Integrated Solid Waste Plan for the Community of Chignik Lagoon

Photograph by Nancy Mills

September 2010

Last reviewed/updated on: 1/3/17

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Compiled by:

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Updated 1/3/17 by Oscar and Nancy Mills

Additional Special Acknowledgements:

We would like to thank the Elders in our community for their valuable words of guidance. We would like to thank the Chignik Lagoon Village Council members for their input on building this plan. Oscar Mills, IGAP Coordinator Michelle Anderson, Grants Coordinator were especially helpful in their comments and are to be commended for their dedication to our environment and recycling expertise.

September 2010

Compiled using the Alaska ISWMP Template Version 6.0, Zender Environmental, 2008.

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Introduction and Description of Community

Mission and Values Statement:

CLVC Mission Statement:

To provide quality services that will contribute and enhance the health and well-being of the community and its members. In addition to representing the village in all its endeavors and to advocate for the collective good of the people of Chignik Lagoon, promoting self-determination and self-sufficiency with the added interest of preserving the unique cultural and subsistence lifestyle.

Our community developed this plan because protecting our subsistence way of life is our number one priority. Our Elders say that we must respect our land and traditional values. Implementing the best solid waste practices possible so that our subsistence and community are protected follows our laws and values. Ensuring this plan is followed is therefore critical to our community.

History of the Community:

Chignik Lagoon took its name from its location and proximity to Chignik, meaning "big wind." The people of this area have always been sea-dependent, living on otter, sea lion, porpoise, and whale. During the Russian fur boom from 1767 to 1783, the sea otter population was decimated. This, in addition to disease and warfare, reduced the Native population to less than half its former size. It has developed as a fishing village.

Demographics and Utilities:

Chignik Lagoon's winter population is approximately 70 people. During the summer months this number is increased by about 200. Chignik Lagoon has a clinic, a school, a tribal office, an electrical generator plant, a water treatment plant, and most recently, a hydroelectric plant. Most residents obtain their drinking water from a village-operated water treatment plant; however, some residents still maintain their own wells. Chignik Lagoon has 67 houses, only 23 of which are occupied in the winter months and 44 are occupied during the summer months. Three new houses are currently being built. The remaining houses are abandoned or run-down. In addition to houses, Chignik Lagoon has 2 apartment buildings with a total of 10 apartments. In the winter months, 4 of the 10 apartments are occupied. During the summer months, 6 of the 10 apartments are occupied. Three airplane hangars, 1 office building, 1 subsistence/community building, 1 clinic, and 1 United States Post Office exist in Chignik Lagoon. Most homes are connected to piped water and sewer. The sewage lagoon is located next to the landfill, one mile west of the community, adjacent to the beach, and remains untreated. Sewage is piped from most homes to a holding tank located 500 feet from the school. The holding tank and lift station has had several problems including pipe breakage, sewage seeping to the surface, and

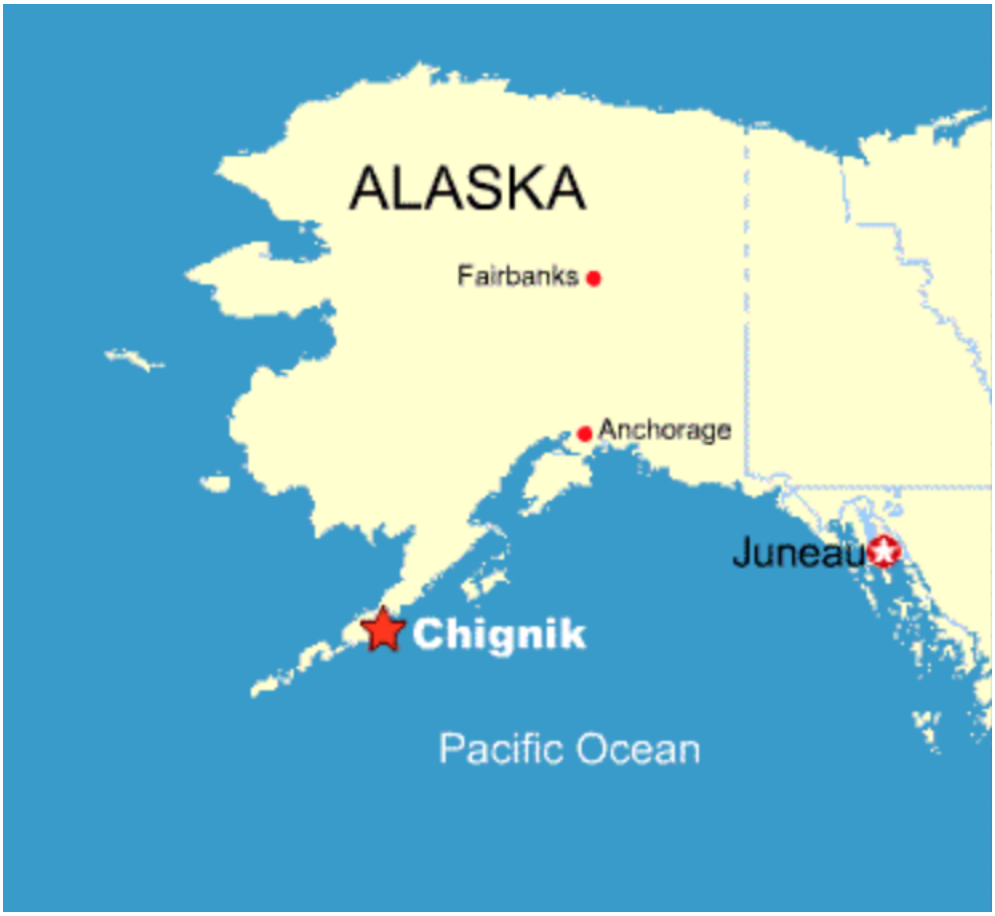
flooding. A few homes still maintain their own holding tanks, which are pumped twice a year by the city pump truck. Electrical power is supplied by Chignik Lagoon Power Utility, which is currently handled by Alaska Rural Utility Collaborative. A bulk fuel tank farm is located in the middle of the community adjacent to the beach. The Chignik Lagoon Village Council has decreased it's need for fuel since the installment of an operational hydroelectric plant.

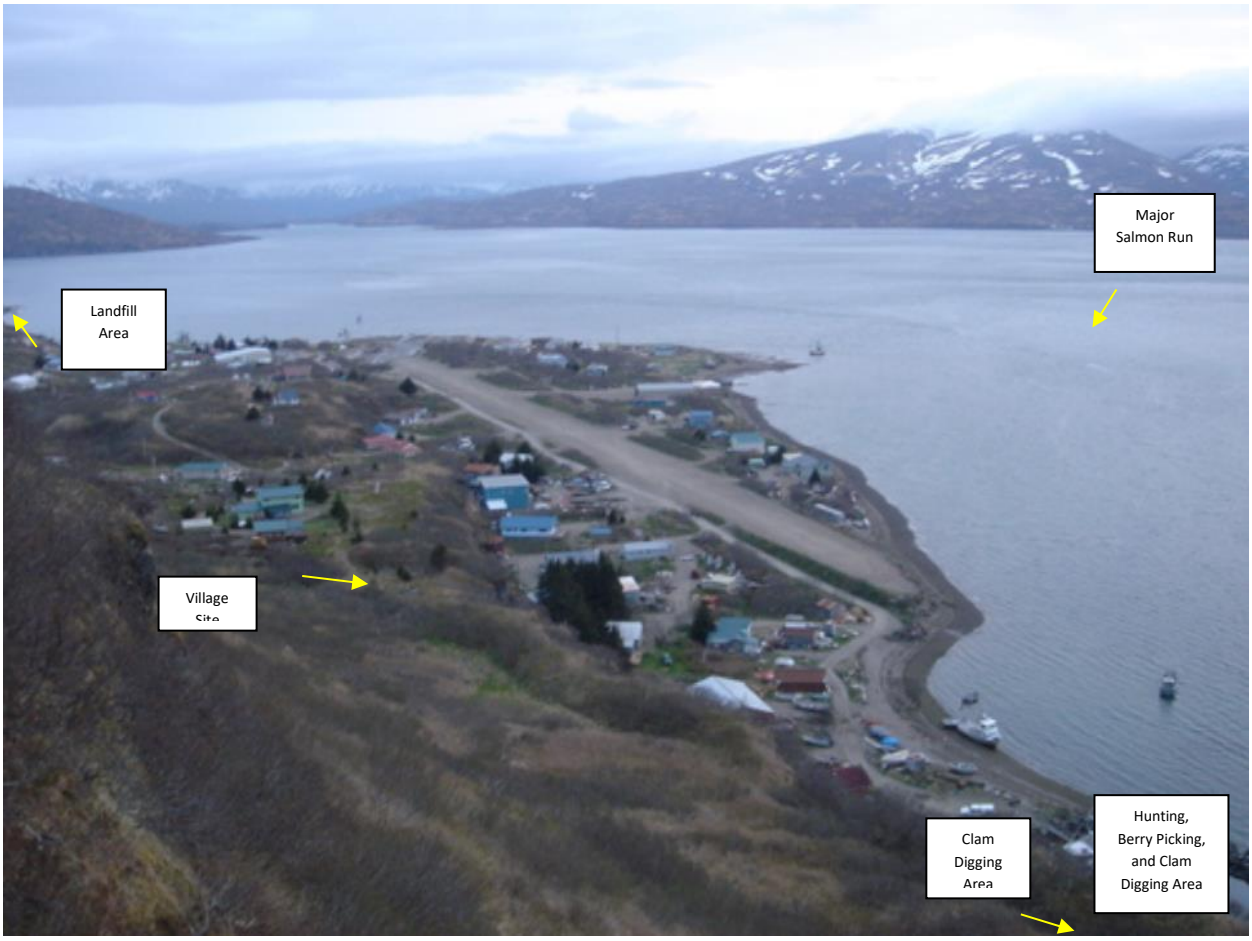
Location and Climate:

Chignik Lagoon is located on the south shore of the Alaska Peninsula, 450 miles southwest of Anchorage. It lies 180 air miles south of King Salmon, 8.5 miles west of Chignik and 16 miles east of Chignik Lake. The community lies at approximately 56.309950° North Latitude and -158.531420° West Longitude. (Sec. 23, T044S, R059W, Seward Meridian.) Chignik Lagoon is located in the Aleutian Islands Recording District. There are no roads leading out of or into the village of Chignik Lagoon. Small aircraft and marine transportation make the village accessible to the rest of the world. During the winter when the lagoon and lake are frozen over, people can travel from Chignik Lagoon to Chignik Lake via snow machine. However, in recent years, warmer temperatures have prevented freezing and intercommunity travels.

The community of Chignik Lagoon experiences a maritime climate, characterized by cool summers and relatively warm, wet winters. Thick cloud cover and heavy winds are prevalent during winter months. Summer temperatures range from 39 to 70 degrees Fahrenheit. Generally, there are one or two 80 degrees Fahrenheit days throughout the summer. Generally, winter temperatures range from 20 to 40 degrees Fahrenheit. Precipitation averages 127 inches annually, with an average annual snowfall of 58 inches. Recent warmer temperatures have Chignik Lagoon receiving far less snowfall.

Figure 1 Location in Alaska.





Additional Critical Community Logistics Relating to Waste Management:

Chignik Lagoon is an isolated and close-knit community. Residents must depend on each other in emergencies. We do not have extra people, service departments, or places to go for assistance. Therefore, there are several events where the full community is involved in responding. These events include:

1. Search and Rescue
2. Funerals (attended by full community)
3. Extreme Weather
4. Flooding
5. Erosion and loss of structures
6. Fires (house or surrounding lands)
7. Subsistence activities which must be performed in a short time or the opportunity for the food is lost
8. Commercial Fishing for three months out of the year

These events take priority in our community in order to survive. Solid waste collection, backhaul opportunities, site maintenance, and community practices may be disrupted for a time period during these events. In order to write a plan that works best for our community, these practicalities are reflected in this plan and incorporated to the maximum extent possible.

Elders' Guidance: Taking Care of Our Wastes Properly

For the development of this plan, Elders were interviewed about the cleanliness and safety of our village. They gave guidance on ways to keep our community clean and safe and how to protect our subsistence. Their words included rules about taking only as much as one needs, keeping waste to a minimum.

Elders' words:

Martha and Alec Pedersen:

1. Keep your own property and living areas clean.
2. Take proper care of old drums and batteries.

Alec and Vivian Brandal:

1. Clean up all the garbage around your homes.
2. Don't throw garbage and old batteries into the fishing waters or on the beaches.
3. Be conscientious of the harm you can do to the environment.
4. Limit and monitor sport fishing and do away with trophy hunting (except for bears, they are a problem right now).
5. Only take the subsistence you need and do not be wasting.
6. Clean up after yourself.
7. Teach our youth to be responsible. This tradition has been lost.

Community Participation

Community participation for the best solid waste plan is very important to us. Community disposal practices play a big part in whether our plan protects our health and environment. In addition to listening to our Elders speak, our community participation included the following:

1. Completed surveys which identified problems and suggested solutions,
2. Conducted interviews with Elders to find out the values and traditions of waste management,
3. Started a reusing/recycling program, and
4. Started a collection service for recycling goods.

