SOUTHEAST CONFERENCE

SOLID WASTE MANAGEMENT ALTERNATIVES

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SOUTHEAST ALASKA SOLID WASTE AUTHORITY

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FEBRUARY 2021

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On behalf of the Southeast Alaska Solid Waste Authority

612 Willoughby Ave., Suite B Juneau, Alaska 99801
Phone: (907) 586-4360 Fax: (907)463-5670
info@seconference.org

WWW.SECONFERENCE.ORG

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Executive Summary

Southeast Alaska Solid Waste Authority and Southeast Conference are evaluating alternatives to decrease and control the costs of handling, processing, shipping, and disposing of municipal solid waste. They seek to improve the services for solid waste disposal for Southeast Alaska communities through a collaborative effort of towns and governmental agencies for mutual gain. The goal of this research project is to identify how to achieve safer and more efficient waste management systems for Southeast communities through mutually agreeable resolutions.

The methods of this project include interviews and reviewing previous literature on the subject. Because we are aiming at finding regionally applicable solution sets, we interviewed communities agnostic of their membership to SEASWA, instead only focusing on their interest in solid waste management. The questions from the interviews can be found in Appendix I. We also conducted a strengths, weaknesses, opportunities, and threats (SWOT) exercise with these communities.

The communities and people we interviewed are as follows: Kake, represented by Rudy Bean; Sitka, represented by Michael Harmon and Harry Green; Thorne Bay, represented by Les Carter; Craig, represented by Jon Bolling; Gustavus, represented by Paul Berry; Wrangell, represented by Chris Hatton and Tom Wetor; Haines, represented by Reilly Kosinski, Craig Frank, and Melissa Aronson; Petersburg, represented by Chris Cotta; and Pelican, represented by Walter Weller. We also received questionnaires filled out by representatives from Kasaan, Carol Fletcher and Dennis Nickerson; Hoonah, represented by Dennis Gray Jr; and Coffman Cove, represented by Cheryl Fecko.

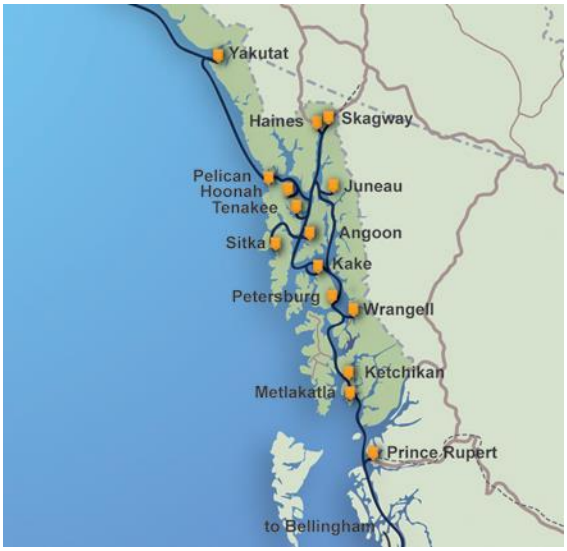

Figure 1: Map of Southeast Alaska

Introduction

Municipal solid waste in Southeast Alaska is currently handled in a variety of ways, from uncontrolled open dumping, open burning, composting, permitted landfilling, and baling and shipping solid waste to the lower 48 states. This has long been a pervasive and complex issue in southeast Alaska. Land is sparse, with the communities and Tribes living spread out among the over one-thousand islands. Stricter regulations in place for landfills that require them to virtually eliminate polluted runoff are a major factor in leading to a reliance on shipping solid waste down south. Southeast Alaska can receive up to 12 feet of rain a year, and with the high water tables present here and scare land available, developing landfills is very difficult from a permitting standpoint. Further, the many landfills in the Southeast region have already or are steadily approaching their retirement age. Thus, some communities within the Southeast began shipping their solid waste in the early 2000s, when their currently developed landfills began running out of space.

This solved many concerns for solid waste managers in Southeast Alaska, but it also introduced a new set of challenges. Because this trans-shipment model takes advantage of the existing solid waste infrastructure in place elsewhere, it lessens the financial impacts of initial capital costs. In addition, there is an ease of implementation and it taps into the economies of scale taking place in the Northwestern region of the lower 48. However, fires caused by unacceptable waste ranging from flares to oily rags when exposed to oxygen while traveling to its destination has caused a new and costly problem for stakeholders in southeast Alaska.

