3</sup>	Total Costs <sup>4</sup>	Annual Management Costs <sup>3</sup>			Total Costs <sup>5</sup>
Periodic Collection Events	3,200	195	N/A	N/A	N/A	\$256,672	\$256,672	Low capital & operating costs	High level of marketing effort for collection events
Semi-Permanent Collection Events (Collection twice/month)	12,500	775	1 Full Time 1 Part Time	\$697,230	\$808,280	\$1,018,667	\$1,023,667	High level of convenience for residents and increased collection of materials	High capital & operating costs
Permanent HHW Facility (Collection 5 days/week)	5,100	311	1 Full Time	\$279,990	\$348,640	\$409,071	\$414,071	Medium level of convenience to residents	Difficult to advertise the program; medium level of capital & operating costs

**Notes:**

- <sup>1</sup> Estimated participation was determined by comparing HHW collection programs throughout the region and country. Rates were applied based on averages between various tribal populations. Programs that operate a collection on a weekend day often have higher participation rates than those who operate only during the week.
- <sup>2</sup> Estimated tonnages were determined by HHW programs located throughout the country.
- <sup>3</sup> Based on evaluation of similar programs throughout the region and country, HHW disposal rates by county operated programs equals approximately \$900 per ton.
- <sup>4</sup> Costs include estimated salaries, training and medical costs, supply costs, annual equipment and replacement and maintenance funds, and annual residual disposal costs as well as annual disposal costs.
- <sup>5</sup> Costs include estimated annual equipment and replacement and maintenance funds as well as annual maintenance costs.



## **Public Participation**

Public participation rates in communities with permanent drop-off programs tend to be higher than communities with periodic collection programs. The convenient hours of the permanent program together with the ability to drop off materials on a year-round basis provides residents with additional incentive to utilize the program.

## **HHW Program Marketing**

Some of the most common types of marketing techniques used for HHW programs are web access as well as printed materials to communicate collection times, days, and locations. Some of the communities utilize public access television as well as print media advertising. Education is key to a program's success. Many people are not unaware of the potential dangers of their household waste, nor do they realize that a program exists for disposal of such items. Educational materials should describe non-toxic alternatives to toxic chemical use, proper disposal methods, and HHW facility, location and services.

### ***Some examples are included below:***

- The Metlakatla Indian Community of the Annette Islands Reserve in Alaska adopted a Waste Management Ordinance in 1999 that requires safe disposal of household hazardous waste. In conjunction with its regulatory efforts, the community held a household hazardous waste collection event designed to attract as many residents as possible, to make them aware of the new regulations, provide advice on safe household hazardous waste characterization and hauling procedures, identify non-hazardous substances for common hazardous household products, and remove as much existing household hazardous waste as possible from the waste stream.
- The Onondaga Nation in New York decided to make HHW disposal a priority. The nation hosts household hazardous waste collection events twice a year to educate the tribal community about proper disposal practices. In addition, the tribe provides public access to a household hazardous waste collection compartment at the transfer station. Tribal members can bring their household hazardous waste to the transfer station 24 hours a day, 7 days a week. The transfer station also includes a storage container for car batteries.

## **Strategies For Reduction**

The best way to handle residential HHW is to reduce the amount initially generated by using the entire purchased product, giving leftover products to someone else to use, or purchasing products that are less hazardous. Below are some strategies for minimizing HHW:

1. Use and store products containing hazardous substances carefully to prevent any accidents at home. Never store hazardous products in food containers; keep them in their original containers and never remove labels. Corroding containers, however, require special handling.
2. When leftovers remain, never mix HHW with other products. Incompatible products might react, ignite, or explode, and contaminated HHW might become non-recyclable.
3. Remember to follow any instructions for use and disposal provided on product labels.
4. Use safer alternatives.



5. Buy only what is needed and that can be used up.
6. If products are left over, give them to friends, neighbors, or charitable institutions to use up.
7. Recycling is an economical and environmentally sound way to handle some types of household hazardous waste, such as used automobile batteries and oil. Auto parts stores and service stations frequently accept used automobile batteries, and 80 percent of these batteries are currently recycled.

## **Electronic Wastes**

### **Background**

Electronics are quickly becoming a significant portion of the materials sent to local landfills every year. Known as E-Waste, items like radios, fax machines, telephones, cellular telephones, computers and Personal Digital Assistants (PDAs) are fast becoming an item of concern in the wastestream. Advances in technology, as well as the decreasing price of most electronics, has led to an increase in the amount of outdated items that require proper disposal. Components in a number of electrical devices are known to contain one or more of the following substances: mercury, lead; cadmium; embedded batteries; and polychlorinated biphenyls (PCBs). TP4PT The largest concern with e-waste is the CRT component. CRTs are cathode ray tubes, found in televisions and computer monitors, and contain high levels of lead and mercury. Some states have banned CRTs from landfills, thereby increasing the need to find appropriate diversion options.

### **Collection Events**

There are three main factors to consider when planning an electronics waste collection event:

#### **Market**

The most important determination in the feasibility of a collection event is the existence of a market to accept the materials collected. If it is too far to recycle, it may not be economically feasible to host an event. Therefore, a location must be selected that will attract the highest number of participants in a short amount of time.

#### **Staffing**

An adequate number of staffing is needed for the event. Either the tribe or a contractor can provide staff. If the contractor provides trained staff, the tribe's liability can be reduced significantly.

#### **Event Location**

The right event location can “make or break” the event. There needs to be adequate space for traffic queuing, material collection and sorting, and be visible and easily accessible for the majority of the population served. The event can be held in any large lot. Partnering with an electronics retailer may prove beneficial to both the event and retailer, as the influx of vehicles can drive traffic to the store. The partner can also provide discount coupons to promote the event and increase traffic to the store. Other items to consider in choosing a location are insurance, indemnifications,

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4.Solid Waste in Washington State, Thirteenth Annual Report, December 2004.



and/or access rights required by the property owner for the event.

### **Advertising**

Advertising is crucial to ensure a successful event. All forms of media can be used to promote the event: print; electronic; radio; and television. Press releases can be prepared and distributed to local newspapers for publication as an article or in a calendar section.

If possible, the event location can also be used for promotion prior to the event. Posters can be placed near the entrance, banners can be placed in the parking lot, and flyers can be distributed at point-of-sale locations. The same flyers can also be distributed at community centers, such as libraries, schools, and event centers.





## Section 4 - Scrap Tires

### INTRODUCTION

Scrap tires are generated from passenger cars, trucks, or farm equipment when tires are changed because they are worn or damaged. Often scrap tires accumulate by commercial businesses that sell or change tires. Scrap tire piles are not treated as hazardous waste.

A tire's physical structure, durability, and heat-retaining characteristics make tire stockpiles a potential threat to human health and the environment. The curved shape of a tire allows rainwater to collect and creates an ideal habitat for disease carrying pests such as rodents and mosquitoes. Mosquitoes can also breed in the stagnant water that collects inside tires.

Prone to heat retention, tires in stockpiles also can ignite, creating fires that are difficult to extinguish and can burn for months, generating unhealthy smoke and toxic oils. Illegal tire dumping pollutes ravines, woods, deserts, and empty lots. However, once a tire fire occurs, tires break down into hazardous compounds including gases, heavy metals, and oil, which may then trigger cleanup status.

### Existing Program

Some local communities encourage proper disposal by allowing local citizens to drop off limited numbers of tires at recycling centers, or conduct tire amnesty days where any local citizen can bring a limited number of tires to a drop-off site free of charge. State scrap tire programs may provide financial help to fund such events.

Select one of the options below that best fits your reservation's assessment.

#### Option 1--

**No scrap tire collection program on the reservation.** The reservation does not provide a scrap tire collection program nor does it partner with the local community for scrap tire collection events. It is left to the discretion of residents to properly dispose of their tires.

Note: Reservations selecting this option should strive to achieve one of the following options.

#### Option 2--

**No scrap tire program, but partner with local community.** The reservation does not provide a scrap tire collection program, but does partner with the local community when they have tire collection event or a tire amnesty day. Residents are encouraged to take their tires to these events for proper disposal.

#### Option 3--

**Periodic scrap tires events on reservation.** The reservation participates in a scrap tire event held on the reservation *[insert how many times per year]*. Residents are encouraged to take their used tires to these events for proper disposal. All tires are handled by *[insert how the waste is handled (i.e., contractor, tribal members and local businesses partnering, tribal members*



*and local governments partnering*]].

#### Option 4--

**Permanent scrap tire collection area on reservation.** The reservation has established a permanent area for collection of scrap tires located *[insert where this facility is located (i.e., at the Tribal Recycling Center, Transfer Station, Drop-off area, etc.)]* Residents and businesses are encouraged to take their used tires to these events for proper disposal. All tires are handled by *[insert how the waste is handled (i.e., contractor, tribal members and local businesses partnering, tribal members and local governments partnering)]*.

#### **Contracted Services and Agreements**

Many tribes choose to use private contractors for scrap tire disposal. Contractors hired to manage scrap tire collection and disposals are trained in hazardous waste handling and manifesting requirements, and can be available on an as needed basis.

Select one of the options below that best fits your reservation's assessment.

#### Option 1--

**Currently No Contracted Services and Agreements.** The tribe does not use services by outside contractors for scrap tire management services on the reservation.

#### Option 2--

**On-Call Services and Agreements.** *[Insert hauler name]* performs scrap tire collection and disposal for the reservation. A contract was set up on an as-needed basis. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: amount of containers, size of job, etc.]*.

#### Option 3--

**Ongoing Contracted Services and Agreements.** *[Insert hauler name]* performs scrap tire collection and disposal for the reservation. The contract is renewed *[insert time frame- i.e., annually, 2-years, etc.]*. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: option years, missed collections, etc.]*.

#### **Contract Surveillance**

Contract surveillance is crucial to making sure the contractor is adhering to the contracts for services performed.

Select the option(s) below that best describes collection services on your reservation.

#### Option 1--

**No Contracted Services and Agreements, So No Contract Surveillance Needed.** The tribe does not use services by outside contractors for scrap tire management services on the reservation, therefore, there is no need for contract surveillance.



