

# Juneau Solid Waste Fact Sheet and Recommendations for a Course of Actions

by the City and Borough of Juneau Assembly

*History, Current Situation, and the Future*

Juneau Commission on Sustainability, March 2021

It is well known that Juneau faces solid waste challenges: a smelly, rapidly filling landfill along a main highway, surrounded by homes and business, and recycling markets hundreds of miles away. Much has been discussed and done about the issue over the last three decades, but much has also been put on the back burner. **The hard truth about solid waste is that**

1. **The landfill is approaching the end of its useful life, and**
2. **There is no active strategic or tactical planning underway to propose cost-effective alternatives for waste management.**

Every person and business in Juneau create trash, so the entire community without exception will be affected by the landfill closure. By addressing these challenges now, the City and Borough of Juneau (CBJ) can assure that our current waste-handling system is being used to its greatest potential and that solid waste management will smoothly transition to a new system when the existing landfill is no longer viable.

Concern about Juneau's solid waste problems and options is not new. Efforts to extend the useful life of the landfill go back at least 30 years, and the create [Comprehensive Plan of 2013](#) has a section on waste management (see Appendix A) to guide CBJ's actions:

It is in the long-term interest of all people in Juneau to minimize waste disposal and to recycle used materials as a part of local efforts to conserve natural resources. Recycling, where appropriate, will lead to the more efficient and economical use of resources and will lessen the impact on the environment by decreasing the need for the disposal of materials. It is recognized that since Juneau is located far from major recycling markets, it may not be energy efficient to recycle some classes of materials at the present time. Therefore, reduced resource use and careful purchasing practices are especially important. **Direct, immediate or short-term costs should not be the sole consideration for CBJ government support of programs and policies for waste reduction, reuse and recycling. Instead, related indirect, future, or long-term costs should also be considered, such as the costs of landfill operation, closure, and post-closure.** (p 202, emphasis added)

The intent of this document is to provide background information for the Assembly, CBJ staff, and the community so Juneau can begin to take steps toward gaining control over its solid waste future. **This document will provide information on the underlying solid waste factors confronting Juneau and recommend a course of action to the City and Borough of Juneau (CBJ) Assembly.**

Please see Appendices for the details on these subjects:

Appendix A - 2013 Juneau Comprehensive Plan, as pertains to Municipal Solid Waste (MSW)

Appendix B - Juneau Climate Action and Implementation Plan, as pertains to MSW, p 52-55

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Appendix G - Adopting a Zero Waste Plan

Appendix H - Preparing for the Inevitable Closing of the Landfill

Appendix I - Funding Options

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## Why is Solid Waste Management a Growing Concern in Juneau?

1. **Landfill stink** - It is no secret that the landfill stink has been a considerable point of community contention. Juneau Empire opinion pieces and articles, KTOO and KINY coverage, and social media show that complaints and concerns from community members are pervasive. Our landfill, centrally located in the Lemon Creek area, subjects nearly all residents and visitors to a sometimes-overpowering stench.
2. **Greenhouse gas (GHG) emissions** - The anaerobic decay of organics--food scraps, paper and wood products, and yard debris--in a landfill produces landfill gas (LFG). According to the [EPA](#), LFG is composed of roughly 50 percent methane (the primary component of natural gas), 50 percent carbon dioxide (CO<sub>2</sub>) and a small amount of other organic compounds. Methane is a potent greenhouse gas 28 to 36 times more damaging than CO<sub>2</sub> at trapping heat in the atmosphere over a 100-year period.
3. **Landfill lifespan** - The CBJ 2008 Solid Waste Management Strategy, now 13 years old, indicates a 25-to-30-year life, or a 2034 - 2039 closure of the privately owned and operated landfill. According to Capitol Disposal Landfill's (CDL) permit issued by the Alaska Department of Environmental Conservation (ADEC), it accepts approximately 30,000 tons of waste per year. Based on that waste acceptance rate, CDL can continue to operate until 2046, although their plan indicates that a two percent annual increase in disposal volume would reduce the landfill's life by 7-9 years. Notably, the cruise industry's 2019 additions to the landfill of [1,534 tons](#) accounted for five percent of the CDL's total annual tonnage.