Alaska Marine Lines (AML), the company who barges solid waste to the lower 48, and Republic Services, the company collects the solid waste, have been particularly concerned with the barge fires. It represents a vastly inconvenient issue that would impact everyone in the Southeast—if the barges were delayed or damaged due to fires, thousands of residents in Southeast Alaska would be without necessary supplies and food until it comes in. Further, it is an especially expensive issue for AML to mitigate when these fires happen, increasing their

insurance rates. Because of this, AML has been urging the communities who use their services to implement baling and compacting methods, as well as closed-top containers in order to reduce the fire hazards present in their current system.

However, this highlights other key issues present in Southeast Alaska's solid waste management process. Many communities suffer from not reaching an appropriate economy of scale for their solid waste disposal, and thus lose a lot of money every year while attempting to appropriately deal with their solid waste. Baling machines are not cheap, with some models costing around half a million dollars. With many communities already losing money or barely breaking even with their current waste management systems, this is a hefty burden to bear.

Other needs within communities in the Southeast include solutions to a buildup of tires and junk cars. Further, many communities are looking for ways to utilize their cardboard in-community, without having to ship it out. This could include incineration or methods of reuse. Additionally, there is interest in the communities to either further develop or start their recycling programs.

Community Interviews

Kake

Interviewed on November 18th

Population: 570 people
Solid waste volume: 600 tons per year
No recycling operations

SEASWA's contact for Kake is Rudy Bean. Kake works closely with the community of Petersburg for their solid waste management. They are planning on developing a closed-top system, as this has been required by AML. The city plans to move forward on this without SEASWA. They are still in disputes with Sealaska over ownership of the land that the landfill is on. Kake is willing to consider sending their waste to Petersburg in order to bale it.

Sitka

Interviewed on November 20th

Population: 8,532 people
Solid waste volume: 9,125 tons per year
Recycling program in place

SEASWA's contacts for Sitka are Michael Harmon and Harry Green. They expressed interest in joining SEASWA. Sitka ships their waste to the lower 48 using Republic Services and AML. They compact their waste before it is sent to Republic Services, though they do not bale their waste and so they do not meet the requirements put forth by AML over the summer. Their main reservations for baling systems are costs and efficacy. Sitka hired a consultant who denied the viability of baling systems for reducing fire risk. Further, this consultant also assured them that their compaction levels were very good. While it seems that Sitka has major reservations about baling, they are predominantly interested in the solution that brings the best value for their money. They also seem more open to installing closed-top containers. Sitka has recycling operations in the form of a drop-off center where residents separate the recycling themselves.

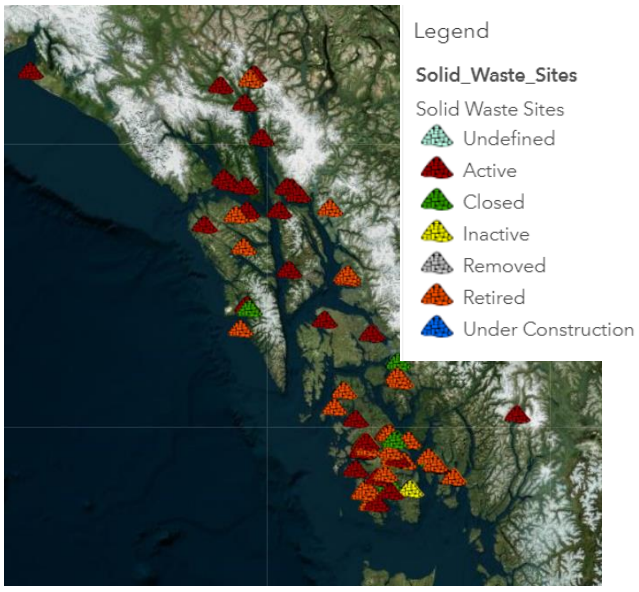

Figure 2: Map of landfills in Southeast Alaska, with a legend.

Thorne Bay

Interviewed November 25th

Population: 562 people
Solid waste volume: 624 tons per year
Voluntary recycling program in place

SEASWA's contact for Thorne Bay is Les Carter. Thorne Bay is a member of SEASWA. Thorne Bay is open to establishing themselves as a transfer station for the nearby communities, as they have the port for this region of Southeast Alaska. Currently, their current solid waste system includes a 5-7-acre landfill with one open basin. They also have a compactor that was recently updated, and they then bury it on site after

compaction. The landfill has a lifetime of 25 years. They are not currently interested in expanding it, though they are open to monetizing it in some way. Thorne Bay also has a garbage truck that runs collection routes, while the southern side of this community self-hauls their trash or burns it themselves. Thorne Bay has no official recycling operations.

