



Solid Waste Alaska Taskforce

Guide to Solid Waste Management in Alaska

Recommendations from the Solid Waste Logistics Stakeholder Workshop
January 27-29, 2016



Engage Plan Implement



Prepared by Agnew::Beck Consulting, LLC
for Alaska Native Tribal Health Consortium
and Solid Waste Alaska Taskforce (SWAT)
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Acronyms

Acronym	Organization
ADEC	State of Alaska Department of Environmental Conservation
AFE	Alaska Forum on the Environment
ALPAR	Alaskans for Litter Prevention and Recycling
AML	Alaska Marine Lines
ANC	Alaska Native Communities
ANCSA	Alaska Native Claims Settlement Act
ANTHC	Alaska Native Tribal Health Consortium
ARUC	Alaska Rural Utilities Cooperative
CATG	Council of Athabascan Tribal Governments
CIAP	State of Alaska Coastal Impact Assistance program
DHSS	Alaska Department of Health and Social Services
EPA	Environmental Protection Agency
HHW	Household Hazardous Waste
IGAP	Indian General Assistance Program
MOU	Memorandum of Understanding
NIC	Nelson Island Consortium
NAB	Northwest Arctic Borough
O@9A	CZ@WcZ@UbX/ '9bj]fcba YbH' A UbU Ya Ybh
ROAR	Recycling our Area's Resources
RUBA	Rural Utility Business Advisor
SWAT	Solid Waste Alaska Taskforce
TCC	Tanana Chiefs Conference
US/DOT	United States Department of Transportation
USDA	United States Department of Agriculture
YRIIWC	Yukon River Inter-Tribal Watershed Council

Glossary

Term	Definition
18 AAC 60	Alaska's solid waste management regulations.
49 CFR	United States' transportation of dangerous goods regulations.
Area-fill landfill	A landfill in which municipal solid waste is disposed at or above ground level.

Term	Definition
Backhaul	Backhaul refers to the process of removing universal waste, e-scrap, household hazardous waste, scrap metals and recyclables from rural Alaskan communities to be disposed of elsewhere, usually in Anchorage, Fairbanks or Seattle. It is usually the return trip of a vehicle, g W as a truck, transporting cargo or freight, especially when carrying goods back over all or part of the same route.
Burn cage	A cage for burning combustible waste while reducing flyaway debris during incineration.
Buyer/end user/end destination	A business or nonprofit/organization that receives backhauled materials.
Cell	The basic unit by which a landfill is developed. It is the general area where incoming waste is tipped, spread, compacted, and covered.
Class III landfill	A class III landfill is a municipal solid waste landfill that accepts less than five tons of solid waste per day, and is not connected by road to a larger landfill or is 50 miles by road from a larger landfill and serves fewer than 1500 people.
Collection	The process of picking up wastes from residences, businesses, or a collection point, loading them into a vehicle, and transporting them to a processing, transfer, or disposal site.
Combustibles	Burnable materials in the waste stream, including paper, plastics, wood, and food and garden wastes.
Commingled	Mixed recyclables that are collected together after having been separated from mixed municipal solid waste.
Communal collection	A system of collection in which individuals bring their waste directly to a central point, from which it is collected and taken elsewhere for disposal.
Community-fee structure	A method for paying for solid waste management in which all or a portion of the costs for management and disposal are paid by the users.
Connex	A shipping container.
Construction and demolition debris “C&D”	Waste generated by construction and demolition of buildings, such as bricks, concrete, drywall, lumber, miscellaneous metal parts and sheets, packaging materials, etc.
Curbside collection	Collection of compostables, recyclables, or trash at the edge of a roadway in front of a residence or shop.
Drop-off center	An area or facility for receiving compostables or recyclables that are dropped off by waste generators.
Energy recovery	The process of extracting useful energy from waste, typically from the heat produced by incineration or via methane gas from landfills.
E- scrap	Short for electronic waste including discarded computers, office electronic equipment, entertainment device electronics, mobile phones, television sets.
Fish processing waste	Skin, shells, bone and entrails that are produced during commercial fish processing activities. Fish processing waste does not include such materials produced by community members when cleaning individual or subsistence fish and shellfish harvest.
Flying cans	An ALPAR program for removing aluminum cans from off-road communities by flying them in a small plane to larger hubs to be recycled or staged to be shipped to a processor.
Groundwater	Water beneath the earth's surface that fills underground pockets (known as aquifers), supplying wells and springs.
Hazardous waste	Waste that is reactive, toxic, corrosive, or otherwise dangerous to living things and/or the environment. Many industrial by-products are hazardous.
Honey bucket	A bucket used as a toilet.

Term	Definition
Household hazardous waste	Products used in residences, such as paints and some cleaning compounds, that are toxic to living organisms and/or the environment.
Incineration	The process of burning solid waste under controlled conditions to reduce its weight and volume, and often to produce energy
Industrial waste	Waste produced directly by major manufacturing and resource development industrial activities, such as oil and gas industry drilling waste, timber industry wood waste, tailings and similar waste from the mining industry.
Inorganic waste	Waste composed of material other than plant or animal matter, such as sand, dust, glass, and many synthetics.
Integrated solid waste management	Coordinated use of a set of waste management methods, each of which can play a role in an overall municipal solid waste management plan.
Landfilling	The final disposal of solid waste by placing it in a controlled fashion in a place intended to be permanent.
Leachate	Liquid (which may be partly produced by decomposition of organic matter) that has seeped through a landfill or a compost pile and has accumulated bacteria and other possibly harmful dissolved or suspended materials. If uncontrolled, leachate can contaminate both groundwater and surface water.
Liner	A protective layer, made of soil and/or synthetic materials, installed along the bottom and sides of a landfill to prevent or reduce the flow of leachate into the environment.
Materials recovery	Obtaining materials that can be reused or recycled.
Mixed waste	Unsorted materials that have been discarded into the waste stream.
Monofil	A type of fishing line using a single strand of man-made fiber.
Municipal solid waste (MSW)	All solid waste generated in an area except industrial and agricultural wastes. Sometimes includes construction and demolition debris and other special wastes that may enter the municipal waste stream. Generally, excludes hazardous wastes except to the extent that they enter the municipal waste stream. Sometimes defined to mean all solid wastes that a city authority accepts responsibility for managing in some way.
Organic waste	Technically, waste containing carbon, including paper, plastics, wood, food wastes, and yard wastes. In practice in municipal solid waste management, the term is often used in a more restricted sense to mean material that is more directly derived from plant or animal sources, and which can generally be decomposed by microorganisms.
Pathogen	A microorganism, such as a bacterium or fungus that has the capacity to cause disease under normal conditions.
Processing	Preparing MSW materials for subsequent use or management, using processes such as baling, magnetic separation, crushing, and shredding. The term is also sometimes used to mean separation of recyclables from mixed MSW.
Producer responsibility	A system in which a producer of products or services takes responsibility for the waste that results from the products or services marketed, by reducing materials used in production, making repairable or recyclable goods, and/ or reducing packaging.
Pyrolysis	Chemical decomposition of a substance by heat in the absence of oxygen, resulting in various hydrocarbon gases and carbon-like residue.
Recyclables	Items that can be reprocessed into feedstock for new products. Common examples are paper, glass, aluminum, corrugated cardboard, and plastic containers.
Recycling	The process of transforming materials into raw materials for manufacturing new products, which may or may not be similar to the original product.
Resource recovery	The extraction and utilization of materials and energy from wastes.

Term	Definition
Reuse	The use of a product more than once in its original form, for the same or a new purpose.
Sewage lagoon	Large open air pond into which sewage is dumped or pumped which allows for the decomposition of human waste.
Solid waste	Garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials including solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations.
Source reduction	The design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced.
Source separation	Setting aside of compostable and recyclable materials from the waste stream before they are collected with other MSW, to facilitate reuse, recycling, and composting.
Staging	Sorting and packing backhaul materials for transfer, usually via barge or plane, to a larger community for disposal or additional transfer.
Tipping fee	A fee for unloading or dumping waste at a landfill, transfer station, incinerator, or recycling facility.
Transfer	The act of moving waste from a collection vehicle to a larger transport vehicle.
Transporter	A barge or airline company which transports materials between communities in rural Alaska. Shipping of backhaul materials from smaller communities to larger communities is sometimes provided at a discount or free of charge.
Trench-and-fill landfill	A landfill in which municipal solid waste is placed in a trench dug with equipment, and buried.
Universal waste	Hazardous waste materials that contains common everyday items.
Van	A shipping container.
Warfage fee	The fee charged by a city or agency for transporters to store or move goods through a port.
Waste reduction	All means of reducing the amount of waste that is produced initially and that must be collected by solid waste authorities. This ranges from legislation and product design to local programs designed to keep recyclables and compostables out of the final waste stream.
Waste stream	The total flow of waste from a community, region, or facility.
Water table	Level below the earth's surface at which the ground becomes saturated with water.
Wetland	An area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year.
White goods	Household-sized appliances such as refrigerators, stoves, dehumidifiers, air conditioners and washing machines.

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I. Report Purpose

On January 27th through January 29th, 2016, community members, agency representatives, waste disposal, transportation business leaders, and nonprofit organization members each working in solid waste management and disposal met to discuss how to effectively remove recyclables from communities as well as how to effectively manage and dispose of solid waste within communities. The meeting was planned by the Solid Waste Alaska Taskforce (SWAT), coordinated by the Alaska Native Tribal Health Consortium (ANTHC) and was made possible through funding (GA-00J75101) from the U.S. Environmental Protection Agency.

The dialogue that occurred and recommendations that emerged from the meeting resulted in this guide for communities, agencies, state, and federal organizations that are working to improve solid waste management in Alaska.

This guide shares the format and details of the three-day stakeholder workshop and presents recommendations for solid waste management at the statewide, regional, sub-regional, and community level in Alaska. As a follow-up to this guide, the SWAT will also develop a “trail map” including tips and detailed implementation practices for organizations and individuals working at any step in solid waste management.



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2. Background & Context

Alaska's Tribal Solid Waste Management

Indian Environmental General Assistance Program (IGAP)¹

IGAP has and continues to support much of rural Alaska's solid waste management efforts. In 1992, the United States Congress enacted the IGAP Act, a national program to assist Indian tribal governments and intertribal consortia build capacity to develop and manage local environmental protection programs under the direction of the U.S. Environmental Protection Agency (EPA).

Through this program, the EPA became the first federal agency to respond to presidential guidance to make the principles of Indian self-determination work in practice through federal funding and "government to government" relationships for solving local environmental goals by federally-recognized tribal governments and tribal consortia for the benefit of tribal communities. The funds were flexible and could be used for anything from training and program management to staffing and internet connectivity to support environmental program capacity. The program began with \$5 million in funding from Congress to be available to the 566 federally recognized tribes in the United States. The success of this program led to the increase of more than \$65 million in funding in recent years. Tribes must reapply for these non-competitive IGAP funds every year, but recipients with good performance can negotiate multi-year work-plans with total awards determined based on Congressional appropriation and EPA regional distribution. In 2015, 170 Alaska tribes received grants that ranged between \$75,000 and \$125,000 totaling more than \$25 million. The map on the following page shows Alaska communities that received IGAP grant distributions in 2014.

The funding has allowed tribes to develop the capacity to plan, manage and implement tribal environmental programs in response to local needs and conditions and to align with EPA priorities. The flexibility of the program supports the underlying principle of self-determination that inspired the program. The program has also allowed the EPA to be seen as a partner for prevention and planning in the community rather than solely a regulatory or enforcement agency.

By the year 2000, there was pressure from tribal leaders for the EPA to revise its approach to IGAP, and include a wider array of allowable activities. In 2002, a Congressional Provision to the Indian General Assistance Program Act enabled the funds to be used for solid and hazardous waste implementation.

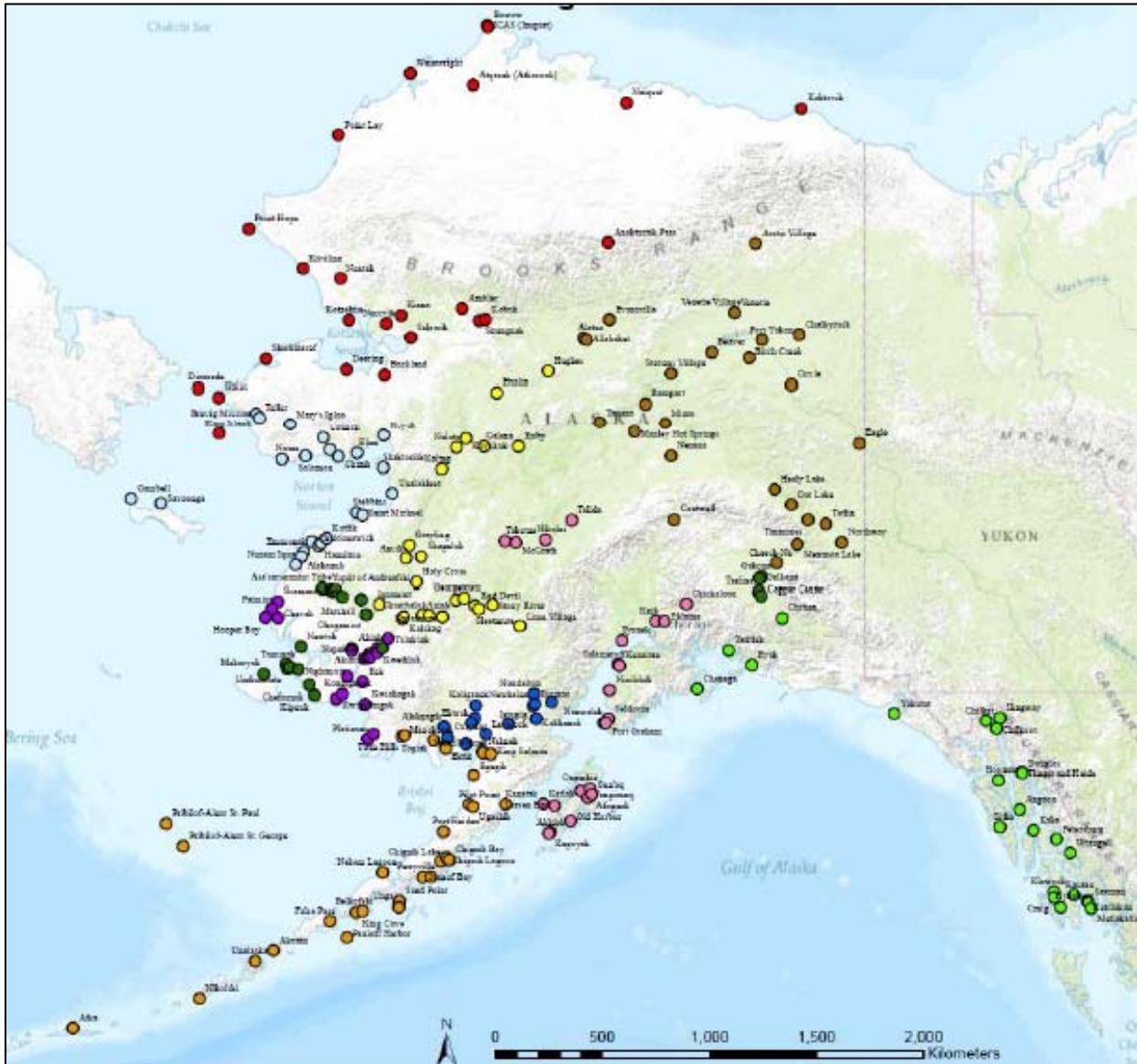
Currently funded project activities range from drafting long-range environmental plans and baseline monitoring, to organizing clean-up days and working with the U.S. Army to clean up decommissioned military sites. A key aspect of many tribal environmental programs is managing and dealing with the effects

"Backhaul" is one of the implementation activities that tribes have been undertaking with the Congressional Provision of 2002 that allows IGAP funds to be used for solid and hazardous waste. Backhaul refers to the removal of materials that communities are not recommended to dispose of in their landfills – including universal waste, e-scrap, household hazardous waste, scrap metal and recyclables.