Community Solid Waste Committee:

A Committee was formed on December 22, 2016. This committee is comprised 4 Council members. Their job was to make sure that our plan fits our community and will work best for our community by providing thoughts, ideas, opinions, and editing remarks. Their concerns included:

1. Reducing health risks from the dumpsite
2. Removing wastes from the dump that can be hazardous
3. Not allowing construction project wastes at the dump unless it is approved by the community
4. Reducing subsistence risks from what comes out of the dumpsite when the wastes burn
5. Making sure what we plan is affordable for everyone
6. Having a good collection program so that residents do not need to visit the dump (ie: IGAP personnel collect all hazardous waste), and
7. Reducing, reusing, and recycling our wastes as much as we can, values taught to us by our Elders

The committee meets once a month. The following people served on our committee:

1. Jeremy Anderson, Village Council President
2. Al Anderson, Village Council Vice President and Elder
3. Rhonda Gregorio, Village Council Board Member
4. Harolyn Bumpus, Village Council Board Member
5. Nancy Mills, Village Council Alternate Board Member,

Community Survey:

We carried out a community survey on concerns and suggestions. A sample of the results are included in the appendix. This survey was conducted in December 2009 by the Solid Waste Management Coordinator.

The top concerns of our residents were**:**

1. Overflowing dumpsters and scattered trash in the village,

2. Landfill will be at capacity in the near future,

3. Safety and sanitation at the landfill,

4. Proper disposal of subsistence waste, and

5. Proper disposal of waste oil and filters.

The most common suggestions were:

1. Fencing the area where the dumpsters are,

2. Finding another site for a landfill,

3. Educating residents about the proper processes of subsistence waste disposal, and

4. Refine a waste oil and filter disposal process.

Council Meetings:

We held community Council meetings where we presented and discussed solid waste issues and brainstormed solutions. We presented issues each month from September 2009 to May 2010.

Community Meetings

Community meetings are held once a year. These meetings are for the purpose of electing Village Council members. Village Council meetings are held monthly and all community members are invited to attend.

Community Education, Outreach, and Voiced Concerns:

This is what people are saying in our community that is related to solid waste management:

1. Fixing up the heavy equipment building to make it usable for IGAP.
2. Collecting debris from the beach
3. Old home deconstruction
4. A new special burn unit
5. The landfill is near capacity, what is the next step?
6. The access road to the dump is often not accessible due to poor maintenance and tidal influence.
7. Garbage blows all over the community because of the dumpsters.
8. Birds help to scatter the trash.
9. IGAP has been an invaluable resource for our community.

Public Outreach Printed Materials:

The Chignik Lagoon IGAP department develops quarterly newsletters that teach people about our solid waste programs. They include information on reducing household hazardous wastes, recycling cans and batteries, how to reduce energy use and public clean-up events. They are posted at the tribal office, post office, and on the village website. They are also mailed to each resident. An example is provided below.

Chignik Lagoon IGAP Newsletter

Quarter 1 **December 2016**

Current IGAP Projects

We are currently in the process of establishing a waste oil facility. We will update the community for the location.

We are in the process of updating the current solid waste management plan and welcome any feedback the community has regarding any concerns for our community needs.

Recycling Center

The recycle center is open. However during the winter months please schedule an appointment by calling the Village office.

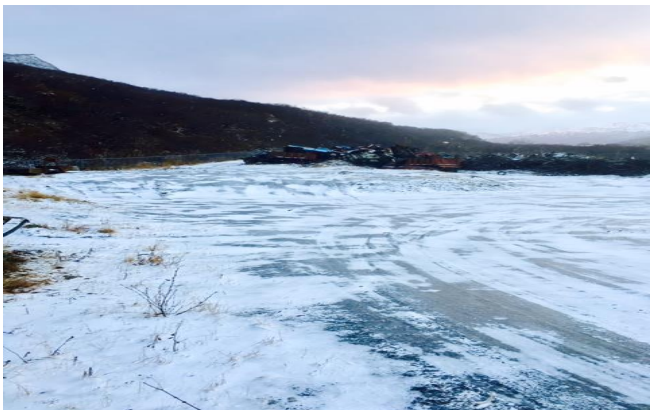
Items we accept:

- Clothing of any type
- Household items (dishes, house-wares, etc.)
- Books, CD's, DVD's
- Furniture

Please make sure everything is clean and undamaged.

Future Potential Backhaul Projects

The IGAP Coordinator assessed our current landfill situation. It was determined that the salvage pad needs organizing as well as other areas of the landfill will need to be staged and prepped for future backhaul projects.



Air Quality Environmental Tip:

Furnaces, Woodstoves, and Fireplaces:

- All fuel-burning appliances should be properly vented.
- Fuel burning appliances should be cleaned & inspected regularly
- Check for leaks, faulty seals
- Use high efficiency filters on furnaces
- Change or clean filters regularly
- Check for blocked vents or ducts

Community Development

Current Community Population:

Chignik Lagoon consists of 69 year-round residents. About 3 to 5 people per month visit family members living in the village. Once every few years, Chignik Lagoon School will host a sports tournament for the Lake and Peninsula School District. This event will bring in approximately 100 people for five days. An average of 10 people per year come to Chignik Lagoon for technical/professional support to commercial fishermen and for other community services. During bear season, approximately 20 hunters will visit our community. During the summer months the population jumps by about 200 people due to commercial fishing. Many families return to their summer homes in the village.

Expected Community Development:

Planned projects Incorporated into Our Solid Waste Planning

Planned projects include:

1. The Council is currently looking into developing a road around Alec's point for better access to some of the homes and the landfill.
2. Hydro Integration project
3. Tsunami Shelter
4. Clinic/Airplane Hangar

The community landfill in Chignik Lagoon is approaching three quarters its carrying capacity. The landfill is located within a confined rocky area and practicably cannot be expanded. It is expected that the landfill will need to be replaced within four years. A new landfill site will need to be identified and constructed very soon.

Average yearly community growth expected for next 20 years:

Because we are a small community, our growth rate changes from year to year and depends on many factors, such as housing, road development, and jobs. Currently there is year-round residency population of 69 people. This number jumps to about 269 in the summer months. For the purposes of this plan, we will say that there is an average population of 119 people in Chignik Lagoon. Due to the fluctuation in population, Chignik Lagoon selected to estimate our population based on local knowledge.

We estimated that our population would be about 124 people in 5 years, 129 people in ten years, 134 people in 15 years, and about 139 people in 20 years. We expect to continue to see the summer months increase our population by 200-250 people as commercial fishing brings the people of Chignik Lagoon and their families back to their roots.

Growth Rate Calculation Process:

We had a meeting with our Council and discussed all the different factors that affect our population growth, including moving in and out, how many babies women are having, what development projects might bring in tourism or additional people, what subsistence would be like, how much housing there would be, etc. The new landfill road construction, hydro integration project, tsunami shelter, and clinic airplane hangar construction will bring people back to the community for jobs. More and more Chignik Lagoon is experiencing an increase in the number of tourists and hunters which slightly increases our population. We looked at our past growth and how that has changed from these factors. We then reached agreement on the most likely future population.

Solid Waste Disposal Site Information and Goals

The table below describes the primary features and conditions of our current dumpsite. The right-hand column describes our related upgrade goals or planning changes. There are additional tables in later chapters that discuss the site operation and maintenance, waste collection system, waste recycling, and waste burning.

Table 1 Solid Waste Site Features And Situation

Feature	Current Description	Changes Planned?
Land Ownership	The land where the dumpsite is located is owned by the Chignik Lagoon Village Corporation.	The current landfill land will remain in the possession of the Chignik Lagoon Village Corporation.

Table 1 Solid Waste Site Features And Situation

Feature	Current Description	Changes Planned?
Dumpsite Location	The dumpsite is located approximately one mile west from the town edge. The GPS coordinates for the dumpsite entrance are 38.5 N and 22.2 W.	As the landfill is nearing 9/10 its carrying capacity, a new site will need to be determined and developed.
Dumpsite Operation Responsibility	The Chignik Lagoon Village Council is responsible for the operation and maintenance. The Indian General Assistance Program plays a large part in the environmental planning and procedures.	No changes planned.
Summer Dumpsite Access	The access to the dump is in poor condition. It is a beach access road subject to tidal influence. People travel to the dump by motorized vehicles including ATVs. Once people enter the dump there is a path that they can follow through the dump.	Access improvements need to be determined and developed.
Winter Site Access	The condition of the access road to the landfill worsens during the winter months. The "road" is often blocked by ice bergs and rocks carried by high tides.	Access improvements need to be determined and developed.
Path/area inside the Dump for unloading wastes	Up until recently, the dump's path inside the fenced landfill was becoming cluttered with trash, old vehicles, and appliances. Due to a grant applied for by CLVC's IGAP department in coordination with the Grant's Coordinator, a backhaul grant was obtained and much of the scrap metal objects were removed. Though this greatly improved the dump's condition, it is still at 9/10 capacity and the community needs a new dumpsite.	A new landfill needs to be designed and developed.
Wind Direction	Chignik means "Great Wind" and is famous for its massive storms. The wind direction varies greatly in Chignik, but it is almost always blowing. The smoke from the dump and burn box is often smelled in the community.	The new landfill needs to be developed further from the village.
Site Size	The dumpsite is about 30 feet wide by 50 feet long. The windblown litter goes out about 500 feet from the dump in most directions.	

Table 1 Solid Waste Site Features And Situation

Feature	Current Description	Changes Planned?
Site Shape	The dumpsite is shaped like a square.	
Estimated Waste Volume (± 20%)	*4500* ft^3 or *166.7* cubic yards.	
Estimated Waste Weight (± 30%)	33.33 tons.	
Type of site management	Open dumping on surface. Occasional consolidation with dozer. Burn box with ashes dumped out when full.	
Heavy Equipment used at Dump	A loader is used at the landfill for consolidation. It is 9 years old and in good condition. We have a dozer that is 16 years old and in fair condition. Both pieces of equipment are used for all other projects in the community and are owned by the Chignik Lagoon Village Council.	
How often wastes are consolidated o compacted	Four times per year.	
How often wastes are covered	Once each year.	
Operator/Technicin Staff	We have one waste technician who works 37 hours each week. His duties are: collecting garbage, trying to keep dump organized and the access path clear so that people do not need to walk or drive on wastes (which keeps our community much safer from disease and injury), and operating the burn box in a safe manner.	
Burning wastes	We burn our wastes by using a burn box. It is loaded with wastes by the waste technician or other community residents. It is lit on fire by the waste technician or other community residents. The wastes that are burned include any household trash. Large items like drums, appliances, vehicles are not burned.	
Salvage Pad/Area	An area of about 8 feet wide by 13 feet long is used by people to find usable items. It is located in the south corner of the dump.	

Table 1 Solid Waste Site Features And Situation

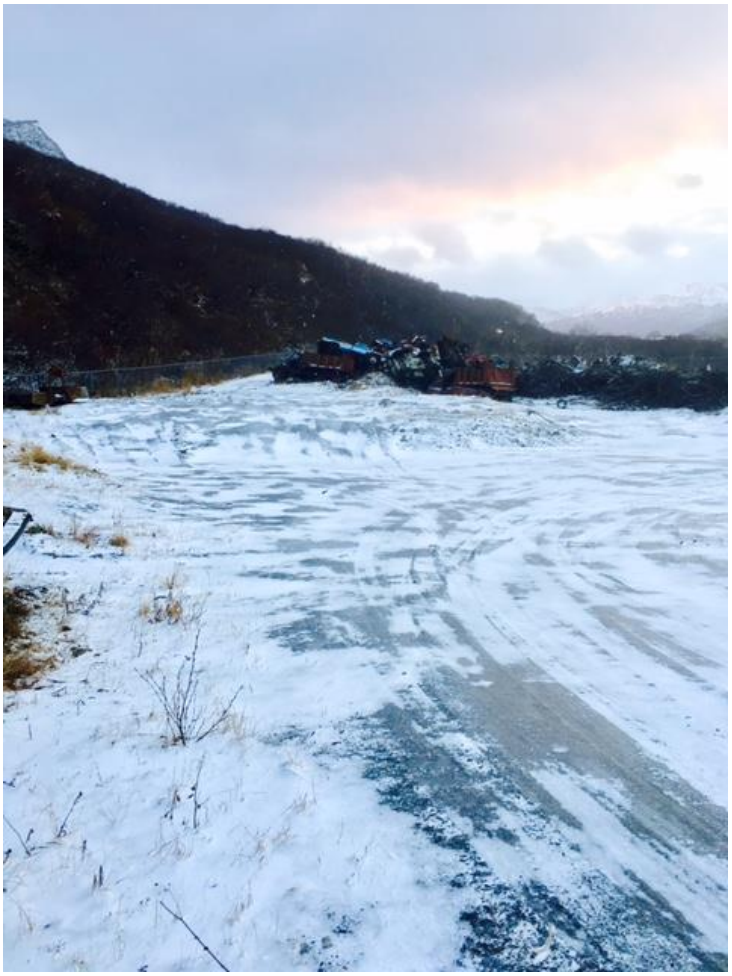
Feature	Current Description	Changes Planned?
	The type of wastes here are vehicle parts, appliances, scrap metal, lumber, other wastes that people can use.	
Additional Waste Segregation at Site	IGAP collects additional wastes such as batteries and other hazards. These wastes are not kept at the landfill, but are brought to the old IGAP building site until it can be dealt with.	
Recycling Shed/Area	Ever since the IGAP building burned to the ground, the IGAP department uses the subsistence building for recycling items. Items such as clothes, shoes, gear, school supplies, cardboard boxes, etc. are kept at the subsistence building and residents are welcome to the items. IGAP also has a shed for recycling goods. Items such as aluminum cans, plastic bottles, batteries, electronics, etc. are collected and stored until they can be backhauled.	
Dumpsite Age	14 years	
Fencing	There is fencing surrounding the landfill, however the entrance to the landfill remains open. The fencing is in fair condition. There are areas that need to be patched up.	
Types of Wastes that Are Now at the Dump		
Residential wastes	Cardboard, paper, plastics, tin and aluminum cans, diapers, styrofoam, old or broken household items like furniture, toys, clothes, rugs, appliances, dishes, glass, tires, ATV's, sno-machines (only the parts that are not salvaged), computers, TV's, small batteries, tires	
School wastes:	Cardboard, computers, paper plates and cups, Cans, old equipment, paper, fluorescent lights	
Utility wastes:	Antifreeze, transformers, old equipment, used oil, batteries, fluorescent lights	

