# Tribal Solid Waste Program
## Costing Tool


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What to consider when:

- Starting a tribally-operated collection service
- Building a tribally-operated transfer station
- Building a municipal solid waste landfill

# Tribal Solid Waste Program Costing Tool

EPA
United States
Environmental Protection
Agency

# Introduction

Solid waste management issues and programs are diverse among tribes. Some tribes continue to struggle with closing open dumps and implementing basic waste collection, while others are developing programs with composting, recycling and household hazardous waste collection. For tribes just beginning to provide waste collection, the options for doing so can seem daunting. Should the tribe buy collection trucks to collect the waste or will it be more cost-effective to contract waste removal to a local hauler? Should the tribe build a transfer station or continue to haul directly to a landfill? Should the tribe build a landfill? How can the tribe finance the chosen option? To help answer these questions and more, this guide contains workbooks designed to help tribes choose from solid waste options. It also provides case studies from other tribes, tips on how to finance projects, and questions to guide the decision-making process.

## Use of this tool

This tool is intended to help tribal leaders make decisions about solid waste collection and disposal and to determine feasibility for implementing the following programs:

- Tribally-operated collection service
- Tribally-operated transfer station
- Tribally-operated landfill

Detailed information about basic waste collection and disposal options, including setting up curbside collection by an outside hauler, establishing drop-off sites, hauling waste to a transfer station, and hauling waste to a landfill, is available in the Tribal Decision-Maker's Guide to Solid Waste Management (http://www.epa.gov/tribalmsw/resource.htm).

For more information on tribal solid waste programs or help setting up a collection and disposal program, please contact your regional EPA tribal solid waste coordinator: http://www.epa.gov/epaoswer/non-hw/tribal/about.htm

## What is a waste disposal program?

Tribal solid waste programs typically consist of three main components – collection, hauling, and disposal.

Collection is defined as the movement of solid waste from the waste generator (i.e., a household or business) to the next step in the solid waste system such as a transfer station or a landfill. Collection programs typically involve regularly scheduled pick-up routes and include the need for curbside bags, curbside receptacles, and/or dumpsters. In a "self-collection" program, the generator takes his or her waste to the nearest dumpster, transfer station, or final disposal site. Collection may include separating wastes for recycling, composting and/or household hazardous waste collection.

Hauling refers to the movement of solid waste from a place of consolidation, such as a transfer station or a baling facility, to another facility for final disposal. As a general rule, if a tractor-trailer vehicle is required to move the waste to a transfer station, baling facility, or to final disposal, then this is called "hauling." A contractor used to pick up these volumes of waste is also categorized as hauling. "Self hauling" refers to individual generators (i.e., residents or businesses) moving waste from point of generation to point of disposal.

Disposal of solid waste occurs in a municipal solid waste (MSW) landfill. The landfill may be owned or operated by a tribe, local government, or a private entity. Typically, landfills charge tipping fees that are based on the weight or volume of the waste disposed.

# Before you begin…

## Questions to help evaluate your current waste collection and disposal system

These questions are helpful to keep in mind when evaluating your options for waste collection and disposal.

Current Practices

How is solid waste collected currently?

Do 100% of tribal members have access to waste collection?
_____ Yes
_____ No: (___% have access)

Do 100% of tribal members have access to recyclables collection?
_____ Yes
_____ No: (___% have access)

How is waste collection and disposal paid for?
_____% by individual generators (i.e., residents and businesses)
_____% by the tribe
_____ Other: _____

How is household hazardous waste (e.g., paint, solvents, batteries) disposed of?

How are bulky wastes (e.g, mattresses, furniture, electronics) disposed of?

Does the tribe have a solid waste management plan?
_____ Yes
_____ No

Does illegal dumping occur?
_____ Yes
_____ No

Does trash burning occur?
_____ Yes
_____ No

NOTES:

## Questions to help evaluate your current waste collection and disposal system

These questions are helpful to keep in mind when evaluating your options for waste collection and disposal.

Desired Situation

What are the three biggest problems your tribe faces for solid waste management? (For example: only 25% of tribal members have curbside trash collection; no members have access to recycling collection; 75% of members burn trash.)

1) _____
2) _____
3) _____

What are three solid waste goals for your tribe?

(For example: start a recycling program in the next 3 years; stop the practice of residential trash burning; provide waste collection services to 100% of residents.)

1) _____
2) _____
3) _____

If the tribe has one, does the Solid Waste Management Plan include information about current and future plans for waste collection and disposal? Describe:

## Should my tribe start a tribally-operated collection service?

A "tribally-operated collection system" means the tribe owns and operates the collection vehicles and bins, and that tribal staff are responsible for transporting the waste to the transfer station and/or the municipal solid waste landfill. This is an alternative option to contracting waste collection to private operators. This option may be best for tribes in areas where local existing waste haulers are unable or unwilling to collect, or for tribes that create a sufficient volume of waste so that it is economically beneficial to provide tribally-run waste hauling.

Follow these steps, included in the following worksheets, to conduct an economic feasibility study for a tribally-operated collection service:

Step 1: Determine what the tribe currently pays for waste collection

Step 2: Determine what a tribally-owned collection system would cost

Step 3: Include user fees

Step 4: Determine if and when the new collection system would break even with what the tribe pays currently

## More resources on starting a tribally-owned collection service

Tribal Decision-Maker's Guide to Solid Waste Management (PDF)
(http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/trib-dmg.pdf)

• The Tribal Decision Maker's Guide provides an overview of solid waste management, which covers solid waste planning, regulations, collection, disposal, recycling, education, and more. It includes over 40 case studies and examples from tribes who are leaders in solid waste management, as well as a substantial list of resources at the end of each chapter.

Training and Technical Assistance Directory for Tribal Solid Waste Managers (PDF)
(http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/training.pdf)

• To help meet tribal needs for training and technical assistance, EPA has compiled a listing of potential sources of support for tribal municipal solid waste management efforts. It includes stand-alone programs and partnerships between tribes, states, and local communities.

Partnerships in Solid Waste Management (PDF)
(http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/partner.pdf)

• This tip sheet discusses working in partnership with other tribes, states, or local governments to address solid waste issues. The document provides a list of other partnership resources and a case study describing the partnership of the Eastern Band of Cherokee Indians with Swain County, North Carolina.

Recycling Guide for Native American Nations
(http://www.epa.gov/tribalmsw/ntverecy.htm)

• This EPA brochure provides useful information for tribes interested in developing recycling programs. Topics include setting up a recycling program (collecting materials, staffing, educating the community, and reducing waste), creating recycling jobs, and buying recycled products.

## Examples of tribally-run collection systems

### Example 1: Local waste hauler unwilling to pickup on tribal land

The local waste hauler near the Pit River Tribe was unwilling to provide service to many of the Tribe's remote areas. As a result, tribal members were left to haul their own waste to a far off transfer station and open dumping on the Tribe's land was common. To address these problems, the Tribe decided to take on the task of providing garbage and recycling service to their tribal members. Funded with a grant from USDA and EPA (http://www.epa.gov/tribalmsw/finance.htm) the Pit River Tribe hired a solid waste coordinator and technician, purchased a collection vehicle and bins, and established the Pit River Solid Waste and Recycling service. The Tribe established a drop-off recycling center that accepts electronic waste, recyclables, and reusable materials, a car crushing operation, and a "pay-as-you-throw" collection program. In order to gain acceptance for the "pay-as-you-throw" program, the Tribe implemented the program incrementally, starting it as a free service then gradually introducing fees. After two years of operation, the program has successfully provided service to low-income rural tribal members who were previously without service. In order to bring the program closer to sustainability, the Tribe gained generous support from their Tribal Council, and found creative ways to generate additional program income by renting out their collection vehicle and roll-off bins for a fee. The program provides tribal members with a consistent service, and open dumping and burning on the Tribe's land has been greatly reduced.