Craig

Interviewed on November 25th

Population: 1,074 people
Spends $0.20 million on solid waste a year
No recycling operations

SEASWA's contact in Craig is Jon Bolling. Craig is a member of SEASWA. Klawock operates a landfill in Craig city limits. This is where the solid waste from Craig goes to, and this contract is renewed yearly. Most of the trash from Klawock is shipped to Thorne Bay through AML. Their volumes vary a bit year to year, but are about the same now as they were a few years ago. They are billed every month by Klawock based on weights.

Haines

Interviewed on November 25th

Population: 2,516 people
Solid waste volumes unknown
Recycling program in place

SEASWA's contacts for Haines are Reilly Kosinski, Craig Franke, and Melissa Aronson. They have expressed interest in joining SEASWA. They told us of a new working group being re-established in Haines with the goal of calling for a Request for Proposals for solid waste and recycling in Haines. They wanted a 0.5% sales tax increase to fund these efforts, but no action was taken. This group will meet monthly. Residents drive their waste to town and the town has no collection information. Republic Services provided them with containers, but they were not open-top containers. Haines has a tire chipper as well, so most of their tires are shredded already, but they have concerns regarding junk cars in Haines.

Kasaan

Questionnaire received on December 1st

Population: 85 people
Solid waste volumes unknown
Recycling program in place

SEASWA's contacts for Kasaan are Carol Fletcher and Dennis Nickerson. Kasaan is a member of SEASWA. Kasaan collaborates with the four federally recognized Tribes on Prince of Wales as well as the City of Klawock to dispose of their waste, and officially use the Thorne Bay Landfill. They have concerns regarding recyclables, particularly in funding the transport of recycling off their island. In addition, they would like to purchase new equipment including a baler and a small drivable forklift. Their recycling program before the COVID-19 pandemic included glass, aluminum cans, batteries, and electronics. They are interested in developing a regionalized approach to recycling, in order to make it cheaper to transport recycling out of the Southeast for communities.

Gustavus

Interviewed on December 2nd

Population: 537 people
Solid waste volume: 172 tons per year
Recycling program in place

SEASWA's contact for Gustavus is Paul Berry. Gustavus has interest in joining SEASWA. They have a class 3 landfill, for which they have concerns for the long-term consequences. They are open to expanding this landfill, but they have more interest in shipping their waste out as well. Currently, they are only shipping out problematic waste and keeping the rest in their landfill. They have two balers, but they are both too small for their current volumes of waste. They have a recycling program and a diversion rate of 57%. They are also interested in a regional tire shredder, along with finding ways to use cardboard in their town without shipping it out in order to cut costs.

Wrangell

Interviewed on December 11th

SEASWA's contacts for Wrangell are Chris Hatton and Tom Wetor. Wrangell is a member of SEASWA. Wrangell is determined to meet the criterion proposed by AML—especially after they almost lost their contract with AML for failing to meet their guidelines. Currently, Wrangell is in a firm path towards baling and they are considering the same baler as Petersburg. Their landfill was retired between 2006-2008, and they have been shipping ever since. Despite their commitment to baling, they have some concerns for baling. The baler will certainly take up storage space, and without a loading dock they are trying to determine how to load the balers. They are also considering other equipment that they believe will complement the baler. They plan to pay for their baler with reserves, a Denali grant, or their sales tax fund if they can't work with the local Tribe to find funds. There is no recycling program, but there is interest for one.

Population: 2,400 people
Solid waste volumes unknown
No recycling operations

Petersburg

Interviewed on December 11th

SEASWA's contact for Petersburg is Chris Cotta. Petersburg is a member of SEASWA. Currently, Petersburg fits the expectations and guidelines of AML better than any other community in the Southeast. They have a well-functioning baler and a trash pick-up service. However, they are facing problems with their recycling program. Recyclables are currently more expensive to get rid of than trash. Their options are as follows: continuing their co-mingled recycling pick-up, reduce the frequency and volume of their recycling program in order to cut costs, switch to a drop-off program to minimize costs, or cut the program altogether. This is their largest concern.