¹ This summary is abstracted from D. Roehl's senior project proposal, "U.S. Environmental Protection Agency Indian Environmental General Assistance Program: Helping Tribes Improve Alaska Communities," to Alaska Pacific University in 2015.

of the community landfill. Most landfills in Alaska's tribal communities are unlined, so hazardous materials that are disposed of in the landfill can contaminate surrounding groundwater and land. Many tribal environmental programs have used IGAP funding to coordinate one-time and on-going backhaul efforts for materials that cannot be disposed of in the landfill.

Figure 1: 2014 Alaska IGAP Communities Map ²



May 2013 EPA Guidance

In May of 2013, the U.S. EPA released the GAP Guidance, to help set a national framework for how IGAP funding may be used. Included was the directive that IGAP funds could no longer be spent on the operation and maintenance of solid waste implementation activities, including the construction of facilities, trash

² This map was created by the U.S. Environmental Protection Agency in 2014.

collection, transportation, backhaul, and disposal services. EPA urged tribes to build self-sustaining solid waste programs supported by other funding sources by 2017. Planning and pilot testing environmental programs would still be permitted.

Sustainable Programs by 2020

The 2013 Guidance was not well received by Alaska tribal governments and tribal consortia who have long relied on IGAP funding to support solid waste programs. Tribal leaders, community representatives, regional and statewide communities made their concerns known to the EPA and expressed deep concern that the 2017 deadline would be too quick to transition to an alternative model to fund solid waste management. A key message by tribal leaders was that no other funding sources were set in place of IGAP to cover the services that tribes had been providing for their communities since 2002. It is important to mention that Alaska tribal governments are eligible for very few, if any, federal grants that include such activities. The issue was brought before Congress in 2015 and an extension was granted, giving Tribes until 2020 to transition to different funding sources for their solid waste operations and backhaul. As of the date this document was developed, tribal solid waste programs will no longer be able to use IGAP funds for these specific efforts beginning in 2020.

What is a “sustainable solid waste management program”?

A sustainable solid waste management program is planned, developed, and operated based on local resource availability, economics, and environmental concerns, instead of relying on federal or state funding.

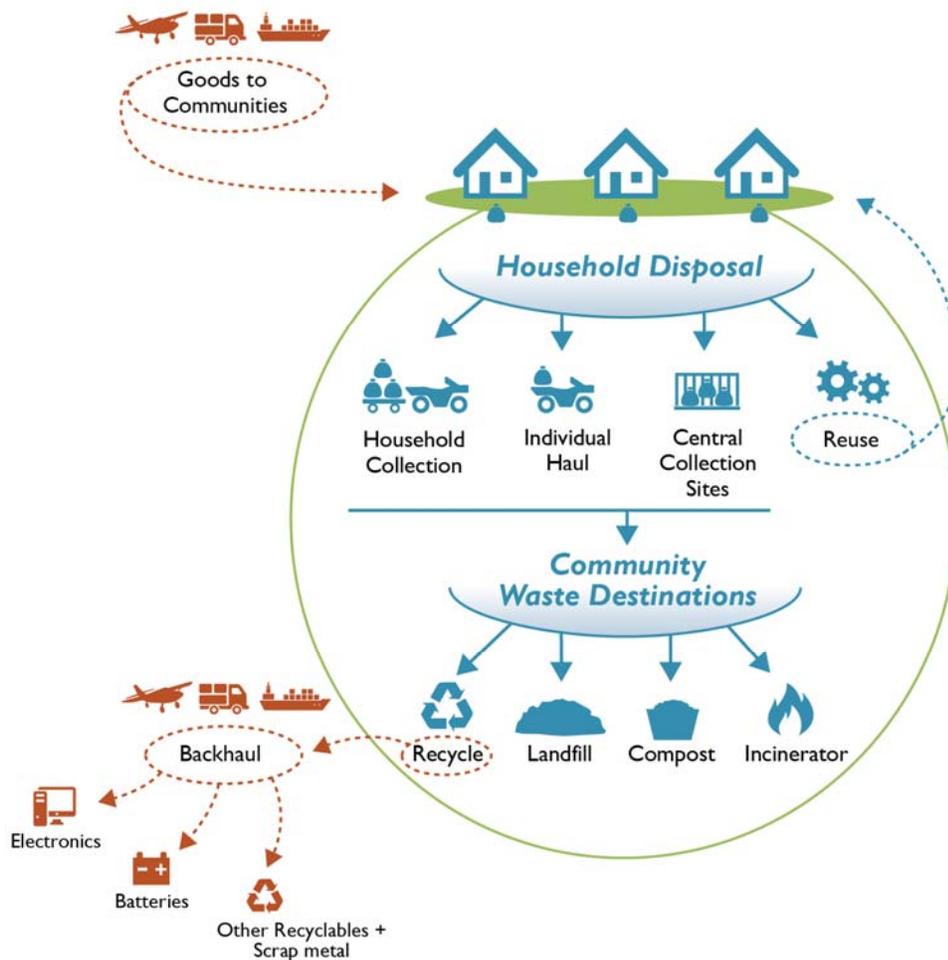
Additionally, a sustainable program approaches waste management through local waste minimization, effective collection and transportation, recycling, composting, landfill diversion with consistent backhaul of materials not suitable for rural landfills.

The Solid Waste Stream Today

Small planes carry most goods and people into communities in rural Alaska, as there are few roads. When packaging and non-consumable materials have outlived their original purpose, there are several disposal options. The graphic below shows how households dispose of waste materials depending on what is available in their community. Some communities have household collection systems in which the tribal or city government employs solid waste workers to pick up trash at each household. Some communities have no collection service and individuals haul trash to the landfill on their own schedule. Other communities combine these two models and households haul their trash to one of several central collection sites around the community. A solid waste service then collects trash at these sites and hauls it to the community landfill. People dispose of solid waste by burying it in a landfill, burning it in an incinerator or burn box, or recycling it for use in the community. Not all materials that have outlived their original purpose are considered waste. Households can store materials for reuse later or sometimes communities have an area where items like old snow machines can be used for parts at later dates.

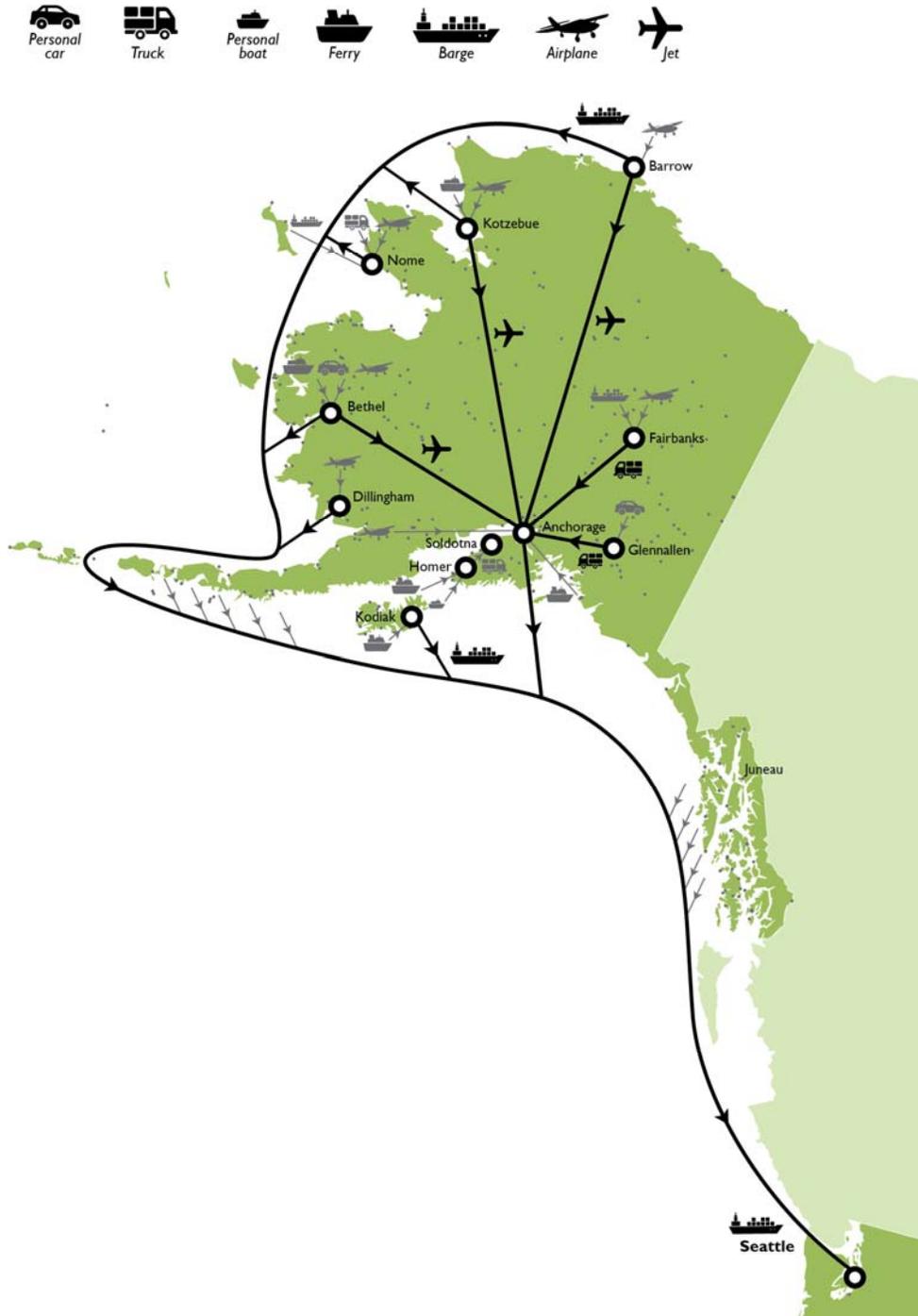
Potentially hazardous materials that cannot be disposed of in the community landfill and recyclables need to be backhauled out of the community and disposed of or recycled in Anchorage or Seattle. Most of this material leaves via small plane, or barge if the community is located on the coast or a major river.

Figure 2: Village Solid Waste Stream



Backhauled materials are usually flown to a larger hub community in a small plane where they are recycled or shipped on a barge to Seattle. In Seattle, solid waste can be recycled or disposed of properly. Some materials require the community to pay a fee while other materials may actually generate a small revenue that could be used to offset costs. Communities or regional entities negotiate with the end destination in advance of the backhaul. The figure below shows a generalized map of Alaska's backhauled solid waste stream.

Figure 3: Statewide Solid Waste Backhaul



Solid Waste Alaska Taskforce (SWAT)

The Solid Waste Alaska Taskforce (SWAT) is a multi-agency taskforce that formed in November 2014 to help tribes build sustainable solid waste programs. The Executive Committee includes representatives from the following key agencies:

- Alaska Native Tribal Health Consortium (ANTHC)
- U.S. Environmental Protection Agency, Region 10 Alaska Operations Office, Tribal Trust and Assistance Unit
- Alaska Department of Environmental Conservation (ADEC)
- Kawerak, Inc
- Zender Environmental Health and Research Group

Each member organization has their own mission and works on their own solid waste projects. However, the cross organizational structure of the team and the common purpose of helping Alaska communities develop sustainable solid waste programs has created synergy amongst members. SWAT meets regularly to coordinate projects, share data and information, discuss progress on their individual projects and arrange events to gather input from stakeholders and other resource providers.

Mission

SWAT's mission is to:

- Help communities navigate solid waste regulations.
- Find long-term solutions for solid waste management activities in rural Alaska.
- Provide tribes with tools to sustain successful solid waste programs.
- Identify missing pieces for sustainable solid waste management programs.
- Advocate for communities.

Members

Alaska Native Tribal Health Consortium (ANTHC)

The Alaska Native Tribal Health Consortium (ANTHC) is the largest, most comprehensive nonprofit tribal health organization in the United States and oversees the majority of the Indian Health Service's (IHS) programs in Alaska. In addition to providing medical services at the Alaska Native Medical Center, ANTHC offers statewide wellness and environmental health programs, disease research and prevention, rural provider training, rural water and sanitation systems construction in an effort to reach their vision that Alaska Native People are the healthiest people in the world

ANTHC provides administrative support and coordination to SWAT and funded the workshop and this report under EPA grant #GA-00J75101.

U.S. Environmental Protection Agency, Region 10 Alaska Operations Office, Tribal Trust and Assistance Unit

The U.S. Environmental Protection Agency's mission is to protect human health and the environment. EPA Region 10 serves Alaska, Idaho, Oregon, Washington, and 271 Tribes. The tribal program seeks to strengthen tribes' abilities to manage environmental programs in Indian country and ensure that tribes have a voice in

decision that affect their land, air and water. The EPA funds the Indian 9bj Jfcba YbU General Assistance Program (IGAP). EPA helps support SWAT activities and Alaska tribes as they transition to a more sustainable approach to solid waste management in rural Alaska.

Alaska Department of Environmental Conservation (ADEC)

The Alaska Department of Environmental Conservation (ADEC) works at “conserving, improving, and protecting Alaska’s natural resources and environment to enhance the health, safety, economic and social well-being of Alaskans.” ADEC regulates health and environmental compliance within hundreds of Alaska’s municipal landfills, waste storage, treatment, and disposal facilities.