For more information about the Pit River Tribe's program, contact:
The Pit River Solid Waste and Recycling at (530) 335-4516

### Example 2: Volume of waste makes tribally-run program economically feasible

The Tohono O'odham Nation consists of 65 communities covering 2.84 million acres. In 1997, to combat illegal dumping and burning on the Tribe's land, the Nation's Legislative Council adopted the Tohono O'odham Solid Waste Management Plan and Solid Waste Code. The Solid Waste Management Plan called for the establishment of a tribally-operated waste collection system, funded by user fees, grant money, and gaming dollars.

The program has expanded and improved each year and serves as a model program with weekly pickups, a comprehensive recycling and HHW collection program, and an active open dump cleanup and enforcement program. Weekly, three front loader compactor trucks drive nine collection routes covering the 65 communities of the Nation. The routes include pickup at 750 waste bins (a combination of 4- and 6- cubic yard bins). The solid waste is taken to a tribally-owned transfer station and recycling yard in the Nation's capital of Sells, Arizona to be consolidated before transportation to the City of Tucson's landfill for disposal. Monthly, 600 tons of solid waste and 50 tons of recyclables are transported to Tucson by the Tohono O'odham Nation's collection program. In addition to waste collection, the Tribe has an office paper and cardboard recycling program, a household hazardous waste collection program, and a scrap metal and junk vehicle abatement program.

For more information about the Tohono O'odham Nation's program, contact the Tohono O'odham Nation's Solid Waste Management Office at (520) 383-4767.

Step 1: Determine what the tribe currently pays for waste collection

These calculations only include costs that the tribal government currently pays for rather than what residents, businesses, or other generators may be paying for.

| Information needed | |
|---|---|
| A) Number of tribal households or residential units within the service area | Households |
| B) Current waste hauling/ disposal cost to the tribal government per household | $/Month |
| C) Number of offices, businesses, and government facilities (such as schools and hospitals) within the service area | Offices/Businesses |
| D) Current waste hauling/ disposal cost to the tribal government per business | $/Month |
| G) Total yearly cost of current system to the tribe | $/Year |

If all residents and businesses pay for their own waste collection, this cost will be zero.

12*( __ * __ + __ * __ )
A B C D

OR

| | |
|---|---|
| E) Approximate number of tons per day disposed | Tons |
| F) Hauling/disposal cost per ton to the tribal government | $/Ton |
| G) Total yearly cost of current system to the tribe | $/Year |

Average solid waste generation is 4.5 lbs/capita/day.
1 ton = 2000 pounds)

(_____ * _____) / 2000
# of residents * solid waste generation

365 * __ * __
E F

NOTES:

Step 2: Determine what a tribally-owned collection system would cost

These calculations only include the costs that the tribal government will pay for. However, when considering who will use the new collection service, you may want to account for residents who previously paid for their own collection services.

| Information needed<br>Initial costs may include any or all of the following:<br>Mark NA for items not needed | |
|---|---|
| H) Number of curbside bins needed | Bins |
| I) Cost per curbside bin | $/Bin |
| J) Number of community dumpsters or roll-off bins needed | Dumpsters or Roll-Off Bins |
| K) Cost per community dumpster or roll-off bin | $/Dumpster or Roll-Off Bin |
| L) Number of additional collection vehicles needed | Vehicles |
| M) Cost per collection vehicle | $/Vehicle |
| N) Other equipment or overhead costs (include costs of planning as well as hiring and training staff) | $/Year |
| O) Total initial cost | $ |

Curbside bin

Roll-off bin to purchase:
20 cy ~ $3.5k
40 cy ~ $4.2k

Other equipment and overhead costs are:

( __ * __ ) + ( __ * __ ) + ( __ * __ ) + __
H I J K L M N

Step 2 continued: Determine what a tribally-owned collection system would cost

These calculations only include costs that the tribal government will pay for. However, when considering who will use the new collection service, you may want to account for residents who previously paid for their own collection services.

## Information needed: Calculating yearly operating costs

| | |
|---|---|
| P) Miles collection vehicle will travel per week | Miles/Week |
| Q) Cost of gas per mile | $/Mile |
| R) Cost of maintenance, repairs and insurance per mile | $/Mile |
| S) Contingency cost per year | $/Year |
| T) Administrative staff hours needed per week | Hours /Week |
| U) Cost per hour administrative staff time | $/Hour* |
| V) Solid waste technician/hauler hours needed per week | Hours/Week |
| W) Cost per hour solid waste technician/hauler | $/Hour* |
| X) Tipping fee per month | $/Month |
| Y) Other costs per year (include any annual capital costs related to depreciation of vehicles and equipment, and any state taxes for road use) | $/Year |
| Z) Total cost per year | $/Year |

Cost of gas per mile =
Cost of gas per gallon /
Gas mileage of vehicle (in miles per gallon)

Cost of maintenance per mile =
Yearly maintenance costs /
Number of miles traveled a year
(52*P)

Contingency should be budgeted in to the yearly operating costs to prevent cost overrun from unexpected changes or setbacks in the project. Contingency costs should include at a minimum:

- Replacement costs for equipment
- Contamination cleanup*

*Note that if you are disposing of waste off reservation, the landfill or final disposal site maintains records of who hauled there and in what quantities. If there is ever a need for reclamation or clean up, the tribe can be billed for a portion of waste dumped there over the life of the contract.

Remember to include the cost of both salary and benefits when calculating staff costs.

Tipping fee per month = tons of waste collected per month* tipping fee per ton at the transfer station or landfill.

Other costs per year might be:

Annual capital costs for items such as curbside bins (5-year average life expectancy), roll-off containers (10-year life expectancy), and collection trucks (150,000 miles life expectancy

Total costs per year: 52 *( ( __ * __ + ___* __ ) + ( __ * __+ __* __ ) ) + __ + __*12 + __
P Q P R T U V W S X Y

Step 3: Include user fees

Use your calculations from the previous pages. You may want to charge users a monthly fee for collection service, or charge per bag of garbage ("pay-as-you-throw") in order to recoup costs. Setting fees will depend on both the cost of service and the willingness and ability for residents to pay

| Information needed | |
|---|---|
| a) Fee charged to households for use (if any) | $/Month |
| b) Fee charged to tribal businesses for use (if any) | $/Month |
| c) Revenue, if any, from recyclables collection | $/Month |
| d) Total yearly revenue from collection program | $/Year |

If you choose to start a "pay-as-you-throw" program, and charge per bag, the monthly fee would be =

Price per bag * average number of bags used per month by residents/businesses

12*(__ * __+ __ * __ + __)
a A b C c

A=# of residences from page 6
B=# tribal business from page 6
OR A&B can reflect the number of residences and businesses expected to use the new program.

Step 4: Determine if/when the new collection system will"break even" with what the tribe pays currently

Use your calculations from the previous pages.