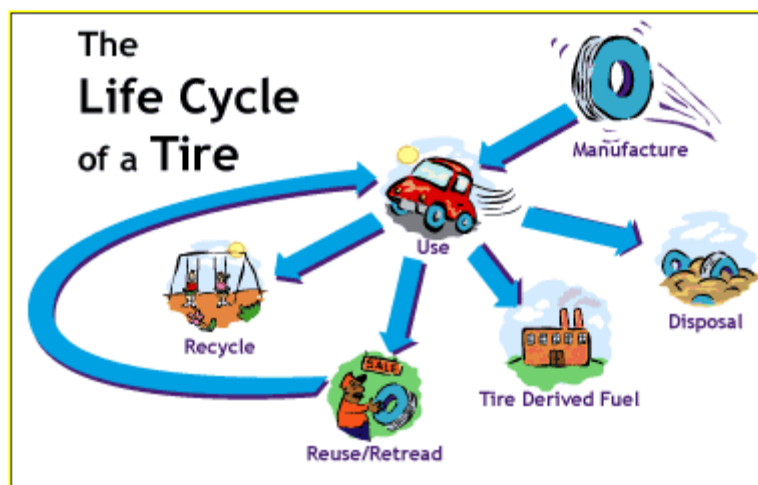
## Option 2--

**Have Contract Surveillance.** The *[insert department or person]* oversees and monitors the performance and adherence of the contractor to the scrap tire contract.

## PROGRAM DEVELOPMENT

In order to develop a program for the management of scrap tires, it is important to understand the uses of tires. **Table 5-4** shows the life cycle of a tire.

**Table 5-4: LIFE CYCLE OF A TIRE**



## Options for Program Development

### Drop off programs--

Some organizations encourage proper disposal by allowing local citizens to drop off limited numbers of tires at recycling centers, or conduct tire amnesty days where any local citizen can bring a limited number of tires to a drop-off site free of charge. State scrap tire programs may provide financial help to fund such events.

Organizations can also play big role in procuring products made with scrap tires including playground/park applications. Tribes should coordinate special for the collection of scrap tires. This event should be highly publicized in letting tribal members know where and when to take their tires.

### Tire Fees--

Many states collect fees to fund scrap tire management programs or stockpile cleanup. Tire fees are typically assessed on the sale of new tires or on vehicle registrations. Fees generally range from \$0.50 to \$2 per passenger car tire, and truck tire fees range from \$3 to \$5. Some scrap tire fees also help local communities establish market programs, create licensing/enforcement systems, and host tire collection programs/amnesty events. States and municipalities may also use money



generated by scrap tire fees to offer grants or loans to scrap tire processors and end users of tire-derived materials.

Tribes providing scrap tire collection services or drop-off services should consider charging tribal members a tire fee to cover the cost of transportation and disposal.

**Other options--**

There are a variety of uses for scrap tires instead of disposal. Scrap tires may be recycled by cutting, punching, or stamping them into various rubber products after removal of the steel bead. Products include floor mats, belts, gaskets, shoe soles, dock bumpers, seals, muffler hangers, shims, and washers. Whole tires may be recycled or reused as highway crash barriers, for boat bumpers at marine docks, and for a variety of agricultural purposes.

Some of these uses are listed in **Table 5-5**. Tribes should consider using some type of alternative use for scrap tires when applicable.



TABLE 5-5: INNOVATIVE USES FOR SCRAP TIRES

<b>Ground Rubber Applications</b>	<ul style="list-style-type: none"> <li>- <b>Athletic and Recreational Applications:</b></li> <li>-- Ground cover under playground equipment – possesses high impact attenuation/ability to absorb the energy from falling children and objects.</li> <li>- Running track material – increases a track's resiliency and decreases stress on runners' legs.</li> <li>- Sports and playing fields – as a soil additive, increases the resiliency of the field thereby decreasing injuries, improves drainage, and enables better grass root structure.</li> </ul>	<b>Civil Engineering Applications</b>	<ul style="list-style-type: none"> <li>- Highway sound barriers – reduces highway noise</li> <li>- <a href="#">Subgrade Fill and Embankments</a></li> <li>- Backfill for wall and bridge abutments</li> <li>Subgrade insulation for roads</li> <li>- Landfills- cell liner</li> <li>--Septic system drain fields</li> </ul>
		<b>Railroad Ties</b>	Highly durable, rubber-encased railroad ties that are over 200% stronger than creosote-soaked wooden ties, enabling railroads to use fewer ties per mile.
<b>Other Ground Rubber Uses</b>	<ul style="list-style-type: none"> <li>- Molded rubber products (e.g., carpet underlay, flooring material, dock bumpers, patio decks, railroad crossing blocks, livestock mats, roof walkway pads, rubber tiles and bricks, movable speed bumps).</li> <li>- Mulch replacement in medians or decorative areas.</li> <li>- New tire manufacturing</li> <li>- Brake pads and brake shoes.</li> <li>- Additive to injection molded and extruded plastics.</li> <li>- Automotive parts.</li> <li>- Agricultural and horticultural applications/soil amendments</li> <li>- Horse arena flooring</li> </ul>	<b>Tire Derived Fuels</b>	<ul style="list-style-type: none"> <li>- Supplement to traditional fuels such as coal or wood. Industry uses include:</li> <li>- --Cement industry</li> <li>- --Pulp and paper industry</li> <li>- --Electric utilities</li> </ul>

- --Industrial/institutional boilers



- --Dedicated tire-to energy facilities

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# Chapter 6

## Public Education and Outreach

**Section 1 - Waste Reduction**

**Current Practices**

**Source Reduction**

*[Insert option from Section 1 instructions]*

**Reuse**

*[Insert option from Section 1 instructions]*



**Section 2 - Public Education and Outreach Program**

**Goals**

The following goals have been adopted by the *[insert name]* Tribe to enhance the public education and outreach program.

*[Insert goals]*

**Existing Program**

*[Insert option selected from Section 2 instructions]*

**Measuring Effectiveness**

*[Insert any techniques currently used]*

**Current Budget**

*[Insert option selected from Section 2 instructions]*

**Section 3 - Recommendations**

**Required Practices**

To improve solid waste management and to increase recycling, reuse, and source reduction, the [insert department or person responsible] needs to develop and implement a public education and outreach program that includes techniques and strategies from this chapter, including the following:

**[Insert required practices used by tribe]**

**Optional Alternatives**

Alternatives exist for implementing public education and outreach programs. Depending on the ability of tribes, the following are examples of alternatives that could be used, but are not necessarily always part of recommended practices. The alternatives can provide additional benefits for informing tribal residents along with budget planning purposes. Alternatives include:

**[Insert any alternatives practices or techniques]**



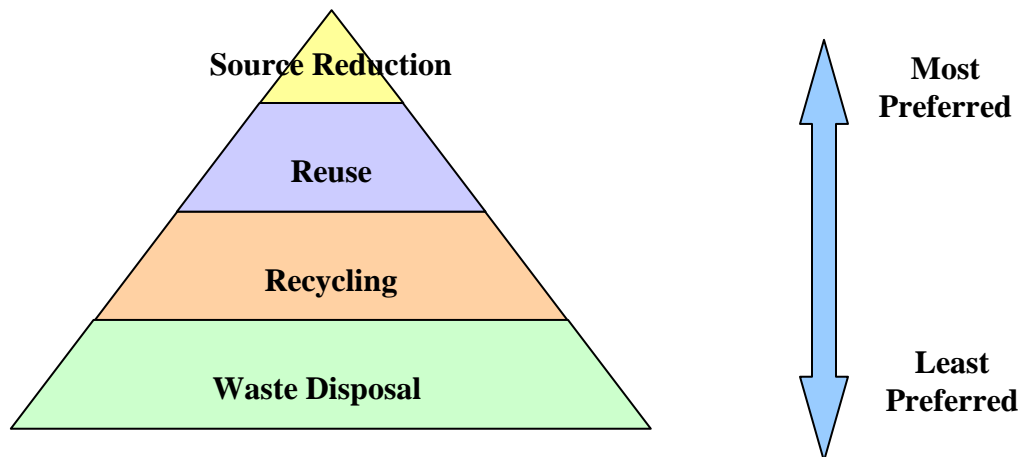
## Instructions for Completing Chapter 6

### Section 1: Waste Reduction

#### Background

Waste reduction includes both waste prevention and reuse. These are the two preferred means of waste management, as shown on **Exhibit 6-1**, EPA's solid waste management hierarchy.

**EXHIBIT 6-1: SOLID WASTE MANAGEMENT HIERARCHY**



\*Source: US EPA website [www.epa.gov](http://www.epa.gov)

The EPA defines waste prevention, also known as source reduction, as “the practice of designing, manufacturing, purchasing, or using materials (such as products and packages) in ways that reduce the amount or toxicity of trash created. ” Source reduction prevents the generation of waste in the first place, so it is the preferred method of waste management. Examples of source reduction are designing products to use fewer raw materials in production and to make products that have longer useful lives.

Reuse is defined as using objects or materials over again, or finding new uses for them so they are not thrown away. Reusing items reduces waste at the points of use because it delays or avoids their entry into the waste collection and disposal system. Examples of reuse include crushing broken-up concrete and using it as an aggregate for road base and reusing empty food jars to store food, nails, buttons, etc.

#### **Source Reduction**

To have a successful source reduction program, tribal members need to be trained and the messages reinforced through promotional efforts. Reservations practicing source reduction can achieve cost savings through reduced purchasing costs and lower waste collection, transportation, processing, and disposal costs. A number of resources are available to tribes that can help them in their source reduction efforts.



[An example of this option is included below:]

- Smith River Rancheria in California joined EPA's WasteWise Program in 2001 and began implementing source reduction activities immediately. The tribe's receptionist return unwanted direct mail solicitations and calls or writes to companies requesting removal from mailing lists. Posters in the tribal office remind staff about the duplex printer feature, and tribal council members and office staff copy meeting minutes and other documents on both sides of the paper.

Further information about source reduction and resources can be found on the EPA website: <http://www.epa.gov/epaoswer/non-hw/muncpl/sourcred.htm>.

### Step 1: Source Reduction Practices

Select the option(s) below that best describes source reduction practices on your reservation.

#### Option 1--

**There is currently no means of source reduction.** Residents/businesses do not practice source reduction. Tribes selecting this option should strive to set goals for source reduction through **Option 2.**

#### Option 2--

**Minimal amount of source reduction practices.** A small amount of source reduction techniques are practiced by residents and businesses. ***[List Practices Used]***

#### Option 3--

**Source reduction program established.** Residents/businesses follow a well-established source reduction program. Source reduction activities performed include: ***[List Practices Used]***

[An example of source reduction practices is included below]:

- Source reduction activities are an important part of the Mohegan Tribe's waste management program. In 1997, the tribe established an integrated waste management for the Mohegan Sun Casino and the tribal government. The program emphasizes source reduction activities, along with recycling, over waste disposal options. The tribe practices water-conserving irrigation methods and uses native rather than ornamental plants in landscaping. Native plants are well adapted to their environment, which means they require less water, fertilizers, and pesticides for their maintenance. The tribe also has minimized its chemical use, switching to less toxic products where possible.