4. **Long term control and costs** - CBJ does not own the landfill. While it may have the legal authority to limit what goes in the landfill, CBJ does not have solid waste ordinances restricting what can and cannot be landfilled. Under these circumstances, it is difficult to increase waste diversion of materials that hasten the end of the current landfill's lifespan. Waste Management (WM, the parent company of Capitol Disposal Landfill, which owns 293 active landfills and 346 transfer stations in North America) is not necessarily motivated to extend the useful life of the landfill nor is it incentivized to support the community values of recycling or waste reduction. The corporation appropriately serves their profit maximization strategies and their shareholders.

## How Can CBJ Improve Waste Management in the Community?

The above problems are related. What goes in a landfill determines the lifespan of that landfill, how bad a landfill smells, and the amount of greenhouse gases a landfill produces. This interrelationship simplifies the analysis of Juneau's solid waste management. The issues of landfill smell and GHG emissions can be seen as subordinate to the two major waste management issues facing the community:

1. **Controlling the waste stream into the current landfill (which can be done by owning the new landfill and/or through ordinance) and**
2. **Developing a future alternative that will replace the current landfill when it reaches its capacity.**

Improving waste management in the community will require education, planning, and action. To get started, the CBJ Assembly could/should direct staff to:

1. **Conduct a formal assessment**, starting with a literature review of CBJ documents related to solid waste, including studies, reports, memos, plans, and ordinances. Gather current data on costs, practices, and technology, using examples from other communities, such as Whitehorse Yukon Territory, which is similarly populated and isolated. Look to Anchorage for examples of how it manages its municipality-owned landfill and how it has expanded recycling programs beyond exporting commodities to the Lower 48. Explore partnerships with various entities, including JEDC, Southeast Conference, Native corporations, UAS, the State of Alaska, institutions, non-profits, and entrepreneurs.
2. **Adopt a Zero Waste<sup>1</sup> Plan** (or Resource Recovery Plan) to establish a clear timeline and action steps. Consider a backward-planning sequence so the community can work backward from a waste reduction goal and then identify all requirements and processes needed to accomplish this goal by a proposed goal completion date. This would also include exerting some control over the waste stream and possibly creating an industrial park reserved for recycling, composting, and reuse facilities. The process of creating the

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<sup>1</sup> "Zero-Waste" is a paradigm of waste management based on the principles of waste prevention that encourages the redesign of resource life cycles so that all products are reused. It is a long-range goal to divert 90% of materials from landfilling/incineration. It does not mean there is no waste. Many municipalities and corporations are switching to this model.

plan would involve both community input and education, and progress toward the goals should be publicized and publicly available in an easy-to-update, real-time online dashboard. See Appendix G for details.

3. **Initiate planning for a new CBJ landfill.** This process would thoroughly explore options, requirements, and costs for a new city-owned landfill and can be expected to take several years. The process would follow the steps outlined in the Solid Waste Management Plan of 2008 and would take into consideration Not-In-My Backyard (NIMBY) opposition and updated neighborhood Area Plans. By owning the future landfill CBJ will finally have the opportunity to control the waste stream. See Appendix H for details.
4. **Seek funding.** Investigate opportunities for and apply for federal, state, and other funding to defray costs, and enact waste surcharges now to generate an investment reserve fund that will be used to defray future capital costs. Engage with stakeholders to work with State legislators to develop grant and low-cost loan programs to spur private development in this sector of the local and regional economy. See Appendix I for details.

These four tasks will help CBJ address both immediate and long-term solid waste management shortcomings and ensure a better future for the community. Controlling the waste stream now will extend the life of the current landfill and allow for community education and action that will build a multi-faceted system of waste reduction and resource recovery. Planning for and launching a city-owned landfill in the future will guarantee that the community's sustainability goals and values are achieved, while creating local jobs. By having control of the waste stream CBJ will ensure that the future landfill's space is used economically and only for materials that cannot otherwise be recovered. The community is at a pivotal point in determining its solid waste future. CBJ can either choose to continue to rely on outside interests and export, or it can build the economy through encouraging resource recovery on a local level.