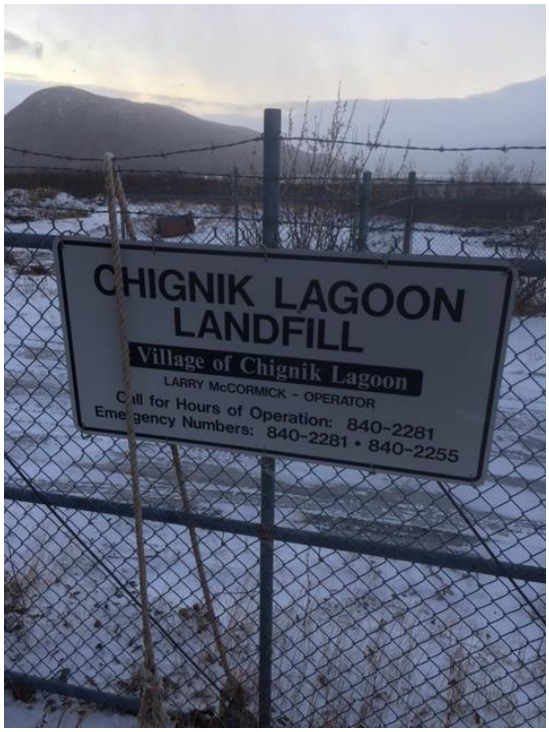
Table 1 Solid Waste Site Features And Situation

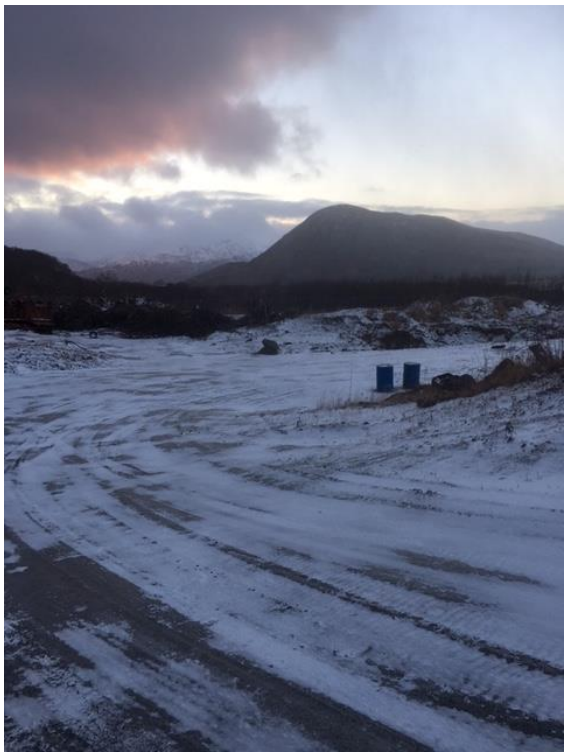
Feature	Current Description	Changes Planned?
Construction Project Wastes:	Currently no construction taking place.	
Honeybucket Wastes/septic cell or other sewage	The sewage lagoon is located next to the dump. Litter from the dump is sometimes blown into the sewage lagoon.	
What goes into the burnbox that shouldn't:	Plastics, rubber, aerosol cans, batteries, foam, diapers, wastes with sealants and fire retardants, leftover cleaners and chemicals from almost empty bottles.	
Additional Seasonal Factors affect dumpsite maintenance or collection or access. (Note any common events that happen during the seasons. You can also break up the seasons how you want.		
Winter (from November through mid April)	Days below 0 F, it is dangerous for our operator to work for more than 2 hours because we don't have a warming shed there. Also, it gets dark outside the hours of 10am and 3pm. People will not go to the dump in storms, or generally when it is below -30 with wind chill. Wastes are frozen hard-frozen and cannot be moved or consolidated much between mid-November and mid-March.	
Summer (from mid-June to end of August)	Early summer, access can be difficult due to a lot of ponding from Breakup. Mid-summer is a good time for site maintenance.	
Fall (from September to mid-November)	During the fall time, the residents of Chignik Lagoon partake in subsistence hunting and fishing. Fall time is good for using heavy equipment because the wastes are frozen not hard and there is little snow, the ground is hard enough for equipment to not be stuck.	
Spring (from mid-April to mid-June)	Spring breakup makes accessing the landfill difficult. This is the time of year when the Lake is breaking up and large ice cakes are scattered along the road.	

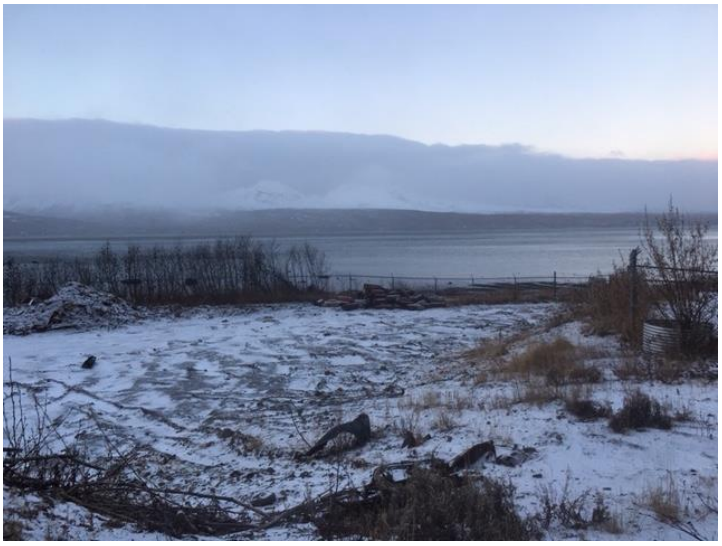
Landfill photographs

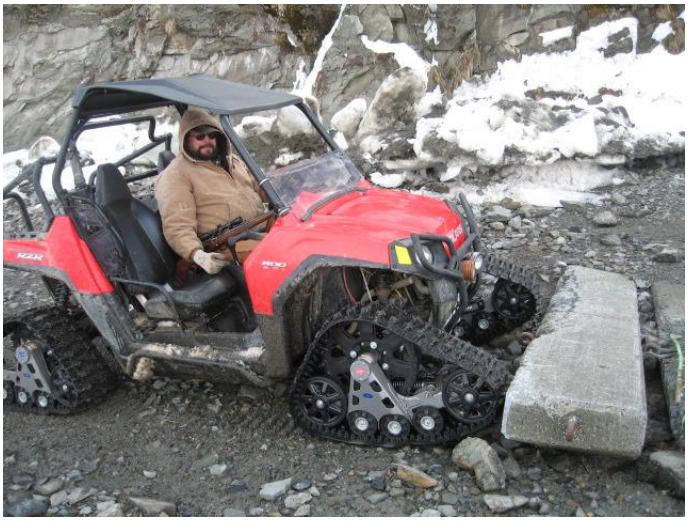
The following pictures show the community's photos of the access road to the dumpsite, the dumpsite, and its key features.

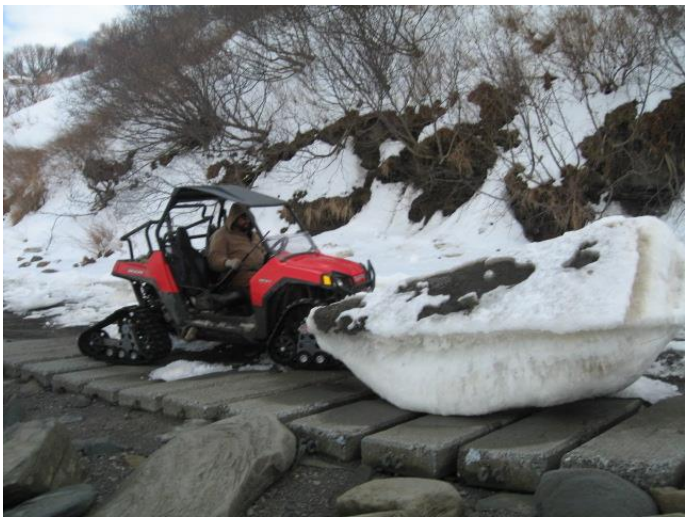


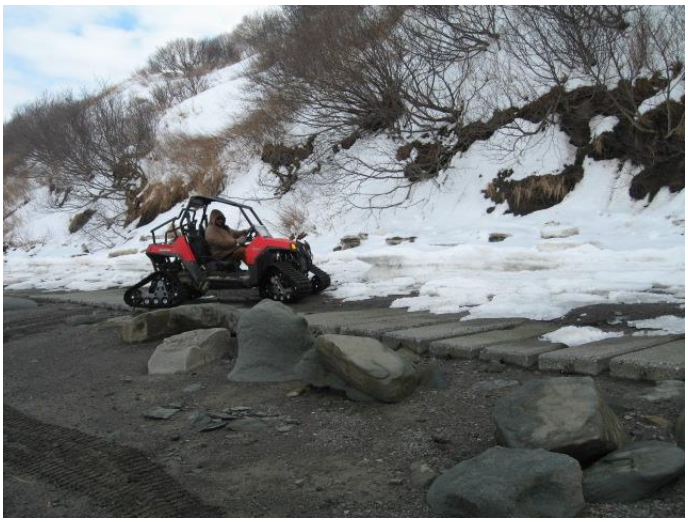


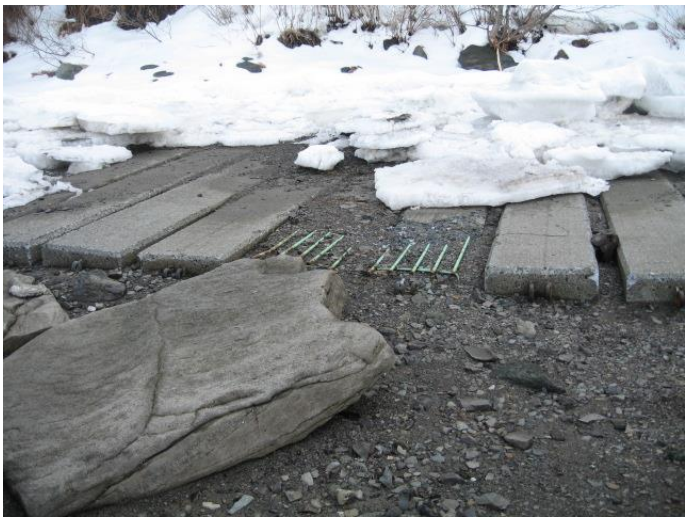


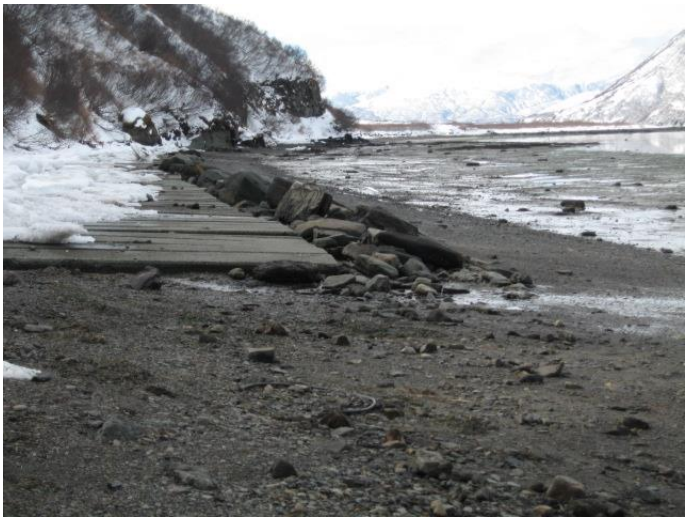












Current Solid Waste Management Program And Practices

Waste Collection Program:

Table **2** Waste Collection Program

Item	Description	Planned changes or goals
Number of transfer station services, including any private services that an individual offers:	1	None
Operated by:	The tribe	None
Average of households that use the service each month	27- Winter Months 49-Summer Months Also, during the summer months, many winter households increase in family members.	None
Total number of households in village	49 Summer, 27 winter	Three homes are in the process of being built.
Estimated average number of households who self-haul some or all of their garbage to the dump at least once per month.	2 Winter Households 5 Summer Households	Three homes are in the process of being built.
Estimated number of people each week who use the dump per for salvaging parts or other goods.	2 people	None
Fee charged for collection service (if more than one service, list fees for each service)	$0 per month for households $0 per month for most businesses and offices $0 per month for school	None
Fee charged for salvaging parts	$0	None
How fee is collected	Schools and businesses are billed.	