Payback period with no fee charged and no recycling revenue:

$$\frac{O / (G - Z)}{}$$

= payback time in years

If you get a negative number, it means that the new system will ultimately be more expensive than the current system, unless you are able to decrease costs or include fees for service.

Payback period with fee charged and recycling revenue:

$$\frac{O / (d+G - Z)}{}$$

= payback time in years

NOTES:

## Breaking even: funding your program and decreasing your costs

### Funding Your Program

Most tribes pay for their solid waste programs with a mixture of grants, general funds, and direct fees charged to generators/users. Grants can often be used for planning, development, and start-up costs, which can include capital equipment costs, but can not often be used to pay for operation and maintenance of the program. Clearly defining your expenses will make it possible to identify funding sources that are politically and financially sustainable.

**Grants** Federal grants can sometimes be used to fund certain capital costs associated with your solid waste program. Operation and maintenance costs are typically not covered.

| Capital Costs Covered By Federal Grants | Operation and Maintenance Costs Not Covered By Federal Grants |
|---|---|
| Training, technical assistance, heavy equipment (Indian Health Service)<br><br>Development of community solid waste activities (Housing and Urban Development Community Development Block Grants)<br><br>Heavy equipment, technical assistance, training (USDA Rural Development)<br><br>Personnel for a pilot collection program, small equipment and supplies, vehicles, technical assistance, public outreach (EPA) | Fuel<br><br>Tipping fees<br><br>Bin replacement (depends on situation)<br><br>Vehicle repair and replacement (depends on situation)<br><br>Salaries for solid waste technicians and administrative staff past the pilot phase of the project |

**Fees** The best way to make sure your solid waste program runs sustainably is direct fees charged to generators for pickup, drop-off, hauling, or disposal services — whether with a tribally-run program or with the use of contractors. Fees for residents can be collected through utilities billing, pay-as-you-throw or housing rental payments. Fees for businesses can be negotiated as part of the lease agreement and/or billed directly. Universal participation by all generators can be an issue if participation is voluntary.

**General Fund** Participation can be increased if a tribe's general fund or gaming revenues are used to pay for trash service. Although it is generally a large and readily available source of money, solid waste must compete with other tribal needs and many tribes and native villages find it difficult to fund this large operation and maintenance budget item.

### Sources of Equipment

General Services Administration (GSA) GSAXcess® allows tribes seeking property to avoid the cost of new procurements by acquiring the same or like items that have been reported as excess by another federal activity. More information is available at: http://www.gsa.gov/gsaxcess

Materials exchange: You may be able to find free materials and equipment on materials exchange web sites such as Freecycle. More information on Freecycle: http://www.freecycle.org/
Some states host their own materials exchange web sites.
Arkansas: E-match: http://www.1800arkansas.com/energy/index.cfm?page=industrial_ematch2
California: California Materials Exchange (CalMax): http://www.ciwmb.ca.gov/calmax
Florida: Southern Waste Information Exchange: http://wastexchange.org/

Georgia: Enviroshare Waste Information Exchange: http://www.enviroshare.org
Indiana: Indiana Materials Exchange: http://www.in.gov/idem/
Illinois: Industrial Material Exchange Service: http://www.epa.state.il.us/land/imes/
Iowa: Iowa Waste Exchange/Recycle Iowa: http://www.recycleiowa.org/exchange.htm
Kentucky: Kentucky Materials Exchange: http://www.kppc.org/KIME/
Minnesota: Minnesota Materials Exchange Alliance: http://www.mnexchange.org/
Montana: Montana Material Exchange: http://www.montana.edu/mme/
New Hampshire: New Hampshire Materials Exchange: http://www.wastecapnh.org/nhme/
New York: Wa$teMatch: http://www.wastematch.org
Ohio: Ohio Materials Exchange: http://www.epa.state.oh.us/opp/omex/omex.html
Oklahoma: Oklahoma Materials Exchange (OKMAX): http://www.deq.state.ok.us/csdnew/wasteex/OKmax.htm
Tennessee: Tennessee Materials Exchange: http://www.cis.utk.edu/TME/
Texas: Renew: http://www.renewtx.org
Vermont: Vermont Business Materials Exchange: http://www.vbmex.net/
Washington: 2Good2Toss: http://www.2good2toss.com/
West Virginia: West Virginia Materials Exchange: http://www.state.wv.us/swmb/exchange/
Wisconsin: Business Material Exchange of Wisconsin: http://www.bmex.org

## Tribal Example

When the City of Folsom, California, mandated that their garbage service provide smaller bins, the city was left with hundreds of 90-gallon roll-off bins and no use for them. The Pit River Tribe saw the bins posted for free pickup on CalMax and realized they could use them. The Tribe picked up about 100 of the bins, valued at about $100 each, set aside some of the bins for their senior complex and plans to sell the rest to Tribal members for $25 each. The revenue will be used to supplement the Tribe's solid waste and recycling program.

Share with other tribal programs: The tribe may already have some of the needed equipment within another tribal program. Check with other tribal programs such as housing or public works to see what might be available.

## Decreasing Your Costs

**Outreach** Decrease the cost of waste hauling and disposal by encouraging waste reduction to your community. Start by researching and understanding your community's values and identifying barriers which may trigger specific behaviors that contribute to increased waste generation. The tribe should invest the time, money, and effort to understand these barriers first in order to create incentives that embrace peoples' values and change these specific behaviors, to reduce waste generation in the long run. Outreach may include distributing printed materials to each household and business, making radio or TV public service announcements, publishing articles in a tribal newsletter or paper, giving presentations to local schools, and hosting information booths at tribal events.

**Include Recycling** Adding recycling to your waste collection program may increase some hauling costs and staff time. However, you may find significant savings in tipping fees. To incorporate the costs from adding recycling as part of your collection program, fill out steps 2-4 on the worksheets on the previous pages and include costs and savings for collecting recyclables. Check with your local transfer station and/or recycling center to see what recyclables they accept and what they charge/pay for them. In states with bottle bills, such as California, Oregon, Iowa, and New York, beverage containers have value and can be redeemed for profit. Tribes in bottle bill states should consider this additional potential revenue stream when starting a tribally-operated collection service.

**Consider Partial Collection** It may not be economically feasible to collect from all residents and businesses. Evaluate the costs of your program if you have a limited collection program. You may also want to evaluate what types of waste you will exclude from collection and how these wastes will be collected. For example, you may want to exclude large bulky items such as mattresses and refrigerators from your collection program but provide a drop-off location for residents to take these items.