# Appendix A

## 2013 Juneau Comprehensive Plan, as pertains to MSW. p 202-206.

### **“Waste Management**

Management of solid and household hazardous waste is an essential community service. Assurance that waste management, including disposal, occurs in an aesthetic, safe, convenient, cost-effective, and environmentally sound manner is critical to protect the health, safety, and environment for our citizens. Local government typically provides solid waste management services, directly with its own personnel, indirectly with one or more contractors, or through a combination of both public and private service provision. In Juneau, curbside pickup of solid waste and recyclables as well as landfill operations are conducted entirely by the private sector, while source separated drop-off recycling, household hazardous waste collection and disposal, and junked vehicle disposal are currently conducted by private firms. Plans for future waste management in Juneau call for developing a single household hazardous waste collection facility that is open to the public on a more regular basis than is currently available, as well as drop boxes for recycling and other changes that will make recycling more accessible to Juneau residents.

Heightened concern about the negative environmental impacts of solid waste landfills have resulted in more stringent federal standards for siting, operating, closing, remediating, and monitoring of landfills. This has resulted in greater care and costs in managing existing landfills and constructing new ones. Nationwide, there is an emphasis on developing integrated waste management systems in which waste reduction, reuse and recycling are preferred over traditional waste disposal options of incineration and landfilling. This is the approach pursued by the CBJ in the preparation of the *Final Solid Waste Management Strategy for the City and Borough of Juneau* in 2007 and the Solid Waste Management Program Implementation of 2009. Of particular concern by the public are programs that address waste stream reduction and curbside pick-up of recyclable material. In 2012, curbside pickup of recyclable materials was initiated by the private sector. This program will certainly affect the solid waste stream in Juneau, but the full impact of this new service will need to be evaluated over time.

### **Waste Reduction, Reuse and Recycling**

It is in the long-term interest of all people in Juneau to minimize waste disposal and to recycle used materials as a part of local efforts to conserve natural resources. Recycling, where appropriate, will lead to the more efficient and economical use of resources and will lessen the impact on the environment by decreasing the need for the disposal of materials. It is recognized that since Juneau is located far from major recycling markets, it may not be energy efficient to recycle some classes of materials at the present time. Therefore, reduced resource use and careful purchasing practices are especially important. Direct, immediate or short-term costs should not be the sole consideration for CBJ government support of programs and policies for waste reduction, reuse and recycling. Instead, related indirect, future, or long-term costs should also be considered, such as the costs of landfill operation, closure, and post-closure. The CBJ government understands that effective efforts towards materials conservation, reuse, and recycling, as well as energy conservation, necessarily involve close and on-going communication, coordination, and cooperation between the public, private and non-profit sectors. While some programs may not be cost effective in Juneau alone, the CBJ government could work with regional entities such as the Southeast Regional Solid Waste Authority, that are currently developing plans for a central facility for the region. It would also benefit the Juneau community for the CBJ government to work with other local and regional entities to develop inter-local agreements to increase volumes of recyclables shipped to markets.

**POLICY 12.4. TO FACILITATE THE REDUCTION OF WASTE MATERIALS GENERATED AND DISPOSED BY HOUSEHOLDS AND BUSINESSES THROUGH PROMOTION OF AN AGGRESSIVE SOLID WASTE DIVERSION PROGRAM INCLUDING ACTIVITIES FACILITATING WASTE PREVENTION, REUSE AND RECYCLING.**

**Development Guideline**

12.4 - DG1 When reviewing building or use permits for major residential and non-residential developments, ensure that the design of the project incorporates adequate space and facilities in appropriate locations to facilitate separation of recyclable waste materials and access for the pick-up and transfer of those materials to appropriate recycling centers.

**Implementing Actions**

12.4 - IA1 12.4 - IA2

12.4 - IA3 12.4 - IA4

12.4 - IA5 12.4 – IA6

Implement the *Final Solid Waste Management Strategy for the City and Borough of Juneau*, as adopted on November 29, 2007 and amended January 7, 2008.

Require companies that do business with the CBJ to implement waste reduction and recycling Best Management Practices (BMPs); these BMPs should be required as qualifications for CBJ purchasing procedures.

Create incentives for businesses that implement a waste reduction plan.

Consider community service programs, including halfway house correctional programs, as potential human resources for recycling and waste reduction efforts, such as for the sorting of recyclables at a recycling center.