Table **2** Waste Collection Program

Item	Description	Planned changes or goals
Any discounts or other ways for households to receive collection service?	None	None
Besides the fees collected, what other money is used to pay for the collection service?	IGAP funds are used to assist in allowable solid waste expense.	None
How often garbage is collected:	As needed	None

Site Operations and Equipment Maintenance:

Chignik Lagoon has a solid waste technician who cleans, organizes and consolidates wastes at the landfill. He digs a pit once per year (in the spring) and once filled it is covered and another pit is dug. The solid waste technician also maintains all equipment.

The Table below summarizes our current site operation and maintenance features.

Table 3 Summary Table For Site Operation And Maintenance

Program Feature	Current Description	Planned Changes or Goals
Operation Type	Basic monitoring by waste technician, occasional consolidation, and burnbox operating.	None
Certifications or trainings?	**Waste collector and operator:** HAZWOPER, NRWAC, Small Water, Water Treatment Level 1 Operator **Environmental staff:** IGAP Coordinator, IGAP Assistant I, IGAP Technician Assistant II, Waste Technician	
Heavy Equipment used at Dump	We have a 2008 John Deere loader, a 1999 John Deere dozer and a 2000 Bobcat. It is owned by the	

Table 3 Summary Table For Site Operation And Maintenance

Program Feature	Current Description	Planned Changes or Goals
	Village. This dozer is used for all other projects in our village also.	
How often wastes are consolidated o compacted	We consolidate about every three months.	
How often wastes are covered	Once each year.	
Available Local Cover Material for Dumpsite?	No, no gravel or silt source.	
How Often Cover Material is used, or wastes buried:	About once a year for part of the wastes.	
Cover material is not used, or not used very often, because:	We don't have an accessible gravel source. We need a road to be built to the gravel source which is expensive.	
Heavy Equipment:	2008 John Deere loader 1999 John Deere Dozer 2000 Bobcat	
Heavy Equipment Operation Limitations:	Breakdowns, expensive parts.	
Heavy Equipment Uses (Past and Current Uses):	1. Cover waste 2. Crush vehicles and other junk metal 3. Dig pits at landfill	
Heavy Equipment Seasonal Limitations	None	
Equipment Storage:	None	

Table 3 Summary Table For Site Operation And Maintenance

Program Feature	Current Description	Planned Changes or Goals
Estimated Cost to repair heavy equipment needed for dumpsite:	Unknown	

Site Operation and Maintenance Needs: Equipment shed, and more frequent consolidation.

Table **4** Waste Burning Practices

Feature	Current Description	Planned Changes or Goals
Is burning waste a normal way to manage some or all of your wastes?	*Yes.*	Want to phase out all in-town burning due to health risks.
How many households burn waste in barrels in town?	About 10	Want to phase out all in-town burning due to health risks.
Do businesses burn any wastes in barrels that are in town? **What wastes are burned by them?**	Office(s): None School: None Clinic: None Water Utility: None Other: None	None.
Is waste burned on the ground at the Dump*?* Who lights the fire?	Yes, the waste operator burns some trash on the ground at the landfill.	None.
Burn box Information		

Table **4** Waste Burning Practices

Feature	Current Description	Planned Changes or Goals
Burn box Type and Age and How Ash is Emptied.	Tile burn box purchased nine years ago.	Would like to see the burn box moved further away from town where there will be less smoke inhalation.
How often is the burn box used?	Usually waste is burned about 3 days per week, depending on the time of year. Community residents are allowed to use the burn box.	None.
What is the longest period of time that waste is not burned?	Perhaps two weeks during the winter months.	None.
Does the operator wear an approved mask and long sleeves, glasses, steel-toed boots?	Yes	
Is there a signed statement by the operator that he is expected to wear protective gear and operate the burn box in a correct and safe manner?	Yes	
Are there rules about which wastes are acceptable in the burn box?	Residents are allowed to burn household trash in the burn box. **Prohibited Wastes:** Tires, batteries, computers, TVs, fluorescent lights, hazardous wastes, PVC pipes, big plastics	None.

Table **4** Waste Burning Practices

Feature	Current Description	Planned Changes or Goals
How Well the Rules are Followed:	Fairly well.	None.
Rules about when the operator lights the burn box on fire:	**Wind Direction:** None. **Wind Speed:** None. **Public access:** Public access is granted.	We would like to make it so that the burn box is not allowed to be lit unless the wind is blowing away from the village and the wind speed is less than 20 miles per hour.
How well the burn box fire rules are followed:	Fairly well.	None.
Where does the ash go? How often is it emptied?	The burn box is tilted by heavy equipment and emptied on an as needed basis.	None.
Other burn box or waste burning information that is important:	The burn box in its current location poses a health and fire hazard. It should be moved away from the village.	The burn box in its current location poses a health and fire hazard. It should be moved away from the village.

Revenues and Costs for Current Solid Waste Practices

Table 5 Current Annual Operation And Maintenance (O & M) Expenditures

For Solid Waste:

A	B	C	D	E
Item	**Unit Cost**	**Units**	**Quantity**	**Annual Cost**
Personnel				
Solid Waste Site Operation and Maintenance, Labor for one employee	$2500	Mo	12	$30,000
Fringe, inc. FICA, workmen's comp, benefits ($12,168 x 20%, this equals $12,168 x 0.20)	$450	Mo	12	$5,400
Travel and Training				
Training	$2,500	Lump sum	3	$7,500
Other				
Fuel for equipment operation at site, 20 gallons per week	$5	gallon	52	$2,600
Heavy equipment repair, maintenance, and replacement fund	$20	hour	120	$2,400
Other equipment repair, maintenance and replacement fund	$3	hour	520	$1,560

Supplies				
Safety gear needed each year	$500	Lump sum	1	$500
Office Supplies	$120	Lump sum	1	$120
Total annual O & M expense				**$50,080**

Current Annual Revenues Dedicated to Solid Waste

The below table lists the current revenue sources dedicated to our solid waste program.

Table **6** Current Annual Revenue For Solid Waste Program

Column A	Column B
Item	**Annual Revenue**
Business fee for 3 businesses (School, clinic, post office), $200 per month	$0
Tribal IGAP funds	$16,000
Other Tribal funds	$40,000
Equipment rental fees to outside projects	$0
Revenues from recycling aluminum cans	$0
Other Grant Revenues or Funding Sources	$0

Health and Environmental Issues

Based on the above analysis of our current situation, our primary health and environmental issues related to solid waste management are:

1. No waste separation, so that burning of wastes such as electronic wastes, plastics, rubber, etc. takes place and increases the toxicity of smoke that people are forced to breathe;

2. Lack of collection service that forces residents to visit dumpsite, thus being exposed to waste contact, near-source smoke inhalation, and potential tracking of disease back to town;

3. Residents using home burn barrels due to inconvenience of visiting dumpsite and thus exposing our community to breathing smoke that is in-town;

4. Residents burning trash on the shore of the beaches, contaminating subsistence resources;

5. The overflowing of dumpsters which scatters trash throughout the village, contaminating playgrounds and subsistence resources;

6. The improper disposal of waste oil and filters, which contaminates the ground and can be tracked throughout the village and into homes;

7. The improper disposal of subsistence waste possibly causing disease to children who play on or near the beach; and

8. Summer residents tossing lead-acid batteries into the Lagoon where our subsistence fish, crab, octopus and clams live.

How Much Waste Is Generated

This section assesses the amount and type of our current waste generation and special waste accumulation. Knowledge of our waste stream is critical in determining the best waste management strategy for our community.

Overview of Waste Characterization Process and Results

Because we weren't able to carry out a waste assessment for our community, we are using an average waste generation rate of **3.3 pounds/person/day** for this plan, which is an average waste generation rate found for several remote Alaska Villages around the State. We applied this rate because our community has similar logistics and way of life to other Alaska Villages, but not to Lower-48 communities or Alaska hub communities. This rate includes residential, business, and special wastes.

The population of our community is 69 winter residents and 269 summer residents, an average of 119 residents per month. So the approximate amount of waste generated by our community each year is 143,335.5 lbs per year (or 71.7 tons per year).

We have calculated the weight and amount of special wastes in the community below, which can be considered part of the total. In addition to standard "special wastes", we include any wastes that can be managed differently, with backhaul, recycling, reuse, etc, so that a separate accurate estimate is important in our planning efforts.

Accumulated Special Wastes Currently in the Community

In addition to the waste that is being generated, and in the dumpsite we have in town and at our salvage area, a number of waste materials that require management via future backhaul, recycling, storage, repair, or other methods include:

Table 7 Special Wastes Stockpiled In Our Community Now

Column A	Column B	Column C	Column D
Waste	**How many of these wastes are stockpiled or sitting around your community now:**	**Average Weight of Single Item in pounds (lbs)**	**Estimated Total weight of wastes in your community now**
Lead-acid batteries in **boats**	Boat: 14	40 lbs	560 lbs
Lead-acid batteries in **ATV's**	Atv's: 1	12 lbs	12 lbs
Lead-acid batteries in **Sno-gos**	Sno-gos: 4	12 lbs	48 lbs
Lead-acid batteries in **cars or trucks**	Car or Truck: 6	40 lbs	240 lbs
Aluminum skiff (exc. engine):	1	1000 lbs	1000 lbs

Other boats (with engine):	4	2000 lbs	8,000 lbs
Atv's:	10	800 lbs	8,000 lbs
Sno-gos:	2	1000 lbs	2,000 lbs
Car or Truck:	2	2000 lbs	4,000 lbs
Heavy Equipment	3	10,000 lbs	30,000 lbs
Refrigerators and freezers	0	250 lbs	0 lbs
Stoves, Washers, Dryers	4	200 lb	800 lbs
Office fluorescent lights	0	4 ft tube=0.7 lb	0 lbs
Empty 55 gallon drums	50	50 lbs	500 lbs
Full 55 gallon drums of used oil	120	600 lbs	72,000 lbs
Full 55 gallon drums of used antifreeze	10	600 lbs	6000 lbs
Full 55 gallon drums of unknown or mixed waste	30	600 lbs	18,000 lbs

Special Wastes and Other Wastes of Interest in Recycling, Reuse and Reduction Programs

The values of our community are to conserve and protect everything that comes to us from the land. Our goal is to maximize the careful use of resources, including recycling. This section contains tables that identify wastes that may be reduced, banned, or diverted for immediate or future recycling through a management program.

Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J	Column K	Column L
WASTE:	About this many households have at least one of the item (Households are averaged between winter and summer months:	Average number that these households own.	Average number of yrs before the waste item will need to be discarded	Total number generated each year	How many total of these wastes do businesses have?	Total average number each yr discarded from business, schools, offices, utilities.	Total from households and businesses	Average Weight of Single Item in pounds (lbs)	Estimated Total weight generated (lbs)	Estimated % that is **not** salvaged for parts or reused	Estimated total weight each year generated that is not salvaged for parts or reused (lbs)
Lead Acid Batteries: **BOATS**	331	6.9	20	16.55	1	.05	16.6	75	1245	100%	1245
Lead Acid Batteries: **ATV's**	60	2.5	4	30	1	.25	30.25	12	363	100%	363
Lead Acid Batteries: **SNO GO's**	8	6	5	1.2	0	0	6	12	72	100%	72
Lead Acid Batteries: **CAR or TRUCK**	456	9.5	7	65.14	4	.57	65.71	40	2628.4	100%	2628.4
Total Lead-Acid Batteries											**4308.4** *(about 67% of this weight is lead)*

Aluminum skiff (exc. engine):	64	1.33	8	8	1	.125	1.5	1,000	1500	90%	1350
Other boats:	32	.67	20	1.6	0	0	1.6	2,000	3,200	100%	3,200
ATV's:	34	.71	5	6.8	1	.2	7	800	5,600	80%	4,480
Sno-Gos:	7	.15	5	1.4	0	0	1.4	1,000	1,400	100%	1,400
Car or Truck:	66	1.38	20	3.3	4	.2	3.5	2,000	7,000	80%	5,600
Heavy Equipment	19	.40	20	.95	9	.45	1.4	10,000	14,000	70%	9,800
Household refrigerators and freezers	127	2.66	25	5.08				250	1,270	100%	1,270
School/Store refrigerators and freezers			20		25	1.25		1,000	1,250	100%	1,250
Wood Stoves, Cooking Stoves	52	1.08	20	2.6	11	.55	1.63	200	326	100%	326
Washers, Dryers,	90	1.875	20	4.5	12	.6	5.1	200	1,020	100%	1,020
Fluorescent light **bulbs**	0	0	1.5	0	0	0	0	0.20	0	100%	0

Fluorescent **tube** lights (4-ft tubes)	19	.39	5	3.8	130	26.0	29.8	0.75	22.35	100%	22.35
Computers (without monitors)	10	.21	3	3.33	*5*	1.67	5	*30*	150	100%	150
Monitors	20	.42	3	6.67	*10*	3.33	10	*20*	200	100%	200
Laptops	86	1.8	3	28.67	*20*	6.67	35.34	*7*	247.38	80%	197.9
T.V.'s	34	.71	7	4.86	*5*	.71	5.57	*50*	278.5	100%	278.5
Total											**30,544.75**

Table 8 Special Waste Annual Generation Rates

Note, Waste items are averaged over their life expectancy, although they are discarded as a single total event.