### **Reuse**

Reuse is preferred to recycling because the materials do not need to be reprocessed before they can be used again. Items normally discarded as waste – such as appliances, furniture, and office supplies (binders, file folders, etc.) – can be reused as originally intended or as used products. Reusing items by repairing them, donating them to charity and community groups, or selling them



reduces waste. Reuse can also be a good alternative to disposal for those materials for which recycling markets are located far away.

[An example of reuse is included below]:

- In the isolated village of Kotzebue, Alaska, several businesses and organizations collect scrap office paper. Every two weeks, the businesses deliver this paper to tribal schools, local daycare centers, and children's homes for reuse.

### **Materials Exchange Program--**

Another method of reuse is a materials exchange program. This type of program helps tribes to establish a market for the buying and selling of unwanted goods. Tribal members can give their unwanted goods to this program for either sale or donation (i.e., furniture, computers, clothing, etc.). This saves members time and money by not having to dispose of the unwanted goods themselves, and allows other members to benefit by obtaining goods at little to no cost. Examples of materials exchanges program that tribes have used include:

- Reuse centers, secondhand stores, or flea markets where tribal members donate or sell unwanted goods to others
- Websites designed to show listings of goods and which connect buyers and sellers
- Verbal communication or signage

Many tribes schedule events or set up temporary/permanent materials exchange centers where tribal residents can donate products and materials that they no longer need. Collected materials are then made available to tribal schools and tribal members. Some tribes establish and run secondhand stores or swap meets, where members can donate or sell their used materials instead of throwing them away.

Examples of these options are included below:

- The Pine Ridge Oglala Sioux Tribe holds regular "swap days." Tribal members bring items they no longer want to a central location, where they swap or sell them to each other in a flea market-like setting.
- The Oneida Tribe of Indians in Wisconsin has found it beneficial to hold a week-long clothing and household item exchange. In one week, tribal members donated 770 pounds of clothing and 1,300 pounds of miscellaneous household items for reuse by other members of the tribe. At the end of the week, the tribe transported leftover items to other reservations in the state.
- The Alaska Materials Exchange (AME) is an information clearinghouse to help Alaskan businesses reuse products and materials and find alternatives to throwing valuable materials into local landfills. Through quarterly catalogs, AME lists surplus and unwanted materials from one company that others can use. The materials exchange is a service of the state Department of Environmental Conservation in cooperation with BP Exploration and ARCO Alaska, Inc.

Tribes do not need high-tech capabilities to put a materials exchange program in place. An examples of a more low-tech approach is described below:



- The Confederated Tribes of the Umatilla Indian Reservation in Oregon maintain a more informal materials exchange program. The tribal government operations manager e-mails tribal employees when residents bring in used items to exchange. The tribal employees then inform community members that items are available for reuse.

## Step 2: Reuse Practices

Select the option(s) below that best describes source reduction practices on your reservation.

### Option 1--

**There is currently no means of reuse.** Residents/businesses do not practice reuse. Tribes selecting this option should strive to set goals for reuse through **Option 2**.

### Option 2--

**Minimal amount of reuse practices.** Residents and businesses practice a small amount of reuse techniques. ***[List Practices Used]***

### Option 3--

**Reuse program established.** Residents/businesses follow a well-established reuse program. Reuse activities performed include: ***[List Practices Used]***

## **Waste Reduction Strategies**

The ***[insert department or person]*** should coordinate with tribal departments and businesses to assist in implementing and providing training for source reduction and reuse initiatives. Developing a set of standard operating procedures (SOP) will help in reinforcing the importance of source reduction. Examples of strategies to use are presented in ***Exhibit 6-2***.

It is important to note that waste reduction and reuse strategies can be difficult to quantify because the goal is to not produce waste; thus, waste reduction/diversion quantities should be estimated in a straightforward, defensible manner to show waste reduction quantities.



**EXHIBIT 6-2: SOURCE REDUCTION AND REUSE STRATEGIES**

<b>Administration &amp; Offices</b>	Establish a double-sided copying policy. Print only the number of copies necessary.
	Minimize the number of documents that are printed – use electronic versions when practical.
	Circulate documents and memoranda rather than making multiple copies.
	Reuse packaging from incoming materials for outgoing shipments.
	Use electronic media for document and data archival rather than paper (hard-drives, Portable Document Files (PDF), floppy disks).
	Use central bulletin boards and e-mail for broadcast communications.
	Use removable stick-on labels instead of cover sheets when sending faxes.
	Reuse products and supplies; e.g.: 1) Use reusable office supplies such as refillable pencils and rechargeable printer cartridges; 2) Encourage employees to reuse common items such as file folders, interoffice envelopes, and report binders; and 3) Use ceramic mugs rather than disposable cups.
	Reuse cardboard boxes.
	Work with suppliers to minimize the amount of packaging used. Return shipping materials such as crates, cartons, and pallets for reuse; alternatively, save the packaging and reuse it for outgoing shipments.
	Promote the purchase of items in bulk to reduce packaging.
	Purchase durable equipment and supplies. High quality, long-lasting supplies and equipment that can be repaired easily result in fewer discards. These items will stay out of the waste stream longer. In addition, the higher initial costs are often off-set by lower maintenance and disposal costs. Since these items are replaced less frequently, cost savings can be realized.
	Rent equipment for limited or short-term uses.
	Encourage acceptance of reused materials on construction contracts where the material will serve the intended purpose; e.g., using crushed concrete or asphalt as road base or chipped wood as mulch.
<b>Businesses</b>	Use low-maintenance landscape designs and techniques that will generate less brush and wood waste. Leave grass clippings from mowing on the ground.
	Use canvas bags in place of plastic or paper shopping bags.
<b>Tribal Members</b>	Purchase household items in bulk to reduce packaging waste.
	Rent or borrow items that are only used occasionally.
	Have a yard sale before throwing away old items.
	Take unwanted clothing and furniture to a swap shop, materials exchange program, or donation shop.
	Share your magazines with a friend, community group, doctor's office, or medical facility.
	Call direct mailers to remove your name from their mailing lists.
Reuse scrap paper as message pads or sketchpads for children.	



Source reduction and reuse practices can be easy for tribes to adopt. Examples of programs in place on Indian Reservations are included below:

- In Galena Village, Alaska, winds blew hundreds of white plastic shopping bags around the community, which became entangled in nearby trees, clung to the frozen tundra, or choked and entangled local wildlife. The Tribal Council passed a resolution prohibiting the three local stores from using plastic shopping bags. At first, the storeowners were apprehensive about the ordinance, wanting to know what alternatives would be available to them. The council worked with storeowners to identify alternatives, such as brown paper and reusable canvas bags, and explained the environmental benefits. Once they found alternatives, local merchants accepted the change.
- Tribal members of the Blue Lake Rancheria Tribe in California also practice source reduction and reuse by using the double-sided copier function whenever possible and using the back side of once-used paper for drafts. These simple activities have helped the tribe save money by cutting down the amount of paper purchased.





## Section 2: Public Education and Outreach Program

### Existing Program

The existing public education and outreach program must be evaluated for its ability to meet existing and projected needs within the framework of goals established in *Chapter 1*.

For example, if one of the goals was:

- Increase public awareness of solid waste issues through educational and information opportunities.

Then objectives to achieve this goal should include:

1. Instruct tribal members regarding the appropriate use of the solid waste and recycling collection system and facilities.
2. Communicate the value and importance of the solid waste management and recycling programs.
3. Serve as an information resource for tribal members regarding waste management and recycling.
4. Promote recycling, reuse, and source reduction.

Strategies from the remaining sections of this Chapter should be used to assist in reaching the stated goal and objectives.

### Step 1: Existing Program

Select the option(s) below that best describes the existing public education and outreach program on your reservation.

#### Option 1--

**There is currently no public education and outreach program.** The reservation does not have a program in place for educating residents, businesses, and visitors about the solid waste management, recycling, or waste reduction programs.

#### Option 2--

**Some public education and outreach program.** No formally established program, but use some outreach methods to educate residents, businesses, and visitors. *[insert methods used]*

#### Option 3--

**Formal public education and outreach program.** The tribe has a formally established program that includes adopted practices with education and outreach by verbal communication, signage, written materials, and community involvement. *[insert methods used]*



## DESIGNING AN EFFECTIVE EDUCATION PROGRAM

Development and implementation of successful solid waste management and recycling programs depends on good public education and community outreach initiatives. Well thought out initiatives can help to generate an understanding, support, and cooperation for the waste management issues and benefit the tribe.

Increased education and outreach to tribal members typically results in higher levels of participation in waste programs and lower levels of contamination of materials and incidents of illegal dumping. Reservations with large fluctuations of visitors are more likely to need continual instruction and education on waste and recycling programs offered; while reservations with relatively few visitors may need instruction and education on an as needed basis.

### Step 1: Identify Target Audiences

Before beginning an education and outreach program, tribes must identify their outreach goals, keeping in mind the overall solid waste management program objectives. For example, if a goal of the tribe is to reduce incidents of illegal dumping on the reservation, objectives might be to: 1) educate tribal members about the causes and effects of illegal dumping; 2) encourage tribal members to change behavior to avoid illegal dumping; and 3) encourage tribal members to report any incidents of illegal dumping that they witness.

Depending on the goals, tribes may need to direct educational messages to any or all of the waste producing tribal population such as schoolchildren, tribal offices, businesses and industries, or other individuals. Some messages may need to reach the people that live off the reservation in the local community.

An example of a target audience is presented below:

- Most illegal dumpsites within the Gila River Indian Community in Arizona are located along the reservation border, indicating that most of the illegal dumpers probably come from outside the community. Armed with this information, the Gila River Department of Environmental Quality designed an outreach campaign that extends beyond the borders of the reservation. Because the counties surrounding the Gila River Indian Community have a large population of Spanish speakers, the Gila River Department of Environmental Quality recognized the need for new “No Illegal Dumping” signs with an international system for “no dumping”.

### Step 2: Select Communication Methods

Once goals and target audiences have been defined, the next step is to determine the specific message(s) tribal educators needs to convey. Though communication channels and specific practices may change depending on the audience, the message should remain consistent. Likewise, repetitively used elements, such as a program logo, color coding, mascots, etc., should be consistent regardless of the media used and the audience when promoting waste management and recycling activities. Questions that may need to be asked before beginning outreach messages are:

- Why educate the tribal community?
- How much does the tribal community need to know?