Facilitate identification and permitting of a “stump dump” landfill site for near-term use by residential and non-residential builders.

Work with the cruise industry and other industries creating large amounts of solid waste to reduce the amount of waste entering Juneau’s landfill and to increase the amount of solid waste that is recycled.

**POLICY 12.5. TO PROMOTE EFFICIENT, SAFE, CONVENIENT, COST—EFFECTIVE AND ENVIRONMENTALLY—SOUND METHODS FOR THE DISPOSAL OF SOLID AND HAZARDOUS WASTE.**

**Development Guideline**

12.5 - DG1 When reviewing building or use permits for the areas around the candidate landfill sites identified in the October 1993 *Technical Reconnaissance Study for New Landfill Site Selection*, be cognizant of the on- and off-site impacts that could be generated by landfill operations at those sites.

**Implementing Actions**

12.5 - IA1 12.5 - IA2

## 12.5 - IA3

Implement the *Final Solid Waste Management Strategy for the City and Borough of Juneau*, as adopted on November 29, 2007 and amended January 7, 2008.

Identify on the Comprehensive Plan Land Use Maps new locations suitable for burial of human and animal remains in a way that does not consume large land areas. Such new sites may include crematoria and publicly-accessible places to honor loved ones with plaques and similar features, rather than the location of buried remains or stored ashes.

Work with regional organizations to develop a regional solid waste authority to deal with solid waste issues region-wide.

### **TO ENCOURAGE WASTE REDUCTION, REUSE AND RECYCLING ACTIVITIES THAT HAVE Implementing Actions**

12.6 - IA1 Implement the *Final Solid Waste Management Strategy for the City and Borough of Juneau*, as adopted on November 29, 2007 and amended January 7, 2008.

12.6 - IA2 Coordinate/cooperate with villages, towns, municipalities, private companies and non-profit organizations within the region on solid waste management programs.

### **Hazardous Materials**

Federal law requires information-sharing regarding extremely hazardous material. This law is known as the Emergency Planning and Community Right-to-Know Act. It is intended to encourage and support emergency planning efforts at the state and local level and to provide communities with information concerning potential chemical hazards. In addition, the federal government is required to identify and investigate potentially hazardous waste sites within the community and enforce cleanup if the existing materials are considered hazardous.

In the early 1990's, municipalities were required to take responsibility for household hazardous wastes. In September of 1992, an assessment for disposal of household hazardous wastes was added to the city's utility bills. At present, the household hazardous waste disposal program offers seven collection events annually, with plans for expansion of the service to three days each week under negotiation.

There is clearly a local responsibility to be aware of the location, nature, and potential effects of hazardous materials and to minimize the possibility of injury, death and property damage from the inappropriate storage, use, disposal, or release of such materials.

### **POLICY 12.7. TO ASSIST IN THE IDENTIFICATION AND MITIGATION OF IMPACTS ASSOCIATED WITH HAZARDOUS MATERIALS.**

#### **Standard Operating Procedures**

12.7 - SOP1 Cooperate with state and federal agencies in the investigation of hazardous waste sites.

### **POLICY 12.6. POSITIVE ECONOMIC AND/OR ENVIRONMENTAL BENEFITS.**

12.7 - SOP2 Working in conjunction with enforcement agencies such as the federal Drug Enforcement Agency (DEA), the Alaska State Troopers, and the Juneau Police Department, provide managed hazardous and pharmaceutical waste disposal opportunities.

12.7 - SOP3 Provide information to the public regarding managed hazardous waste disposal opportunities.

### **Development Guideline**

12.7 - DG1 When applicable, require safe, alternative (off-site) siting of more than a weekly supply of hazardous materials for businesses, and/or a Best Management Plan with appropriate mitigation measures in the event of a failure of these measures when approving permits for new development.

### **Implementing Actions**

12.7 - IA1

12.7 - IA2

Collect, map on the GIS system, and assess data on the type, amount and location of hazardous materials in the community. This information is to be made available to emergency service personnel for use in developing proper care and storage Best Management Practices for each hazardous materials user, and in planning and implementing an emergency response program for each site.

Consider adopting an ordinance to control the transportation of explosives and ammunition through congested areas of the borough, particularly downtown Juneau, and to limit the time during which such materials may be transported in order to minimize the risk to visitors to and residents of Juneau posed by such materials.