Kawerak, Inc

Kawerak, Inc. is the regional nonprofit Native Corporation that provides social, environmental and planning services to tribal members and communities in the Bering Strait region. Kawerak’s solid waste management program provides a model that exemplifies how waste disposal and removal could occur at a regional level. Kawerak has had great success working with the multiple communities within their region to effectively manage solid waste.

Zender Environmental Health and Research Group

Zender Environmental Health and Research Group is a nonprofit organization, providing environmental program services for tribal and isolated populations in rural Alaska. Zender’s website acts as a clearinghouse for solid waste management resources for communities.

Activities

SWAT engages community members, regional organizations and state agencies to develop sustainable solid waste solutions for Alaska. The SWAT Executive Committee meets at least once per month and has hosted three larger events, one of which culminated in this report.

In February 2015, SWAT’s first event was to engage a broader group of stakeholders at the annual Alaska Forum on the Environment (AFE). During the event, SWAT facilitated a visioning exercise to explore what sustainable solid waste management in rural Alaska could look like. The discussion produced a doodle poster shown in Figure 4 on the following page.

In October 2015, the SWAT team convened regional representatives to begin mapping out how solid waste management activities are carried out on a regional level. This was considered a “pre-meeting” for the January 2016 logistics meeting summarized in this report. The regions represented included:

- Bering Strait
- Bristol Bay
- Interior (no road)
- Interior (road)
- Kodiak
- Lake & Peninsula
- Lower Kenai Peninsula
- North Slope
- Northwest Arctic
- Southwest
- Southeast

A full list of attendees is provided as Appendix A.

In January 2016, a combination of selected communities and regions that participated in the meeting in October, as well as representatives from various agencies, recyclers and transporters came together in Anchorage. The meeting's intent was to understand how solid waste is being managed throughout the state and in particular, to discuss backhaul logistics and share strategies for how to get recyclable and hazardous materials out of communities and to the proper end-destination affordably.

The SWAT team will continue to meet and share tools and recommendations from this report with communities. The team will also continue to seek and develop sustainable solid waste management strategies for Alaska's rural communities.



Solid Waste Logistics Strategic Planning Meeting (January 2016)

Meeting Purpose

The purpose of the meeting was to:

- Identify statewide solid waste management issues and document solutions.
- Focus on solid waste solutions at the local and regional level, with coordination statewide.
- Develop a statewide guide for solid waste management and backhaul.



Meeting Participants

Forty people attended the three-day meeting held in Anchorage, Alaska on January 27th - 29th, 2016. Desirae Roehl of Alaska Native Tribal Health Consortium convened the meeting, which was facilitated by a team of individuals from Agnew::Beck Consulting, Summit Consulting Services, and Bristol Engineering Services Corporation. Representation from the following organizations and communities included:



- Alaska Marine Lines
- Alaska Logistics
- Alaska Native Tribal Health Consortium
- Qawalangin Tribe of Unalaska
- Anvik Tribal Council
- Chalkytsik Village Tribe
- Central Recycling Services
- Copper River Watershed Project
- Curyung Tribe of Dillingham
- Alaska Department of Environmental Conservation
- Environmental Protection Agency
- RurAL Cap
- Green Star
- Institute for Tribal Environmental Professionals
- Kodiak Area Native Association
- Kawerak
- Maniilaq Association
- Native Village of Eagle
- Northern Air Cargo
- Seldovia Village Tribe
- United States Senator Lisa Murkowski's office
- Yukon River Inter Tribal Watershed Council
- Zender Environmental

A full list of attendees is provided as Appendix A.

Meeting Outcomes

This guide builds from the main outcomes of the meeting, which included:

- A clearer understanding of regional and statewide logistics related to solid waste management.
- Goals and strategies to improve sustainable statewide solid waste management.
- Improved and continuing communication with backhaul, transportation and end-destination representatives

Appendix B provides the PowerPoint presentation that was a guide for meeting participants. Appendix C contains the full meeting notes summary.

Figure 5: Word Vision for Alaska Solid Waste Stream, January 2016 SWAT Meeting



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3. Sustainable Statewide Solid Waste Management

As part of the three-day workshop, participants brainstormed the issues and opportunities related to five topic areas that included: Coordination & Collaboration; Local Best Practices, Innovation & New Technology; Engaging Transporters & Recyclers; Training; and Implementation & Funding. The original topics were predetermined by the SWAT team to reflect themes that emerged through SWAT’s earlier meetings and discussions. The workshop was organized so that attendees would help develop goals for each topic area, as well as recommendations and strategies.

Meeting attendees engaged in a variety of activities to develop goals, recommendations and strategies that organizations, communities and regions could implement to make solid waste management in Alaska more sustainable. To initiate development of goal statements for each topic area, attendees engaged in a “speed dating” goal development activity. Participants were asked to turn to their neighbor and in six minutes summarize the issues and obstacles related to the topic and identify an overarching goal for the topic.

Participants reported their results to the full group of meeting attendees and the facilitation team recorded the results in a spreadsheet that listed their goals and recommendations. Once initial goals and recommendations were established, the full group of meeting attendees broke into small groups, refined the goals and recommendations for each topic area and developed specific strategies that could be implemented in the next year. Small groups reported their results to the full group, and the facilitation team updated the spreadsheet and projected it for the meeting attendees to see. What emerged from the meeting was refinement of the five original topic areas; goals for improving solid waste management; best practice recommendations to pursue; and short and long-term strategies. The results for each of the topic areas are consolidated and refined in subsequent pages under the following five topic headers:

- Coordination and collaboration
- Local best practices, innovation and technology
- Training and retention
- Funding
- Public awareness

The meeting helped to produce:

1. ~~AW~~ broad statewide vision for solid waste disposal, recycling, and removal from communities, outlined in the next section, and
2. ~~AW~~ detailed steps communities can take to ensure sustainable solid waste management, forthcoming in a subsequent publication, Alaska’s Solid Waste Trail Map.

PLANNING TERMS

Goal | What is the long-term improvement or change we would like to see?

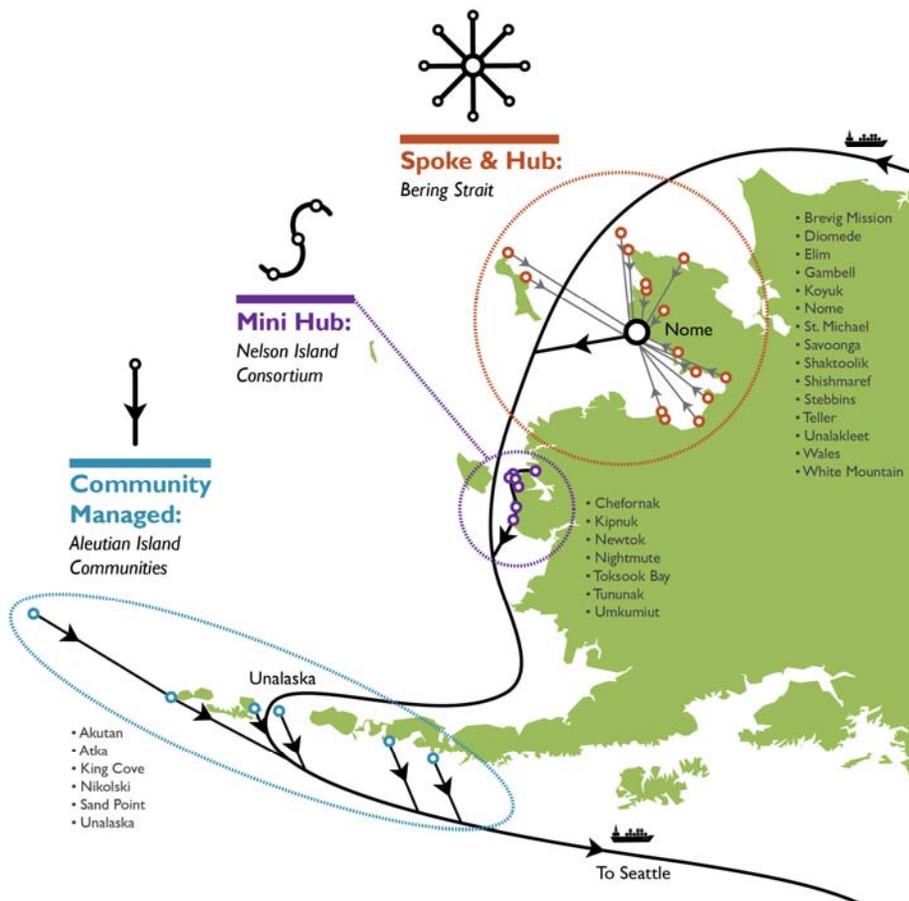
Recommendations | What measurable changes do we hope to make over the next five years toward our goals?

Strategies | What actions will we take in the next year to achieve our recommendations?

A Vision: Coordinated Solid Waste Disposal & Recycling

SWAT and meeting participants envision a statewide “spoke and hub” system where all communities or “spokes” can connect their potentially hazardous and recyclable waste streams to a final destination for disposal or recycling via a regional “hub.” As appropriate, regional entities would help to coordinate a solid waste backhaul program from outlying communities via plane or boat to the hubs that would ship to Seattle via barge.³ This would help to obtain the necessary scale and quality of materials that transporters, recyclers and buyers require. Other communities are better served by a smaller, sub-regional “mini-hub.” In this model, communities can work together as a consortium to backhaul solid waste from communities located along a common water body.⁴ A third type of community backhaul effort is when communities located on major shipping routes to and from Seattle work individually with transporters to backhaul waste.⁵ The three models are shown in Figure 6.

Figure 6: Three Models for Solid Waste Backhaul



³ A classic example of this is in the Bering Strait region, where Kawerak helps to coordinate backhaul of solid waste and hazardous materials via plane from communities like Shaktoolik and Unalakleet, via barge from Gambell and Savoonga and via truck from community like Teller and Solomon to a staging area in Nome. In Nome, Kawerak processes and packages materials to be shipped to Seattle via barge for recycling and disposal. See the case study in Chapter 4 for more details on Kawerak’s program.

⁴ Nelson Island Consortium, for example, is also detailed in a Chapter 4 case study.

⁵ This occurs in the Aleutian Islands and Southeast Alaska.

I. Coordination and collaboration

Goal: Develop a coordinated system for solid waste management.

Focus on backhaul⁶ that builds on partnerships and collaborations between local, regional, state and federal organizations.

Better coordination at all levels - community, regional, and state and amongst all players - solid waste programs, transporters, commercial entities, state agencies – would help support solid waste management and backhaul. Strategies that support the development of a statewide spoke and hub system are grouped in four recommendations below.

Transporters and recyclers are key players in community solid waste management programs as they backhaul the materials that communities do not wish to dispose of in their landfills – including universal waste, e-scrap, household hazardous waste, scrap metal and other recyclables. Organizations and individuals working in solid waste management seek to build strong relationships with transporters/recyclers and foster open communication to improve backhaul and develop consistent backhaul opportunities. These opportunities vary widely from region to region and different organizations and companies are involved depending on where a community is located.

Zender Environmental Health and Research, with support from the SWAT team, is exploring the “control tower” concept in which a statewide organization could provide support to regional hubs or consortia to help coordinate community backhaul opportunities.



Statewide Strategies

- Develop the statewide control tower system.
 - Survey interest of hubs to participate in the “statewide control tower” initiative.
 - Further develop and engage interested regional hubs.
 - Identify which is the best model for diverse communities to participate in a statewide system.
 - Create a tracking system that shows which communities are connected to hubs, mini-hubs and direct-to-Seattle backhaul and identify gaps in backhaul opportunities.

⁶ Backhaul is the transportation of materials from a community for disposal at a different location. Materials often include universal waste, e-scrap, household hazardous waste, scrap metals, and other recyclables.

- Hold an annual meeting of the SWAT and partner communities to foster statewide collaboration and coordination.
- Hold a semi-annual backhaul event (aka – statewide clean-up day) to establish an event for communities and transporters to be a part of fostering coordination and collaboration.

Regional Strategies

- Build communication and backhaul opportunities between communities and transporters and vendors.
 - Document the transporters by region.
 - Understand the type and volume of materials available to backhaul.
 - Work to standardize rates, or work with transporters to develop predictable rates. Rate ranges could be based on different scenarios. Identify 6 to 12 communities to index for rate guide.
 - Develop a backhaul rate guide by region.
 - Develop MOAs that memorialize agreements for backhaul with transportation vendors.
- Help transporters negotiate reduced warfage fees to lower costs for backhaul.
 - Develop a template agreement for City and transporters for hub ports like Bethel, Dillingham, Nome, Kotzebue and Unalaska.
 - Work with transportation companies to understand, and obtain estimates, for the cost of moving materials.
 - Reach out to ANCSA corporations, villages, tribal organizations to support reducing warfage fees in larger port communities.
- Identify mini-hubs/multi-village consortium opportunities to collectively deal with recycling/backhaul.
- Establish agreements between villages and hubs/mini-hubs.

Community Strategies

- Help villages remove existing solid waste stockpiles with IGAP funds that are available now through 2020, and then use lessons learned to continue solid waste backhaul.
 - Develop an inventory system that tracks: waste types and amounts, where waste is shipped, costs incurred and revenues generated. It should be able to track year-to year totals. Inventorying builds a framework for long-term tracking.
 - Develop a pilot project for each waste stream (e.g. scrap metal, white goods, etc.) each in a different community to inventory, identify where it is going to go, and get it out.
 - Couple waste removal efforts with education on keeping household hazardous waste out of landfills.
 - Identify if there is a local market for some of the waste at the pilot sites. This may include repurposing materials such as scrap metal for building structures or cardboard for heating logs, etc.
 - Dig designated scrap metal landfills that can be mined later to recover materials when the price of metal goes back up.
- Encourage coordination between cities, corporations and tribes to implement effective solid waste management strategies.
 - Identify a solid waste champion in the community. Begin with the local IGAP or city public works staff. The ‘champion’ should be a paid employee.

- Develop written agreements between tribes, corporations, cities and other stakeholders for solid waste management best practices and coordination. Sample MOUs are located in Appendix D.
- Develop a standard checklist for how to conduct an efficient backhaul program to disseminate to communities, technical assistance providers and transporters.
- Encourage each community or region to identify a point of contact that transport companies can work with to coordinate backhaul.
- View every trip out of the village as a potential opportunity to backhaul. This could include local residents, teachers, contractors, etc.

External Strategies

- Start a conversation with US/DOT about 49 CFR.
- Research the bypass mail system to figure out how to best use the process for backhaul.
- Develop agreements with other entities doing work in communities to get help backhauling wastes. This includes contractors building schools, health care centers, fish industry, crab boats, and others.
- Build relationshipgwith transporters and vendors to ask that they bring new materials coming into a community in fish totes or whatever container will be needed to get waste out as a supporting action for backhaul.