Population: 3,226 people
Solid waste volume: 2,400 tons per year
Recycling program in place

Pelican

Interviewed on December 30th

SEASWA's contact for Pelican is Walter Weller. They are interested in joining in on the conversations surrounding SEASWA. They currently use a compacting method, but eventually want more equipment that would complement their landfill. Their biggest issue in this regard is metals, so they are looking for methods and equipment that would help them lower the metal volume in their landfill, including renting large construction trash containers to store the metal waste. However, it is not cost-effective to barge their materials as they only have 50-60 full time residents. They do not have a tire shedder or junk car problem, though other forms of regionally shared equipment might be helpful, but they would need to build a storage facility for this.

Population: 69 people
Solid waste volumes unknown
No recycling operations

Hoonah

Questionnaire received on January 22nd

SEASWA's contact for Hoonah is Dennis Gray Jr. Hoonah works independently of their neighboring communities. Their landfill is city operated, and they also have a burn box that assists them in their waste disposal process. They did not cite any equipment needs for their community at this time. Roughly one-third of their municipal waste comes from tourists every year. Hoonah does not have a recycling program.

Population: 782 people
Solid waste volume: 1,422 tons
No recycling operations

Coffman Cove

Questionnaire received on January 26th

SEASWA's contacts for Coffman Cove are Sara Yockey and Cheryl Fecko. Coffman Cove is a member of SEASWA. The community of Coffman Cove has regular garbage pickup, with all garbage collected and transported to the Klawock landfill.

Population: 174 people
Solid waste volume: 78.5 tons
No recycling operations

Approximately 157,000 pounds of garbage is transported annually (about 13,000lbs/month). Presently, Coffman Cove does not collaborate with a nearby community, and does not have its own solid waste contractor. Coffman Cove also does not bale or compacts its solid waste due to high costs and lack of equipment. Currently no recycling program for the community exists, however, some individuals bring aluminum cans to Craig or Thorne Bay to be recycled. There is interest in the community to start a recycling program but concerns with cost keep the community from moving forward with this. Equipment used for disposal include one garbage truck in need of replacement and 2 dozen or so dumpsters, including one at the harbor, which is kept locked, with keys being issued to boat owners to prevent illegal dumping. The major concern for Coffman Cove is the availability of responsible solid waste disposal while keeping costs down. As a result, there are issues with illegal dumping and the environmental concerns that result from improper disposal.

Common Concerns and Issues

Based on the community interviews, as well as conversations with representatives from Republic Services and the Department of Environmental Conservation, some common problems throughout the region were seen. They are described below.

Shipping Out Waste in a Timely Manner

Many communities struggle with transporting waste products that communities either do not want or cannot place in their landfills. This can range from household waste, recyclables, medical waste, or other wastes. With some of these communities already reaching the end of their landfill lifespan, storage is scarce, requiring timely transportation out of communities.

Funding a Baling Machine

Baling machines are very expensive pieces of equipment, with suitable machines for some communities costing around $500,000. Especially considering the scale of these communities in the Southeast, this is often an unattainable piece of equipment. In order to

ensure that safety of their barges and the goods on them, AML is working to require their community partners to bale their waste. However, another concern regarding these machines is the efficacy of baling in truly reducing fire risk.

Junk Tires

Because tires are not suitable for throwing in the landfills, the result is large piles of tires being stored until they can be transported out of these communities. Due to increasing volumes, these tire piles are a growing concern. However, potential environmental concerns including potentially fatal impacts to salmon populations must also be considered (Tian et al.).

Junk Cars

Junk cars are a concern very similar to the junk tire issue. They are expensive to transport and with many communities having limited road systems, they pose a serious land-use problem.

Recycling

The biggest hurdle in recycling is establishing a program and having it used reliably from community members. Many communities struggle with achieving an economy of scale for their trash, let alone their recycling programs. Because of these shipping concerns, recycling is an expensive program that many communities cannot afford. Another issue is public interest. If there were more public interest, there would be a greater effort to establish a recycling program in many communities. Many of the representatives interviewed who do not have an established recycling program are interested in having one.

SWOT Analysis

A SWOT analysis is a strategic planning technique used to identify strengths, weaknesses, opportunities, and threats within an organization, business, or industry. Southeast Conference utilized this methodology in order to gain a high-level view of solid waste

management in Southeast Alaska. This analysis and prioritization is coming from stakeholders who deal with this field daily. The information below is a summary of these discussions.