### **Litter and Junk**

The general CBJ government activity of devising and enforcing rules against litter and inappropriate stockpiling of junk has been gathered under the program name “Junk Busters.” The program embraces the efforts of the Community Development Department, the Police Department and work by associated contractors and organizations. Television, radio and newspaper advertisements have been developed to promote understanding of litter laws, encourage participation toward solving litter-related problems, and to let the public know what to do if there is a problem. A Junk Busters hotline was established in 1994 that provides three services: Submittal of litter and junk complaints 24 hours a day; a recorded message about current recycling opportunities available in the community; and recorded information about household hazardous waste and waste oil disposal.

Litter Free, Inc. is a non-profit organization with a broad spectrum of volunteers from the community. The CBJ Assembly has provided them with financial support to aid their efforts toward coordinating volunteer and non-profit organization cleanups of public areas in borough. In addition, the CBJ government assists in the annual spring cleanup sponsored by Litter Free, Inc.

Another component of the Junk Busters program addresses illegal dumping. Illegal dumping on public land is reported to CBJ, usually through either the Juneau Police Department or the Parks & Recreation Department, and an investigation of violators is initiated. If investigators are unable to find the culprits or unable to get them to clean up, and when all other methods have failed, CBJ agencies clean up the



property and, if the violation occurs on private property, recovers the cost through a property tax lien. In 2012, the Parks & Recreation Department began using video surveillance cameras at popular dump sites to assist in identifying dumpers and holding them accountable for their actions.

Success in these efforts can be defined in two stages. The first is evidenced by the large amounts of refuse being gathered and properly disposed represents the cleanup of both current and long-standing litter and junk problems. The second is demonstrated by a history of steadily reduced amounts of material that has to be gathered, indicating that the community is making progress toward the goal of preventing litter and junk in the first place.

**POLICY 12.8. TO CARRY OUT AND IMPROVE PROGRAMS THAT WILL BOTH REDUCE AND ELIMINATE LITTERING AND ACCUMULATION OF JUNK WITHIN THE BOROUGH AS WELL AS CLEAN UP SUCH MATERIAL WHEN IT IS FOUND.**

**Standard Operating Procedures**

12.8 - SOP1 Support a marine cleanup program, including community awareness to discourage use of disposable plastics. Assist the commercial fishing industry in establishing a fishing net recycling program.

12.8 - SOP2 Support non-profit, anti-litter organizations such as Litter Free, Inc. to organize and coordinate community clean up events and standard operating procedures.

12.8 - SOP3 Update and improve litter and zoning ordinances that will result in improved community appearance.

12.8 - SOP4 Provide information to the public regarding recycling opportunities and the use of recycled or recyclable materials such as cloth shopping bags instead of plastic ones.

**Implementing Actions**

12.8 - IA1 12.8 - IA2 12.8 - IA3

12.8 - IA4

The CBJ should implement the *Final Solid Waste Management Strategy for the City and Borough of Juneau*, as adopted on November 29, 2007 and amended January 7, 2008.

Revise the Land Use Code to limit the number of unlicensed or inoperative vehicles allowed on residential property.

Investigate, with the business community, a cost-effective method for disposal of recyclable materials.

Evaluate the need to provide additional facilities for waste oil disposal.”

# Appendix B

## 2011 Juneau Climate Action and Implementation Plan (p 52-55)

### **“Goal U-5: Reduce GHG emissions and energy use from solid waste processing.**

Nationwide, manufacturing accounts for 23% of the total energy use (Shuford, et al., 2010). Nearly all the goods purchased in Juneau are produced outside of the community's boundaries. GHG emissions associated with this production and transportation to Juneau are not included in the emissions inventories.

Traditionally, solid waste reduction involves a three-part approach: reducing, reusing, and recycling. Reduction is the most important step; buying and using fewer unneeded products, selecting products that use less packaging, and choosing durable rather than disposable items lessen a community's solid waste processing burden. Reuse involves such measures as donating used goods to charity and maintaining and repairing rather than replacing broken items. After these waste-reducing measures are achieved there will still be high volumes of solid waste, a large portion of which should be recycled.