2. Local best practices, innovation and technology

Goal: Integrate best practices, appropriate technology and innovation.

The SWAT team recognizes that best practices and pilot efforts can be replicated and fine-tuned for local communities. Implementing best practices, adopting appropriate technology, and fostering innovation and local solutions will be an important part of successful solid waste management in Alaska.



Short-term Strategies

- Develop a one-stop web forum on solid waste management and backhaul
 - Website content includes: sharYideas, post events, ask an expert blog, transport portal, who the vendors are, training resources – dates, informal opportunities, regional sub-pages, get young people involved, and MOUs.

- Identify a host organization. ANTHC can provide a SWAT webpage on their current website and Central Recycling Services is willing to develop and manage the forum.
- Develop a resource that identifies all the types of funding for solid waste to include on the website. Infrastructure Taskforce is working on this. Tools and documents will be included.
- Inventory and promote the templates and best practice tools that are available.
- After inventorying tools available, develop materials that don't exist but are needed.
 - Model policies and procedures for tribal/city integrated solid waste management operations.
 - Share one-page success stories, but also the step-by-step details.
 - Compile examples of public relation programs that successfully celebrate the transportation vendors with successful backhaul operations.
- Have a technology session at Alaska Forum on the Environment (AFE) or Alaska Tribal Conference on Environmental Management (ATCEM).

Longer-term Strategies

- Create a solid waste technology trade show for Alaska.
- Help communities document their technological assets. Inventory solid waste technology and tools that exist in the community and get training or assistance to use available technology and tools.

3. Training and retention

Goal: Create a standardized system of easily accessible training resources to help Alaska communities implement sustainable backhaul and recycling programs.

Training and workforce development emerged as a key issue in all conversations convened by the SWAT team. Standardized, uniform training for solid waste workers could help solid waste programs remain stable even with the high employee turnover in community solid waste jobs. When turnover occurs, communities lose institutional knowledge and need new employees to learn quickly. Retention is desired and bolsters vendor confidence in the product that they will receive.



Short-term Strategies

- Inventory existing training offered for community members working in solid waste management.
- Create a detailed list with a recommended order of trainings.
- Catalogue, assess, and organize existing training materials.

Longer-term Strategies

- Create a tiered backhaul training so communities know where to start. For instance, share how to start with recycling cans, bottles, and then how to backhaul lead-acid batteries. See Appendix A for more details.
- Develop a concept for a virtual training system.
- Develop easy access to all tools available to tribal communities. See Zender website and Goal 2 strategy regarding a one-stop web forum.
- Write up a best practice manual for training. The training will include: how to give a good training, how to “pass on the knowledge”, bringing the message home, train the trainer, and training the employee when hired.
- Explore development of a peer mentoring program – assign community solid waste coordinator to partner with another community solid waste coordinator.

4. Funding

Goal: Develop diversified funding sources to support solid waste management in Alaska’s communities.

Solid waste programs should use a business planning approach to identify multiple revenue sources and potential costs.

IGAP funds may no longer be used for operations and maintenance of solid waste management programs beginning in 2020 so diversifying funding streams and building sustainable programs is necessary. Grants alone do not provide sustainable funding. Multiple sources of revenue, including charging community members a fee for solid waste disposal, can help support appropriate solid waste disposal and backhaul. A program with more than one funding source will be more stable and less affected by changes to one specific funding source. Additionally, funders like to see that they are part of a greater effort and not the sole organization responsible for the program’s continuation.

This approach highlights some of the challenges facing many small communities in Alaska. Many small communities don’t qualify for or can’t compete with larger communities for funds. Additionally, many communities lack cash-based economies and charging a fee for service places a significant strain on family resources.

Funding Sources + Recommendations

Funds from Grants	Community Appropriate Fee Structures	State + Regional Operating Resources	Sales from Backhauled Materials
<p>Coordinate and bundle funders so several grants can be leveraged to complete a whole project.</p> <p>Create a grant writing course that will help communities obtain funds for solid waste management from a variety of sources.</p> <p>Funding for the development of solid waste trainings that are Alaska specific.</p>	<p>Bundle utilities</p> <p>Area wide fee</p> <p>Pay as you go, price per pound, in kind</p> <p>Fundraisers, raffle tickets for free disposal</p> <p>Bingo revenue</p> <p>Community service workers</p>	<p>Statewide community coalition around solid waste to talk with the legislature and advocate.</p> <p>Rural Utility Billing Advisor (RUBA) as a potential resource for creating more funding opportunities.</p> <p>ANCs are focused on regional impact; include an administrative rate to go for the rest of the system.</p>	<p>Value added waste can offset expenses. Pre-planning can help identify costs and possible revenue from a backhaul program</p>

Short-term Strategies

- Educate IGAP communities that funds can be used until 2020 to plan for sustainability, focus on getting existing solid waste stockpiles out, and the creation of sustainable approaches.
- Share RUBA fee-based systems presentation which they launched during the 2016 Alaska Forum on the Environment.
- Share and educate about the ANTHC statewide solid waste fee structure assessment for local communities that will be published in 2016.

Longer-Term Strategies

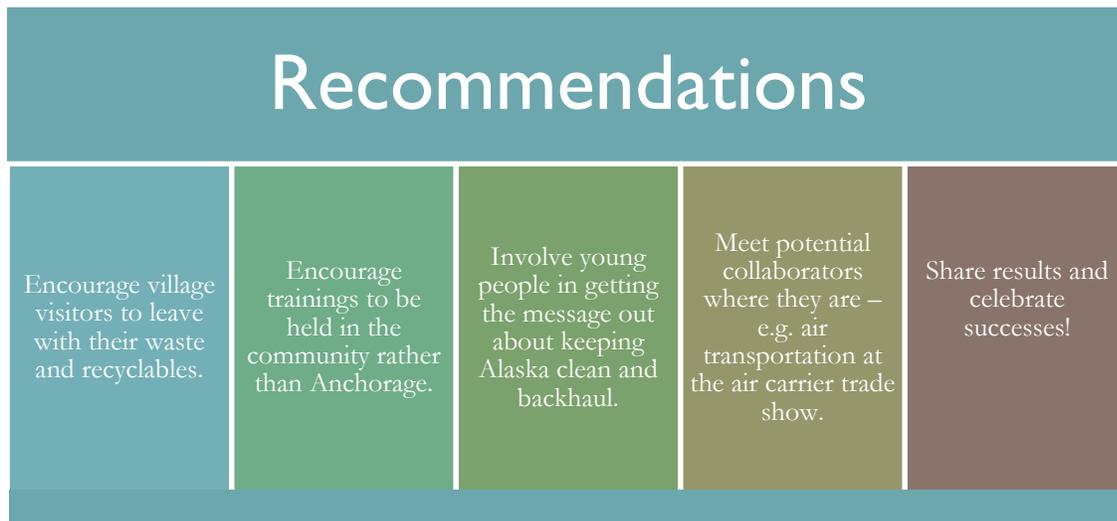
- Develop regional business plans for waste and backhaul. Alaska Rural Utilities Cooperative (ARUC) can run utilities on behalf of communities that don't have the capacity to run their own. Perhaps they could also help administer a solid waste program, especially if the services are bundled, or provide a model to communities.

5. Public awareness

Goal: Identify solid waste management as an issue all Alaskans have a stake in solving.

Encourage people to seize every opportunity to backhaul waste from communities. Promote the work that is being done in communities and statewide to improve solid waste management and keep our communities healthy and clean.

While not originally an overarching topic for the three-day workshop, it became clear that increasing public awareness of all stages of solid waste management efforts would benefit communities and organizations managing solid waste. Additionally, decision makers are not aware of what happens to waste in rural Alaska. SWAT members and meeting participants agreed that more education and public awareness of the waste stream would increase community-wide buy-in to improve solid waste management in rural Alaska. At the community level, meeting participants emphasized the importance of educating residents and visitors about the waste stream. Every departure from the village should be thought of as an opportunity to backhaul waste. Additionally, landfills contain electronics, plastics and ATVs, which are modern additions to the waste stream. People do not realize how difficult these materials can be to dispose of when they are purchased and shipped to the village. Landfills are unlined and not built for these uses. There is also a need to teach that recycling is a part of waste management. If people sort wastes at the home, school or business, it helps sanitation workers, increases the value of the materials that provide revenue, and can help reduce the costs of local management.



Short-term Strategy

- Determine the right entity or coalition to pursue a public awareness campaign, find funding for this effort.

Longer-term Strategies

- Create a public health message campaign about solid waste disposal. Use qualified firm to develop and test the message.
- Develop an outreach strategy and education message specific to each waste stream (e.g. e-scrap).

- Target decision makers with an educational campaign on where waste goes in rural communities.
- Create an art contest using waste found in the village as a tool to educate communities and a statewide audience about the issue of solid waste in rural Alaska. This is similar to art from marine debris initiatives. Involve youth and educators.
- Inform communities of free or reduced backhaul rates from transporters.

Possible messages and elements for a solid waste public health campaign.

- Make appropriate and specific link to climate change. It adds another dimension of dire need!
- Build from traditional knowledge. Relate recycling to separation of subsistence materials.
- Leave no trace, pack out what you bring in.
- Every trip out of a village is potential to backhaul, even if you didn't bring it in.

4. Case Studies

Many communities have successful solid waste management programs. This section describes three successful solid waste efforts from across Alaska. Their stories are shared so that other communities can learn from their successes and borrow ideas and methods to find their own path to successful solid waste management.

Nondalton: *Bundled Community Fee Structure*

The City of Nondalton funds their solid waste program by charging a fee for the service and bundling the solid waste fee with other utility bills. The City conducted a rate analysis using a Rural Utility Business Advisor template to determine the cost of operations and maintenance and the number of users. The city utilized a fee structure that reflected the level of use for different user groups. This helped keep costs down for low volume users, like residents, while assigning a higher fee to users like the school and lodges to account for their greater use of the solid waste service. This model worked well for the City due to the number of high volume users, like the school and the fishing and hunting lodges in the area, who could help offset the costs for the low volume users. The city checked in with communities and governments in the Lake and Peninsula Region to ensure the Nondalton fee structure would be comparable to the surrounding area.

To ensure payment, fees for solid waste collection and disposal are linked by ordinance to other utility services, specifically water and sewer. If a household does not pay their solid waste bill, water is shut off. The water service is used as a leveraging resource for the collection of solid waste and sewer fees. When the program was initially implemented, some residents balked at the new collection policies and the water shut off procedures. Additionally, residents would drop waste at the landfill gate or throw it over the fence, as the new landfill was fenced and locked. Fines were levied against community members who did not dispose of their waste properly. The new fee collection and waste disposal program was difficult for the first six months, now the City maintains a 96 percent fee collection rate. The landfill was initially expected to last 20 years. With best management practices, the landfill is anticipated to last at least 50 years. The community organizes isolated backhaul events using funding from the Lake and Peninsula Borough on an as needed basis. For instance, lead-acid batteries were recently backhauled via plane to Total Reclaim in Anchorage.

Old landfill



New landfill



Nondalton Timeline

- **1995:** Funding secured for existing dump closure and new landfill design & construction
- **2003:** State of Alaska notifies Nondalton that funding will be reallocated in three months
- **2004:** Retained funding from Village Safe Water. Design completed by fall 2004.
- **2005:** Construction of new site and closure of old dump site. Attempted to implement solid waste user fees, no one complied.
- **2006:** Implemented combined Water/Sewer/Solid Waste Ordinance.
- **2009:** User fees increased to create a self-sustaining utility.
- **2016:** 10 years in operation, single cell landfill is less than 10 percent filled to capacity, separate cell for white goods.

Figure 7: Old Nondalton landfill after closure



Nelson Island Consortium:⁷ *Coordinated Sub-Regional Backhaul*

Tununak, Newtok, Chefornak, Toksook Bay, Kipnuk, Nightmute, and Umkumiut

Seven villages on the coast of Western Alaska make up the Nelson Island Consortium (NIC). Similar to other communities in Alaska, the villages accumulated waste that could not be disposed of properly within the community: e-scrap, white goods with Freon still intact, household batteries, lead-acid batteries, ballasts, scrap metal and florescent light bulbs.

NIC applied for two special Environmental Protection Agency Indian General Assistance Program (IGAP) grants to support backhaul of these wastes from the seven villages starting in 2011.

Nelson Island Consortium contracted with Zender Environmental to coordinate the sub-regional waste disposal backhaul effort. The NIC had weekly teleconferences to discuss their efforts to backhaul, report what they were working on, talk about what their needs were and answer questions. The teleconferences included members from the 7 communities, Zender Environmental and an NIC Elder. The teleconferences were conducted in English and Yupik. Each village had an NIC representative who coordinated backhaul in their community, served as the local contact and organized collection of the waste at the local level. If there was not an NIC representative at the local level, Zender and the NIC worked with the village IGAP environmental coordinator, or coordinated with a representative from another community to work with the neighboring community.

Zender sent an inventory sheet to each NIC representative to count and weigh the materials in the community. Zender tracked the amount, type, and weight of the materials in an Excel spreadsheet to understand what type of transportation method and container was needed for backhaul. The spreadsheet was also used to tally and estimate the backhaul cost, to determine what and how many supplies they would need, and estimate the cost of recycling fees. With this information, Zender contacted the barge company and airline for costs. The first year it cost \$1,000 per village to backhaul ten pallets. The following year, the Zender coordinator worked creatively to reduce costs through donations and partnerships. They were able to:

- Obtain donated pallets from stores.
- Transport donated pallets to the communities during regularly scheduled Ryan Air flights.
- Obtained donated connex boxes from Northland Barge.

Each community worked to palletize the materials and load the pallets into the donated connex boxes. In Tununak, the landfill operator and his assistant loaded the connex manually and the Tununak NIC representative helped to make sure it was done properly for transport. Some communities used their Youth to Work Program from the Coastal Villages Region Fund to employ two to four young people to help load the connex boxes. Other villages used their Summer Youth Employment Training Program to work on the inventory, and educate youth participants about the backhaul efforts. Zender traveled to the communities to help package and carry out inventories. Nightmute and Newtok needed help with packing the connex. Each village was asked to take pictures of their packaged materials and send the pictures to Zender so they could verify the packaging was safe for transport.

Zender worked closely with the transporters to coordinate the movement of the materials out of the communities and keep in contact with the vendors. Zender worked with the barge company to estimate the time the pallets would arrive in the community and contacted the community to tell them when to expect the

⁷ Zender Alaska Backhauling Baseline Assessment Report, Interview with Evelyn Agnus, personal communication with Alma Kanrilak, Environmental Coordinator from Tununak.

barge. The barge was scheduled to stop at each village two times per year, so the villages had to work with those schedules and be prepared before the barges' arrival. The barge then brought the materials direct to Seattle recyclers.