Strengths

1. SEASWA allows for collaboration and open communication channels.
2. High rate of communities with permitted landfills, which provide access to grants to improve solid waste programs.
3. Utilizing marine shipping pathways between communities..
4. Electronic waste events put on by Tribes and others.
5. Southeast Alaskans work together to solve their solid waste management issues.

Weaknesses

1. Reliance on transporting solid waste long distances, as it is an expensive alternative.
2. Lack of awareness and education for solid waste issues and practices.
3. Unwillingness to change behavior (i.e. recycling and sorting waste).
4. Lack of economies of scale for the small communities in the Southeast.
5. An abundance of junk cars without viable strategies to dispose of them.
6. Weak collaboration between municipalities and Tribes.
7. The need for expensive, higher-tech equipment.
8. Not able to ship waste out in a timely manner.

9. An abundance of junk tires without viable strategies to dispose of them.

Opportunities

1. Regionalized efforts for solid waste management that incorporate the strengths of different communities.
2. Developing robust recycling programs to divert waste away from shipping containers and landfills.
3. Baling waste using baling systems.
4. Developing composting programs in order to lower costs of shipping waste and to extend the life of landfills.
5. Shredding tires through a regionally-shared tire shredder.
6. Utilizing commercial or home-made burn units.

Threats

1. Increased prices for shipping solid waste to the lower 48.
2. Loss of access to shipping waste on barges.
3. Volatility regarding recycling commodities rates (metals, plastics).
4. Communities using landfills for longer than they should.
5. Permitting obstacles for developing new facilities.
6. Long-term remediation of closed/full landfills.
7. Communities opening new landfills.

8. Barge fires caused by unacceptable waste.

Solutions and Recommendations

Many of the issues present in the solid waste landscape in Southeast Alaska are complex, community-specific, and difficult to solve. Despite this, below are some recommendations for communities to consider as they work to solve their waste problems.

Consider Finding Other Ways to Divert Waste Streams

Recycling and composting are two methods of diverting waste from landfills that will not only extend the life of landfills, but also bring with them positive environmental externalities including reduced methane outputs and reduced leachate in the water tables. Juneau has a privatized composting program through a local business, Juneau Composts!, that has thus far diverted 459,582 lbs. of material from the landfill in Juneau. Gustavus and Petersburg both have robust composting programs as well. Paul Berry, the Disposal and Recycling Center Manager for Gustavus, is often regarded as an expert in composting. According to Berry, the key to a sustainable model is "…keeping the waste source-separated when it is generated and centrally collected, having a baler and shipping system setup so that there is a place for the baled recyclables to go, having a local composting program for food waste and getting people to contribute some of their hard-earned money to help support the process".

Recycling is particularly meaningful in communities considering burning or incinerating their waste, as plastic materials produce a dirtier gas when burned. However, recycling programs are difficult to develop, especially in smaller communities who often lose money on such programs. In order to make recycling more viable to Southeastern communities, it would make sense to have a regional recycling facility to have recycling sent to in. Similar to the regional baler, there would be potential for this method to produce income for whichever community were to establish this facility. Some communities where this would make sense based on location and potential interest would be Thorne Bay and Kake.

Purchasing a Baling Machine

Figure 3: Baling machine located in Petersburg, AK.

If communities are interested in shipping their waste to the lower 48 in partnership with AML, the best course of action would be to purchase a baling machine. This does not go without recognizing the large expenses that are associated with purchasing this baling machine, but it would allow communities to better sort through unacceptable waste. Petersburg, the community who recently purchased a new baling machine (Figure 3), has only positive comments about their baler. The baler itself is a Harris Badger L50S-2-10/8, which is a two-ram unit of 50hp, and they purchased it from Recycle Systems located in Kirkland, WA. It cost them $546,000. Because of the large conveyor belt (Figure 4), they are able to more thoroughly sort out any unacceptable waste from the baling machine.

Figure 4: Conveyor belt attached to baling machine.

Figure 5: Side view of baler as well as bales from this machine.

In the case of Petersburg, they managed to find spare money in their motor pool fund in order to pay for their new baler, which was installed in Fall 2019. In Figure 5, you can see a side view of their baler as well as some bales produced by this baler. In Appendix III, there is a list of potential funding resources that would assist in the purchase of a baling machine.