Reducing the amount of goods that are consumed in our community will reduce the energy used to both manufacture goods and transport those goods to Juneau, and, ultimately, landfill volumes will be lowered, resulting in decreased GHG emissions from the off-gassing of landfill- produced methane.

In the average residence, compostables can account for up to 40% of solid waste by weight. Composting residential waste, fish waste, sewage sludge, and wood waste could also reduce the solid waste entering Juneau's landfill that adds to its GHG emissions.

Juneau's landfill, which is operated by Waste Management Inc., is located in the Lemon Creek drainage. The community produces an average of 33,000 tons of waste annually, with approximately 75% of it coming from residential or commercial sources and 25% from construction and demolition debris. Just over 2,000 tons of aluminum, steel, glass, plastics (#1

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and #2), paper, and corrugated cardboard were recycled at the Waste Management recycling center in 2010.

Expanding local capacity to process recycled materials has the potential to reduce GHG emissions. As noted above, when less waste enters the landfill, less methane is released. Currently, recyclables must be transported by barge to the Lower 48 for processing. Local processing of this material would decrease recycling costs, as well as GHG emissions associated with barge transport.

Local government has direct control over the amount of waste generation and recycling undertaken in its buildings and at other facilities. Many buildings have adequate recycling facilities and good rates of diversion, while others do not.

Local governments, businesses, and individuals can make a difference in GHG emissions through purchasing goods that have been manufactured using methods that produce fewer GHGs, use less packaging, are more durable, are manufactured nearby, and can be reused or recycled.

<b>Strategy U5-A. Reduce the amount of solid waste generated in Juneau</b>	
<b>Short-Term Actions</b>	<b>Responsible Party</b>
<ul style="list-style-type: none"> <li>Mount a campaign to educate residents about the importance of waste reduction. Campaign could encourage use of reusable bags, coffee cups, and plastic water bottles.</li> </ul>	CBJ government/ Community
<ul style="list-style-type: none"> <li>Promote the utilization of reuse and repair businesses in outreach to businesses and residents.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Work with businesses to reduce/eliminate use of disposable containers or increase use of compostable containers if composting facilities are provided.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Discourage use of single-use plastic bags.</li> </ul>	CBJ government/ Community

<b>Strategy U5-B. Reduce waste associated with local government facilities and operations</b>	
<b>Short-Term Actions</b>	<b>Responsible Party</b>
<ul style="list-style-type: none"> <li>Work with CBJ departments to identify strategies for increasing recycling at Borough facilities.</li> </ul>	CBJ government/ Friends of Recycling
<ul style="list-style-type: none"> <li>Complete an audit of waste from various departments and use results to make changes that will reduce waste.</li> </ul>	CBJ government

<ul style="list-style-type: none"> <li>Increase reuse of surplus items. Use freecycle or other giveaway processes for non-salable surplus items.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Consider updating procurement policies to promote purchasing of fewer disposable and more durable items.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Adopt a sustainable procurement policy that seeks to procure all supplies, services, maintenance, construction, and architect-engineer services in a manner that promotes increased energy efficiency and reduced GHG emissions.</li> </ul>	CBJ government

**Strategy U5-C. Increase the rate of recycling in Juneau and expand capacity to process recycled material**

<b>Short-Term Actions</b>	<b>Responsible Party</b>
<ul style="list-style-type: none"> <li>Educate the public about opportunities for waste reduction and recycling.</li> </ul>	CBJ government/ Friends of Recycling/ Waste Contractor
<ul style="list-style-type: none"> <li>Make recycling a condition of permits issued by local government for special use and festivals and other events. Increase awareness around best practices and resources for waste reduction at events.</li> </ul>	CBJ government/ Community
<ul style="list-style-type: none"> <li>Support efforts to increase recycling in public spaces such as the airport and Centennial Hall.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Target commercial operations and institutions to increase participation in waste reduction and recycling efforts.</li> </ul>	CBJ government/ Friends of Recycling
<ul style="list-style-type: none"> <li>Keep clothing and fabric out of the landfill by encouraging residents to recycle clothes. Consider innovative options for cloth recycling.</li> </ul>	CBJ government/ Community
<ul style="list-style-type: none"> <li>Place recycling collection bins in neighborhoods throughout the community, e.g., at schools, shopping centers, or publicly-owned buildings.</li> </ul>	CBJ/Recycling Contractor
<ul style="list-style-type: none"> <li>Add a free store or take-it-or-leave-it location at the landfill where reusable items can be dropped off and picked up.</li> </ul>	CBJ government/Waste Contractor
<ul style="list-style-type: none"> <li>Extend recycling contract from 3 years to 10 years to allow bidder to invest in new infrastructure, increase space, etc.</li> </ul>	CBJ government
<ul style="list-style-type: none"> <li>Implement a curb-side recycling service in Juneau.</li> </ul>	CBJ government/ Recycling Contractor
<ul style="list-style-type: none"> <li>Encourage businesses to use "deconstruction" services when undertaking demolition and renovation projects, including selective dismantlement of building components for reuse and recycling.</li> </ul>	CBJ government