- Do we need to create incentives or deterrents to encourage tribal members to act appropriately?

### **Means of Communication**

The means of communicating messages vary depending on the message content and the target audience. Five means should be used to deliver messages:

- Verbal (door-to-door campaigns, school outreach)
- Printed Materials (fact sheets, newsletters, articles, flyers, inserts)
- Visual (signage, posters, charts)
- Electronic (websites)
- Special Events (meetings & community gatherings, workshops and training sessions, tribal events)

Consideration should be given to using more than one method of communication to convey information. Outreach messages are more likely to have more impact if they are heard more than once and in more than one way. For example, do an initial outreach campaign using flyers, and then follow up with an article in the tribal newsletter a couple of months later.

### **Verbal Communication--**

Verbal communication is a highly-effective technique because the person delivering the message has a captive audience, can interact with the audience to ensure the message is delivered, and can answer questions posed by the audience. This type of information can give participants performance feedback to create a sense of investment that is important to the program's success. The primary limitation of verbal communication is that the message is conveyed at a fixed point in time and may be quickly forgotten. A further limitation is that verbal communication is labor-intensive compared to other forms of communication.

Verbal presentations to groups should be used when common information is to be conveyed to an audience that can be readily gathered to a common location. Presentations are particularly effective when a large amount of information must be conveyed or when demonstrating an activity best conveys knowledge. Some examples of opportunities for verbal presentations include:

- Door-to-Door Campaigns
- School Outreach

Tribes should include information about waste management issues such as source reduction and reuse, recycling, and proper disposal during these presentations.

### **Door-to-Door Campaigns--**

Door-to-door campaigns are beneficial because tribal educators can talk directly to tribal members and businesses. This is typically more time-consuming and labor intensive than other types of education and outreach options, but it can be invaluable in reaching people, especially in situations where rules or laws have changed, or when there could be resistance to a new program. With door-to-door campaigns, tribal educators can hear directly what issues are important to tribal



members and what questions or concerns they have. An added benefit is that this type of communication enables tribal educators to track every individual that is reached, thereby helping to gauge the program effectiveness.

Examples of this type of communication include:

- The Alabama-Coushatta Tribe of Texas had opened a transfer station and covered all disposal costs for its members as an incentive for proper disposal. But tribal members continued to use burn pits and other illegal disposal methods. Consequently, the tribe's Solid Waste Department conducted an aggressive door-to-door campaign explaining the dangers of illegal dumping and the benefits of using the transfer station. Transfer station use grew as awareness increased.
- The Fond du Lac Band of Chippewa in Minnesota organized a door-to-door mercury thermometer exchange for ninth and tenth graders to teach them about household hazardous waste disposal issues. The students went to private residences with non-mercury thermometers and exchanged them for mercury thermometers.
- Some tribal members of the Onondaga Nation still continued to dump their waste illegally even after education materials of proper placement of waste was distributed. Tribal educators used the door-to-door approach with the few households that refused to recycle and continued to dump illegally. These "one-on-one" household visits were successful in convincing these holdouts to use the nation's transfer station.

### **School Outreach--**

Focusing outreach initiatives at schools helps teach children about effectively managing waste, benefits of recycling, and environmental concerns such as illegal dumping. The hope is that the children will teach their family what they learn in school, take personal responsibility for the waste they generate, and continue to manage waste properly as adults.

Examples of this type of communication include:

- The director of the White Mountain Apache Tribe's Solid Waste Department in Arizona visits area schools to deliver educational programs on waste management issues. Sixth graders learn how to conduct waste assessments; fourth and fifth graders play environmental education games; and the youngest students use coloring books to familiarize themselves with basic waste management concepts.
- The St Regis Mohawk Tribe Environment Division in New York sponsored a series of cartoons, Kwis and Tio: Solid Waste Management on the 'Rez, to increase awareness of proper solid waste management practices and to illustrate how disposal practices impact the environment.
- The Red Lake Band of Chippewa Indians in Minnesota helped students at the tribe's high school produce an educational video on illegal dumping on the reservation. Not only did the students who made the video get to learn first-hand about illegal dumping, but the video served to educate others as well.
- The Fond du Lac Band's Natural Resource Division in Minnesota obtained a resolution from the Reservation Business Committee in support of its illegal dumping prevention



program. The division brought the resolution to the tribe's Ojibwe High School and Fond du Lac Elementary School and asked the schools to participate in an Earth Day cleanup. School administrators and teachers worked with the students to clean up and adopt the road in front of the school.

- The Pawnee Nation in Oklahoma created the Pawnee Environmental Education Center to educate students in tribal and local non-tribal communities about waste management and other environmental issues.

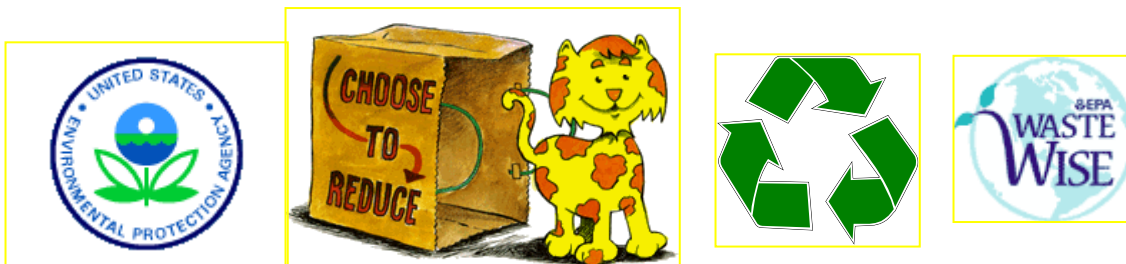
### Print Media--

Solid waste management and recycling images should be used frequently and consistently to help programs develop visibility and identity. Signs, posters, brochures, and other printed materials should be consistent in the use of tribal programs color scheme, logo, or mascot. **Exhibit 6-3** presents some of the EPA's recycling and waste reduction images and logos.

Advantages of using printed materials include the ability to use images (pictures, graphs, charts, and tables) to attract attention and visually convey information. Printed materials can be posted around the reservation and offices, or saved by recipient for future reference. A disadvantage of printed materials is that they are only useful if tribal members take the time to read them.

Posters and bulletin board fact sheets provide short messages. Their purposes are to increase awareness and provide reminders to people. These printed materials should be colorful and contain graphics to attract attention. Posters should present a single thought for maximum impact.

### EXHIBIT 6-3: EPA ENVIRONMENTAL IMAGES AND LOGOS



As with verbal communication, print media can give participants performance feedback to create a sense of investment that is important in a program's success. The allotted space in these print media should be used to present information such as:

- Recycling progress, using a graph or chart depicting tons recycled
- A list of materials accepted for recycling
- Descriptions of end products produced from recycled materials
- Special notices, reminders, tips, or trivia
- Answers to frequently asked recycling, reuse, and source reduction questions
- A telephone number to call for answers to questions



### **Examples of Printed Materials--**

Examples of brochures and fact sheets are presented in Appendix E. Some of these materials were developed by the States of Oregon, Washington, and Idaho, and by tribes for distribution to the general population. These materials are included to illustrate effective marketing communications. Each example conveys a message, including “how to” instructions, with consideration for accuracy and effective use of graphics.

Creating simple messages on printed materials can be a low-cost method of distributing important information to tribal residents and businesses for use as reference material (e.g., materials accepted for recycling, solid waste collection dates and times for facilities, tribal regulations, and special events such as household hazardous waste collection days).

Examples of how this is working include:

- The Resource Management Division of the Fond du Lac Band in Minnesota periodically inserts its Environmental Program Newsletter in the tribal newspaper, to reach a large number of residents at a low cost.
- The San Carlos Apache Tribe Environmental Protection Agency in Arizona mailed a flyer to all tribal members to tell them about the tribe’s new transfer station, its rates, and items it accepts. The head of the agency also writes articles on waste management issues for the local newspaper.
- To educate tribal members about proper waste disposal, the Keweenaw Bay Indian Community in Michigan developed an illegal dumping pamphlet that details the environmental problems associated with illegal dumping and directs residents to proper waste disposal facilities. The tribe distributes the pamphlet in public buildings on the reservation and at public events such as the annual Pow-wow.
- As part of its public outreach efforts, the Solid Waste Department of the White Mountain Apache Tribe of Arizona produced a brochure that includes excerpts from the tribe’s solid waste code, the curbside pickup schedule, a hotline number for reporting illegal dumping, a picture of an illegal dump site, and a reminder list for proper waste disposal. The department distributed a copy to each resident through the reservation’s post office.

### **Signage--**

Signs serve as permanent communication tools to convey information and serve as reminders to people walking or driving past the sign. Signs present concise and clear messages. As with any promotional program, the message and associated colors and logos shall be standardized. Simple pictures, graphics, and clear wording are often an effective way for disseminating information. Signs should be designated to coordinate with existing promotional materials such as fact sheets or brochures and a telephone number should be provided for personnel to call for further information. Ideas for use of signage include:

1. Post signs inside buildings and on designated containers to promote recycling of office paper and cardboard.
2. Place signs around the reservation to aid in preventing or deterring illegal dumping.





3. Post signs at transfer stations and recycling facilities to designate what materials are accepted and where these materials should be placed.
4. Place signs (i.e., adhesive-backed, decal-type, or stenciled letters with paint) on drop-off containers to designate what materials are to be placed or not to be placed into the containers.

An example of how signs can be helpful is presented below:

- The Red Lake Band of Chippewa in Minnesota strategically posted more than 25 “No Dumping” signs at accesses to off-road areas and other potential illegal dumping locations. The signs state that dumping is prohibited and punishable by a fine. They also include the pertinent tribal resolution number. The tribe keeps litter away from the “No Dumping” signs to give the message credence.

### **Electronic--**

The reservation should consider creating a web page or link on the reservation’s website for solid waste management and/or recycling information, including point of contact to obtain additional information. In addition to being available around the clock, it can provide links to other information providers, such as the EPA and the BIA solid waste programs, and a point(s) of contact to obtain additional information.