Baling machines come in many different sizes and configurations and can be sized depending on the population of the community and their solid waste production. Smallest in size are the vertical, hand-fed balers. Gustavus currently is operating with this type of baler. A

price estimate for a good, new hand-fed vertical baler can be around $30,000. The next level of baler is the horizontal, hopper-fed baler where a loader dumps loads of a material into a hopper which acts as a funnel into the device's baling chamber. These can be purchased new for around $125,000. Finally, the conveyor-fed baler, such as the one shown above, are for the biggest operations. While a community will likely need to spend more than $100,000 for a good, new baling setup that has room to grow, not all communities will need to spend $500,000.

Having a Regionalized Baler When Applicable

There are many reasons why a baler might not be the most reasonable choice for certain communities. First, and perhaps the most obvious, is that baling machines are very expensive. Related to this concern is that many communities in the Southeast are small, with some having less than 1,000 or even 100 residents. This creates concerns for generating enough waste to not only achieve an economy of scale, but also to get enough use out of a baler. For these cases, it would make sense to have a regionalized baler that other communities could send their waste to in order for it to be baled and sent to Washington. Southeast Conference recommends reaching out to nearby communities to inquire about their plans for purchasing a baling machine, and how regional synergies could be created through a shared use of this resource. This could also generate income for the community who bales the waste.

Consider Incineration or Burn Units

Baling is quite expensive. The initial capital costs for the machine are high, as well as the operational costs and potential maintenance costs. In order to mitigate these financial barriers, there is another option: incineration or burn units. This comes with a lot of considerations, namely public opinion, environmental regulations, and upkeep and operational costs.

Commercial Burn Units

Alaskan Stoves has some commercial burn units that are used across Alaska. They have two models which are described below Figures 6 and 7.

Burn units are very suitable for communities who would like to minimize the volume of waste entering their landfill. It is essential to have an operator for this machinery, as it is important to monitor the waste that goes in it. The operator would also be in charge of emptying the ash buildup after a certain number of burns. These burn units can reach temperatures of 1,600°F, which is ideal because burning at temperatures above 1,100°F removes any potential toxins.

Figure 6: Trailer-mounted burn unit.

Figure 7: Skid-mounted burn unit.

The trailer-mounted burn unit is a smaller and more portable option. If managed properly, it will serve a community of up to 250 persons. It weighs 4,400 lbs. and costs $36,500.

The skid-mounted burn unit has a higher volume capacity. If managed properly, it will serve communities of 475 persons. It weighs 6,800 lbs. and costs $38,500.

This creates clean, sterile trash to put into the landfill at a much-reduced volume that will no longer attract wildlife. *For more information regarding these burn units, please contact the company owner Chris Marshall at 907-590-7363 or at info@alaskanstoves.com.*

Homemade Burn Units

Figure 8: Hyder burn unit.

Figure 9: Hoonah burn cage.

There is also the option of building a homemade burn unit in communities. In Hyder and Hoonah they have had great success in making their own units out of salvaged materials. In Hyder, the landfill manager repurposed an old fuel tank to create the innovative setup shown in Figure 8. The Hoonah Burn Cage (Figure 9) is another innovative design that utilizes the landscape to burn waste. They are currently in the process of doubling the size of this unit along with an overall upgrade.

When it comes to burn units, there are some understandable concerns in terms of regulatory hurdles. However, all Southeast Alaskan communities that qualify as having Class III Municipal Landfills are exempt from federal air quality regulations due to their small quantities of waste. This includes all communities in the Southeast except for Juneau. Despite this, DEC has some recommendations in handling burn units, including proper burning practices. For example: burns should be constantly monitored, in a container, and have adequate air flow with cool ash removed before the next burn. Burn units take some art in handling to maximize waste volume reduction, maintain a high heat, and avoid black smoke. Currently, DEC is aware of Yakutat, Skagway, Klukwan, GBNP, Pelican, Hoonah, Kake, Thorne Bay, Hydaburg, Hyder, and Ketchikan as communities that at least partially treat their waste streams by burning.

Incinerators

Figure 10: Skagway's material's handling and recycling facility with their Thermal Oxidation System.

Conversely, incinerators are another option for communities looking to find a different method of solid waste disposal. The Skagway incineration project was the first large thermal oxidation system of its kind in Alaska, manufactured by Eco Waste Solutions based out of Canada. Though public opinion regarding incinerators can be negative, Skagway has a strong commitment to meet or beat the regulatory standards given to them by the Environmental Protection Agency and DEC. The total cost for this project was $2,400,00. In order to fund this project, the community acquired a $2,000,000 low-interest loan through DEC from EPA's Clean Water Act funds, which allowed their garbage pick-up rates to keep from climbing. Skagway elected to build a lined ash fill to further preserve the environment in this project. One of the most expensive aspects of this project is Skagway's commitment to having no visible emissions, with this forcing fuel prices to average at $53,000 a year. It is important to note that Skagway did not choose this method of solid waste management with cost-reduction in mind—instead, this option was chosen in order to preserve self-determination in the long-term management and disposal of their solid waste.