Table 9 Important Additional Wastes With Different Estimation Methods

(Diapers, Used Oil, Antifreeze)

Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J
Disposable Diapers	Average Number of people in village	Number of babies in village that use disposable diapers:	Number of diapers each day for each baby (nationwide average is 5):	Number of diapers each day:	Number of diapers each year:	Total weight: (Average weight of full diaper = 0.4 lb)	Approximate volume in landfill, cubic yard.: (avg. child = .53 /yr)	Average waste generated per person each day in lbs	Approximate % of total wastestream by weight
	119	4	5	20	7,300	2,920	2.12	8	**2.75%**

	Households						Businesses				Totals		
Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J	Column K	Column L	Column M	Column N
Used oil from vehicles	Number of households that have working vehicles:	Average number of vehicles for households that own one:	Total household vehicles (estimated)	Average number of quarts that are drained per vehicle:	How many times per year is oil purposely drained on average for these vehicles?	Number of quarts drained each year by houses:	**Total** number of vehicles for **all** businesses	Average number of quarts that are drained per vehicle:	How many times per year is oil purposely drained on average for these vehicles?	Number of quarts drained per year from businesses	Total quarts each year that are drained:	Total Gallons of recoverable used oil each year for recycling/ heat	Total **gallons** of drinking water protected if used oil is diverted:
	Enter:	Enter:	B x C *OR* Enter:	Enter:	Enter:	D X E X F	Enter:	Enter:	Enter:	H X I X J	G+K	L X 4	M * 1 million
ATVS	34	1.77	60.18	1	3	180.54	1	1	3	3	183.54	734.16	734,160,000
Snow-machines	5	1.4	7	2	1	14	0	0	0	0	14	56	56,000,000
Boats	33	2.9	96	40	5	19,200	1	40	5	200	19,400	77,600	77,600,000,000
Cars or Trucks	35	1.89	66	4	4	1,056	4	4	4	64	1,120	4,480	4,480,000,000

Heavy Equipment	9	2.11	19	16	4	1,216	9	16	4	576	1,792	7,168	7,168,000,000
TOTAL			**244.73**			**21,659.64**	**15**			**843**	**22502.64**	**90,010.56**	**20,010,560,000**

	Households					Businesses				Total
Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J	Column K
Antifreeze from vehicles	Number of households that have vehicles that use antifreeze	Average number of vehicles per household (boats,atvs snowmachines):	How often old oil is drained on purpose and new oil put in each year for each vehicle	Average number of quarts that are drained per vehicle:	Number of quarts drained each year by houses:	Total number of vehicles for businesses	Average number of times per year that old oil is drained per vehicle	Average number of quarts that are drained per vehicle	Number of quarts drained per year for businesses:	Total quarts each year that are drained:
	Enter:	Enter:	Enter:	Enter:	BxCxDxE	Enter:	Enter:	Enter:	GxHxI	F+J
ATVS	0	0	0	0	0	0	0	0	0	0
Snow-machines	5	1.4	1	2	14	0	1	2	0	14
Boats	33	2.9	5	40	19,140	1	5	40	200	19,340
Cars or Trucks	35	1.89	4	4	1,058.4	4	4	4	64	1,122.4

Heavy Equipment	9	2.11	4	16	1215.36	9	4	16	576	1,791.36
TOTAL					**21,427.76**				**840**	**22,267.76**

Table **10** Estimation Of Aluminum Cans, Plastic Bottles, Styrofoam, And Cardboard For Recycling Or Waste Reduction/Banning Purposes

Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J
Recyclable Material	**How Many pieces (cans, bottles, boxes etc.) the stores order each year:**	**About how many households bring in or order their pop cans directly:** ***(Just estimate what you think)***	**Average number of items these households bring in each year:**	**Total posted or brought in from households each year**	**Number posted or directly shipped to businesses other than stores (e.g. school):**	**Total estimated number:**	**Total pounds per year:**	**Total potential revenue per year:** ***(multiply pounds(column H) by the price that Recycling company pays (column J))***	**Price that Recycling company pays per pound**
	Enter	**Enter**	**Enter**	**(CxD)**	**Enter**	**(B+E+F)**		**(H*J)**	
Aluminum Cans ***(not cases)***	0	35.5	480	17,040	0	17,040	511.2	$127.80	$0.25
Plastic Bottles	0	35.5	120	4,260	0	4,260	340.8	$0	$0.00
Styrofoam	0	0	0	0	0	0	0	$0.00	$0.00

Cardboard ***(Corrugated boxes)***	0	35.5	220	7,810	0	7,810	7,810	$234.3	$0.03
Total Estimated Revenues								$362.10	

Construction and Demolition Wastes

Based on USEPA research for nationwide averaged actual figures, the amount of construction and demolition (C & D) wastes is summarized in the table below. Because C & D wastes from a project enter the site in a single year, versus over the building lifetime, total project wastes and average annual wastes are included.

Table 11 Estimation of Construction & Demolition Waste

Column A	Column B	Column C	Column D	Column E	Column F	Column H
Project	**Building Area (sq ft)**	**Salvage Factors**	**Total Project Wastes (pounds)**	**How often built (years)**	**Average waste per year (pounds)**	**Average waste per year (tons)**
School *construction*	10,000	10%	35,010	30	1,167	0.58
Clinic *construction*	3,000	5%	11,087	20	554	0.28
Post office *construction*	1,000	10%	3,501	20	175	0.09
House(s) *construction*	1,500	15%	5,585	7	798	0.40
Renovation, residential	500	10%	7,157	1	7,157	3.58
Renovation, *non-houses*	750	10%	11,928	5	2,386	1.19
Demolition, *residential*	750	10%	77,625	10	7,763	3.88
Demolition, *non-residential*	1,000	12%	136,400	20	6,820	3.41

Total Average Tons Per Year of C&D Waste					26,820	**13.41**

The numbers in the table above represent the amount of construction wastes generated in our community. The procedure we have developed for handling construction project waste is described below.

AMENDED STANDARD SERVICE AGREEMENT

THIS AGREEMENT, dated the __ day of _____, 2017 by and between the **CHIGNIK LAGOON VILLAGE COUNCIL** and _____ (hereinafter referred to as **"Contractor"**).

WITNESSETH:

Chignik Lagoon Village Council intends to award the **Contractor** for providing the necessary contractual services to **Chignik Lagoon Village Council** and/or its **Chignik Lagoon community**.

The **Contractor** agrees to abide by all the rules, regulations, and ordinances of **Chignik Lagoon Village Council.**

The Chignik Lagoon Village Council, a federally recognized tribe, will assess costs and the Contractor hereby consents to pay for all the fines, collection costs, legal fees, and can include shipping costs (either by barge or plane) if equipment is left behind for providing the services on this agreement pursuant to the following schedule:

Violators of any provision of this Contract shall be penalized as follows:

1st offence: $50.00 or community service cleaning up the mess of the violator.

(Contractor only - $5,000.00 plus pay for any equipment freight if it is left behind) (Outside company - $25,000.00 fine)

2nd offence: $75.00 or community service cleaning up the mess of the violator.

(Contractor only - $10,000.00) (Outside company - $50,000.00 fine)

3rd offence: $100.00 or community service cleaning up the mess of the violator.

(Contractor only - $15,000.00) (Outside company - $75,000.00 fine)

Conformance with respect for the environment and traditional values, the Tribal

Council enforces the following values: protection of the sustainability of the environment, ensuring that our subsistence resources and way of life will continue for the next generation, respect for the health of elders and the welfare of our youth. Examples of applying these values include but are not limited to: hazardous waste, toxics and construction debris, including broken equipment, cannot be left in the village; waste may only be disposed in the place and manner approved by the tribe.

Before the work begins, Contractor must sign an agreement to pay for shipping costs to send the equipment back to where they got it from. **If agreement is not signed**, company will be referred to as **Outside Company**.

NOW, THEREAFTER, in consideration of the mutual promises of the parties contained herein, the parties agree as follows:

Article I. GENERAL

A. SCOPE OF WORK: This is an Agreement entered into to obtain (may attach paper explaining work)

_____

_____

_____ for the **Chignik Lagoon Village Council,** and/or its **Chignik Lagoon community**.

B. LOCATION OF WORK: The Project is located within the area governed by the **Chignik Lagoon Village Council**.

C. SOLID WASTE GENERATED FROM PROJECT: Contractor shall provide Chignik Lagoon Village Council with a list or waste types and amounts to be generated from Project and a plan for removal and/or destruction of such waste.

D. HAZARDOUS WASTE GENERATED FROM PROJECT: Contractor shall remove all hazardous waste generated from Project from the community of Chignik Lagoon.

Article II. CONTRACTOR'S SERVICES

1. **Contractor** agrees to provide all Basic Services as set forth and specifically made a part hereof by reference **Scope of Work.**

Article III. TIME

A. COMMENCEMENT OF SERVICES: Contractor's services shall commence the date it was signed and be effective and executed same day.

B. EXPIRATION OF SERVICES: This Agreement shall be effective the day it was signed by both parties and end only if **Contractor** fulfills its part on the agreement.

Article IV. TERMINATION

A. This Agreement may be terminated by fulfilling the **agreed contract for service**, **has no fines to pay** to **Chignik Lagoon Village Council**, includes **no collection fees,** and has **left no equipment** in the village of Chignik Lagoon. If one of terms is unsatisfactory, termination will not take effect until all of the terms are of satisfactory condition. In addition, the **Chignik Lagoon Village Council** may terminate the Agreement in its discretion at any time on 30 day(s) written notice to the **Contractor**. In the event of such termination the **Contractor** shall be compensated for work performed prior to the termination date, including Reimbursable Expenses then due.

Article V. DISPUTES

A. In the event of any dispute arising under this Agreement, as a condition precedent of any action being initiated by the **Contractor**, the **Contractor** shall submit to the **Chignik Lagoon Village Council**, within 30 day(s) of the date of the event giving rise to the dispute, a written statement of the **Contractor**'s claim which shall include a full description of the basis for said claim, its amount, and the contract provision(s) relied upon.

Article VI. CHANGES

A. The **Chignik Lagoon Village Council** retains the right to make additions or deletions to the scope of the services hereunder and the compensation to be paid to **Contractor** shall be adjusted accordingly, at the request of the **Chignik Lagoon Village Council**, the **Contractor** shall prepare a written amendment, change, together with such supporting data as necessary to reflect the manner in which any change is compensation has been calculated.

In the event of dispute between the parties as to the appropriate adjustment to compensation, the **Contractor** shall proceed with the work as ordered by the **Chignik Lagoon Village Council** and any thereafter submit its claim through the disputes procedures specified here.

Article VII. NOTICES

A. All notices required or permitted under this Agreement shall be delivered as stated hereunder. Notice shall be deemed complete upon mailing.

Article VIII. SUCCESSORS AND ASSIGNS

A. The **Chignik Lagoon Village Council** and the **Contractor** each binds itself, its partners, successors, assigns and legal representatives to the other party to this Agreement and to the partners, successors, assigns and legal representatives of such other party with respect to all covenants of this Agreement. The **Contractor** shall not assign, sublet or transfer any interest in this Agreement of obligation hereunder without the written consent of the **Chignik Lagoon Village Council**.

Article IX. EMPLOYEES AND CONSULTANTS

A. The work required under this Contract will be performed by the **Contractor**, its employees and consultants. The **Contractor** shall have the sole right to designate which of its employees shall perform the services required to be performed under this Standard Service Agreement. ***All such persons or entities become under the jurisdiction of the Tribe and the Contractor continues to be liable for all of their actions and responsibilities.***

B. The **Chignik Lagoon Village Council** retains the right to approve or reject the use of any sub-consultant. The **Contractor** will notify the **Chignik Lagoon Village Council** in writing of the **Contractor**'s intent to employ a sub-consultant. The **Chignik Lagoon Village Council** shall notify the **Contractor** if it rejects the proposed employment. Otherwise, the **Contractor** shall proceed with the employment of the sub-consultant as proposed.