Total pounds removed: 62,283

Total costs \$44,500

- Supplies \$2,450
- Village labor \$10,500
- Shipping \$19,250
- Recycling fees \$4,500
- Coordination \$7,800

The EPA IGAP grant that funded NIC's backhaul success also supported a backhaul summit in Bethel in 2012. Twenty-one villages within the Kuskokwim River Watershed Council addressed the challenges and solutions to backhaul in the region. The sub-regional approach to removing waste from communities was shared and its positive benefits discussed. Attendees identified another Yukon Kuskokwim Delta community, Tooksook Bay, that could use the model of NIC to remove waste as they have direct barge transit service to Seattle. Nearby communities could send backhaul to Tooksook Bay rather than to a regional hub in Bethel.

Zender also attended NIC meetings in the villages of Tununak and Nightmute in separate years to present to the NIC Elders Council and communities about the importance of properly removing hazardous materials to reduce potential health risks to the community. The Elders shared their top priority which was to encourage education and outreach in each community to start collecting materials, and they advised the representatives to work collaboratively to ship out as many materials as they could.

More Details: How to Administer a Grant for a Sub-Regional Consortium⁸

The EPA grant was administered by Chefnak and therefore had decision-making authority over activities in the grant work plan. The grant also funded a project coordinator based in Chefnak. The project funded a representative in each village, who was paid according to established arrangements within the NIC. The representative tracked activities and hours. Each Tribe submitted an invoice for the hours to Chefnak and their individual Tribal administrator, with the activities completed by the representative, along with any applicable receipts. The Consortium paid each Tribe monthly for their representative's work. Travel costs and reimbursements were submitted more often. The Chefnak Environmental Department Consortium bookkeeper reviewed the budget on a regular basis to ensure that each Village had a funded position, and that they were working on Consortium projects throughout the year. During high-subsistence time, less work was completed and during low subsistence time, more work was completed.

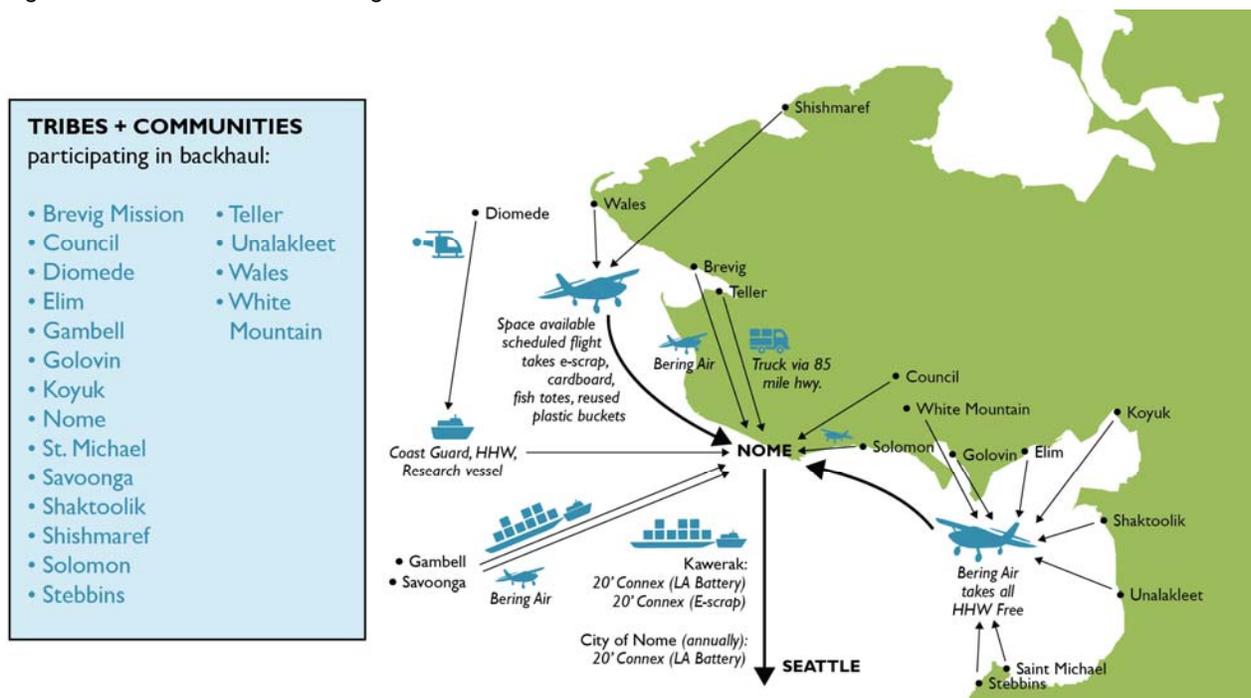
⁸ Excerpted from an EPA Grant Application for Backhaul

Kawerak: Ongoing Backhaul Using a Regional Spoke and Hub Model

Kawerak Inc. is the regional Native nonprofit corporation in Nome, Alaska, which provides services throughout the Bering Strait Region. Kawerak received its first EPA IGAP consortia grant in 2010 to help coordinate regional backhaul and recycling efforts. In addition, Kawerak has been able to obtain support for its regional backhaul and recycling efforts from: AmeriCorps, Yukon River Inter-Tribal Watershed Council, Total Reclaim, Alaskans for Litter Prevention and Recycling (ALPAR), Zender Environmental, RurAL CAP, the Alaska Native Tribal Health Consortium, the EPA and the Alaska Department of Environmental Conservation.

Kawerak and the City of Nome worked together to set up a simple regional spoke and hub recycling strategy to backhaul materials to Seattle. Kawerak worked with Bering Air to establish an arrangement where Bering Air has agreed to transport recyclables from 15 regional villages to Nome free of charge when there is space available. Once the recyclables arrive in Nome, the program coordinator ensures proper packaging for barge transport from Nome to Seattle. The coordinator also ensures that battery totes are returned to villages to help minimize costs and assists villages in obtaining any supplies needed for recycling. The strong partnerships that Kawerak has forged with local transportation vendors, including Bering Air, Alaska Logistics and Alaska Marine Lines, has made it possible for this regional spoke and hub model for backhauling recyclables to work.

Figure 8: Backhaul in the Kawerak Region



In addition to coordinating the recycling strategy, Kawerak has worked with the city of Nome to improve the City's recycling collection center, installing power, purchasing a can crusher and building collection bins for recyclables at the landfill. The Kawerak program coordinator also collaborates with other organizations to

provide opportunities for village environmental staff to learn proper packing methods and obtain other types of pertinent training including Freon removal, Rural Alaska Landfill Operator training, 7 Generations, GAP grant writing training, HAZWOPER, and Oil Spill Response. Quarterly teleconferences with all the village IGAP programs, facilitated by Kawerak, provide an opportunity for village programs to share resources, issues and ideas.

Kawerak offers the following tips to create a successful regional program:

- Encourage hub community to apply for \approx 5D; ~~fulg~~ and coordinate the waste disposal backhaul effort. Vendors prefer working with a single regional point of contact, as opposed to several individual community representatives.
- Host quarterly teleconferences and encourage participants to share challenges, ideas and solutions.
- Take advantage of conferences – meet with each other face to face when possible.

5. Regional Snapshots of Solid Waste Management Processes

This chapter provides a snapshot of how Alaska communities have approached solid waste management and specifically, backhaul. The regional snapshots include information shared by communities at the October 2015 and January 2016 meetings hosted by the Solid Waste Alaska Taskforce (SWAT). The snapshots have been augmented with information from *Waste Backhaul in Rural Alaska* by Zender Environmental Health and Research Group, published in 2015.

At the January 2016 meeting, the attendees broke into four groups from similar regions of the state to review and build from the earlier work completed by regional attendees of the SWAT October 2015 meeting, discuss opportunities and challenges in their region, and if possible, map the waste stream from village to hub to Anchorage and/or Seattle. After the small group work sessions, attendees reported on their efforts to the full group of attendees. The results are shared as regional snapshots of solid waste management processes in Alaska.

Since the January meeting, the snapshots have been reviewed extensively by regional contacts to verify accuracy and attempt to capture the full picture of solid waste management, disposal, and backhaul within the regions. While efforts were made to provide up to date information, there may still be missing components, and information may not specifically apply to every community within the region.

How to read the regional profiles:

Name of region, brief overview of how solid waste is managed, backhaul lead organization, hub community, backhaul model.

People involved and funding from prior years can be used for reference in looking for future funding.

Bristol Bay Region



How it Works: Villages charter e-waste to Dillingham. Curyung coordinator sorts and packages e-waste and fishing webbing into a Connex at the landfill. Connexes are shipped to Seattle via Alaska Marine Lines.

Backhaul Model: Mini-Hub

Backhaul Lead: Curyung Tribe

Hub: Dillingham

Bristol Bay COMMUNITIES participating in backhaul:

- Tigik
- Atkasook
- Dillingham
- Howe Spit
- Howe Spit
- Duvak
- Hoonah
- Kufukuk
- Clark's Point
- Shik
- Portage Creek

Bristol Bay Borough

- King Salmon
- Noyah
- South Nakag



Opportunities	Barriers
Bartering materials	It's regional effort
Upgrade recycling area (road)	High shipping costs
Raise pay: "road fix" as the community	Island fuel
Main local vehicles to change behavior	Local ferry for waste
Bus for home / business recycling	Funding for programs
Guidance / composting	Encourages to change
Promote local to benefit small local businesses	

Potential Partnerships	Funding Opportunities
Curyung Tribe City of Dillingham Various local stores and businesses IGAP Coordinators Various Cities (Gov't) School district	Curyung Tribe City of Dillingham Various local stores and businesses IGAP Coordinators Various Cities (Gov't) School district
Materials	Transporters + End Destination
Fish web E-waste Junk vehicles, heavy equipment, metals Lead and battery	Northland: London to Seattle NAPA in Dillingham (for lead and batteries) E-waste to Total Radiation in Seattle Fish web to Stage in Seattle Copper River Seafood (backhaul) Alaska Logistics Aldine London Northern Air Cargo Alaska Airlines Raven Air

Contributor(s): Participants at the Alaska Forum on the Environment 2016 SWAT Update session.

Transporters that work in the region.

Opportunities and barriers that regional stakeholders face.

Aleutian/Pribilof Region



How it Works: Most communities individually coordinate recycling and backhaul to Seattle via barge companies.

Backhaul Model: Direct to Seattle

Backhaul Lead: Community level

Hub: None

Aleutians

TRIBES + COMMUNITIES
participating in backhaul:

- Akutan
- Atka
- King Cove
- Nikolski
- Saint Paul
- Sand Point
- Unalaska



Barge

→ SEATTLE

Opportunities	Barriers
Coordinated barge communication	No regional effort
Schedule with many communities instead of individuals	Staff turnover
Outline process to minimize impact on the efforts if there's turnover	Lack of coordination
Money for materials through recycling	No land/space
More local partnership efforts to leverage resources	No sorting facility
Fishing industry cooperation w/backhaul	Hazardous waste collection disposal, public outreach and awareness
Gravel company	Change in commodity price
More local processing/use	Resources and money
Build a regional network for waste transfer	
Connex swap	
Leverage contractors	
Pallet recycling	
Potential to partner with, Aleutians East Borough, Southwest Alaska Municipal Conference, Aleutian Pribilof Islands Association, Aleut Corp Foundation, Aleutian Pribilof Island Community Development Association	
Interested in composting fish waste and other waste	
Number of IGAP grantees	
Direct to Seattle shipping space available	

Aleutian/Pribilof Region continued

Potential Partnerships



City
Tribe
Girl Scouts
Fish processing plants
Local Corporations
Contractors

Funding Opportunities



IGAP
In-kind equipment from City
ALPAR
City revenue
Corporation donated building in the past for recycling
Sand Point receives free pallets and totes from Trident Seafood

Materials



E-scrap
Batteries
Lights
Local hazardous waste collection once/year by King Cove: Aluminum, plastic, tin, cardboard, and batteries
Used oil, most communities have waste oil burners that heat buildings

Transporters + End Destination



Direct to Seattle

- West Seattle Recycling
- Matson
- APL
- Samson
- Northland
- Coastal Transport

Unalaska: there is separation of web, tires, metal, building materials, plastic. Once there, it can't be reused. City hired scrap metal company (Ron Moore Metal recycling) to do 2-year scrap backhaul.

Contributors: Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Bering Strait Region



How it Works: Kawerak supports a coordinator position. The coordinator helps village IGAP workers to package and send materials to Nome for staging, consolidation, and annual shipping to Seattle. Some villages also backhaul directly to Seattle.