Strategy U5-D. Develop a municipal composting system	
Short-Term Actions	Responsible Party
<ul style="list-style-type: none"> <li>Research and develop a municipal composting facility in a central location. Consider composting sewage sludge, fish waste, brewery waste, wood scraps, yard waste, and household compostables, drawing on the composting experiences of other communities in the region, e.g., Gustavus, Haines, and Whitehorse.</li> </ul>	CBJ government
Long-Term Actions	Responsible Party
<ul style="list-style-type: none"> <li>Consider the feasibility of developing a commercial biomass recovery facility that could accept various biomass waste streams such as sewage sludge, landscape/tree residue, waste/recycled paper and cardboard, and cooking grease, for energy recovery.</li> </ul>	CBJ government

Long-Term Actions	Responsible Party
<ul style="list-style-type: none"> <li>Increase capacity of the recycling center and expand the types of items that are recycled, especially plastics.</li> </ul>	CBJ government/ Recycling Contractor
<ul style="list-style-type: none"> <li>Support local efforts to recycle paper or glass. Update the recycling contract to require contractor to use recyclables locally where possible.</li> </ul>	CBJ government/ Recycling Contractor
<ul style="list-style-type: none"> <li>Support a Re-Build facility where construction materials can be salvaged and recycled. Could include construction materials, glass jars, etc. CBJ could donate land or provide an old warehouse or provide land for a building or use a portion of an existing warehouse.</li> </ul>	CBJ/Community Partners

Strategy U5-E. Consider a waste-to-energy system for Juneau	
Long-Term Actions	Responsible Party
<ul style="list-style-type: none"> <li>Consider the economic feasibility of developing a waste-to-energy facility in Juneau.</li> </ul>	CBJ government/Waste contractor

# Appendix C

## How is Municipal Solid Waste (MSW) Managed in Juneau?

The major players in MSW management are:

- **Capitol Disposal Landfill (CDL)** operates Juneau’s landfill under an ADEC solid waste permit. The current permit expired in December 2020, and permits are renewed in 5-year increments. Locally, CDL charges a tipping fee for users based on either volume, weight, or count, depending on the contents of the load. Basic rates range from \$40 for a 6’ truck bed load to \$0.09 a pound for trailer loads. In [2020 national tipping fees](#) averaged \$53.72 per ton, while in the Pacific region the average was \$72.03 per ton. However, Juneau’s tipping fee of \$180 per ton is 235% above the national average. The landfill and CDL rates are not regulated by the Regulatory Commission of Alaska (RCA).
- **Alaska Waste** is the local trash hauler for both residential and commercial Municipal Solid Waste, and residential recycling. It is an Alaskan corporation that serves 14 communities and is not related to CDL or Waste Management Inc. Rates for trash service range from \$27.53/month for weekly service of a 48-gallon bin to \$40.62/month for service of a 96-gallon bear-proof cart, plus cart rental fees. Bi-weekly, co-mingled recycling rates range from \$9.84-\$14.76/month. The RCA regulates trash collection service and rates in Alaska under a certificate for public convenience and necessity that requires the certificate holder to provide services. Alaska Waste holds the only trash collection certificate allowed by the RCA for Juneau. Recyclables collection is not regulated by the RCA. Alaska Waste uses the CBJ-owned recycle baler (located at CDL) to prepare recycling for shipping out of Juneau.
- **Skookum Sales & Recycling** is a Juneau-based company that collects metal of all kinds and ships them out of Juneau for recycling. CBJ also contracts with Skookum to run the junk vehicle program. Their rates range from \$5 per carload to \$150 per dump truck load. The junk vehicle rate is \$472/vehicle, but the CBJ junk vehicle program, funded out of the City’s general fund, covers that fee for Juneau-registered vehicles.
- **Juneau Composts LLC** is a Juneau-based company that collects residential and commercial food scraps, yard debris, and other organics for recycling locally. It collected 112 tons of food scraps in 2020 and many tons of yard debris. It charges \$17-\$25 per month for weekly curbside residential service and \$7-\$40 per load for yard debris. Commercial rates vary.
- **RecycleWorks** is a CBJ program operated under the CBJ Engineering & Public Works and Engineering (E&PW) Department. They manage contracts for collecting and shipping recyclables for export. More detail in Appendix D.