**Accounting for money saved** Your collection program may lead to a decrease in open dumping. You may want to include potential cost savings from decreased open dump cleanups when evaluating your program. EPA Region 5 has created the IDEA (Illegal Dumping Economic Assessment) Cost Estimating Model, a useful tool for assessing and measuring the costs of illegal dumping activities. It has the ability to model the costs of cleanup activities for a single illegal dump site, specific groups of sites, or all of the illegal dump sites on a reservation. The IDEA model's other functions include the ability to:

- Conduct cost analyses for different cleanup methods, equipment investments, and other illegal dumping-related activities
- Assess indirect costs of surveillance and prevention activities
- Compile actual cleanup and enforcement costs

For more information on the IDEA Model visit: http://www.epa.gov/region5/illegaldumping

## An example of including cost savings from decreased open dumping:

Open dumping cleanup costs to tribe each year: $100,000
Expected decrease in open dumping due to the new collection program: 25% reduction
Total savings: $25,000

Total cost of the collection program = cost of program - amount saved from open dump cleanups

NOTES AND CALCULATIONS:

Current tribally-owned equipment:_____

Free equipment might be obtained from:_____

_____

Types of waste my collection program will accept:_____

Types of waste my collection program will not accept:_____

How wastes that my collection program will not accept will be collected:_____

_____

Grants I should apply for: _____

_____

Current personnel available: _____

_____

Training needed: _____

Notes: _____

_____

_____

_____

## Should my tribe start a tribally-operated transfer station?

A waste transfer station is a facility where waste is consolidated from multiple collection vehicles into larger volume transfer vehicles for more economical transportation to distant disposal sites. A transfer station can also be a place where residents come to drop off their household waste. A "tribally-operated transfer station" means that the tribe owns and operates a transfer station on tribal land. This option may work best for tribes facing long hauling distances to a final disposal site, for tribes handling large volumes of waste, or for tribes servicing multiple collectors.

## Is a transfer station right for my community?

Whether a transfer station is right for your tribe depends on the transfer station's ability to coordinate with the rest of the community's solid waste system. Costs associated with planning, siting, designing, and operating the facility are also key considerations. Decision-makers need to weigh those costs against savings the station might generate from reduced hauling costs. Other factors to consider when deciding to build a transfer station include whether the project has the support of the tribal community, if a suitable site exists on which to build the transfer station, and what impacts the transfer station might have on the surrounding community and environment.

## Will building a transfer station be economically feasible for my tribe?

Tribal transfer stations range in size and cost from small sites with a roll-off bin or two costing less than $50,000 to construct, to large, multi-million dollar facilities that require heavy machinery, such as compactors, to operate. For more information about what size transfer station might be right for your tribe, as well as how to get cost estimates for construction, see Against All Odds: Transfer Station Triumphs (EPA Tribal Waste Journal) (available at: http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/twj-2.pdf).

To conduct an economic feasibility study for a tribally-operated transfer station, follow these steps, included in the following worksheets:

Step 1: Determine what the tribe currently pays for waste collection
Step 2: Determine what a tribally-owned transfer station would cost to construct and operate
Step 3: Include user fees
Step 4: Determine if/when building a transfer station will "break even" with what the tribe pays currently
Step 5: Determine if building a transfer station is cost effective based on the distances traveled.

## Regulations regarding transfer stations on tribal land

No federal regulations exist that are specifically applicable to transfer stations. State laws may apply to the waste transfer trucks once they leave the reservation. Check with your state to see what may apply. Your tribe may have zoning or other regulations that apply. There are many best management practices that should be incorporated into the planning, construction, and operation of a transfer station. A description of best management practices can be found in Waste Transfer Stations: A Manual for Decision-Making (available at: http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/r02002.pdf).

## More resources on planning, designing and operating a transfer station

Waste Transfer Stations: A Manual for Decision-Making
(http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/r02002.pdf)

- Defines what a transfer station is and how it relates to municipal solid waste management in the context of a community's total waste management plan. The manual identifies issues and factors to consider when deciding to build a transfer station, planning and designing it, selecting a site, and involving the community.

Against All Odds: Transfer Station Triumphs (Tribal Waste Journal)
(http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/twj-2.pdf)

- Provides case studies on tribal transfer stations from across the US.

Waste Transfer Stations: Involved Citizens Make the Difference
(http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/wtsguide.pdf)

- Contains information on what role transfer stations play in the community, how they might impact the community, and how concerned citizens can participate in the decisions concerning their location and operation.

Tribal Decision-Maker's Guide to Solid Waste Management: Chapter 4
(http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/trib-dmg.pdf)

- The Tribal Decision Maker's Guide provides an overview of solid waste management, covering solid waste planning, regulations, collection, disposal, recycling, education, and more. It includes over 40 case studies and examples from tribes who are leaders in solid waste management, as well as a substantial list of resources at the end of each chapter.

## Examples of tribally-run transfer stations

### Tule River

When the Tule River Tribe closed its five open dumps in the early 1990s, the Tribe knew that another waste disposal option would have to be provided to its more than 800 tribal members. The Tribe first provided 30-cubic yard roll-off containers for trash disposal. These containers, however, proved difficult to use for some community members because they had to throw trash up and over the edges of the 6-foot high containers. As a result, trash often ended up around the bins instead of in them, giving dogs and other stray animals easy access to the trash.

Based on the recommendations and cost analyses in their Solid Waste Management Plan, the Tribe decided that a transfer station offered the best solution. The transfer station was built by Indian Health Services with funds through the Division of Sanitation Facilities Construction program ($45,000) and from US Department of Housing and Urban Development ($96,000). Tule River Indian Tribal Public Works contributed by preparing the site prior to construction.

The transfer station is free to all tribal and community members and tribal businesses. Residential waste collection service is not currently available on the reservation, so residents must self-haul their waste to the transfer station. The station is a paved, open-air, multi-level facility and is totally enclosed with a chain link fence and three locking gates. The waste tipping area consists of two 30-cubic yard roll-off bins situated in an excavated area, which allows tribal members to back up their vehicles and dump their waste directly into the bins. A ramp gives transfer vehicles access to the bins, and allows the bins to be removed and replaced when full.

The station also has three recycling bins for glass, plastic, and cardboard and three overflow/storage bins for storing recyclables when the receiving bins are full. In addition to household waste and recyclables, the transfer station accepts refrigerators, used tires, and office paper from the tribe's administrative offices. Used tires are stacked neatly and taken to a recycling facility at least every six weeks. The tribe also pays a licensed contractor to remove hazardous fluids, such as Freon and oils, from old refrigerators and appliances brought to the transfer station.

For more information on Tule River's Transfer Station, contact the Tule River Environmental Office at (559) 781-4271.

## La Jolla Transfer Station

The 480-member La Jolla Tribe in Southern California secured funding from the United States Department of Agriculture Rural Development (USDA RD) to build a solid waste transfer station on the reservation. Before the transfer station existed, residents had to travel over 25 miles to a nearby town to haul their recyclables and trash. The long distance gave residents little economic incentive to recycle or to properly dispose of their waste.
To address the problem, the Tribe constructed a transfer station near the tribal offices and opens it on weekends for tribal residents. The transfer station collects trash, white goods, electronics, and recyclables. Residents transport their trash to the transfer station where waste is collected and transported by the local disposal company to the Ramona Transfer Station and ultimately to the Ramona landfill.

Source reduction and recycling play an integral role in the Tribe's integrated waste management program. By practicing environmental preferable purchasing and implementing a recycling program for their tribal offices, the Tribe has minimized the recyclable material that has gone into the waste stream and ultimately decreased what materials end up in landfills. Future plans include expanding the recycling program and piloting a household hazardous waste collection program.

For more information on La Jolla's Transfer Station, contact:
The La Jolla Tribal Environmental Office at (760) 742-3790.

NOTES:

Step 1: Determine what the tribe currently pays for waste collection

These calculations only include costs that the tribal government currently pays for rather than what residents, businesses, or other generators may be paying for. This information is the same as on Page 6.

| Information needed | |
|---|---|
| A) Number of tribal households or residential units within the service area | Households |
| B) Current waste hauling/ disposal cost to the tribal government per household | $/Month |
| C) Number of offices, businesses, and government facilities (such as schools and hospitals) within the service area | Offices/Businesses |
| D) Current waste hauling/ disposal cost to the tribal government per business | $/Month |
| G) Total yearly cost of current system to the tribe | $/Year |

If all residents and businesses pay for their own waste collection this cost will be zero.