Article X. INTEGRATION

A. This Agreement represents the entire integrated agreement between the **Chignik Lagoon Village Council** and the **Contractor** and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both the **Chignik Lagoon Village Council** and the **Contractor**.

Article XI. INDEPENDENT CONTRACTOR

A. The parties intend that the relation between them created by this Agreement is that of employer-independent **Contractor**. **Contractor** will be solely and entirely responsible for his acts and those of his agents, employees, and sub-**Contractor**s. If contractor hired employee(s) from Chignik Lagoon, Chignik Lagoon employee(s) is responsible for his/her own actions.

CHIGNIK LAGOON VILLAGE COUCIL **CONTRACTOR**

Sign:_____ **Sign:**_____

By: _____ **By:** _____

Title: _____ **Title:** _____

Date: _____ **Date:** _____

Sign:_____ **Sign:**_____

By: _____ **By:** _____

Title: _____ **Title:** _____

Date: _____ **Date:** _____

Tax ID number Tax ID, Business license or Social Security # *

IRS # 92-0000000 _____

***PLEASE NOTE:**

Alaska Statute 23.20.265 states that, "If you are an employer, and you contract work to another employer, it is your responsibility to be sure that the employer has paid all

Employment Security Taxes before you make payment to that employer

AMENDED ORDINANCE NO._____

AN ORDINANCE OF THE CHIGNIK LAGOON VILLAGE COUNCIL, PROCEEDING FOR THE REGULATION OF SOLID WASTE.

Be it ordained and enacted by the Chignik Lagoon Village Council of Chignik Lagoon as follows:

Section 1: **Cultural Impact.** The Tribal Council finds that solid waste threatens the sustainability of the Chignik Lagoon traditional culture, by harming the environment, damaging the wildlife and adversely impacting the health of our elders and children and the welfare of the culture. We have an obligation to take such actions as necessary to ensure that our subsistence can be passed on to our future generations.

Section 2. **Solid Waste Threat:** Solid Waste is leaching toxics and contaminants and hazardous materials into our environment. Global warming has reduced permafrost and increased surface water that allows these contaminants to move through our environment causing greater harm.

Section 3. **Reduce, Recycle and Eliminate Solid Waste**: It is important to prevent toxics, solid waste and hazardous materials from entering or accumulating in the village as much as possible.

Those who bring it in should be responsible for sending it out, or bringing in alternatives that do as little harm as possible and are stored appropriately or disposed of appropriately. Excess food and second hand goods should be recycled or shared to the fullest extent possible. This includes using the dumpsite landfill and burn boxes appropriately. Recyclables like newspaper, pop cans, scrap metals, computers, and plastic bottle are to be separated and recycled, including boat/car batteries to IGAP. Any recyclable item(s) can be recycled as long as it is accepted by any taker. Aluminum cans that are not recyclable are to be crushed to take less space in the dumpsite/landfill. Burnable items shall be reduced to ashes using burn boxes.

Section 4. **Construction wastes**: All construction wastes that are burnable can be burned at the dump/landfill site. Contractor's broken equipment must be sent back to the owner place. Before the work begins, contractor must sign an agreement.

Section 5. **Information Sheets**: Some waste items cannot be safely burned or stored or maintained in the village. These should not be brought into the village where possible. The staff will circulate notices and information sheets periodically such as:

Waste items that **cannot be burned**:

Waste that **may not be disposed** in a class III landfill:

Waste that **may be disposed** into a class III landfill:

Dead animals and waste food **recycled or burned**:

Proper crushing, burning and recycling and separating

Introduction:_____ Public Hearing:_____

Passed and Approved this____day of _____, 2010 by the Chignik Lagoon Village Council of Chignik Lagoon, AK

Signed:_____ Attest:_____

Jeremy Anderson, President

Nancy Mills, Secretary

Chignik Lagoon Village Council

Solid Waste Management

Solid Waste Ordinance

AN ORDINANCE pertaining to public health, safety, and welfare

BE IT ENACTED BY THE CHIGNIK LAGOON TRIBAL COUNCIL AS FOLLOWS:

TITLE X PUBLIC HEALTH, SAFETY, AND HUMAN WASTE

CHAPTER 10.01.010 GARBAGE AND HUMAN WASTE

Section 10.01.010 – SOLID WASTE DISPOSAL SITE

The Solid Waste Disposal Site is located ½ mile up from the last home in the village.

Section 10.01.020 – DEFINITIONS

ADEC is the Alaska Department of Environmental Conservation, who issues approval of the Chignik Lagoon Village Council Solid Waste Management Plan.

Back-haul freight means to export material out of the village on a carrier (plane or barge) returning to its home or hub port.

Construction Debris includes discarded pipe, demolition or construction waste, and burned building remains.

Cover Material is soil or gravel applied over trash. Cover material serves to reduce spread of disease, keep animals out of trash, and reduce nuisance conditions.

Final Cover is soil or gravel applied over trash to a depth of one (1) foot.

Hazardous Wastes are lead-acid batteries, transformers with PCBs, asbestos lined stovepipes, aerosol cans, freezer elements, and any material or substance categorized as hazardous wastes under Alaska or federal law.

Raw Sewage are undiluted sewage wastes.

Intermediate Cover is soil or gravel applied over trash to a depth of six (6) inches.

Junk Vehicles are discarded ATVs, snow machines, bicycles, etc. Herein, junk vehicles do not include cars or trucks. Junk vehicles are disposed in the salvage yard.

Junk Cars and Trucks are discarded or destroyed automobiles and trucks. Junk cars and trucks are disposed in the area designated for the disposal of construction wastes and junk cars within the Solid Waste Disposal Site.

Recyclable Wastes are aluminum cans and other trash, which can be reused depending on market value and recovery costs, including transportation, storage, and collection costs.

Salvage Yard is the portion of the Solid Waste Disposal Site where salvage is permitted.

ATVs, snow-machines, and bicycles are disposed of in the salvage yard.

Sanitary Landfill is the portion of the Solid Waste Disposal Site where trash is regularly covered with soil or gravel.

Section 10.01.030 – WASTE DISPOSAL

A. Trash (or refuse, will be disposed of in the sanitary landfill portion of the Solid Waste Disposal Site. A sign indicating where to dispose trash within or adjacent to the landfill will be maintained.

B. The cover operation involves waste consolidation, compaction, and application of cover. Refuse will be consolidated and compacted but no cover applied during winter months.

C. Final Cover will be applied over the last layer of trash. Final cover closes out that section of the sanitary landfill.

D. Dense, large and non-biodegradable construction debris, white wastes and junk cars and trucks will be disposed outside the sanitary landfill portion of the Solid Waste Disposal Site. Large non-biodegradable wastes can be safely disposed outside the sanitary landfill. Such wastes do not compact well and take up considerable space in the sanitary landfill and thus shorten the life of the sanitary landfill.

Section 10.01.040 – HAZARDOUS WASTE DISPOSAL

A. Hazardous waste such as electrical transformers with PCBs. or asbestos. Will not be disposed in the Solid Waste Disposal Site. In the event that such hazardous wastes appear in Chignik Lagoon, ADEC will be contracted for assistance in determining a safe method of disposal.

B. Household hazardous wastes will be disposed of with other refuse within the sanitary landfill part of the Solid Waste Disposal Site. Separation and storage of household hazardous waste may be disposed with other trash or refuse.

C. Lead-acid batteries will be turned in to IGAP personnel for future backhaul event. Batteries will be stored and shipped to a battery recycle or some responsible party who will properly dispose of the batteries.

Section 10.01.060 – WASTE RECOVER/SALVAGE

A. Aluminum can recovery will be simple since Peninsula Airways transports the recycled cans for free. The task of handling and storing the aluminum cans is done by IGAP personnel.

B. Junk vehicles with some salvage value will be disposed in the salvage yard. Persons may recover parts and materials they want from the salvage yard.

Salvage of parts from cars and trucks disposed in the construction wastes and junk cars and trucks disposal area is also encouraged.

Section 10.01.070 – INCINERATION

A. Residents will be encouraged to use burn barrels to reduce trash volume. Burn barrel rules are as follows:

1. Burn barrels will not be located within 30 feet of any building.
2. Burn barrels will not be located within 200 feet of any bulk fuel storage tank.
3. The use of burn barrels will not be allowed during high winds (gusting above 20 mph).

B. Untended Open Burning will not be allowed at the Solid Waste Disposal Site. Open burning can cause fires along the hillside.

Section 10.01.080 – CLEAN UP

A. Annual Clean-up Day will be declared annually in the spring after breakup.

Resident's will be encouraged to pick up trash which has accumulated around town. The Village may provide trash bags and provide collection of full trash bags.

B. Solid Waste Disposal Site Clean-up will be done annually. In the early summer uncovered refuse which has accumulated over the winter will be considered, compacted and covered.

C. Litter around the access to the Solid Waste Disposal Site, the salvage yard, and the construction wastes disposal area will be picked up from time to time as is required.

Litter collection will not be done within the sanitary landfill area; it is dangerous and it is a liability to the Village.

Summary of Waste Generation

Table 12 Summary of Waste categories for Planning Purposes

Category	**Amount and Unit**
Residential household trash	11.44 tons per year
Non-residential trash	5 tons per year
Additional special wastes, household, **non-trash**	2 tons per year
Additional special wastes, business, **non-trash**	1 ton per year
Recyclables	6.99 tons per year
Safest wastes for burnstream	5 tons per year
Construction Wastes	13.41 tons per year
On-site accumulated special wastes for future backhaul	Total currently is 58.62 tons
Total wastes (sum of trash, special wastes, construction)	91.47 tons
Uncertainty factor for planning purposes	109.76 tons
Planning purposes	103.46 tons per year, plus accumulated

Projected future population and waste generation:

Our population growth was discussed in Chapter 3. The Table below applies the estimated growth rate to the estimated annual waste generation rate of 109.76 tons per year, discussed above. This ISWMP is based on the projected figures. Additional equipment will be sized to reflect these numbers. Future programs, such as expanded education and recycling efforts will incorporate the projected population.

Table **13** Projected Population and Waste Generation for the Next 20 Years for **Chignik Lagoon**

Year	Population	Waste (Tons)
2010	*119*	71.7
2011	*120*	72.3
2012	*121*	72.9
2013	*122*	73.5
2014	*123*	74.1
2015	*124*	74.7
2016	*125*	75.3
2017	*126*	75.9
2018	*127*	76.5

2019	*128*	77.1
2020	*129*	77.7
2021	*130*	78.3
2022	*131*	78.9
2023	*132*	79.5
2024	*133*	80.1
2025	*134*	80.7
2026	*135*	81.3
2027	*136*	81.9
2028	*137*	82.5
2029	*138*	83.1
2030	*139*	83.7

Recycling, Reducing, And Reusing Program

Traditional values of our culture have taught us that recycling and reusing is important to our way of life. Our Elders and ancestors have stressed the importance of minimizing waste and maximizing the use of all things. We must continue to pass these traditional values on to our children and grandchildren. All of our current efforts and our procedures for recycling, reducing and reusing are detailed in the table below.

General description of program's most important accomplishments/aims:

Our first recycling waste program was aluminum cans in 2003. Now we are collecting lead-acid batteries, household batteries, aluminum cans, and plastic bottles. We are educating the community about why it is important to drop off their batteries.

Table **14** Wastes That Are Currently Collected Or Dropped-Off For Recycling, Backhaul, Storage, Or Reuse Programs

Waste	How collected or separated? What residents should do	What for?	Where it is stored?	Is it shipped out? How often?	Who takes it?	Where does it go to?
Aluminum cans:	Seperated in homes and dropped off to IGAP by residents.	Respect for our land.	IGAP recycling shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Plastic Bottles:	Seperated in homes and dropped off to IGAP by residents.	Respect for our land.	IGAP recycling shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Newspapers:	Nothing yet.	N/A	N/A	N/A	N/A	N/A

Waste	How collected or separated? What residents should do	What for?	Where it is stored?	Is it shipped out? How often?	Who takes it?	Where does it go to?
Cardboard:	To be dropped off at Subsistence Building Garage where other residents may pick up for reuse.	To be reused by other residents for storing and moving items, shipping boxes out of community, to protect floors.	Subsistence Building Garage	N/A	N/A	N/A
Paper:	Nothing yet	N/A	N/A	N/A	N/A	N/A
Ink jet cartridges	To be dropped off at Subsistence Building Garage	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Plastic Bags:	Nothing yet	N/A	N/A	N/A	N/A	N/A
Glass:	Nothing yet	N/A	N/A	N/A	N/A	N/A
Styrofoam:	Nothing yet	N/A	N/A	N/A	N/A	N/A
Food Wastes:	Nothing yet	N/A	N/A	N/A	N/A	N/A
Furniture, Clothes, toys, other useful items	To be dropped off at Subsistence Building Garage where other residents may pick up for reuse.	To be used by other residents or residents of neighboring villages.	IGAP building, reuse room.	N/A	N/A	N/A

Waste	How collected or separated? What residents should do	What for?	Where it is stored?	Is it shipped out? How often?	Who takes it?	Where does it go to?
Household (small) batteries	To be dropped off at Subsistence Building Garage	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Lead-acid (Vehicle) batteries	To be dropped off at IGAP shed for next backhaul.	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Used oil	To be dropped off at IGAP shed for next backhaul.	To be placed into Waste Oil Tanks for future use/backhaul	N/A	N/A	N/A	N/A
Vehicle fluids that are not oil (contain	To be given to waste technician.	To be burned.	N/A	N/A	N/A	N/A
Computers	To be dropped off at Subsistence Building Garage	For future mailout.	IGAP building backhaul shed.	Mailed out periodically	M/V Helinka B.	Recycling center in Anchorage.
T.V.s	To be dropped off at Subsistence Building Garage	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.