Purchasing a Regionally Shared Tire Shredder or Tire Cutter

Figure 11: Portable tire chipper.

Seeing that reducing junk tire volumes is a mutually shared interest among many communities, this is an opportunity to pool resources and find a beneficial solution for the region as whole. There are many models of tire shredders, including portable and stationary models. For a regionally shared model, a portable machine would need to be considered. One potential model is the Desco Model 4000 Portable Tire Shear, in Figure 11. This model costs as estimated $56,000 and has dimensions of 7'H x 16'L x 6'W.

Southeast Conference Solid Waste Objectives

Southeast Conference will be prioritizing equitable solid waste management solutions in their advocacy efforts in the coming years. Below are the objectives that can be found in both the Comprehensive Economic Development Strategy (CEDS) documents as well as the Short-Term Resilience Plan.

Short-Term Resilience Plan: Support Expedited Resolution to Solid Waste Shipping

Some Southeast Alaskan communities are at risk of losing solid waste shipment options due to new fire mitigation requirements. Support the work of communities and shipping companies to create a safer system, but under a timeframe that allows communities to move to new systems of baling, compacting, and/or procuring closed containers without losing critical shipping access; or acceptance of temporary solutions while permanent solutions are being developed.

CEDS: Supporting Solid Waste Management Solutions

In the early 2000s incinerators closed and landfills reached capacity across the region. Many communities began to ship municipal solid waste by barge to landfills in Washington. Incidents of fires during transit from communities shipping non compacted waste in open top containers have occurred. Since 2016, SE Conference, SEASWA and the service providers have been working with these communities to evaluate options to reduce this risk. This has led to the development of mitigation strategies, including:

- Developing best practices solutions for baling and compacting solid waste for shipping waste.
- Increasing utilization of regional recycling and composting programs and increase use of commercial burn units.
- Communicating the importance of waste sorting to citizens in communities who ship their waste.
- Procuring equipment to manage increasing amounts of trash tires.
- Creating partnerships to share equipment, such as balers and shredders, across communities in the region.

Appendix I

Interview Questions

Background

1. What is your community's method of solid waste disposal? (Landfill, shipping, combination?)
    a. Do you collaborate with a nearby community?
    b. What is the name of your solid waste contractor?
    c. Does your community have a recycling program? What does that look like?
2. Can you provide us with your solid waste volume statistics?
3. What is the equipment your community has for dealing with solid waste disposal?
    a. What equipment is needed for solid waste disposal?
4. What do you see as SEASWA's role in solid waste management in your community?
5. What role should SEASWA play in your community or in Southeast Alaska?

Gaps in Solid Waste Management

1. What are the most pressing issues facing solid waste management in Southeast Alaska?
2. What are the most pressing issues facing solid waste management in your community?
3. What are the challenges or costs that would inhibit a community from enacting fire safety measures such as baling and compacting?
    a. What would your community need in terms of investments?
4. Are there regional synergies in communities within and outside of SEASWA that we should be trying to develop or tap into?

SWOT Analysis

1. Strengths
    a. What are the unique strengths that Southeast Alaska has for solid waste management?
    b. What resources does the Southeast have available?
2. Weaknesses
    a. Where could Southeast Alaska improve in solid waste management?
3. Opportunities
    a. How could Southeast Alaskan communities turn our strengths into opportunities?
4. Threats
    a. What obstacles does the southeast face in solid waste management?
    b. Are there any standards, policies, and/or legislation changing that might impact solid waste management going forward?

Appendix II

Potential Partnership Opportunities

Alaska Native Tribal Health Consortium

Have access to funds that can be utilized for equipment upgrades and potentially other projects. They focus on community health as a whole and solid waste management falls under that umbrella.

Village Safe Water

Have access to funds that can be utilized for equipment upgrades and potentially other projects. They focus on community health, including solid waste management.