Examples of this option are included below:

- The Confederate Tribes of the Umatilla Indian Reservation maintains a website which includes a link to new releases on important topics such as burning bans during fire season. To access this website, go to <http://www.umatilla.nsn.us>.
- The St. Regis Mohawk Tribe, Environmental Division website. This website contains access to their Solid Waste Management and Recycling Programs and gives a listing of types of materials accepted in the programs, collection service options, and transfer station information. To access this website, go to: <http://www.srmtenv.org>.
- The Fond du Lac Band of Chippewa, Resource Management Division has links to their various environmental programs including recycling statistics, a question and answer page, their composting program, and many pictures showing the various materials accepted. To access this website, go to <http://www.fdlbez.com>.

It is important to note that a web page or link requires ongoing maintenance and updates to keep the information current and fresh. Information on the web site should be updated, as the program needs change.

### **Special Events--**

Special events offer the opportunity to attract attention and increase awareness of solid waste management and recycling. Promotion of events can help to increase awareness of programs. Two ideas to consider are:



- Displays can show items accepted or not accepted in the Recycling Program, products made from recycled materials, or hazardous waste that must be diverted from the waste stream
- Highly visible recycling collection containers: bring aluminum can or cardboard recycling collection containers and the recycling trailers to event locations

The tribe should plan special education and awareness communications for special events, such as Earth Day in April, America Recycles Day in November, and any special events or Indian Powwows held by the tribe. Plans for such programs and results of the recycling efforts should be announced in print publications.

### **Workshops and Training Sessions--**

An example of a special event may also be in the form of a workshop or training session. These sessions are a valuable way to educate members about a new program, policy, or waste management options. These sessions can provide a hands-on learning experience for participants, as well as an opportunity to ask questions or try out new techniques.

An example of how this is working is presented below:

- The Gila River Indian Community in south-central Arizona held a workshop to educate its target audience- tribal officials and representatives- about the illegal dumping provisions of the tribe's Solid Waste Ordinance and how to enforce it. The workshop was attended by a councilman, the Police Chief and police officers, tribal rangers, a prosecutor from the Law Office, the Chief Judge and Assistant Judge, a livestock officer, and representatives from the Departments of Transportation, Emergency Management, and Public Works. Through the workshop, tribal law enforcement officials saw the benefits of partnering with the community's Department of Environmental Quality on cases involving businesses that were dumping waste illegally. At the close of the workshop, the participants had agreed to coordinate with the tribe's public information office to issue press releases about enforcement actions.

### **Meetings and Community Gatherings--**

Another type of verbal communication is to use tribal meetings and community events as a means of disbursing information. Meetings can allow tribal educators to talk directly with target audiences, offering the benefit of two-way interaction. Events such as a community clean-up or household hazardous waste collection days, or tribal festivals, allow for a fun way to effectively promote messages.

Examples of this type of communication include:

- At community events, the Environmental Office of the Seminole Nation in Oklahoma sets up a booth to distribute educational materials. The director of the Environmental Office also discusses current waste management issues in a weekly tribal radio program.
- The Lac Courte Oreilles Conservation Department of the Lac Courte Oreilles Chippewa Tribe in Wisconsin delivers presentations at the regular Community Circle meetings in each of the tribe's 23 villages.





- The Delaware Nation of Oklahoma’s “Adopt a Highway” program enlists interested tribal community groups and residents in removing trash from an adopted stretch of highway four times each year.

**Exhibit 6-4** presents a comparison of the various methods of public education and outreach. This exhibit may be helpful for tribes in planning the type of method to use as well as how much effort is needed for the various methods. Consideration must be given to the amount of personnel available as well as the budget needs of the programs.





EXHIBIT 6-4: COMPARING TRIBAL OUTREACH METHODS

METHOD	INVESTMENT OF TIME/LABOR	MONETARY COST	EFFECTIVENESS
<b>Signage</b>	<u>Low</u> - Develop message for signs and set up at sites.	<u>Low-Medium</u> - Dependent on the quality of the signs (temporary or permanent).	<u>Low-Medium</u> - Tribal members will have to read and respond to signs.
<b>Inserts/Flyers/Articles</b>	<u>Low</u> - Develop message for flyers and distribute.	<u>Low</u> - Paper, printing or photocopying, labor.	<u>Low-Medium</u> - Message must be compelling to tribal members so they read and remember it.
<b>Door-to-Door Campaigns</b>	<u>Medium-High</u> - Canvassers must dedicate afternoons/evenings over a set period of time to promote message.	<u>Low-Medium</u> - If volunteers agree to canvass, costs will stay down.	<u>Medium-High</u> - Talk to residents one-on-one to address their concerns. Size of audience may be limited.
<b>Outreach to Schools</b>	<u>Medium-High</u> - Dependent on size of event(s), activities planned.	<u>Medium-High</u> - Dependent on size of event(s), activities planned, materials needed.	<u>High</u> - Potentially large audience; reaches children and their families; fun events can help resident find favor with your message.
<b>Meetings and Community Events</b>	<u>Medium-High</u> - Dependent on size of event(s), activities planned.	<u>Medium-High</u> - Dependent on size of event(s), activities planned, materials needed.	<u>High</u> - Potentially large/diverse audience; fun or memorable activities can draw residents to your message.
<b>Workshops/Training</b>	<u>Medium-High</u> - Dependent on size of workshop, training activities planned.	<u>Medium-High</u> - Dependent on size of workshop, training activities planned, materials needed.	<u>High</u> - Provide specific training to audience, address their questions and concerns. Helpful when introducing new programs.

\* Source: Tribal Decisions-Maker's Guide To Solid Waste Management



### Step 3: Measuring Effectiveness

Integral to any information and education program is measurement of its effectiveness. In order to establish whether or not a particular strategy should be used, revised, or eliminated, a means of measuring the effectiveness of the approach shall be developed first. A variety of approaches are available, and the approach shall be chosen based on its ability to fit the approach. Examples are:

- Establish a baseline of the quantities of recyclables collected before implementation of new public education and outreach programs;
- Monitor the quantity of contaminants in solid waste and recycling containers before and after information and education activities are conducted.

Measuring the effectiveness of a tribe's waste management program can help tribal educators decide if there is a need to carry out more education efforts or changes in the educational approach and can also be used as an assessment and planning tool.

Examples of a programs effectiveness is presented below:

- Even after the Fond du Lac Band of Chippewa in Minnesota closed its open dumps and private waste haulers began to service the community, charging reasonable monthly fees for curbside pickup, many residents continued to dump their trash illegally in remote areas and near old open dump sites. One obstacle to program implementation was a lack of awareness among tribal members about the environmental and health effects of illegal dumping. Consequently, the tribe's Resource Management Division distributed illegal dumping information at an annual health fair and other local events and publicized the risks associated with illegal dumping in the tribal newspaper.
- The Alabama-Coushatta Tribe in Texas, for example, determined that it reached 60 percent of the households on the reservation through its door-to-door illegal dumping education campaign. Prior outreach efforts, such as presentations at public meetings, were measured to have lower effectiveness due to poor turnout at these meetings.
- The Pawnee Nation in Oklahoma measured its outreach success by tracking the number of phone calls the Pawnee Environmental Education Center received after it opened. The number of calls to the tribal Department of Environmental Conservation and Safety reporting illegal dumping activities shot up after the center opened. The tribe attributed this to the increased awareness created by the tribe's outreach materials, not an increase in actual incidents.

### Incentives and Deterrents--

A component of measuring program effectiveness is to provide feedback to program participants. Good news reinforces positive feelings about participation. Bad news shall be reported (e.g., recycling material contamination and falling short of recycling goals), followed by suggested corrective actions, so residents will understand the efforts that are needed to improve performance. For example, some tribal educators highlight the endorsement and support they receive from respected tribal officials or elders to increase the credibility of the messages they distribute.





Another example is:

- When leaders from the Tribal Council or Reservation Business Committee deliver messages about proper waste management and respect for the land, they can have a powerful influence on the members, creating an incentive for them to listen to your message. In addition, tribal leaders can ask tribal agencies to get involved, mobilize community support, and leverage funding and other resources.

Incentives can include:

1. Public recognition of waste management “champions”.
2. House recycler of the month.
3. Sharing success stories with the tribal community (i.e., tribal efforts that helped increase recycling rates).
4. Reminding tribal members of the environmental values and ethics that are important to the tribal community (i.e., protecting the Earth).

An example is included below:

- The Red Cliff Tribe in Wisconsin significantly reduced backyard burning on its reservation through a voluntary incentive program that gives residents a chance to turn in their burn barrel and receive \$20 worth of trash bags. The bags encourage tribal members to take their discards to the tribe’s transfer station. When residents turn in their burn barrels, they sign a pledge acknowledging that they understand that burning trash in barrels causes harmful pollution. Program participants receive a certificate, along with 10 free trash bags.

Creating deterrents also helps discourage illegal activities that can harm public health and the environment.

Deterrents can include:

- Publicizing new laws and associated penalties or successful convictions of illegal dumpers.
- Publicizing levied fines for illegal actions.
- Publicizing a person’s name for improper actions.

An example is included below:

- The Seminole Nation in Oklahoma publishes newspaper articles on the consequences of breaking tribal waste management laws, lists the names of the responsible parties, and offers rewards for information leading to convictions.

#### **Step 4: Establish Budgeting and Financing**

Prior to implementing changes or expansions to the solid waste management and/or recycling program(s), the **[insert department of person responsible]** should ensure that material, personnel, and budgetary resources are in place. For example, additional aluminum can or paper receptacles may need to be purchased prior to promoting the creation or expansion of the aluminum can or



paper recycling programs. Examples of low cost options for creating program specific education and outreach tools include:

1. Sponsor a poster contest at the reservation school instead of hiring a graphic designer.
2. Barter with local printer (i.e., free advertisement in lieu of reproduction services).
3. Charge minimal fee for advertisements and use profits from this to pay for reproduction.
4. Distribute materials electronically to offices and residents with e-mail addresses.

### **Current Budget for Public Education and Outreach Programs**

Select the option(s) below that best describes the budgets and financing for the public education and outreach program on your reservation.

#### **Option 1--**

**There is currently no annual budget in place.** The reservation does not have an established budget in place for public education and outreach programs on issues such as solid waste management, recycling, or waste reduction.

#### **Option 2--**

**No dedicated budget, but can obtain some financing when needed.** No formally established budget, but may borrow money from other programs when needed. *[insert times when money was used for program needs and how much money was used]*

#### **Option 3--**

**Annual budget for public education and outreach programs.** A formally established budget of *[insert how much is in money is in budget]* for various methods of communication and special event planning.