12*( __ * __ + __ * __ )
A B C D

OR

| | |
|---|---|
| E) Approximate number tons per day disposed | Tons |
| F) Hauling/disposal cost per ton to the tribal government | $/Ton |
| G) Total yearly cost of current system to the tribe | $/Year |

Average solid waste generation is 4.5 lbs/capita/day.
1 ton = 2000 pounds)

(_____ * _____) / 2000
# of residents * solid waste generation

365 * __ * __
E F

Step 2: Determine what a tribally-owned transfer station would cost

These calculations only include costs that the tribal government will pay for. However, when considering who will use the new collection service, you may want to account for residents who previously paid for their own collection and disposal services.

Option 1: Tribal hauling — tribe owns roll-off bins and self hauls to final disposal site

| Information needed | |
|---|---|
| H) Initial Costs: Cost to plan, design, and construct the transfer station and hire and train staff to run it | $ |
| I) Landfill tipping fee per ton | $/Ton |
| J) Miles collection vehicle will travel per week | Miles/Week |
| K) Cost of gas per mile | $/Mile |
| L) Cost of maintenance, repairs and insurance per mile | $/Mile |
| M) Contingency cost per year | $ |
| N) Administrative staff hours needed per week | Hours/Week |
| O) Cost per hour administrative staff time | $/Hour* |
| P) Solid waste technician/hauler hours needed per week | Hours/Week |
| Q) Cost per hour solid waste technician/hauler | $/Hour* |
| R) Other costs per year (include any annual capital costs related to depreciation of vehicles and equipment, and any state taxes for road use) | $/Year |
| Z) Total yearly operating costs | $/Year |

Transfer station construction costs can range from a few thousand dollars to more than $1,000,000. See Chapter 4 of the Tribal Decision Makers Guide to Solid Waste Management for more details on how to estimate design and construction costs.

Cost of gas per mile =
Cost of gas per gallon /
Gas mileage of vehicle (in miles per gallon)

Cost of maintenance per mile =
Yearly maintenance costs /
Number of miles traveled a year (52*J)

Contingency should be budgeted in to the yearly operating costs to prevent cost overrun from unexpected changes or setbacks in the project. Contingency costs should include at a minimum:
- Replacement costs for equipment
- Closure and post-closure monitoring
- Expansion of facilities
- Contamination cleanup*

* Note that if you are disposing of waste off reservation, the landfill or final disposal site maintains records of who hauled there and in what quantities. If there is ever a need for reclamation or clean up, the tribe can be billed for a portion of waste dumped there over the life of the contract.

*Remember to include the cost of both salary and benefits when calculating staff costs.

Other costs per year might be:
Annual capital costs for items such as curbside bins (5-year average life expectancy), roll-off containers (10-year life expectancy), and collection trucks (150,000 miles life expectancy)

Total yearly operating costs = ( ___*___ * 365 ) + ( 52 *___* ( ___+___ ) )+ ___+ 52 * ( ___*___ + ___*___ ) + ___
I E J K L M N O P Q R

Step 2 continued: Determine what a tribally-owned transfer station would cost

These calculations only include costs that the tribal government will pay for. However, when considering who will use the new collection service, you may want to account for residents who previously paid for their own collection services.

Option 2: Contract hauling — tribe contracts for hauling to and disposal at the landfill.

| Information needed | |
|---|---|
| H) Initial Costs: Cost to plan, design, and construct the transfer station and hire and train staff to run it | $ |
| S) Cost of contract hauling and disposal per month | $/Month |
| T) Administrative staff hours needed per week | Hours /Week |
| U) Cost per hour administrative staff time | $/Hour |
| V) Solid waste technician hours needed per week | Hours /Week |
| W) Cost per hour solid waste technician | $/Hour |
| X) Contingency costs | $/Year |
| Y) Other costs per year | $/Year |
| Z) Total yearly operating costs | $ |
| Z) Total cost per year | $/Year |

Transfer station construction costs can range from a few thousand dollars to more than $1,000,000. See Chapter 4 of the Tribal Decision Makers Guide to Solid Waste Management for more details.

*Remember to include the cost of both salary and benefits when calculating staff costs.

Contingency should be budgeted in to the yearly operating costs to prevent cost overrun from unexpected changes or setbacks in the project. Contingency costs should include at a minimum:
- Replacement costs for equipment
- Closure and post-closure monitoring
- Expansion of facilities
- Contamination cleanup*

* Note that if you are disposing of waste off reservation, the landfill or final disposal site maintains records of who hauled there and in what quantities. If there is ever a need for reclamation or clean up, the tribe can be billed for a portion of waste dumped there over the life of the contract.

Other costs per year might be:

Total yearly operating costs = 12*___ + 52 * ( ___*___+___*___ ) +___+___
S T U V W X Y

Step 3: Include user fees and recycling revenue

You may want to charge users a monthly fee for collection service, charge per bag of garbage, charge per ton of waste, or charge by type of waste, in order to recoup your costs. Setting fees will depend on both the cost of service and the willingness and ability for residents to pay.

| Information needed | | |
|---|---|---|
| a) Fee charged to users of the transfer station (if any) | $/Month | If you choose to charge per bag or per ton, the monthly fee would be = Price per bag or ton * average number of bags or tons used per month by residents/businesses |
| b) Yearly revenue from selling recyclable material | $/Year | 12*__* ( __+__ ) + __<br>a A C b<br>A=# of residences from page 6<br>B=# tribal business from page 6<br>OR A&B can reflect the number of residences and businesses expected to use the new program. |
| c) Total yearly revenue from collection program | $/Year | |

Step 4: Determine if/when building a transfer station will "break even" with what the tribe pays currently

Use your calculations from the previous pages.

Payback period, not including any revenue:

$$\frac{H / (G - Z)}{}$$

= payback time in years

If you get a negative number, it means that the system will ultimately be more expensive than the current system, unless you are able to decrease costs, market recyclables, or charge fees for service.

Payback period including revenue:

$$\frac{H / (c + G - Z)}{}$$

= payback time in years

Step 5: Determine if building a transfer station will be cost effective based on the distances traveled.

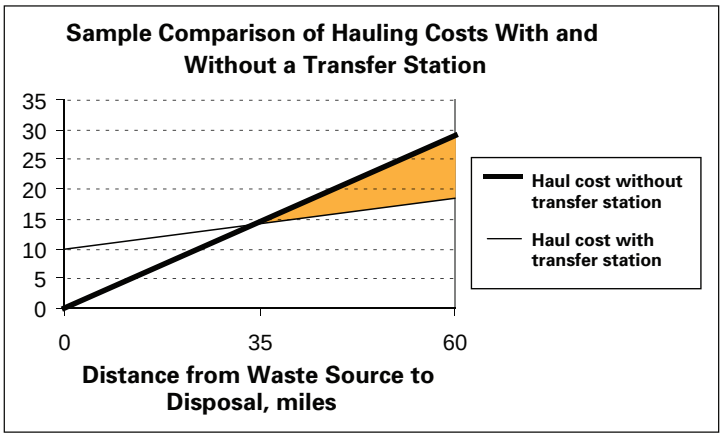
(Note, this example assumes hauling by the tribe and not hauling by a contract)

| Information needed | |
|---|---|
| A) Cost to build, own, and operate transfer station | $/Ton |
| B) Average payload* of collection truck hauling directly to the landfill | Tons |
| C) Average payload* of transfer truck hauling from transfer station to landfill | Tons |
| D) Average trucking cost per mile driven (direct or transfer hauling) (This includes the costs of hauler salary, gas and vehicle maintenance) | $/Mile |
| "Break-even" hauling distance | Miles |

*Payload is the amount of waste in tons a collection truck brings to the landfill

( __*__*__ ) + ( __*( __-__ ))
A B C D C B

## SAMPLE




The following assumptions were used to create this sample comparison.