Waste	How collected or separated? What residents should do	What for?	Where it is stored?	Is it shipped out? How often?	Who takes it?	Where does it go to?
Other electronics	To be dropped off at Subsistence Building Garage	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Fluorescent lights	To be dropped off at Subsistence Building Garage	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
55-gal drums	To be dropped off at IGAP shed for next backhaul	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Scrap copper (e.g. pipes	To be dropped off at IGAP shed for next backhaul	For future backhaul.	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Scrap Aluminum (boats, etc.)	To be brought to landfill/salvage pad.	Salvage	Landfill	N/A	N/A	N/A
Junk vehicles	Store at dump salvage area	Salvage	Landfill	N/A	N/A	N/A

Waste	How collected or separated? What residents should do	What for?	Where it is stored?	Is it shipped out? How often?	Who takes it?	Where does it go to?
Junk appliances	Store at dump salvage area	Salvage	Landfill	N/A	N/A	N/A
Freon from appliances	To be dropped off at IGAP shed for next backhaul	Backhaul in future	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.
Unused hazardous materials like paints, cleaners, degreasers, lube oil, disinfectants, sprays, mosquito repellents, insect killers, mold removal, weed killers	To be dropped off at IGAP shed for next backhaul	Backhaul in future	IGAP building backhaul shed.	Backhaul is shipped out by barge at least once per year.	M/V Helinka B.	Recycling center in Anchorage.

Table **15** Recycling Equipment Description, Status, And Plans

Item	Description	Own Now?	Will purchase in next year with existing funds	Want to have in next 5 years	Plan later than 5 years when we are ready or have the need for it.
Recycling Shed to store wastes for later backhaul?	16 X 20	Yes	N/A	N/A	N/A
Storage bags for Aluminum Cans	ALPAR bags	Yes	N/A	N/A	N/A
Recycling Baler?	Sized for us, to use for cans, plastics	Yes	N/A	N/A	N/A
Reuse-Share Shed	Subsistence Building Garage	Yes	N/A	N/A	N/A
Connex or Shed to store hazardous wastes for safety					

The following Table summarizes staff management and community member responsibilities for our Recycling Program.

Table **16** Recycling Management Program

Item	What community members should do	Who is in charge of this program?	Planned drop-off locations or other means of collection?	What is the priority for increasing recycling or starting it? (1 = highest, 2 = medium concern, 3 = lower concern)
Aluminum can recycling	Separate and call IGAP for pick up or drop off at IGAP shed	IGAP Staff	Same	1
Newspapers	We don't recycle these yet.	IGAP Staff	N/A	3
Cardboard	Drop off at Subsistence building so that other residents may reuse.	IGAP Staff	IGAP building	3
Plastic Bottles	Separate and call IGAP for pick up or drop off at IGAP shed	IGAP Staff	IGAP building	2
Plastic bags	Reduce use, we don't recycle these yet	IGAP Staff	N/A	3
Used oil	Drop off at IGAP shed	IGAP Staff	Same	3

Item	What community members should do	Who is in charge of this program?	Planned drop-off locations or other means of collection?	What is the priority for increasing recycling or starting it? (1 = highest, 2 = medium concern, 3 = lower concern)
Vehicle Batteries	Drop off at IGAP shed	IGAP Staff	Same	1
Computers, TV's	Drop off at IGAP shed	IGAP Staff	Same	1
Household Batteries	Drop off at IGAP shed	IGAP Staff	Same	1
Printer cartridges	Drop off at IGAP shed	IGAP Staff	Same	1

Recycling Revenue and Payments

We make about $240 from recycling cans in one year. We use this money to help pay for solid waste management. We estimated that we can make almost $1500, so we want to increase our education our aluminum can recycling.

Backhaul Program

Table **17** Wastes Already Backhauled

Waste item	Amount backhauled (count or weight)	Date(s) backhauled
Refrigerators and freezers	10	09/16
Junk vehicles (this is sold as scrap metal)	42	09/16
Other scrap metal	Water Tank, connex box, propane tanks,	09/16
Batteries (lead acid)	15 fish totest	2008-2016
Computers	Mailed out often	
Other e-waste	Mailed out often	

Table **18** Wastes To Be Backhauled Within Five Years

Waste item	Estimated amount to be backhauled (count or weight)	Where are the items being stored?	Estimated date for backhaul
Refrigerators	0	Landfill	Unsure
Junk cars	5	Landfill	Unsure
Miscellaneous scrap metal	100 lbs	IGAP Storage	Unsure
Batteries (lead acid)	15	IGAP Storage	06/17
Computers	10	IGAP Storage	Unsure
Other e-waste	10	IGAP Storage	06/17

Hazardous Wastes

We know that hazardous wastes can be harmful to us, so we are trying to reduce our use and also to keep them out of our dump and our camps. We are now collecting lead-acid batteries, household batteries, electronics, plastics and aluminum cans to be recycled. We set up a shed to store these hazardous wastes. We are educating the community about why it is important to recycle or properly dispose of hazardous wastes.

Table 19 Table For Hazardous Wastes And Some Reasons Why They Harm Our Community

Waste	Where/how it is disposed now	Why it is harmful
Medical Wastes	Sharps are sent to the Kanakanak Hospital in Dillingham.	Diseases from medical waste can be spread by contact with soiled bandages, sharps etc.
Disposable Diapers	At the landfill.	Bacteria from the feces and urine can spread disease. People can potentially step on the diapers and track the bacteria into their homes. If burned, chemicals are released and can cause illnesses if inhaled.
Plastic bottles, PVC pipes, and Styrofoam	Plastic bottles are encouraged to be recycled. Other items are burned with trash at the landfill.	Causes dioxins and furans. Inhaling of the smoke or consuming the settled ashes over a long period of time can cause illnesses, including cancer. This is why burning be done only when the wind blows away from the community.
Household (small) batteries	Residents bring batteries to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.
Lead-acid (Vehicle) batteries	Residents bring batteries to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.

Waste	Where/how it is disposed now	Why it is harmful
Used oil	Residents bring used oil to the IGAP shed. The IGAP department is currently working with CLVC to place and manage waste oil tanks. They are also in the discussion process of getting the black gold heater to working status in the community shop to start the process of using the waste oil.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.
Vehicle fluids that are not oil	Residents bring waste fluids to waste technician, who burns it.	The fumes produced from the burning is harmful to the environment.
Computers	Residents bring computers to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.
T.V.s	Residents bring T.V.s to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.
Other electronics	Residents bring electronics to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.

Waste	Where/how it is disposed now	Why it is harmful
Fluorescent lights	Residents bring fluorescent lights to IGAP shed, where they are stored until backhauling event.	If not recycled, harmful chemicals can leech into our water system and affect community residents as well as the plant and animals we subsist from.

List of Hazardous Waste Resources

Topic	Link
Household and lead-acid batteries	http://www.zendergroup.org/battery.htm
Solutions for Hazardous Waste in Alaska Native Villages	http://www.zendergroup.org/haz.htm
General info on hazardous waste training, identification, and starting a program	http://www.zendergroup.org/handout.htm http://www.ccthita-swan.org/Planning/haz_wastes.cfm http://www.ccthita-swan.org/Tutorials/haz_wastes.cfm ,
Household hazardous wastes	http://www.ccthita-swan.org/pdf/household_haz%20_feb05.pdf , Some more home cleaning recipes: http://www.ces.ncsu.edu/depts/fcs/housing/pubs/fcs3682r.html , For a simple tour through a house's hazardous products and identifying alternatives (a great site!): http://www.checnet.org/healthehouse/virtualhouse/index.asp
ANTHC/ANHB SWM Guide Appendix 3 Household Hazardous Waste Guide	http://www.zendergroup.org/anhbguide/App3.pdf
Solid Waste Solutions in Rural Alaska, ITEP/Zender Environmental	www.zendergroup.org/docs/swsolutions_itep_zender.pdf
Total Reclaim – accepts many different types of hazardous wastes. Call Larry Zirkle **at** (907) 561-0544	http://www.totalreclaim.com/

Recycling Solid and Hazardous Wastes- *Funding a minimum-cost program for shipping or storing wastes*	http://www.zendergroup.org/docs/erecycling.pdf

Table 20 Hazardous Waste Recycling And Staging For Future Backhaul

Item/Task	Do we have this?	Who operates it? Who is in charge? Where is it?	Do we want this in the next five years? What are the details of what we want?	What is priority to get or improve? *(1 = highest, 2 = medium, 3 = lowest)*
Place for people to drop-off?	Yes	IGAP, IGAP Staff, IGAP Shed	N/A	1
Used Oil Burner? Who operates?	Yes, but not functioning	Not at this time. The one in the community is owned by CLVC. IGAP staff and CLVC are currently in the discussing what is needed to fix the black gold heater in the community shop.	N/A	1
Totes for storage of lead-acid batteries?	Yes	IGAP, IGAP Staff, IGAP Shed	Totes are in the ordering process now	2

Item/Task	Do we have this?	Who operates it? Who is in charge? Where is it?	Do we want this in the next five years? What are the details of what we want?	What is priority to get or improve? *(1 = highest, 2 = medium, 3 = lowest)*
Antifreeze Recycler?	No	N/A	It is important for our community to have one of these considering we are a commercial fishing community and we go through a lot of antifreeze in our fishing vessels.	1
Freon Removal?	No	N/A	Yes, need to have local community member(s) trained to safely remove freon	1
Fluid Pumps for Draining Cars?	No	N/A	We don't have enough cars or trucks in our community for it to be worth it.	3
Connex for storage and eventual backhaul?	Yes	IGAP, IGAP Staff, IGAP Building	Because our backhaul events are far and few between, it is a good idea	1

Item/Task	Do we have this?	Who operates it? Who is in charge? Where is it?	Do we want this in the next five years? What are the details of what we want?	What is priority to get or improve? *(1 = highest, 2 = medium, 3 = lowest)*
			to invest in an additional connex for storage.	
HAZWOPER Certified Technicians	Yes	We have several residents who are certified Hazwoper.	N/A	3
Spill Response Kit	Yes	The waste technician and IGAP personnel	N/A	3
Hazardous Waste Plan, including operational steps	No	N/A	It would be a good idea for our community to develop one.	2
Clinic Medical Waste Plan	Yes	Kanakanak Hospital in Dillingham	Yes	3

Entities in the Community and what Types of Hazardous Materials Used

Below is a table with amount and type of hazardous materials or wastes generated or handled by entities in our community.

Table **21** Annual Hazardous Waste/Material Generation, Storage, And Disposal In Chignik Lagoon, Estimated From A **Spring 2010** Waste Survey.

Generator	Hazardous materials reported	Maximum amount used or stored yearly	Comments
Clinic	Medical waste		Needles put in red container and sent to Dillingham.
School	Oil, antifreeze	Motor oil: 275 gal/yr Antifreeze: 165 gal/yr	Oil and Antifreeze are ordered every year. Fuel is bought from the corp.
Chignik Lagoon Light Plant	Oil	Oil: 605 gal/yr	Oil is ordered annually.
Town population (including homes and businesses)	(Unreported): Small batteries, household cleaning products, motor lubricants, thermometers	Lead-acid batteries: approx. 100 batteries are in use. Motor oil: Approx. 110 gal/yr	**Motor oil discarded yearly**: Assuming 60 snowmachines, ATVs, boats, and heavy equipment used in Chignik Lagoon, approx. 4100 gal/year of motor oil are discarded. An additional 500 gal leak into ground or lagoon during vehicle operation. The large amount of oil is due to commercial fishing vessels that operate in the lagoon during the fishing season **Batteries**: Assuming a 5 yr life, approx. 24 lead-acid batteries, **containing approx. 216 lbs of lead,** are discarded. **Other household hazardous wastes:** Approximately **0.2 tons** per year.

Old/Closed Dumpsites

In addition to our current dumpsite, we have an old dumpsite that we would like to assess when we get funding. It has been closed and turned into a landfill since the new landfill was developed. Much of the contamination is probably already gone from the wastes. But there might be contaminated soil that is still contaminating the water.

Climate Change Planning

Chignik Lagoon is experiencing the effects of climate change. It is well-known that the water levels are rising and eroding away more of the beaches. It is also known that weather is becoming more severe. Storms are more violent today than they were 20 or 50 years ago.

Our current landfill is located on waterfront. We anticipate the water level of the Lagoon rising and eroding away parts of the land where our landfill is. This may cause flooding of the landfill and contaminates to seep into the Lagoon, affecting our subsistence way of life.