**Section 3: Recommendations****Step 1: Required Practices**

Below are examples of required practices tribes may use:

1. Goals and objectives for public education and outreach programs should be designed to address the needs of the tribe and used in long-term planning.
2. Training for waste reduction should be performed at a minimum in tribal offices and businesses.
3. Waste reduction/diversion quantities should be estimated in a straightforward manner to show waste reduction quantities.
4. Methods of communication should be used to convey information to various audiences throughout the reservation. Low-cost alternatives should be considered if budgets cannot support a full-scale outreach program.

**Step 2: Optional Alternatives**

Below are examples of alternatives tribes may want to plan for:

1. Develop a way to measure the success of implementing “new” information and education initiatives.
2. Obtain alternative funding by applying for grants from local municipalities, states, and government agencies.
3. Create a web page or link on the reservation’s website for solid waste management and/or recycling information, including point of contact to obtain additional information.



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# Chapter 7

# Implementation

### Section 1 - Administration

Administration includes the planning, development, contracting, legal, technical, record keeping, staffing, and public education responsibilities that are involved in the management of the tribal solid waste system. The tribal council should assign the primary solid waste administrative function to the solid waste manager and/or recycling coordinator.

#### **Tribal Personnel & Responsibilities**

The roles and responsibilities involved in the administration of solid waste management is diverse and complex, and have grown more so within the past ten years. In addition, roles and responsibilities will grow as programs develop.

***[List the titles and responsibilities of the persons in charge of the solid waste and/or recycling programs.]***

#### **Needs**

With program growth, needs arise for additional funding, staff, and facilities. This section describes any needs the tribe has for the solid waste and recycling programs.

***[Insert needs (if any)]***



**Section 2 - Contractual Services & Agreements**

**Contracted Services & Agreements**

This section describes any contracted services or agreements between a private hauler and the reservation.

***[Insert option listed in Step 1 that best fits your reservation]***

**Contract Surveillance**

Contract surveillance is crucial to making sure the contractor is adhering to the contracts for services performed. This section describes how contract surveillance is performed on the reservation.

***[Insert the option(s) listed in Step 2 that best fits your reservation]***

**Section 3 - Financial Obligations & Funding**

**Funding Assistance**

*[Insert description of any funding the tribe has received, for what project it was used, or any future funding to be pursued or allocated]*

**Funding Opportunities**

*[Insert description of any funding opportunities the tribe is pursuing or intends to pursue]*



**Section 4 - Monitoring & Reporting Practices**

**Program Measurement Reports**

*[Insert description of reporting and record keeping practices, and the persons responsible for their completion]*

**Needs**

*[Insert description of monitoring and reporting practices needs]*



## Instructions for Completing Chapter 7

### INTRODUCTION

The purpose of this Chapter is to help tribes determine roles and responsibilities of tribal personnel in solid waste management and recycling, and identify opportunities for obtaining funding for various solid waste programs.

### SECTION 1: ADMINISTRATION

#### Step 1: Tribal Personnel and Responsibilities

Below are some examples of what to include in the **“Tribal Personnel and Responsibilities”** section. You will need to add information based on your tribal roles.

##### *Tribal Council*

- Budgeting – Prepares an annual budget of anticipated capital and operating expenditures, projects anticipated revenues/losses from disposal fees and grant funds.
- Planning - Arranges for studies and plan development, obtains grants to support planning, contracts for outside services (if needed), assigns staff to the solid waste and recycling committees, represents the tribe to the public, presents planning documents and recommendations to the tribe.
- Financing – Performs rate studies and projections on needed revenues, and applies for available grant funds as appropriate.

##### *Solid Waste Manager*

- Implementation/Development – Arranges for development of new facilities and programs by developing contracts, plans specifications and bid documents, and provides contract management.
- Liaison – Coordinates with the local Health Department on ordinances related to solid waste regulations as necessary to implement the solid waste program. Functions as the clearinghouse for all solid waste issues.
- Operations – Develops, manages, and monitors the contract for the transfer station by private enterprise contractors (as applicable).
- Record Keeping – Tracks the contractor’s operating reports, maintains waste reporting and other databases and reports, maintains the overall expenditure records, and tracks expenditures and revenues.

##### *Recycling Coordinator*

- Record Keeping – Tracks the contractor’s operating reports, maintains waste reporting and other databases and reports, maintains the overall expenditure records, and tracks expenditures and revenues.





- Public Outreach & Education – Prepares and provides public information through local media, workshops and seminars, provides published information on the solid waste system, and is the information center for recycling, hazardous waste, and other waste management issues within the reservation.

### Step 2: Needs

List the needs (if any) for your solid waste program. Needs may be present needs or future needs. Examples are listed below:

- To complete the infrastructure and fully implement waste reduction and source separation, the tribe should proceed to hire and maintain a full time recycling coordinator position.
- As the solid waste program continues to grow, additional staffing and resources may be needed. Additional funding sources will need to be explored in order to finance the additional resources.
- When alternative solutions to the current needs become available, the solid waste program manager will evaluate and make recommendations to the tribal council. Upon approval, these recommendations may become part of this plan.



**SECTION 2: CONTRACTURAL SERVICES and AGREEMENTS**

**Step 1: Services and Agreements**

Select one of the options below that best fits your reservation's assessment.

**Option 1--**

**Do Not Have Contracted Services and Agreements.** The tribe does not use services by outside contractors for waste management services on the reservation.

**Option 2--**

**Have Contracted Services and Agreements.** *[Insert hauler name]* performs *[insert type of service, e.g. hauling, HHW collection, Transfer Station operation]* for the reservation. The contract is renewed *[insert time frame- i.e., annually, 2-years, etc.]*. The cost for the service is *[insert \$ amount]*. Terms of the contract include *[insert terms such as: option years, missed collections, etc.]*.

**Examples of how this option is working are provided below:**

- When the Fond du Lac Band of Chippewa began to close its open dumps, illegal-dumping problems increased. The tribe recognized the need to provide residents with convenient and affordable waste disposal alternatives and allowed private waste haulers to offer curbside collection. Private haulers now pick up waste and carry it off of the reservation. They charge reasonable rates, encouraging proper waste disposal.

**Step 2: Contract Surveillance**

Select the option(s) below that best describes your reservation.

**Option 1--**

**Do Not Have Contracted Services and Agreements, So No Contract Surveillance Needed.** The tribe does not use outside contractors for waste management services on the reservation, therefore, there is no need for contract surveillance.

**Option 2--**

**Use Contract Surveillance.** The *[insert department or person]* oversees and monitors the performance of the *[insert service type]* contract. The contract surveillance representative monitors *[insert activity type under contract, e.g. collection]*. If the contractor is not completing the required services, the representative will notify the contractor of the problem.



**SECTION 3: FINANCIAL OBLIGATIONS and FUNDING****MAJOR PROGRAM COSTS**

The major costs associated with managing solid waste include5:

- Program planning
- Facility design and construction
- Equipment purchases
- Cleanup
- Operation and maintenance
- Personnel training and administration
- Landfill closure and post-closure care.

**Program Planning**

Funding is needed to perform waste audits to identify waste types and volumes, develop integrated solid waste management plans to coordinate and guide solid waste programs, and complete feasibility studies and cost assessments for different waste management options.

**Facility Design and Construction**

Solid waste management facilities can include recycling centers, convenience centers, transfer stations, and landfills. Tribes need funds to hire engineers and architects to design the facility, as well as for new road construction, improvements, and repairs; utility installation (i.e., water, electricity, natural gas); and other construction costs.

**Equipment**

Solid waste management programs and facilities require various types of equipment, such as collection vehicles, roll-off bins, waste compactors, and front-end loaders or bull dozers. Some programs also pay for the individual trashcans and recycling bins that are distributed to residents.

**Operation and Maintenance**

Once your program is in place or your facility begins operations, funds are needed to pay for staff salaries or wages; operation, maintenance, and repair of equipment and facilities; community education and outreach initiatives; and enforcement of codes and ordinances.

**Personnel Training and Administration**

Collection vehicle drivers and facility staff need technical training to operate and maintain equipment. Enforcement officials will need training on proper implementation of tribal codes and ordinances. Environmental staffing might require legal, environmental health, technical, communication and education, grant writing, or financial training.

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## **Cleanup**

Open dump cleanups require a significant amount of funds to plan and complete. Costs include the purchase or rental of roll-off bins or other waste containers, hauling fees, tipping fees at the transfer station or landfill, and labor costs.

### **Step 1: Funding Assistance**

#### **TYPE OF ASSISTANCE AND FUNDING**

There are two primary sources of solid waste funding. Most tribes require a combination of both sources to support their solid waste programs.

- Internal – Types of internal sources may include allocations from the tribal general fund, solid waste service user fees, revenue generated from the sale of recyclable materials, and tipping fees from accepting waste at a transfer station or landfill.
- External – Types of external sources may include grants or loans from state or federal agencies. There are also a number of private organizations that provide grants to Indian tribes for solid waste and other environmental programs. A complete listing of the grant resources and information on how to apply, is contained in the document: [Grant Resources for Solid Waste Activity in Indian Country](#), put out by the USEPA, Office of Solid Waste and Emergency Response.

## **External Funding**

### **State Financial Assistance--**

Each state has many options for seeking financial assistance for solid waste and recycling program uses. Tribes must research their state to find contacts and options that exist.

### **Federal Financial Assistance --**

There are a number of federal agencies that provide funding for tribal solid waste programs. The primary sources include:

- Department of Agriculture (USDA)
- Department of Housing and Urban Development (HUD)
- Department of Health and Human Services (HHS)
- Environmental Protection Agency (USEPA)

Some federal agencies offer financial assistance to tribes for waste management projects. Most of the grants and loans available provide money for planning, outreach and education, construction, or equipment purchase. A few grant programs allow funds to be used for program or facility operation and maintenance.

[Catalogue of Federal Domestic Assistance \(CFDA\)](#) – Database of all federal assistance programs including grants and loan programs. Available to state, local, and tribal governments. After







identifying potential sources of funding through CFDA, tribes should then go directly to the funding agencies for application information. For further information, go to [www.cfda.gov](http://www.cfda.gov).

USDA Rural Development Solid Waste Management Grants – Helps applicants to reduce or eliminate pollution of water resources and improve planning of management of their solid waste sites. For further information, go to <http://www.rurdev.usda.gov>. Interested tribes may submit a pre-application using form SF 424.1, “Application for Federal Assistance (non-construction), between October 1 and December 31, to the USDA Office in your state or the USDA, Rural Development National Office in Washington, D.C.