Backhaul Model: Spoke and Hub

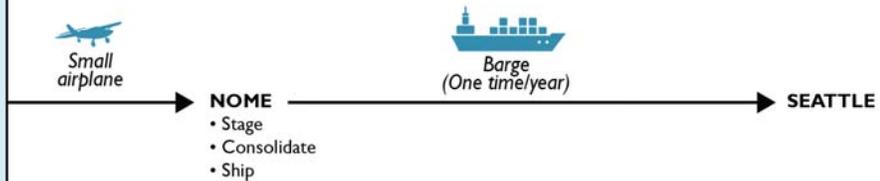
Backhaul Lead: Kawerak

Hub: Nome

Bering Strait

TRIBES + COMMUNITIES
participating in backhaul:

- Brevig Mission
- Council
- Diomede
- Elim
- Gambell
- Golovin
- Koyuk
- Nome
- St. Michael
- Savoonga
- Shaktoolik
- Shishmaref
- Solomon
- Stebbins
- Teller
- Unalakleet
- Wales
- White Mountain



Opportunities	Barriers
Strong partnerships with transportation and recycle vendors	Infrastructure
Good statewide support from other organizations	Heavy, equipment, poor landfill
Village IGAPs in almost every community	Derelict heavy equipment
High level of coordination within IGAP	Hard to bundle utilities with SW because most villages are with AVEC
Backhaul supported at consortia level	Commodity prices
Operates well with hub and spoke model	Funding
Roads from Nome to a couple communities	Human capital/resource
	Unmotivated, turnover
	Lack of knowledge
	Outreach, training, education
	Education in separating recycling from solid waste

Bering Strait Region continued

<p>Potential Partnerships </p> <p>Kawerak City of Nome Norton Sound Health Corporation Most village IGAPs (20) Bering Air Halfway house volunteers Youth facility</p>	<p>Funding Opportunities </p> <p>IGAP City of Nome for their own recycling Kawerak Profit from battery recycling AK Logistics and Bering Air provide free and discounted backhaul shipping</p>
<p>Materials </p> <p>E-scrap Plastic #1, minimal Household batteries White goods Lead-acid batteries Toner Scrap metal Bulbs City Recycle Collection Center</p> <ul style="list-style-type: none"> • Paper • Glass crushed for landfill • Aluminum cans • Phones – to local lady who collects for troops • Cardboard <p>The Landfill</p> <ul style="list-style-type: none"> • Burn cardboard/paper • Wood pile available for public then burned • Metal pile segregated, then turned into monofil • Bike pile available to public and then added to metal pile 	<p>Transporters + End Destination </p> <p>Bering Air - Nome Alaska Logistics>Seattle/Northland/Lynden > Seattle Total Reclaim</p> <ul style="list-style-type: none"> • E-scrap • Fluorescent bulbs • Household batteries <p>ALPAR – Plastics and cans West Seattle Recycling</p> <ul style="list-style-type: none"> • Lead-acid batteries

Contributor(s): Anahma Shannon, participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Bristol Bay Region



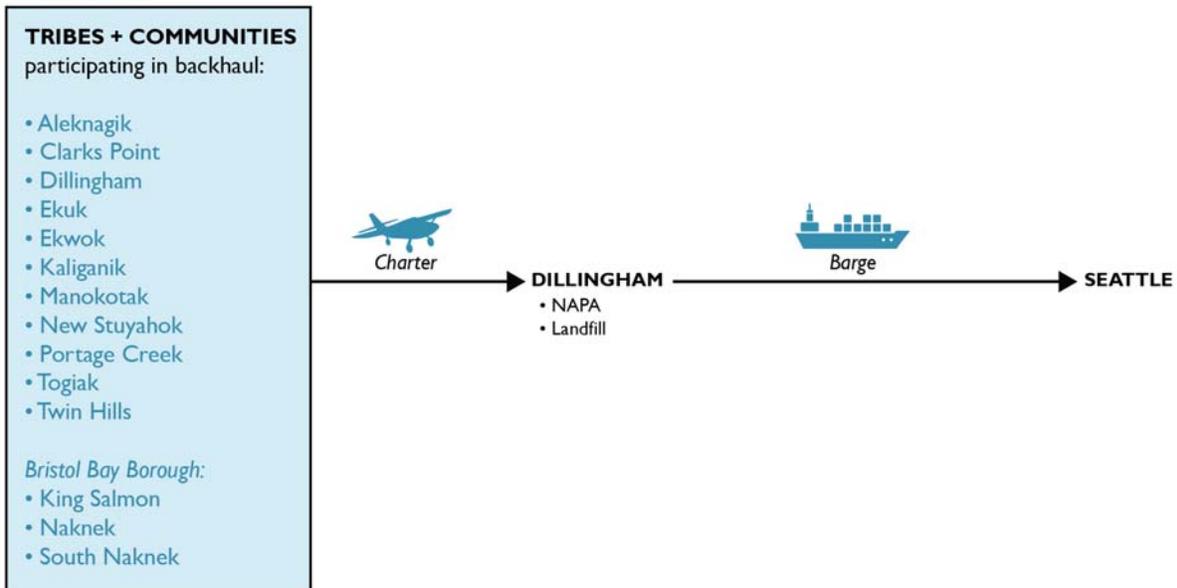
How it Works: Villages charter e-scrap to Dillingham. Curyung Tribe IGAP coordinator sorts and packages e-scrap and fishing webbing into a Connex at the landfill. Connex boxes are shipped to Seattle via Alaska Marine Lines. Many villages backhaul individually direct to Seattle.

Backhaul Model: Mini-Hub/Direct to Seattle

Backhaul Lead: Curyung Tribe/Community level

Hub: Dillingham/None

Bristol Bay



Opportunities	Barriers
Recycling metals	No regional efforts
Upgrade recycling area (roof)	High shipping costs
Reuse paper/wood for heat in the community	Sorting facility
More local education to change behaviors	Local co-op for energy
Bins for home / business recycling	Funding for programs
Gardening/composting	Resistance to change
Partner locally to benefit small local businesses	

Bristol Bay Region continued

Potential Partnerships



Curyung Tribal
 City of Dillingham
 Various local stores and businesses
 IGAP Coordinators
 Various Cities (Gov't)
 School district

Funding Opportunities



Curyung Tribal
 City of Dillingham
 Various local stores and businesses
 IGAP Coordinators
 Various Cities (Gov't)
 School district

Materials



Fish web
 E-scrap
 Junk vehicles, heavy equipment, metals
 Lead-acid batteries

Transporters + End Destination



Northland/Lynden to Seattle
 NAPA in Dillingham (for lead-acid batteries)
 e-scrap to Total Reclaim in Seattle
 Fish web to Skagit in Seattle
 Copper River Seafood (backhaul)
 Alaska Logistics
 Airlines
 Lynden
 Northern Air Cargo
 Alaska Airlines
 Ravn Air

Contributor(s): Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Interior Off-Road Region



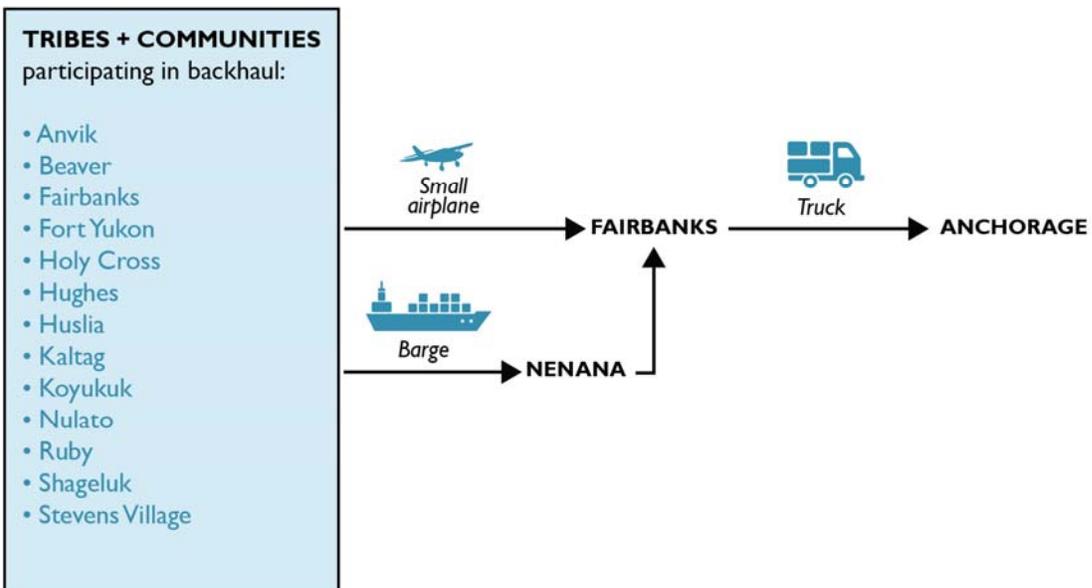
How it Works: Some villages transport by air to Fairbanks via Warbelows, Wrights, Era, or Raven. Others ship by barge on the Yukon River to Nenana via Ruby Marine or Inland Barge, and others transport by road to Fairbanks. Materials arrive in Fairbanks or Nenana, are processed through Interior GreenStar, and then go to Anchorage (mostly to Total Reclaim).

Backhaul Model: Spoke and Hub

Backhaul Lead: Alaska Department of Environmental Conservation and Interior GreenStar

Hub: Fairbanks

Interior Off-Road



Opportunities	Barriers
Networking	Reliance on IGAP
Indian Health Service, but often water and waste water wins funding	Remote isolate areas
DEC technical assistance permitting	Unconventional methods
Ordinances	Condition dependent
Compliance and monitoring	Limited reimbursement potential
Plastic bag bans	No city governments to provide operations and maintenance

Interior Off-Road Region continued

Fee structures	Limited resources
Bundle utility with solid waste.	Compete with lower 48 tribes for funding
Opportunity for villages to use construction and demolition waste as an asset. Negotiating is important.	
Regional + village corporation	
Schools	

Potential Partnerships



The Council (Village or City)
 City/Tribe/Citizens
 Organizations + Nonprofits (YRITWC,
 TCC, CATG)
 ADEC

Funding Opportunities



IGAP
 Community Revenue Funds
 Donations
 GreenStar Recycling Fees
 ADEC technical assistance

Materials



E-scrap
 Batteries, lead-acid and household
 Bulbs
 Electronics
 Generators + transformers
 Cans
 Household hazardous waste
 Limited: glycol, commercial, propane bottles
 Vehicles
 White goods

Transporters + End Destination



Fairbanks, Anchorage to Seattle via Total Reclaim
 Crowley
 Yukon Barge
 Warbelows, Wrights, Ravn, Ruby Marine, Inland
 Barge, Interior GreenStar, Evert's Air to Fairbanks
 K+K Recycling
 Valley Community for Recycling Solutions
 Fort Yukon buries white goods at landfill; other
 materials can go via Ruby Marine or Inland Barge
 to Nenana and Fairbanks to K&K or Interior
 Greenstar
 Huslia will remove hazardous materials from cars
 and bury the car bodies in the landfill

Contributor(s): Billy Jean Stewart, Brian Wright, Jared Peter, participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Interior On-Road Region



How it Works: Communities backhaul on the road system. Tazlina River Trading Post, NAPA and the Glennallen landfill accept lead-acid batteries from 13 communities. The landfill also accepts household batteries and e-scrap, which is buried. IGAP programs separately transport village e-scrap to Anchorage for recycling.

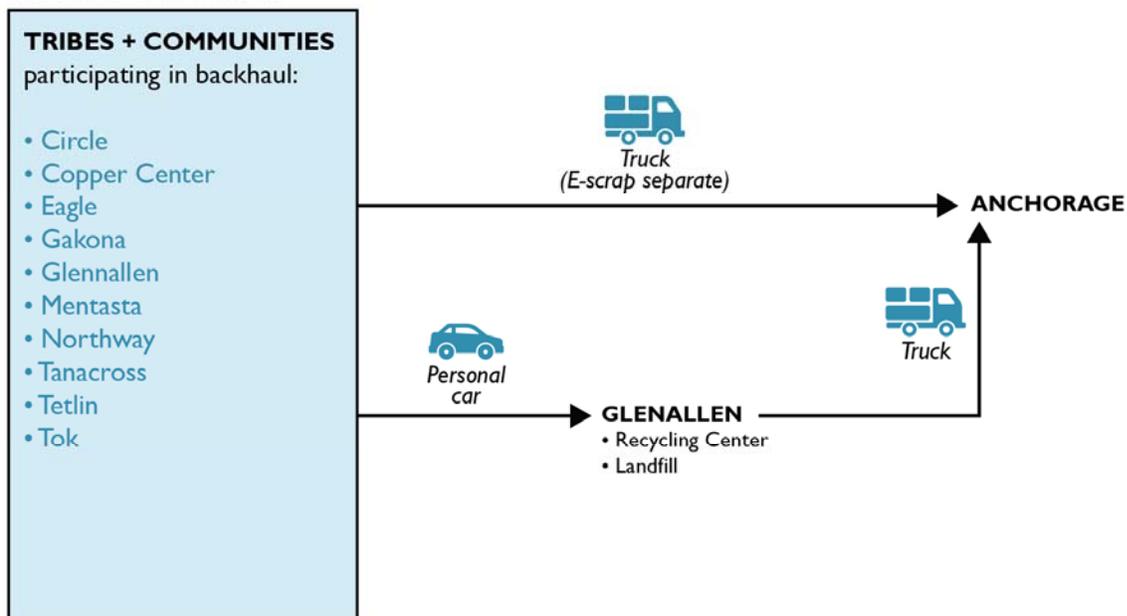
ROAR recycles aluminum cans, office paper, mixed paper, shredded paper and newspapers at their facility in Glennallen, which are then transported to Anchorage for recycling.

Backhaul Model: Spoke and Hub

Hub: Glennallen

Backhaul Lead: Copper River Sanitation, Recycling Our Areas Resources (ROAR)

Interior On-Road



Opportunities

Increased collaboration among multiple communities.

Barriers

Funding

Interior On-Road Region continued

Potential Partnerships



Green Star Volunteers
IGAP tribal employees
Mt. Sanford Tribal Health Consortium
Tribe owns the recycling facility, but managed jointly by Mt. Sanford Tribal Consortium and Chistochina Tribe. Materials are also jointly managed.
CRNA – sometimes offers white goods when they have funds.
ALPAR – community clean up bags

Funding Opportunities



IGAP
USDA
Coca Cola Bin Grant
Fairbanks North Star Borough Corporations
Golden Valley Electric Associations (GVEA)
Computer Sales
The Trust
Air Land Transport 1 free load and day
Recycling + disposal fees at the Glennallen Landfill
Mt Sanford helps Chistochina elders pay for their waste disposal

Materials



White goods
Vehicles, 4-wheelers
Snow machines
Aluminum cans
Plastic bottles
Batteries
Lights
TVs
Household hazardous waste at the Anchorage reuse station
Motor oil
Office paper
Cardboard
Scrap metal
E-scrap

Transporters + End Destination



Carlisle Trucking
K&K Recycling
Green Star
ALPAR
Total Reclaim
Central Recycling
Schnitzer Steel
Valley Community for Recycling Solutions (Palmer)
Local Disposal
Mt. Sanford Tribal Consortium vehicle

- Storage for white goods which is stockpiled until funding becomes available.
- MSTC owns box trailers for storage.
- Copper Basin Sanitation landfill

Contributor(s): Aimee Ludwick, Jim Sharp, Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Kodiak Island Region



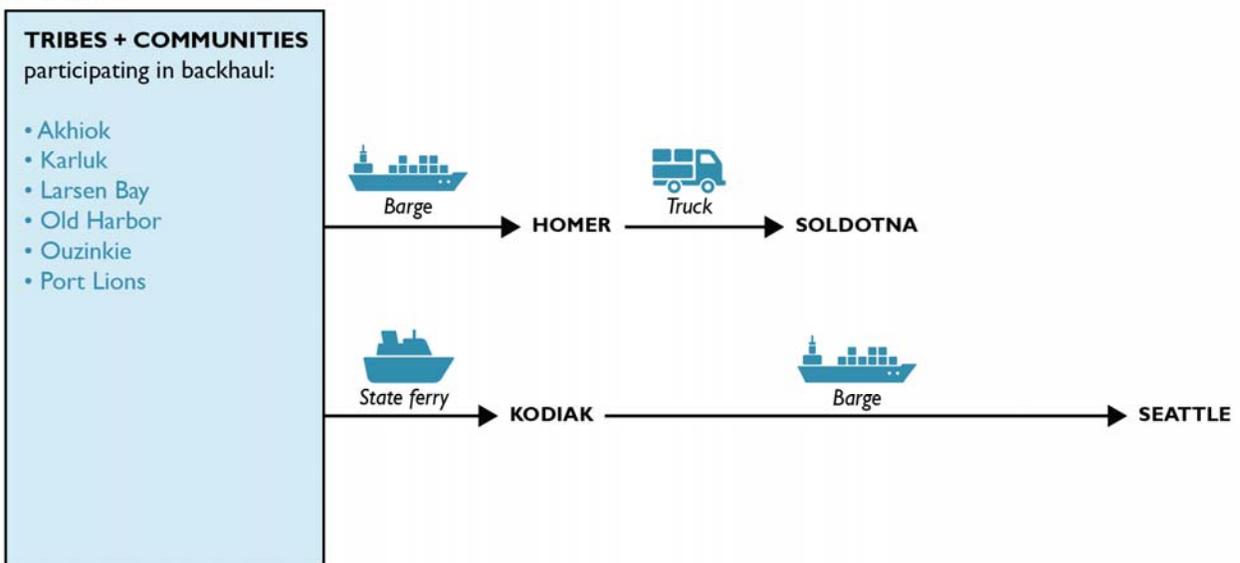
How it Works: Household pick-up is available in Kodiak through a one-time CIAP project, the environmental technician sorts material at the landfill. Current backhaul is for scrap metal only, but other materials might be shipped at the same time. Metal goes from villages via barges to Homer and then is trucked to Soldotna. One Island community uses the State ferry to transport e-scrap to Kodiak. E-scrap goes to Seattle.