A) Cost to build, own, and operate transfer station: $10/ton
B) Average payload of collection truck hauling directly to the landfill: 7 tons
C) Average payload of transfer truck hauling from transfer station to landfill: 21 tons
D) Average trucking cost (direct or transfer hauling: $3/mile

The comparison shows a break-even distance of about 35 miles (round trip). Using a transfer station in this case is less costly with distances greater than 35 miles round trip. Not using a transfer station is less costly with distances of less than 35 miles round trip. Although the same economic principles apply, different break even distances result when different input assumptions are used.

## Breaking even: Funding your program and decreasing your costs

### Funding Your Program

Most tribes pay for the construction and operation of their transfer stations with a mixture of grants, general funds, and direct fees. Grants can sometimes be used for construction and capital equipment costs. Clearly defining your expenses will make it possible to identify funding sources that are politically and financially sustainable.

**Grants** Federal grants can sometimes be used to fund certain components of your solid waste program. Operation and maintenance costs are typically not covered.

| Capital Costs Covered By Federal Grants | Operation and Maintenance Costs Not Covered By Federal Grants |
|---|---|
| Design and construction of transfer station, training, technical assistance (Indian Health Service)<br><br>Development of community solid waste activities, construction of transfer station (Housing and Urban Development Community Development Block Grants)<br><br>Construction of transfer station technical assistance, training (USDA Rural Development)<br><br>Personnel for a pilot transfer station program, equipment, technical assistance (EPA) | Fuel<br><br>Tipping fees<br><br>Bin replacement (depends on situation)<br><br>Vehicle repair and replacement (depends on situation)<br><br>Salaries for solid waste technicians and administrative staff past the pilot phase of the project<br><br>Cost of contract hauling |

**Fees** The best way to make sure your transfer station runs sustainably is direct fees charged to generators for pickup, drop-off, hauling, or disposal services — whether with a tribally-run program or with the use of contractors. Fees can be collected through utilities, pay-as-you-throw, tipping fees, or housing rental payments. Universal participation by all generators can be an issue if participation is voluntary.

**General Fund** Use of the transfer station can be increased if a tribe's general fund or gaming revenues are used to pay for the operation of the facility and no fees are charged for use by tribal members. Although it is generally a large and readily available source of money, the need for a transfer station must compete with other tribal needs and many tribes and native villages find it difficult to fund this large operation and maintenance budget item.

### Decreasing Your Costs

**Outreach** Decrease the cost of waste hauling and disposal by encouraging waste reduction to your community. Start by researching and understanding your community's values and identifying barriers which may trigger specific behaviors that contribute to increased waste generation. The tribe should invest the time, money, and effort to understand these barriers first in order to create incentives that embrace peoples' values and change these specific behaviors, to reduce waste generation in the long run. Outreach may include distributing printed materials to each household and business, making radio or TV public service announcements, publishing articles in a tribal newsletter or paper, giving presentations to local schools, and hosting information booths at tribal events.

**Soliciting Multiple Bids** Make sure you solicit multiple bids from contractors (both for design and construction of your transfer station, as well as for any contract hauling you will need) to insure the lowest rate.

**Negotiate With Waste Disposal Companies** Some waste disposal companies may be willing to negotiate to construct a transfer station in exchange for a long-term hauling and disposal contract. This has the benefit of amortizing the high capital costs of building the transfer station in the disposal fees over the life of the contract.

**Recyclable Materials Buy-Back** A buy-back center can be part of your transfer station. In states with bottle deposit rules such as California, the consumer pays extra (usually 5-10 cents) for each can and bottle when purchased. This deposit is returned at a buy-back center which can be built on tribal lands. Buy-back centers, in addition to encouraging recycling in your community and decreasing your tipping fee at the landfill, can help to decrease costs by bringing in revenue from sales of recyclable material. Several tribes in California, including Robinson Rancheria and the Hopland Tribe, have partnered with the State of California and host California Refund Value (CRV) buy-back centers. For more information about starting a buy-back center, check with your state. States that have bottle bills include California, Connecticut, Delaware, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon, and Vermont.

**Sale of Recyclable Material** Some materials, especially scrap metal, may have high re-sale values. Check with local dealers and haulers to see what materials you may be able to sell. You can check scrap metal prices at the following web sites: http://www.recycleinme.com/ or http://www.metalprices.com/.

**Accounting for money saved** Your transfer station may lead to a decrease in open dumping. You may want to include potential cost savings from decreased open dump cleanups when evaluating the costs of your transfer station. EPA Region 5 has created the IDEA (Illegal Dumping Economic Assessment) Cost Estimating Model, a useful tool for assessing and measuring the costs of illegal dumping activities. It has the ability to model the costs of cleanup activities for a single illegal dump site, specific groups of sites, or all of the illegal dump sites on a reservation. The IDEA model's other functions include the ability to:

- Conduct cost analyses for different cleanup methods, equipment investments, and other illegal dumping-related activities
- Assess indirect costs of surveillance and prevention activities
- Compile actual cleanup and enforcement costs

For more information on the IDEA Model visit: http://www.epa.gov/region5/illegaldumping

An example of including cost savings from decreased open dumping:

Open dumping cleanup costs to tribe each year: $100,000
Expected decrease in open dumping due to the new collection program: 25% reduction
Total savings: $25,000

Total cost of the collection program = cost of program - amount saved from open dump cleanups

NOTES:

Notes and Calculations

Planning and Building the Transfer Station

Reasons to build a transfer station:

1)_____

2)_____

3)_____ _____

Reasons not to build a transfer station:

1)_____

2)_____

3)_____ _____

Agencies representatives I should contact for technical advice for planning and construction:

IHS: (name)_____ (phone number)_____(e-mail)_____
EPA: (name)_____ (phone number)_____(e-mail)_____
USDA: (name)_____ (phone number)_____(e-mail)_____
HUD: (name)_____ (phone number)_____(e-mail)_____

Local waste management company: _____

Grants I should apply for: _____

Where to site the transfer station: _____

_____

Possible impacts from the transfer station on the community and environment:

Notes and Calculations

Operating the Transfer Station

My transfer station will collect:
___ Household trash
___ Recyclable material including: _____
___ Household hazardous waste including: _____
___ Tires
___ Scrap metal
___ White goods (such as refrigerators, washing machines)
___ Used oil

Other: _____

My transfer station will not collect:_____

How will I keep items my transfer station will not collect out of the transfer station:__ _____

_____

My transfer station will:

___ Collect a fee of $____ from tribal members per month
___ Collect a fee of $____ from non-tribal members per month
___ Charge a fee of $____per ton
___ Charge a fee of $____per bag
___ Be free to the public

Charge separate fees for:

___ Recyclable material $___
___ Household hazardous waste $___ including _____
___ Tires $___per tire
___ White goods $___per item
___ Other $___ (for _____ )

Hours and days my transfer station will be open from: _____

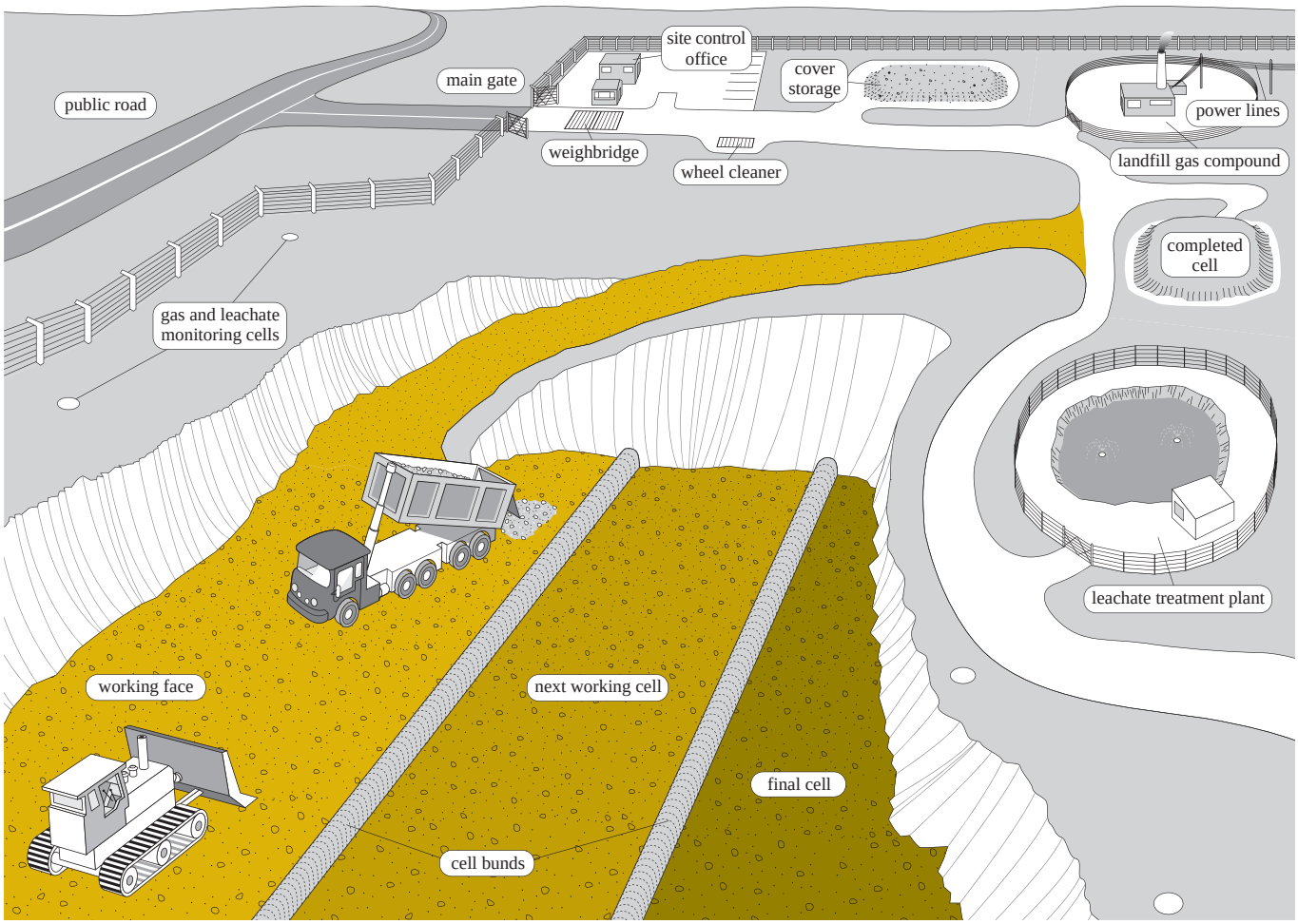
Expected number of users per day: _____

How many people do I need to run the transfer station: _____
Current personnel available:

Training needed:_____

Notes:

Modern landfills are engineered facilities that are located, designed, operated, and monitored to ensure compliance with federal regulations. Municipal solid waste landfills (MSWLFs) receive municipal waste for disposal. MSWLFs can also receive non-hazardous sludge, industrial solid waste, and construction and demolition debris. MSWLFs must be designed to protect the environment from contaminants which may be present in the solid waste stream.




## Laws

Federal laws and regulations governing solid waste management apply directly to owners and operations of MSWLFs. The following federal laws govern MSWLFs. In addition, tribal laws may apply in Indian Country. In state jurisdictions, state laws may apply.

### Resource Conservation and Recovery Act (RCRA) (40 CFR Part 258)

The primary federal solid waste law is the Resource Conservation and Recovery Act (RCRA) as amended. In addition, there are state laws, and sometimes county laws, that regulate solid waste. While state and county laws don't apply to solid waste facilities sited in Indian Country, they may be taken into consideration to enhance protection of human health or the environment or to promote good stewardship and relationships with the surrounding, non-tribal lands and communities.

Federal MSWLF standards under RCRA are found in regulations promulgated by EPA (40 C.F.R Part 258). All MSWLFs must comply with these regulations, regardless of where they are located, and regardless of whether a state or tribal authority is regulating the MSWLF. However, some of these regulations allow for alternatives, or "flexibility," if the owner or operator can demonstrate that the alternative meets criteria listed in the

regulation. For example, alternative liners may be considered if those liners can be shown to be as protective as the liner required by the regulations (sometimes called the prescriptive liner). In Indian Country, this demonstration (called a Site-Specific Flexibility Request) must be made to EPA.

The standards in the regulations include:

Location restrictions: Landfills must be built in suitable geological areas away from faults, wetlands, flood plains, or other restricted areas.

Composite liners requirements: Landfills must include a flexible membrane (geomembrane) liner overlaying two feet of compacted clay soil lining the bottom and sides of the landfill and protect groundwater and the underlying soil from leachate releases.

Leachate collection and removal systems: Landfills must include a leachate collection system which sits on top of the composite liner and removes leachate from the landfill for proper treatment and disposal.

Operating practices: Landfills must compact and cover waste daily with several inches of soil to help reduce odor, control litter, insects, and rodents, and to protect public health.

Groundwater monitoring requirements: Landfills must test groundwater wells to determine whether waste materials have escaped from the landfill.

Closure and post-closure care requirements: Landfills must properly close the facility when the end of the operating life has been reached. Proper closure includes a final cover and long-term care of the facility.

Corrective action provisions: Landfills must control and clean up releases and meet all groundwater protection standards.

Financial assurance: Landfills must guarantee that funding for environmental protection will be available during and after landfill closure (i.e., closure and post-closure care).