Bureau of Indian Affairs Guarantee Loans - The program was established by the Indian Financing Act of 1974 to stimulate and increase Indian entrepreneurship and employment through establishment, acquisition or expansion of Indian-owned economic enterprises. Loans may be made to finance Indian-owned businesses organized for profit, provided that eligible Indian ownership constitutes not less than 51 percent of the business. For further information, go to <http://www.doi.gov/bureau-indian-affairs.html>.

Indian Health Services, Tribal Management Grant Program – Assist federally-recognized tribes and tribally-sanctioned Tribal organizations in assuming all or part of existing IHS programs, services, functions, and activities through a Title I contract and to assist established Title I contractors and Title V compactors to further develop and improve their management capability. For further information, go to: <http://www.ihs.gov/NonMedicalPrograms/tmq/index.asp>.

EPA American Indian Environmental Office Grants - Find information on the grant tutorial, headquarters grant application requirements and forms for environmental programs. For further information, go to <http://www.epa.gov/indian/tgrant.htm>.

### **Step 2: Funding Opportunities**

There are many ways to learn about what funding opportunities are available to tribes. A few of the more common methods include:

- Announcements from federal agencies.
- Internet searches.
- Communication with other tribes.
- Communication with regional agency representatives.

### **Announcements from Federal Agencies**

Most federal agencies announce grant and loan availability in the Federal Register and provide information on their websites. Some agencies send out announcements and solicitations for their grant programs. The Interagency Work Group, for example, mails and annual announcement and solicitation for its open dump cleanup grants.

### **Internet Searches**

Many tribes learn about grant programs by conducting simple Internet searches. USDA's Rural





Development grants, for example, are accessible through websites that include descriptions of the grant programs, applications, instructions for applying, and contact information for state and regional representatives.

### **Communication with Other Tribes**

Another way to learn about available grants is by talking with other tribes, either through conversations or networking at conferences and meetings. Conversations with neighboring tribes are a primary source of grant information for some tribes. Sharing information and experiences can be mutually beneficial. Some tribes even exchange successful grant applications to help improve future applications.

### **Communication with Regional Agency Representatives**

Tribes should speak directly with regional agency representatives from EPA, HIS, BIA, USDA, and HUD. Some tribal solid waste managers have noted that this is a crucial part of securing funds for tribes.



**SECTION 4: MONITORING & REPORTING PRACTICES****Step 1: Program Measurement Reports****Waste Quantities Disposed and Recycled**

Tribes should strive to obtain accurate waste disposed quantities for several reasons. With actual disposed data, useful comparisons can be made to quantities recycled. Also, recycled and disposed quantities can be added together to develop overall waste generation rates. Another value of obtaining accurate data is to measure source reduction efforts or the effects of any other waste generation trend.

**Unit Cost Information**

Being about to develop unit costs for solid waste and recycling services contributes to assessing the cost-effectiveness of a program or contract (if used) from one time period to another. Since the number of tribal residents and visitors can fluctuate, waste services should expect to fluctuate. Developing unit costs (i.e., dollars per person per year) can help budgeting and comparisons to prior years of service.

**Collection Container Inventory**

Although service frequency or container location can change, it is helpful to semi-annually conduct an inventory of collection containers for both solid waste and recyclables, including quantity, capacity, frequency of service, condition, and location. Part of this activity should be to spot the containers on a map of the reservation to confirm that the service desired is being provided.

**Step 2: Needs**

What type of needs does the tribe have for improvements to monitoring and record keeping? Examples include:

- A computerized system (database or spreadsheet) for entering data
- Assigning personnel to duty of record keeping
- Enforcement/pursue reporting data from contractors





**APPENDIX A  
FEDERAL GUIDANCE DOCUMENTS RELATING TO  
SOLID WASTE MANAGEMENT ISSUES FOR TRIBAL RESERVATIONS**

GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
<b>Federal Laws</b>	<i>Federal Laws can be found on the following website: <a href="http://www.epa.gov">http://www.epa.gov</a>; click on Laws and Regulations; and click on Major Environmental Laws.</i>	
<b>Resource Conservation and Recovery Act (RCRA)</b>	<p>Enacted in 1976, RCRA is the primary federal law governing solid waste.</p> <ul style="list-style-type: none"> <li>• RCRA addresses the issue of managing and disposing of municipal and industrial waste nationwide.</li> <li>• RCRA establishes federal programs to regulate and manage treatment, storage, transport, and disposal of non-hazardous solid waste and hazardous waste.</li> <li>• Municipal solid waste (MSW) is regulated under Subtitle D of RCRA by technical standards for solid waste management facilities.</li> </ul>	<p>RCRA applies to all Tribal reservations, including ones with established landfills on-site. Tribes may also be held liable for RCRA violations for hazardous waste sites on reservation lands.</p>
	<p>Under Sections 2002, 4004, and 4010 of RCRA, the EPA has the authority to promulgate site-specific rules concerning municipal solid waste landfill (MSWLF) criteria, including small landfill exemptions.</p>	<p>Owners/operators of landfills on Tribal reservations can request design and operating flexibility in states with EPA-approved MSWLF permitting programs.</p>
<b>Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)</b>	<p>Congress enacted CERCLA, also known as the Superfund Law, in 1980. CERCLA provides a broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.</p> <ul style="list-style-type: none"> <li>• CERCLA establishes a ban on and select requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party can be identified.</li> </ul>	<p>Tribal lands that have illegal dumping and hazardous materials disposed of in their municipal solid waste stream can be subject to potential CERCLA risks.</p>



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GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
<p>Waste management practices that directly or indirectly impact groundwater, surface water, and air resources on Tribal lands also can be subject to federal regulatory requirements. In addition to a tribe’s inherent regulatory authority, certain federal regulatory programs, including the Clean Water Act, the Clean Air Act, and the Safe Drinking Water Act also are applicable to tribes.</p>		
<p><b>Clean Water Act (CWA)</b></p>	<p>The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States.</p> <ul style="list-style-type: none"> <li>• It gives EPA the authority to implement pollution control programs such as setting wastewater standards for industry, and has requirements to set water quality standards for all contaminants in surface waters.</li> <li>• The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions.</li> </ul>	<p>To obtain "treatment as state" (TAS) status under the CWA, a tribe must meet criteria reflecting its ability to effectively implement the program.</p>
<p><b>Clean Air Act (CAA)</b></p>	<ul style="list-style-type: none"> <li>• The CAA gives authority to the EPA for setting limits on how much of a pollutant can be in the air anywhere in the United States. This ensures that all Americans have the same basic health and environmental protections.</li> <li>• The law allows individual states to have stronger pollution controls, and take the lead in carrying out the CAA, because pollution control problems often require special understanding of local industries, geography, housing patterns, etc.</li> </ul>	<p>Tribes had limited powers under the CAA. The EPA allows tribes to regulate indirect emissions from sources near the reservation. Tribes having landfills should be concerned with methane emissions.</p>
<p><b>Safe Drinking Water Act (SDWA)</b></p>	<p>Congress originally passed the SDWA in 1974 to protect public health by regulating the nation's public drinking water supply.</p> <ul style="list-style-type: none"> <li>• Amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells.</li> </ul>	<p>Tribes may be treated as states by the EPA to delegate certain program authority if a tribe demonstrates its ability to administer a program effectively.</p>
<p><b>Federal Regulations</b></p>	<p>Federal Regulations can be found at: <a href="http://www.epa.gov">http://www.epa.gov</a>; select “Laws, Regulations &amp; Dockets” and then select “Code of Federal Regulations”.</p>	



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FEDERAL GUIDANCE DOCUMENTS RELATING TO  
SOLID WASTE MANAGEMENT ISSUES FOR TRIBAL RESERVATIONS**

GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
<p><b>40 CFR 243:</b> <i>Guidelines for the Storage &amp; Collection of Residential, Commercial, &amp; Institutional Solid Waste</i></p>	<p>Applicable to the collection of residential, commercial, and institutional solid wastes and street wastes.</p> <ul style="list-style-type: none"> <li>• Recommended for state, interstate, regional, and local governments for use in their activities.</li> <li>• Outline minimum levels of performance required of solid waste collection operations, including solid waste collection containers, types of collection vehicles and associated safety precautions, and frequency of collection to inhibit the propagation or attraction of vectors and the creation of nuisances.</li> </ul>	<p>Tribes should follow guidelines for the storage of solid wastes to avoid health concerns created by animals and unsanitary conditions.</p>
<p><b>40 CFR 257:</b> <i>Criteria for Classification of Solid Waste Disposal Facilities and Practices</i></p>	<p>Establishes regulatory standards to satisfy the minimum national performance criteria for sanitary landfills.</p> <ul style="list-style-type: none"> <li>• Establishes standards for determining whether solid waste disposal facilities and practices may pose adverse effects on human health and the environment.</li> <li>• Governs only those solid waste disposal facilities that do not meet the definition of a MSWLF.</li> </ul>	<p>Tribal facilities failing to satisfy either the criteria in CFR 257 are considered “open dumps”, which are prohibited under Section 4005 of the RCRA.</p>
<p><b>40 CFR 258:</b> <i>Criteria for Municipal Solid Waste Landfills</i></p>	<p>Establishes minimum national criteria under RCRA for protecting human health and the environment, while allowing states/tribes to develop more flexible MSWLF criteria.</p> <ul style="list-style-type: none"> <li>• Applies to owners and operators of new MSWLF units, existing MSWLF units, and lateral expansions, except otherwise noted.</li> </ul>	<p>Indian tribes can maintain lead roles in implementing and enforcing the revised MSWLF criteria through approved state/Tribal permit programs.</p>





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GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
	<p>Subparts D and E exempt certain landfills (Exemptions for Small Landfills) if they meet the following criteria. To qualify, a landfill must:</p> <ul style="list-style-type: none"> <li>• Receives less than 20 tons of waste per day (averaged yearly), receive less than 25 inches of rainfall per year, and have no other practical waste disposal alternative.</li> <li>• Have no evidence of ground-water contamination from the landfill.</li> <li>• Be considered an extremely remote community that has no ready access to other disposal sites for an extended period of time</li> </ul>	
<p><b>40 CFR Parts 260-271:</b> <i>Hazardous Waste Management Guidelines</i></p>	<p>Sets forth rules and identifies solid wastes which are subject to regulation as hazardous wastes and which are subject to the notification requirements in RCRA. Parts 260-271 sets guidelines for:</p> <ul style="list-style-type: none"> <li>• Defines criteria for identifying the characteristics of hazardous waste.</li> <li>• Provides a listing of hazardous wastes.</li> <li>• Establishes standards for generators and persons transporting hazardous wastes.</li> <li>• Establishes minimum national standards for acceptable management practices for owners and operators of all facilities that treat, store, or dispose of hazardous waste.</li> </ul>	<p>In addition to RCRA violations, tribes may also be held liable for 40 CFR Parts 260-271 violations for hazardous waste sites and storage on reservation lands.</p>