Backhaul Model: Spoke and Hub

Hub: Kodiak

Backhaul Lead: Kodiak Area Native Association

Kodiak



Opportunities

User fees

Small amount of funds for Kodiak Island Borough which might be able to be used for match funds for another grant

Barriers

Project funds must be used by end of 2016 ~~f7-5DL~~

Future funds not identified

At the end of the project funds (2016), regional coordination will be challenging

Kodiak Island Region continued

Potential Partnerships



Kodiak Area Native Associations
Village Tribes + Cities
Environmental departments
Kodiak Island Housing Authority
Kodiak Island Borough

Funding Opportunities



Village cities
IGAP
EPA Hazardous Waste
O@OA
Demonstration grants
CIAP

Materials



E-scrap
Aluminum
Plastics 1 and 2
Batteries
Ink cartridges
Scrap metals
Hazardous waste
Tires, cardboard, glass, paper within community

Transporters + End Destination



State Ferry
Alaska Coastal Freight
Airlift and Island Air – Andrew Airways
Alaska Scrap Recycling
Threshold in Kodiak
Central Recycling Services

Contributor(s): Tyler Cornelius, Bobbi Ann, participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Lake and Peninsula Region



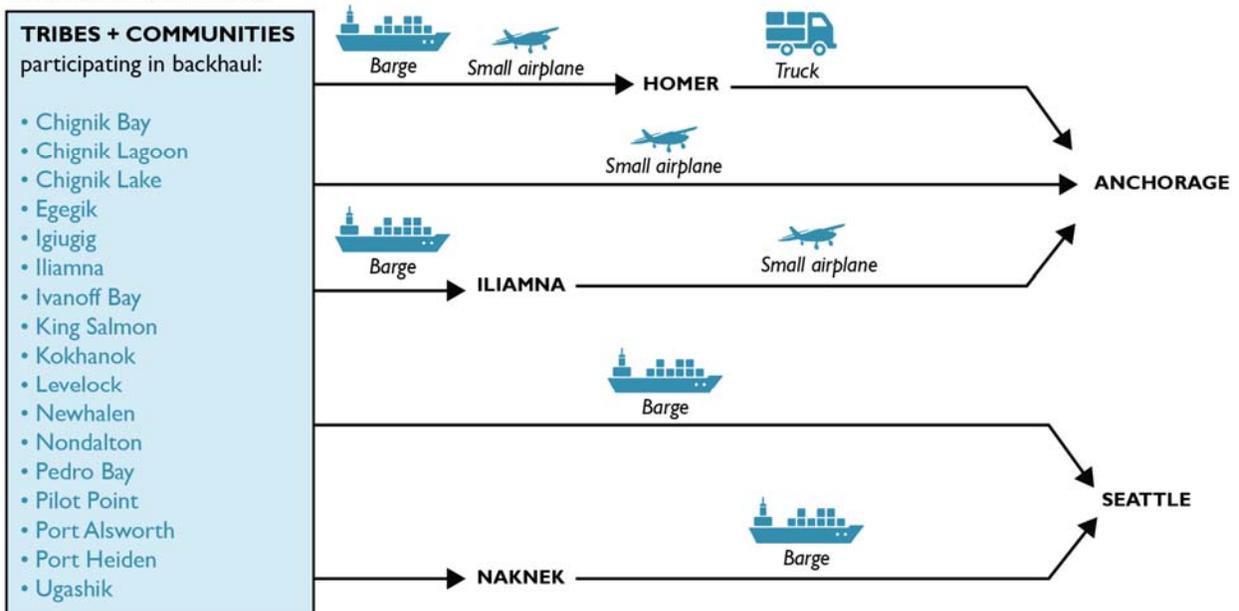
How it Works: Lake and Peninsula Borough (LPB) works with villages to backhaul waste via air and barge to Anchorage and Seattle. LPB sub grants to communities through scope of work and budget.

Backhaul Model: Mini Hub

Hub: King Salmon

Backhaul Lead: Lake and Peninsula Borough

Lake and Peninsula



Opportunities

Barriers

Lake and Peninsula Borough region wide effort	Funding
Community / entity wide waste event	Trained staff
Reuse/recycling	Lack of knowledge of shipping regulations
Regional landfill	Regional coordination
Fish processing facility backhaul	Logistics

Lake and Peninsula Region continued

Potential Partnerships



Lake and Peninsula Borough
 IGAP coordinators
 City administrators
 Tribal council members
 Central Recycling
 Total Reclaim
 Interstate Batteries
 Iliamna Development Corporation

Funding Opportunities



Coastal Impact Assessment Program grant
 IGAP grants
 User fees

Materials



E-scrap
 Lead-acid batteries
 Webbing
 Vehicles
 Hazardous Fluids (Mixed, Unmixed)
 Freon
 Tires
 Copper
 Paint
 Igiugig continuously backhauls aluminum, plastic and e-scrap and recycles all tin, food scraps, copper, glass and white goods.
 Aluminum
 Scrap metal
 Old transformers
 Paper

Transporters + End Destination



From village to Anchorage
 Evert's Air
 Desert Air Cargo
 TransNorthern Aviation
 From village to Seattle
 Alaska Marine Lines
 Northland
 From village via ADESCO to Naknek on Northland Services to Seattle
 Iliamna Development Corporation
 Total Reclaim
 Central Recycling (Anchorage/Seattle)
 Interstate Batteries (Anchorage Seattle)
 From Iliamna to Homer via barge or airline, truck to final destination
 Flying cans program
 Iliamna Development Corporation
 Burn Box
 Bury in landfill
 Compost food scraps locally

Contributor(s): Stacy Hill, Matthew Askoak, Reno Nanalook, Roy Andrew, Wassi Baluta Jr., Ben Foss, participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Lower Kenai Peninsula Region



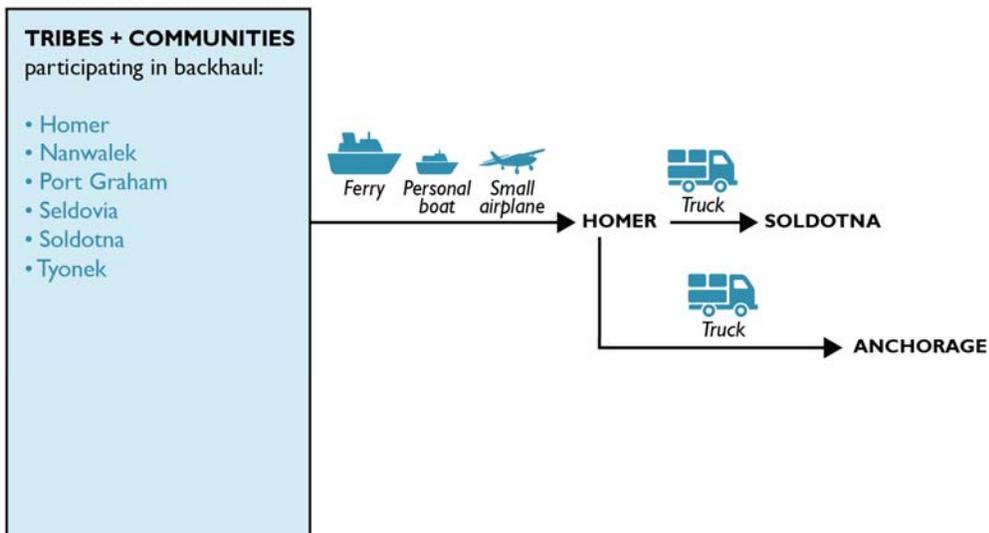
How it Works: Kenai Peninsula Borough works with Total Reclaim and communities to host annual events in Homer and Soldotna to bring in materials. The regional landfill is in Soldotna. Seldovia Village Tribe collects items from three communities and gets materials to Homer where they are trucked to Total Reclaim in Anchorage.

Backhaul Model: Spoke + Hub

Hub: Soldotna, Homer, Seldovia

Backhaul Lead: Kenai Peninsula Borough, Seldovia Village Tribe

Lower Kenai Peninsula



Opportunities	Barriers
City support with moving pallets of e-scrap to boat	E-scrap being lost to “pit” if not redirected by Borough staff
New conel boxe	Operator training
Household hazardous waste barge partnership	Expensive to backhaul e-scrap by boat – limited funding
Working more with Kenai Peninsula Borough	Limited storage
New partnerships with plane operators	Barge, ferry schedule/lack of service to Port Graham/Nanwalek

Lower Kenai Peninsula Region continued

Potential Partnerships



Seldovia Village Tribe
Landfill Operator
Cook Inlet Keeper
Kenai Peninsula Borough

Funding Opportunities



EPA's HUXIGUY grant
Kenai Peninsula Borough
Bake sales
EPA funding
IGAP

Materials



E-scrap
Plastics
Aluminum
Bulbs
Batteries
Scrap metal
Glass

Transporters + End Destination



Whomever we can work with to get it to Homer.
Cook Inlet Keeper gets it to Total Reclaim.
Alaska Marine Highway
Private barge operators/boat

Contributor(s): Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

North Slope Region



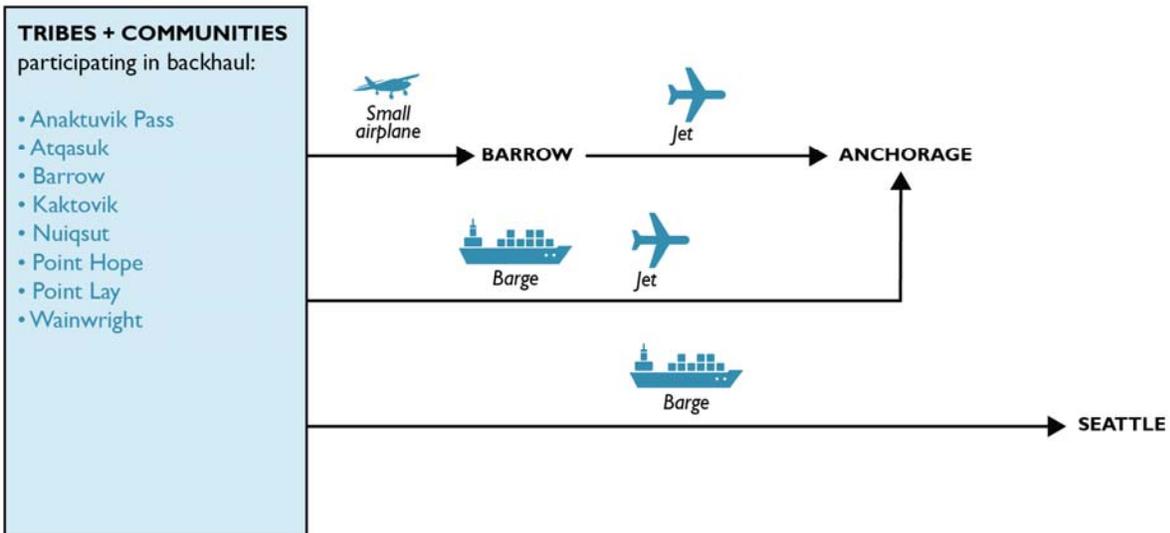
How it Works: North Slope communities collect batteries and lights in two separate connex boxes and the materials are either shipped out by barge or air to Anchorage annually. The schools and businesses ship e-scrap directly to be recycled. Most communities employ used oil burners to incinerate waste oil, wastes from construction projects are taken care of by the construction companies, and household hazardous wastes by each community in a connex. In Barrow, there is a thermal oxidation system (incinerator) that processes almost all wastes other than batteries, e-scrap, and construction waste. Batteries in this region are sent to Exide in Anchorage and are recycled free-of-charge.⁹

Backhaul Model: Spoke + Hub

Hub: Barrow

Backhaul Lead: North Slope Artic Borough

North Slope



Opportunities

None identified

Barriers

None identified

⁹ The Zender report, “Waste Backhaul in Rural Alaska,” provided much of the detail for this section.