Indian General Assistance Program- Region 10

This program is ideal for communities that have a federally recognized Tribe. They can assist in planning environmental programs and enact solid waste programs. In other parts of the state, IGAP has been utilized to ship out hazardous waste and upgrade equipment. This would be a great opportunity for cities to partner with their Tribal counterparts to set up programs using IGAP funds to ship out certain wastes to benefit their region as a whole.

Alaska Conservation Foundation Organizational Capacity

In order to be considered for an Organizational Capacity grant, an organization must already demonstrate a commitment to achieve more robust environmental policies, enduring conservation impact and a more influential conservation movement through implementation of ACF's favored conservation strategies listed below.

Alaska Native Fund

Communication and Technology, Policy Development, Codes and Ordinance Development and some basic infrastructure.

Keep America Beautiful / Coca-Cola Public Spaces Recycling Bin Program

The Coca-Cola Foundation funds recycling bins in public spaces for cans and bottles to both create new or expand access to recycling in a community.

Captain Planet Foundation ecoSolution

The foundation supports educational programs that enable youth to understand and appreciate our world by getting involved in hands-on projects to improve the environment. It provides Small Grants to innovative programs that inspire youth to participate in community service

through environmental stewardship activities. An additional priority is to fund programs that encourage environment-based education in schools.

Rasmuson Foundation Tier 1

Projects funded in the past include landfill clean-ups, fencing, heavy equipment, recycling bins, a building for recycling activities. Tribes are eligible if the project is for the entire community and will have a broad community impact.

Appendix III

Funding Sources

Southeast Alaska Solid Waste Authority's Legislative Grant Funds

Approximately $71,000, ideal for a regional tire chipper. SEASWA member communities are eligible.

Leftover money from selling equipment: SEASWA

Approximately $21,000. Eligible for SEASWA member communities. SEASWA member communities are eligible.

Indian Community Development Block Grant (ICDBG)

At most $800,000, with no match requirement. Can be used for infrastructure, for example, a new landfill project or an upgrade (clean-up) project. Can also fund fire suppression equipment, such as a burn unit and a fire suppression kit for a standard pick-up truck. Tribal governments are eligible.

Community Development Block Grant (CDBG)

At most $850,000, with a 25% match requirement. Can be used for infrastructure, for example, a new landfill project or an upgrade (clean-up) project. Cities and boroughs are eligible.

USDA Rural Development Community Facilities

No funding ceiling, but with a match requirement. Can be used for infrastructure, for example, a new landfill project or an upgrade (clean-up) project. Most clean-up projects include modernization components to bring the facility into regulatory compliance ensuring that it is protective of public health and the environment. City or tribal governments, or private non-profits are eligible.

USDA PPG Grants

Amounts can be $30,000 or 75% of planning costs with a 25% match requirement. Predevelopment Planning Grants (PPG) can fund the completion of the Preliminary Engineering Report and Environmental Report that are required to apply for USDA construction funding. City or tribal governments, or private non-profits are eligible.

EPA IGAP

At most $125,000 with no match requirement. This grant funds various solid waste activities, including but not limited to: Landfill Operator, Clean-up Activities, Backhaul and Recycling Activities, Landfill Clean-up and Expansion Activities, and Contractual Planning. Tribal governments are eligible.

EPA Hazardous Waste Management for Tribes

An award of $98,000, with three awards typically given. This grant supports the development and implementation of hazardous waste programs; for building capacity to improve and maintain regulatory compliance; and developing solutions to address the improper management of hazardous waste on Tribal lands. Tribal governments are eligible.

EPA Environmental Workforce Development and Job Training

At most $200,000 with no match requirement. This grant will fund HAZWOPER training and Solid Waste Management or clean-up training. Tribal consortia are eligible.

EPA Environmental Justice Small Grants

At most $30,000 with no match requirement. Grant supports community-driven projects designed to engage, education, and empower communities to better understand local environmental and public health issues and develop strategies for addressing those issues, building consensus in the community, and setting community priorities. Tribal governments, non-profit, and tribal organizations.

Other Resources and Contacts

Zach Gianotti – Department of Environmental Conservation: zach.gianotti@alaska.gov

Matthew Pederson – Republic Services: mpederson@republicservices.com

Chris Marshall – Alaskan Stoves: christokmarshall@hotmail.com

Reilly Kosinski – Zender Environmental: rkosinski@zendergroup.org

Alaska Forum – hosts the Rural Alaska Landfill Operator training with SWANA Alaska for free.

Institute for Tribal Environmental Professionals – hosts the Rural Alaska Landfill Administrator training for free.

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