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GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
<b>40 CFR Part 273:</b> <i>Standards for Universal Waste Management</i>	Establishes standards for the management of universal wastes (batteries, pesticides, thermostats, and lamps). <ul style="list-style-type: none"> <li>• Reduces the regulatory management requirements</li> <li>• Fosters environmentally sound recycling or disposal practices of these select wastes commonly generated as hazardous wastes.</li> </ul>	Tribes generating universal wastes should comply with storage requirements, but may recycle the materials instead of disposing.
<b>40 CFR Part 279:</b> <i>Standards for the Management of Used Oil</i>	Establishes standards for the generation, transportation, reuse, recycling, and disposal of used oil.	Tribes generating used oil should comply with storage requirements, but may recycle the materials instead of disposing.
<b>Other Legislation</b>		
<b>Public Law 103-399:</b> <i>(The Indian Lands Open Dump Clean Up Act)</i> October 22, 1994	Identifies the location of open dumps on Indian lands. <ul style="list-style-type: none"> <li>• Assesses the relative health and environment hazards posed by those sites</li> <li>• Provides financial and technical assistance to Indian Tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.</li> </ul> For further information, go to: <a href="http://www.ihs.gov">http://www.ihs.gov</a>	







**APPENDIX A  
FEDERAL GUIDANCE DOCUMENTS RELATING TO  
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GUIDANCE DOCUMENT	DESCRIPTION OF DOCUMENT	AFFECTS TO TRIBES
<p><b>Executive Order 13175:</b> <i>Consultation and Coordination With Indian Tribal Governments, November 9, 2000</i></p>	<p>Executive Order (EO) 13175 establishes a working relationship with Indian Tribal governments for the development of regulatory practices on Federal matters that have great impact on their communities.</p> <ul style="list-style-type: none"> <li>• Reduces the burden of unfunded mandates upon Indian Tribal governments and simplifies the process for waivers to Indian Tribal governments.</li> </ul> <p>For further information, go to: <a href="http://www.epa.gov/fedrgstr/eo/eo13175.htm">http://www.epa.gov/fedrgstr/eo/eo13175.htm</a>.</p>	





B

INFORMATION CHECKLIST

CHAPTER/ SECTION	DATA	SOURCE
<b>CHAPTER 2</b>	<b>POPULATION AND HOUSING</b>	
Section 1	<input type="checkbox"/> Existing and projected population	<input type="checkbox"/> Tribal planning office <input type="checkbox"/> BIA <input type="checkbox"/> County <input type="checkbox"/> State Dept of Finance
Section 1	<input type="checkbox"/> Existing and projected residential units and commercial businesses	<input type="checkbox"/> Tribal planning office <input type="checkbox"/> BIA <input type="checkbox"/> County <input type="checkbox"/> State Dept of Finance
Section 2	<b>SOLID WASTE GENERATION</b>	
	<input type="checkbox"/> Quantities of wastes disposed by sector	
	<input type="checkbox"/> Residential	<input type="checkbox"/> Hauler <input type="checkbox"/> Landfill <input type="checkbox"/> State average for per capita waste disposal
	<input type="checkbox"/> Commercial	<input type="checkbox"/> Hauler <input type="checkbox"/> Landfill <input type="checkbox"/> State average for per capita waste disposal
	<input type="checkbox"/> Quantities of wastes recycled	
	<input type="checkbox"/> Residential	<input type="checkbox"/> Hauler <input type="checkbox"/> County solid waste management plan <input type="checkbox"/> State solid waste management reports
	<input type="checkbox"/> Commercial	<input type="checkbox"/> Hauler <input type="checkbox"/> County solid waste management plan <input type="checkbox"/> State solid waste management reports

## APPENDIX B - INFORMATION CHECKLIST



CHAPTER/ SECTION	DATA	SOURCE
	<input type="checkbox"/> Composition of wastes by sector	
	<input type="checkbox"/> Residential	<input type="checkbox"/> County waste characterization study <input type="checkbox"/> State waste characterization study
	<input type="checkbox"/> Commercial	<input type="checkbox"/> County waste characterization study <input type="checkbox"/> State waste characterization study
	<input type="checkbox"/> Other	<input type="checkbox"/> County waste characterization study <input type="checkbox"/> State waste characterization study
<b>CHAPTER 3</b>	<b>SOLID WASTE FACILITIES</b>	
Section 1	<input type="checkbox"/> Existing solid waste service providers names, locations, contracts	<input type="checkbox"/> Contracts/Administration office
Section 2	<input type="checkbox"/> Existing public and private sector solid waste facilities and capacities	<input type="checkbox"/> County solid waste management plan <input type="checkbox"/> State solid waste facility database
Section 3	<input type="checkbox"/> Illegal dumping	<input type="checkbox"/> IHS <input type="checkbox"/> BIA <input type="checkbox"/> USEPA (For Illegal Dumping Economic Assessment model).
Section 4	<input type="checkbox"/> Solid Waste System Needs	<input type="checkbox"/> Tribal solid waste office for costs <input type="checkbox"/> Local haulers <input type="checkbox"/> Tables 3-5; 3-6 of Instructions
<b>CHAPTER 4</b>	<b>RECYCLING PROGRAMS</b>	
Section 1	<input type="checkbox"/> Existing recycling program	<input type="checkbox"/> Recycling Data: Tribal solid waste office or local hauler or recycler <input type="checkbox"/> Disposal Data: Tribal solid waste office; contracted hauler <input type="checkbox"/> Historic recycling data: Tribal solid waste office; contracted hauler or recycler <input type="checkbox"/> Equipment data: Tribal solid waste office (as applicable) <input type="checkbox"/> Recycling material types: Tribal solid waste

**APPENDIX B - INFORMATION CHECKLIST**



CHAPTER/ SECTION	DATA	SOURCE
		office; contracted hauler or recycler
Section 2	<input type="checkbox"/> Future programs	<input type="checkbox"/> Telephone books: Local and regional recyclers; <input type="checkbox"/> Professional organizations: Solid Waste Association of North America (SWANA); Institute of Scrap Recycling Industries; county recycling coordinators; National Recycling Coalition (MRC) <input type="checkbox"/> Global Recycling Network <input type="checkbox"/> The Official Board Market - <a href="http://www.packaging-online.com/paperboardpackaging/">http://www.packaging-online.com/paperboardpackaging/</a> <input type="checkbox"/> Waste News - <a href="http://www.wastenews.com/headlines.html">http://www.wastenews.com/headlines.html</a> <input type="checkbox"/> American Metals Market - <a href="http://www.amm.com/">http://www.amm.com/</a> <input type="checkbox"/> Containers: <a href="http://www.epa.gov/cpg/products/office.htm">www.epa.gov/cpg/products/office.htm</a>
<b>CHAPTER 5</b>	<b>Special Wastes</b>	
Section 2	<input type="checkbox"/> Construction and Demolition Debris	<input type="checkbox"/> Local contractors <input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> Tribal planning office <input type="checkbox"/> Contracted haulers
Section 3	<input type="checkbox"/> Household Hazardous Waste	<input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> County recycling coordinators <input type="checkbox"/> State HHW/Moderate Risk Waste coordinators
Section 4	<input type="checkbox"/> Tires	<input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> County recycling coordinator
<b>CHAPTER 6</b>	<b>Public Education and Outreach</b>	
Section 1	<input type="checkbox"/> Waste Reduction	<input type="checkbox"/> Tribal solid waste office US EPA: <a href="http://www.epa.gov/epaoswer/non-hw/muncpl/sourcred.htm">http://www.epa.gov/epaoswer/non-hw/muncpl/sourcred.htm</a> .

**APPENDIX B - INFORMATION CHECKLIST**



CHAPTER/ SECTION	DATA	SOURCE
		<input type="checkbox"/> County recycling coordinator <input type="checkbox"/> Thrift stores; donation centers
Section 2	<input type="checkbox"/> Public Education and Outreach	<input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> Schools <input type="checkbox"/> Libraries
<b>CHAPTER 7</b>	<b>Implementation</b>	
Section 1	<input type="checkbox"/> Administration	<input type="checkbox"/> Tribal council
Section 2	<input type="checkbox"/> Contracts	<input type="checkbox"/> Tribal solid waste office or tribal administrator
Section 3	<input type="checkbox"/> Funding	<input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> State environmental or solid waste agencies <input type="checkbox"/> Department of Agriculture (USDA) <input type="checkbox"/> Department of Housing and Urban Development (HUD) <input type="checkbox"/> Department of Health and Human Services (HHS) <input type="checkbox"/> Environmental Protection Agency (USEPA)
Section 4	Monitoring and Reporting <input type="checkbox"/> Waste quantities	<input type="checkbox"/> Tribal solid waste office <input type="checkbox"/> Contracted haulers
	<input type="checkbox"/> Container inventory	<input type="checkbox"/> Tribal solid waste office



Appendix C

Recycling Management Plan

Table # - Recycling for Building # (# of square feet)			
Material	Weight (Pounds)	Disposition Recycled or Disposed	Recycle/Disposal Facility
Concrete			Concrete Co.
Blocks and Bricks			Rubble Landfill
Metal Debris			Metal Recycling Co.
Freon			
Bulbs			Bulb Recycling Co.
Ballasts			Bulb Recycling Co.
Smoke Detectors			
Asbestos Floor Tile			Landfill
Demolition Debris			Landfill

Total Debris Generated = \_\_\_\_\_ pounds  
 Amount Recycled = \_\_\_\_\_ pounds  
 Amount Disposed = \_\_\_\_\_ pounds  
 Percentage Recycled = \_\_\_\_\_%

- Cites removal of salvageable materials, but does not provide list of buyers or any evidence of markets for such material.

[Name of company] has been identified as a buyer for the salvageable equipment from the building demolitions. Based on previous experience, purchase of the salvageable equipment will be dependent upon market need at the time of the demolition and the condition of the equipment upon removal. However, the intent is to sell the equipment.





**APPENDIX D**

**EXAMPLES OF PUBLIC EDUCATION AND OUTREACH MATERIALS**

Contact TSWAN for further information

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