North Slope Region continued

Potential Partnerships



Inupiat Community of the Arctic Slope
Arctic Slope Native Association
Arctic Slope Regional Corporation
Ukpeaġvik Inupiat Corporation
North Slope Borough
Local Tribes

Funding Opportunities



North Slope Borough

Materials



E-scrap
Lead-acid batteries
Used oils, solvents
Vehicles/scrap metal
Contaminated soils
White goods
Construction waste
Medical waste

Transporters + End Destination



Ravn Air to Barrow
Alaska Airlines and Northern Air Cargo to Anchorage
Bowhead to Anchorage and Seattle

Contributor(s): Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Northwest Arctic Region



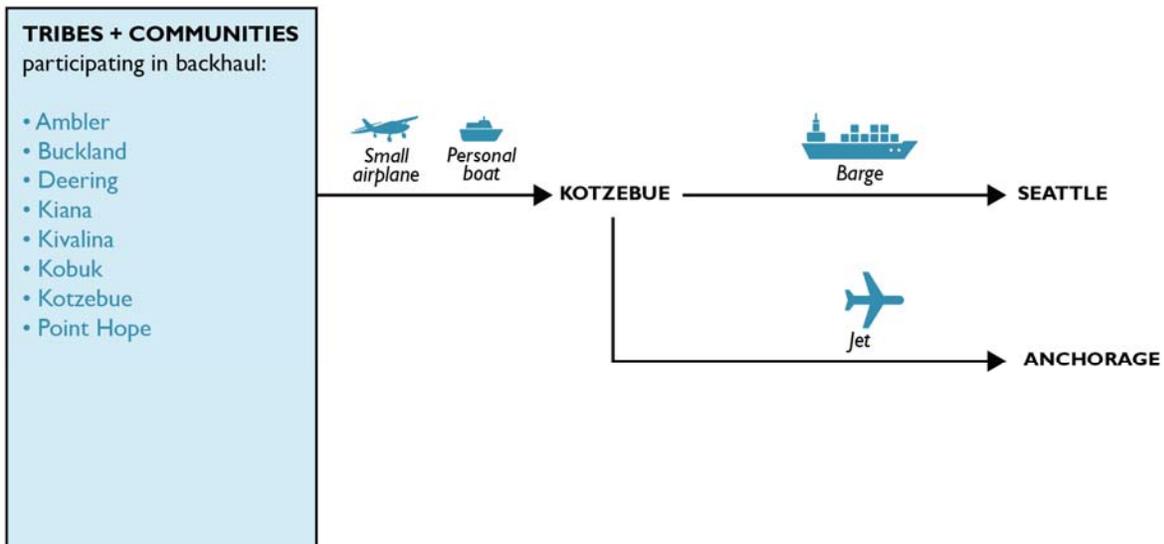
How it Works: Smaller, outlying communities boat or fly (on Ryan Air) recyclables to Kotzebue. Maniilaq Association packages and sends four connex boxes to Seattle twice per year. Northwest Arctic Borough purchased burners through CIAP. The school district pays for e-scrap to be shipped to Kotzebue.

Backhaul Model: Spoke + Hub

Hub: Kotzebue

Backhaul Lead: Maniilaq Association

Northwest Arctic



Opportunities

Biomass burner in Kotzebue
Burners in each village with trained individuals to run the machinery

Barriers

None identified

Northwest Arctic Region continued

Potential Partnerships



Maniilaq Association
Northwest Arctic Borough
City of Kotzebue
Tribes
Northland Services
Bering Air

Funding Opportunities



IGAP
City general fund
“Profit” from copper
Coastal Impact Assessment Program through NAB
ALPAR
Donations
AML provides free shipping to Seattle
School District pays for e-scrap shipped to Kotzebue

Materials



E-scrap
Copper piping
Aluminum
Fluorescent lights
White goods
Lead-acid batteries
Plastic bottles
Batteries
*Scrap metal (not recycled, not enough to ship out)

Transporters + End Destination



Ryan Air to Kotzebue
AML to Seattle
Seattle Metal Recycling picks up connex boxes in Seattle.
Tribes send direct to ALPAR in Anchorage

Contributor(s): Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Southeast Region



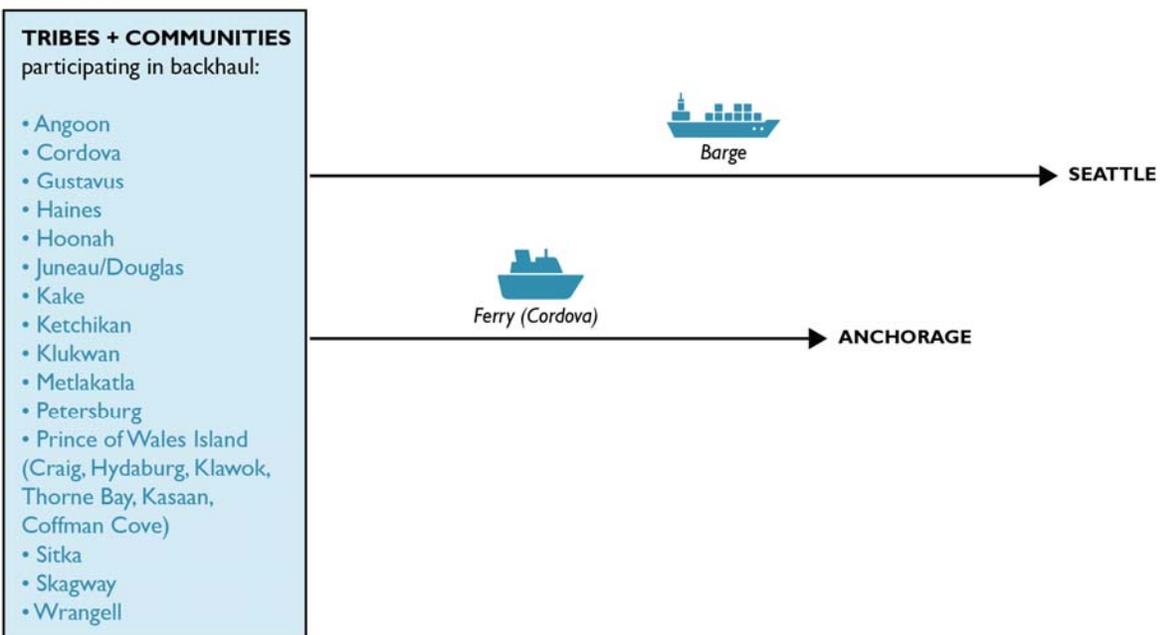
How it Works: The City government within the communities of Southeast run and fund most landfills. The Cities work directly with barge companies to backhaul waste. Total Reclaim hosts an annual free recycling event in Haines. Materials are sent to Emerald Services in Seattle.

Backhaul Model: Direct to Seattle

Hub: None

Backhaul Lead: Total Reclaim

Southeast



Opportunities	Barriers
Alaska Marine Lines backhaul	Storage
Baler	Containers for collection
Staffing	Only one baler for garbage and recycling
Copper River Watershed Project composting efforts	Funding for getting materials out
Fish waste from seafood processors	Population increase in summer maxes out City staff
	Lack of buy-in to recycling from refuse department
	Need space for compost

Southeast Region continued

Potential Partnerships



City governments/watershed groups
Southeast Conference
Federal agencies
Trident
Native Village of Eyak
Copper River Watershed Project
Total Reclaim

Funding Opportunities



IGAP
Brownfields grants
City tax
Federal grants
Fees
In-kind shipping and recycling
Southeast Conference

Materials



E-scrap
Junk vehicles
Batteries
Lights
Household hazardous waste
Waste
Tires
Aluminum
Fishing web
Cardboard/fishing net - Haines

Transporters + End Destination



Alaska Marine Lines
Samson Tug and Barge
Central Recycling Services
City of Cordova – transports aluminum
to Anchorage via ferry
Anchorage recycling/WestRock
Emerald Services

Contributor(s): Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

Southwest Region



How it Works: Some villages send waste via boat and plane to Bethel. The Association of Village Council Presidents (AVCP) loads materials in connex boxes to barge to Seattle to Total Reclaim. Household waste is burned and/or landfilled. The Nelson Island Consortium and Akiachak Native Community organized a one-time backhaul direct from villages to Seattle. Used oil is burned (energy recovery) and landfilled.

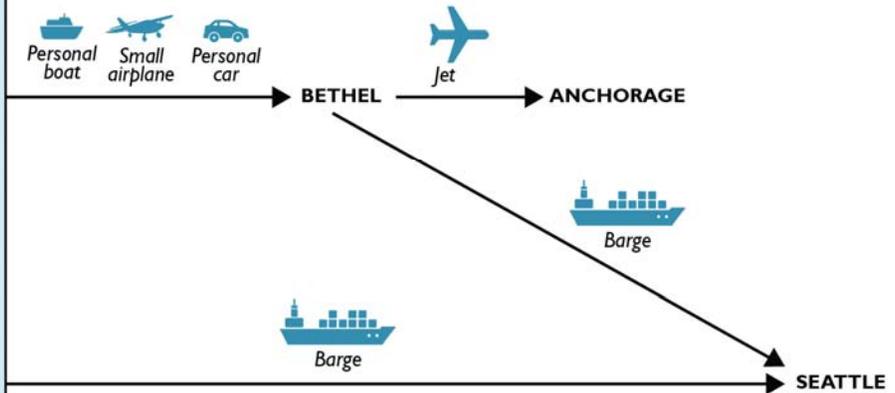
Backhaul Model: Mini-Hub

Hub: Bethel

Backhaul Lead: Association of Village Council Presidents, Nelson Island Consortium, Akiachak Native Community

Southwest

TRIBES + COMMUNITIES participating in backhaul:	
• Akiachak	• Nelson Island Consortium
• Aklak	• Newtok
• Atmautluk	• Nightmute
• Bethel	• Nunapitchuk
• Chefornak	• Oscarville
• Chevak	• Paimiut
• Eek	• Pilot Station
• Goodnews Bay	• Pitkos Point
• Hooper Bay	• Platinum
• Kassigluk	• Quinhagak
• Kipnuk	• Saint Mary's (Algaaciq Tribe)
• Kongignak	• Scammon Bay
• Kwethluk	• Toksook Bay
• Kwigillingok	• Tuluskak
• Lower Kalskag	• Tuntutuliak
• Marshall	• Tununak
• Napaimuit	• Umkumiut
• Napakiak	• Upper Kalskag
• Napaskiak	



Opportunities

Regional coordination. Villages are close together and barge accessible. They coordinate and apply for grants together

Used oil burners

Barriers

No regional coordination

Lack of heavy equipment

Southwest Region Continued

MOU opportunity with school district. School district pays fees for waste disposal and ships out their own e-scrap, material buyback direct with companies.	Lack of community buy in, in terms of knowledge or funds
Separate HHW at the home	Access to landfill
	Employee turnover
	Expensive transportation

Potential Partnerships



Native communities/tribes – IGAP
 Northland Services
 Association of Village Council Presidents
 ALPAR
 Zender
 Total Reclaim
 NAPA (batteries only)
 Yukon River Inter-Tribal Watershed Council

Funding Opportunities



IGAP
 Donations – Northland, Ryan Air, Denali Contractors
 Barge shipping (4 connex boxes per river)
 EPA Household Hazardous Waste Grants
 Coastal Villages Region Fund
 AmeriCorps
 RuralCap

Materials



Lead-acid batteries
 Fluorescent light bulbs
 White goods – freezers/refrigerators
 e-scrap
 Ballasts
 Household batteries
 Scrap metal
 Used oil
 Aluminum Cans
 PETE 1 plastic bottles

Transporters + End Destination



Personal boat/truck (village to Bethel)
 Hovercraft (village to Bethel)
 Northland Barge > Seattle
 AK logistics > Seattle
 Ryan Air > Bethel > Anchorage
 NAC > Bethel > Anchorage
 Total Reclaim (Anchorage + Seattle)
 NAPA in Bethel

Contributor(s): George Ignatius, Cynthia Paniyak, Bernardo Murrán, Nick Slim, Alexander Beans, Roderick Atti, Alma Kanrilak, Participants at the October 2015 SWAT Pre-Meeting, January 2016 SWAT Stakeholder Meeting and the 2016 Alaska Forum on the Environment 2016 SWAT Update session.

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Appendices

Appendix A: Participants in SWAT Meetings

Appendix B: January 27-29, 2016 Meeting PowerPoint ! 'Uj Uj'WY'i dcb'fYei Ygh

Appendix C: January 27-29, 2016 Meeting Notes ! 'Uj Uj'WY'i dcb'fYei Ygh

Appendix D: Sample Memorandum of Understanding ! 'Uj Uj'WY'i dcb'fYei Ygh

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Appendix A: Participants in SWAT Meetings

Name	Affiliation
Al Ashley	Native Village of Eagle
Anahma Shannon	Kawerak/SWAT
Billy Maines	Curyung Tribe
Chris Price	Aleutians / Qawalangin Tribe of Unalaska
Deborah Vo	
Desirae Roehl	ANTHC/SWAT
Dianne Soderlund	EPA Director AK Operations Office
Evelyn Agnus	Zender
Jennifer Williams	ITEP
Julie Jurkowski	ITEP
Kristin Keit	Zender
Lynn Zender	Zender/SWAT
Nathan Elswick	Anvik
Oxcenia O'domin	ANTHC/SWAT
Patricia Salmon	Chalkytsik
Rebecca Colvin	DEC/SWAT
Santina Gay	EPA/ Tribal Coordinator
Shane Judge - Env. Assistant	Curyung Tribe
Sherry Kimmons	EPA/ Tribal Coordinator
Stan Tomaszewski	Maniilaq
Tami Fordham	EPA/ Deputy Director
Ted Jacobsen	EPA/RURALCAP/SWAT
Todd Barnell	ITEP
Tracie Merrill	Seldovia
Trisha Bower	DEC/SWAT
Tyler Kornelis	KANA
Wenona Wilson	EPA/ Tribal and Air Toxics Unit
Anthony Christiansen	Hydaburg
Bobbi Anne Barnowsky	NV of Old Harbor
Lance Whitwell	Venetie
Maija Lukin	Maniilaq
Michael Ophiem	Seldovia
Nile Aguchak	Scammon Bay
Senator Murkowski	
Simone Seballo	Zender/SWAT

Name	Affiliation
Stephen Price	DEC
Tom Nicolos	North Slope
Bill Hand	Copper River Native Association
Jason Stalker	Kiana
Jeffery Kashatok	Native Village of Kipnuk
Jerilyn Kelly	Native Village of Kwinhagak
Ranya Aboras	Lake and Pen Borough
Rene Nicklie	Cantwell
Sharon Slim or Steve / Ben	AVCP
Yiyuk Henry	NWAB
Jay Stevens	Yukon River Inter Tribal Watershed Co
Nathan Krik	CRS
Shae Bowman	CRWP
Aman King	Alaska Logistics
Mark Smith	Northern Air Cargo
Nelson Bjork	AK Marine Lines
Don Hansen	AK Marine Lines
Doug Huntman	Green Star

Attendees	
Name	Affiliation
Desirae Roehl	ANTHC/SWAT
Oxcenia O'Domin	ANTHC/SWAT
Evelyn Agnus	Zender Environmental
Kristin Keit	Zender Environmental
Simone Seballo	Zender Environmental /SWAT
Sharon Slim	Association of Village Council Presidents
Billy Maines	Curyung Tribe
Shane Judge	Curyung Tribe
Stephen Price	Alaska Department of Environmental Conservation
Rebecca Colvin	Alaska Department of Environmental Conservation /SWAT
Trisha Bower	Alaska Department of Environmental Conservation /SWAT
Ted Jacobsen	RURALCAP/SWAT
La'ona Dewilde	Greenstar Fairbanks
Anahma Shannon	Kawerak/SWAT
Ranya Aboras	Lake and Pen Borough
Maija Lukin	Manillaq Association
Tom Nicolos	North Slope Borough
Bobbi Anne Barnowsky	Native Village of Old Harbor
Michael Ophiem	Seldovia Village Tribe
Larry Zirkle	Total Reclaim
Reilly Kosinski	Total Reclaim

ALASKA SOLID WASTE TRAIL MAP