Some materials may be banned from disposal in MSWLFs, including common household items such as paints, cleaners/chemicals, motor oil, batteries, and pesticides. Leftover portions of these products are called household hazardous waste. These products, if mishandled, can be dangerous to human health and the environment. Many municipal landfills have a household hazardous waste drop-off station for these materials. MSWLFs can also receive household appliances (also known as white goods) that are no longer needed. Many of these appliances, such as refrigerators and window air conditioners, contain ozone-depleting refrigerants and their substitutes. MSWLFs have to follow federal disposal procedures for household appliances that use refrigerants. Those procedures can be found at: http://www.epa.gov/ozone/snap/emissions/downloads/SafeDisposalBrochure.pdf

Exemptions: Small Community Exemption
(40 CFR Part 258.1)

In rare cases, it is possible to qualify for exemptions from specific parts of the federal MSWLF regulations, including Subparts D (Design Criteria) and E (Ground-Water Monitoring and Corrective Action) of the Resource Conservation and Recovery Act, 40 CFR Part 258. If the proposed facility meets the following criteria, it may qualify for an exemption:

- Owners or operators of new MSWLFs that dispose of less than twenty (20) tons of municipal solid waste daily, based on an annual average; and
- A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility, or
- A community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 inches of precipitation.

National Environmental Policy Act (NEPA)
The lead federal agency for a proposed landfill project will need to demonstrate compliance with NEPA. The lead will need to determine if an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) is needed. If an EIS is needed, several steps need to occur which include publishing a Notice of Intent (NOI) to prepare an Environmental Impact Statement in the Federal Register with the option of conducting public

scoping meetings to receive input on the proposed project. In addition, the lead agency may consider including other federal agencies as cooperating agencies in preparation of the EIS. When the Draft EIS is ready for public release, a Notice of Availability is published in the Federal Register and a minimum 45 day public comment period is provided, usually with public hearings.

For additional information on NEPA compliance, please visit the following web site: http://www.epa.gov/compliance/basics/nepa.html

Note that compliance with the National Historic Preservation Act and the Endangered Species Act occurs concurrently with the NEPA process. The results of these consultations with the State/Tribal Historic Preservation Officer (Section 106 consultation) and the U.S. Fish and Wildlife Service (Section 7 consultation), respectively, is included in the NEPA document. Early consultation with the U.S. Army Corps of Engineers for CWA Section 404 compliance is encouraged.

Clean Water Act (CWA)
If the landfill is approved, the project developer must apply for a storm water National Pollutant Discharge Elimination System (NPDES) permit before construction can begin. For additional information, please visit the following web site: http://cfpub.epa.gov/npdes/

Clean Air Act (CAA)
Within one year of commencing operation, the project developer must submit an application to determine if a Title V air permit is necessary (http://www.epa.gov/region09/air/permit/title-v-permits.html). Prior to submitting the Title V application, the developer will need to address other air issues (e.g., gas collection system) in the planning process, and through the NEPA document.

More resources on planning, constructing, and operating a municipal solid waste landfill

Solid Waste Association of North America (http://www.swana.org)

- Professional organization for the solid waste management field. SWANA provides training on managing and operating MSWLFs.

EPA's Solid Waste Landfill Web page (http://www.epa.gov/epaoswer/non-hw/muncpl/landfill/sw_landfill.htm)

- More information on federal regulations regarding landfills.

Municipal Solid Waste Landfill Criteria: Technical Manual
(http://www.epa.gov/epaoswer/non-hw/muncpl/landfill/techman/index.html)

- The manual focuses on providing owners/operators with guidance for complying with the Municipal Solid Waste Landfill Criteria.

Site-Specific Flexibility Requests for MSW Landfills in Indian Country; Draft Guidance
(http://www.epa.gov/epaoswer/non-hw/muncpl/landfill/indian/siteflex.htm)

- This draft guidance document describes a process by which MSWLF owners and operators in Indian Country may apply for the same flexibility that is available to landfill owners and operators in states with EPA-approved MSWLF permitting programs.

Criteria for Solid Waste Disposal Facilities: A Guide for Owner's/Operators
(http://www.epa.gov/epaoswer/non-hw/muncpl/criteria.htm)

- The document discusses the major requirements of these regulations, who is required to comply and when, how the rule will be implemented and enforced, and where to obtain more information.

Safer Disposal for Solid Waste: The Federal Regulations for Landfills
(http://www.epa.gov/epaoswer/non-hw/muncpl/safedis.htm)

- This handbook summarizes the federal regulations covering landfill location, operations, design, groundwater monitoring and corrective action, closure and post-closure care, and financial assurance.

## Should my tribe build a municipal solid waste landfill?

### Costs associated with permitting, constructing and operating a landfill

Actual costs of permitting, constructing and operating a landfill vary widely. Total costs are greatly affected by the capacity of the site, the level of compaction of solid waste, and the average daily volume of waste received.

In general, constructing a landfill will likely cost $150,000-$250,000 per acre at least, not including operation and closure costs (from the Tribal Decision-Makers Guide to Solid Waste Management, Chapter 4). Based on these costs, tribes generating less than 100 tons of waste per day will find building and operating a Subtitle D compliant landfill to be economically infeasible. The following are elements of cost:

#### Development

- Site assessment
- Legal consultation
- Design
- Environmental assessment or environmental impact statement
- Permits

#### Construction

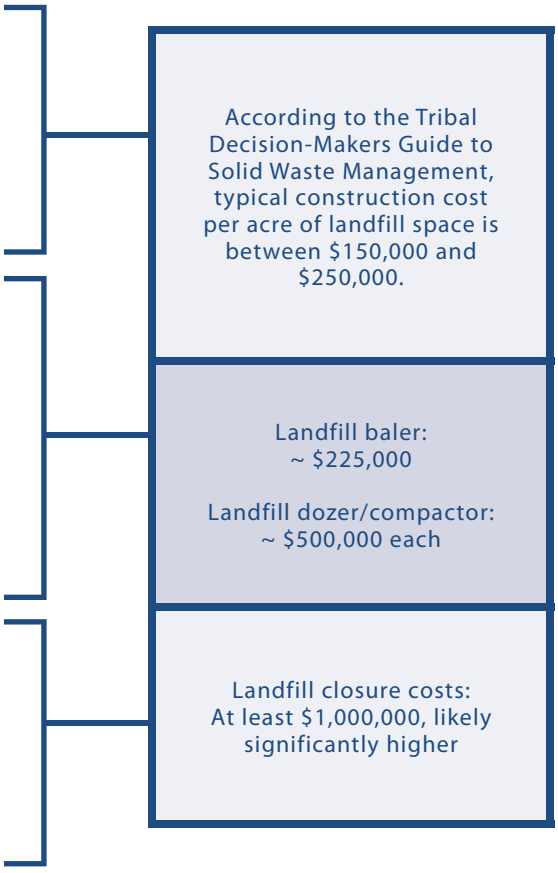
- Land clearing and grading, including surface water control
- Excavation
- Liner and leachate collection system construction
- Landfill gas management
- Groundwater monitoring system
- Structures related to landfill operation

#### Operation

- Equipment such as dozers, loaders, balers, compactors, scrapers, water trucks, graders, and dump trucks
- Personnel costs
- Leachate and landfill gas systems management
- Monitoring
- Outreach
- Financial assurance fund
- Annual inspections

#### Closure

- Final cover construction
- Vegetation planting
- Storm water runoff control
- Long-term site inspections, monitoring, and leachate and gas management; assume at least 30 years of post-closure activity



Notes and Calculations

Reasons to build a landfill: _____

_____

_____

_____

Reasons not to build a landfill:_____

_____

_____

_____

Expertise needed:_____

_____

_____

_____

Current personnel available: _____

_____

_____

_____

Training needed: _____

_____

_____

_____

Notes:_____

_____

_____

_____