We anticipate climate change affecting access to our landfill as well. Much of the time our landfill access road is under water. The landfill is only accessible during certain times of tide. If the water level rises and weather becomes more severe our landfill may become nearly inaccessible.

Selection of A Long-Term Primary Disposal Method

This Section reviews the Selection Process for our primary waste disposal method. Capital costs for new disposal facilities for villages, excluding the facility road, have been found to be roughly similar for the various options and fall between $1.3 million to $2.5 million dollars for options that meet Class 3 State permitting requirements. Capital costs are generally on the lower-end with gravel source availability, road access or year-round barge access, in-town heavy equipment, lower transportation costs, and size of landfill/population. A high fixed cost is present with all but the last option (upgrade), such that capital costs per person rise sharply with smaller populations. See footnote 1 for more details of facility capital and O and M costs for Alaska Villages.[1]

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1 For cost considerations, see for example, Zender, L., S. Sebalo, S. Gilbreath, Conditions, Risks, and Contributing Factors of Solid Waste Management in Alaska Native Villages, Proc. Of the 8th. AWWMA R & D Conf., Fairbanks, Apr. 2003. at http://www.zendergroup.org/docs/Conditions_Risks_paper.pdf , Also, see balers: http://www.ccthita-swan.org/Tutorials/baler.cfm#4 , incinerators: http://www.ccthita-swan.org/Tutorials/incinerate.cfm#4 , http://www.zendergroup.org/docs/lf_roads.pdf, page 13-14

Thus, our future primary disposal method selection is based on which financially-sustainable option best addresses our solid waste management issues that have been identified in this plan, and not capital costs. The table below summarizes the considerations used by our community in selecting from the listed options.

Table 22 Selection Of Our Long Term Disposal Option For Garbage And Other Leftover Wastes.

A higher value represents better addressing of issue and/or greater community consensus

		Considerations					
Option	**Summarized comments**	**Traditional Values/ Subsistence protected (1-5)**	**Reduce Direct Health Risk (1-5)**	**Shortest time till completed (including finding $$) (1-5)**	**Low O & M Cost (1-5)**	**Ease of maintain-ing option as designed (1-5)**	**Total**
Shipping our Garbage to another Landfill	Not feasible, has been found to over $500 per household per month	5	5	1	1	1	13
Upgrade Existing Site and Programs	Includes site cleanup, regarding, salvage, waste separation in town, collection program, recycle/reuse and store/stage center. This option will work for a short period of time. Due to our landfill reaching capacity, it will eventually have to be closed and a new one developed.	4	4	4	5	5	22

Expansion of existing landfill	This may be the best option, however a study may have to be done if the expansion is to the west, into the marsh land. If the expansion is to the south, toward the cliffs, a study will probably be unnecessary.	4	4	4	5	5	22
New Landfill	Our landfill is reaching capacity and a new one must be planned for and developed. A road will have to be built to a gravel source as well as to the landfill itself. This is a very long-term plan, but is inevitable.	4	4	1	3	5	17

Our selected Long-Term Primary Waste Disposal Option at this time is to upgrade and expand our existing site. We will continue to have our eyes toward the future and be searching for funding and feasibility of a new landfill.

Summary of Programs and Actions

The above sections have identified our solid waste situation, concerns, and the actions/improvements that we would like to implement. This section reviews these actions and summarizes our community priorities. The table below lists the primary actions and programs we have identified. Also listed are criteria that our community and council have developed as most important in prioritizing and selecting the actions and programs to be implemented. The right-hand column lists the final score of the various community identified actions. The higher scores thus reflect the best management strategies for our community.

Table 23 Prioritization Of Identified Actions for Addressing Solid Waste Issues

		Identified Priority Criteria ***Higher values denote activity higher/better effect on criteria.***							
Column A	**Column B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Activity or Waste to target	**What to do?**	**Traditional Values**	**Reduce Health Risk (Direct)**	**Reduce Environ-mental Risk**	**Reduce Specific Subsistence Ris**	**Reduce Dump size/ volume**	**Low Cost**	**"Ease of doing well"**	**Total**
	Any comments:	**(1-5)**	**(1-5)**	**(1-5)**	**(1-5)**	**(1-5)**	**(1-5)**	**(1-5)**	
Get rid of cardboard because dump gets filled up	Recycling Center	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**35**
	Burnbox	**2**	**1**	**1**	**3**	**4**	**4**	**4**	**19**

		Identified Priority Criteria ***Higher values denote activity higher/better effect on criteria.***							
Column A	**Column B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Activity or Waste to target	**What to do?** **Any comments:**	**Traditional Values** **(1-5)**	**Reduce Health Risk (Direct)** **(1-5)**	**Reduce Environ-mental Risk** **(1-5)**	**Reduce Specific Subsistence Ris** **(1-5)**	**Reduce Dump size/ volume** **(1-5)**	**Low Cost** **(1-5)**	**"Ease of doing well"** **(1-5)**	**Total**
Ban Plastic Bags	Education	**3**	**3**	**5**	**3**	**2** (windblown outer area only)	**5**	**4**	**25**
Plastic bottles are hazardous to breathe and bad for subsistence	Recycle all plastic bottles	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**28**
Backhaul junk cars/scrap metal	In the fall of 2016, we had a major backhaul which helped with the impending maximum capacity of our dumpsite.	**4**	**5**	**5**	**4**	**5**	**1**	**1**	**25**

		Identified Priority Criteria ***Higher values denote activity higher/better effect on criteria.***							
Column A	**Column B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Activity or Waste to target	**What to do?** **Any comments:**	**Traditional Values** **(1-5)**	**Reduce Health Risk (Direct)** **(1-5)**	**Reduce Environ-mental Risk** **(1-5)**	**Reduce Specific Subsistence Ris** **(1-5)**	**Reduce Dump size/ volume** **(1-5)**	**Low Cost** **(1-5)**	**"Ease of doing well"** **(1-5)**	**Total**
Rebuild and maintain a better access road	Rebuild access and turnaround so people don't contact wastes	**3**	**5**	**2**	**2**	**3**	**3**	**2**	**20**
Relocate burnbox	The burnbox is very close to homes and is toxic for people to breathe	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**35**
Collection program	Continue the recycling program through IGAP	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**35**

Based on the above priority analysis, the following actions, together with the staffing required, are adopted:

Collection Service/Self-haul program:

1. Dumpsters are located in town where residents bring their trash.
2. Waste technician then takes the dumpsters to the landfill.

Disposal Site Improvement Summary:

1. Separate out a salvage area to reduce health risks and support our values.
2. Install a good burn box at dump with full safety operational management to replace in-town barrel burning – Requires technicians to load and monitor.
3. Rebuild access road to landfill.

Recycling, Reuse, and Reduction Program:

1. Continue to follow recycling, reuse and reduction program as outlined and guided by IGAP program and staff.

Community waste generation and disposal habits

2. Focus education on reducing plastic bottle use, products that can produce poor indoor air quality when used in the house and emit toxic chemicals when burned, and reduction of junk mail – Requires IGAP staff and volunteer time

Table 24 Items Needed To Meet Planned Goals for Solid/Hazardous Waste Improvement

Item	What it would be used for	Why it's important for the community, how it fits into our priorities identified above	Approximate Cost	Ideas for how to obtain it (grants, funding sources etc.)	Timeframe for obtaining it while to find funding)	What is the priority for this item? *(1 = critical, 2 = high, 3 = medium)*
Burnbox	To burn trash to reduce waste volume	The burnbox will help improve our dumpsite and reduce risks to people visiting the dump	$25,000	BIA; Denali Commission Solid Waste Program, IGAP	Within 1 year	2
Spill guards for barrels of used	To contain any potential oil leaks	Reduce potential water and soil contamination.	$100-$300	BIA Solid Waste	2 years	2
Parts for fixing heavy equipment	To get the equipment up and running again	Essential to continued safe solid waste disposal operation	$100-$5000	BIA Solid Waste	up to 1 year	3
Safety gear	To protect the dump operator when working with wastes	To secure the health of the operator, family and community.	$200-$1000	IGAP funding	0-6 months	1
Dumpster Lids		To keep out scavengers and bears; essential to properly contain trash.	$2,000-$5,000	BIA Solid Waste	0-1 year	2
Fencing	To block public access at the dump and help prevent windblown litter	If we expanded the landfill, it would be necessary to replace all fencing.	$2,000-$4,000	Denali Commission Solid Waste Program	0-2 years	1

Item	What it would be used for	Why it's important for the community, how it fits into our priorities identified above	Approximate Cost	Ideas for how to obtain it (grants, funding sources etc.)	Timeframe for obtaining it while to find funding)	What is the priority for this item? *(1 = critical, 2 = high, 3 = medium)*
WOTEC (used oil blender)	To filter used oil into new oil that can be used by our community	Can save money and reduces air pollution	$24,000-$54,000 plus shipping	D.C Solid Waste Program	1 year	2
Used oil burner	To burn used oil for heat	Can save money and reduces air pollution	$5,500-$8,500	D.C Solid Waste Program	0-2 years	1
Freon removal equipment	To safely remove Freon from appliances and ship it out for recycling.	Reduce potential water contamination and protect subsistence.	$300	Training-Denali Commission	6 months	1
Antifreeze recycling unit	To filter used antifreeze into new antifreeze that can be used in our community	Can save money, reduce potential water contamination	$1200-$2300 Shipping $50-$200	IGAP funds	1 year	1
Drum crusher	To reduce the volume of empty 55-gal drums	Significantly reduce the volume of trash in the landfill as well as around the village	$10,500	IGAP funds, ANTHC	0-1 year	1
Oil filter crusher	To crush and drain oil filters for recycling	Reduce the contamination of surrounding environment	$1,400-$3,000	IGAP funds	1 Year	1

Item	What it would be used for	Why it's important for the community, how it fits into our priorities identified above	Approximate Cost	Ideas for how to obtain it (grants, funding sources etc.)	Timeframe for obtaining it while to find funding)	What is the priority for this item? *(1 = critical, 2 = high, 3 = medium)*
Composting bins	To start small-scale composting projects for solid wastes	Reduce the amount of food waste and contamination in around the landfill.	Custom Build $7000	IGAP funds	0-1 year	3
Glass crushers or palletizes	To pulverize glass to a material that can be used for art projects,	To reduce landfill waste	$7000-$18000	Denali Commission	1 ½ years	
Engineering design for new landfill	Used to design a new landfill. Ensuring best use area and complying with all permitting and other regulatory issues	Necessary to sustain the health of the community members and the surrounding environment.	$10,000-$30,000	ANTHC	2 years	2
Recycling Center	To collect, sort, crush, package, and send recycled goods or to	To reduce landfill waste and save money	$500,000 - $2 mill	USDA Rural Development	2-3 years	3
Garage for heavy equipment	To store and maintain heavy equipment	Ensure that essential equipment is kept maintained	$500,000 - $2 mil	USDA Rural Development	2-3 years	3

Planned Annual Expenditures and Revenues

Annual Program Costs for Our Solid Waste Plan Implementation

The below Table reflects the annual program expenditures for implementing our plan.

Table **25** Planned Annual Operation And Maintenance (O&M) Costs For Solid Waste

A	B	C	D	E
Item	**Unit Cost**	**Units**	**Quantity**	**Annual Cost**
Personnel				
Solid Waste Site Operation and Maintenance, Labor for one employee	$2500	Mo	12	$30,000
Fringe, inc. FICA, workmen's comp, benefits ($12,168 x 20%, this equals $12,168 x 0.20)	$450	Mo	12	$5,400
Travel and Training				
Training	$2,500	Lump sum	3	$7,500
Other				
Fuel for equipment operation at site, 20 gallons per week	$5	gallon	52	$2,600
Heavy equipment repair, maintenance, and replacement fund	$20	hour	120	$2,400

Other equipment repair, maintenance and replacement fund	$3	hour	520	$1,560
Supplies				
Safety gear needed each year	$500	Lump sum	1	$500
Office Supplies	$120	Lump sum	1	$120
Total annual O & M expense				**$50,080**

The below Table reflects our revenue sources for our planned program changes

Table **26** Revenue Sources for Planned Solid Waste Program Improvements

Column A	Column B
Item	**Annual Revenue**
Business fee for 3 businesses (School, clinic, post office), $200 per month	$0
Tribal IGAP funds	$16,000
Other Tribal funds	$40,000
Equipment rental fees to outside projects	$0
Revenues from recycling aluminum cans	$0
Other Grant Revenues or Funding Sources	$0

"DEMONSTRATION OF APPROVAL LETTER"

1-3-17

The Solid Waste Management Plan originally developed by the Native Village of Chignik Lagoon's Solid Waste Management Plan Coordinator in 2010, has been reviewed and updated by the original developer, Nancy Mills, and the IGAP Coordinator, Oscar Mills in 2017 and by the Chignik Lagoon Village Council and has been approved by the Chignik Lagoon Village Council.

Jeremy Anderson, Council President — 1-3-17 Date

Nancy Mills, Village Council Secretary — 1-3-17 Date