# Appendix D

## What is CBJ’s involvement in solid waste management?

As previously noted, the CBJ does not own, manage, control, or issue permits for the landfill, trash collection, or recycling. The CBJ neither directly spends money on, nor gets revenue from, trash disposal services, with the exception that CBJ staff services city-owned public trash receptacles and pays a tipping fee for that disposal at the landfill.

Although the CBJ does not manage solid waste as a bundled trash and recycle public service paid for under property taxes or utility bills, CBJ does contract for some recycling services. The RecycleWorks program, under the CBJ Engineering & Public Works and Engineering (E&PW) Department, does not regulate nor require trash and recycling service for businesses or residences but does operate with local tax money.

The CBJ E&PW Department pays for the following recycling contracts with private companies using tax dollars:

Household Hazardous Waste (HHW) with Clean Harbors Co, located CDL	\$351,000 FY20
HHW shipping with Samson Tug and Barge	\$143,000 FY21
Junk Vehicle Program with Channel Construction, the parent company of Skookum Sales & Recycling.	\$340,000 FY21
Internal recycling collection with RockDog Recycling	\$30,000 FY21
E-waste Recycling.	\$100,000 FY21
Recycle Center processing and building use w/Waste Management at CDL.	\$540,000 FY21

A CBJ model, based on a 2006 Kodiak waste characterization study, estimated that 23,800 tons of MSW was produced annually and that about 60% by weight was recyclable. (Note that composting is a form of recycling). See the figure and table below from p 20-21 of the Solid Waste Management Strategy of 2008. Without a current waste characterization study the community has no firm data regarding the type and volume of materials that currently go into the landfill. While CBJ has data on material diverted for recycling through its RecycleWorks program, there is no firm data on what is diverted by all sources of recycling (including home composting and private recyclers not contracted through CBJ.)

Figure 4

**Overall Composition of CBJ Disposed Waste**

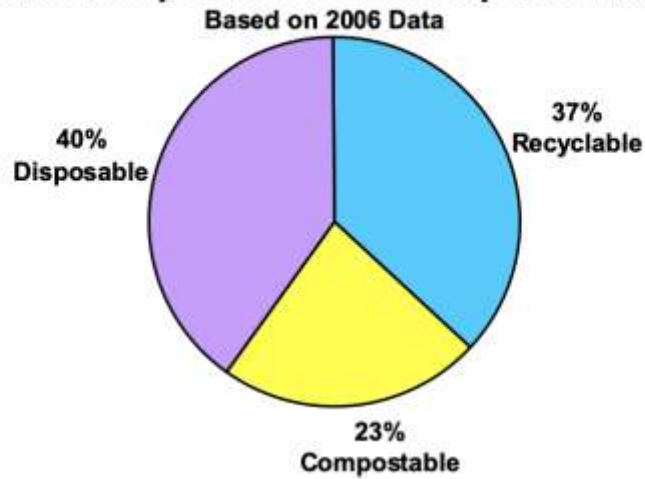


Table 4: Composition Model for CBJ Disposed Municipal Solid Waste

Material Categories and Types	Percentage by Weight	Tons (Calendar Year 2006)
<b>Paper</b>	<b>34.3%</b>	<b>8,168.55</b>
Newspaper**	4.9%	1,166.94
White / Mixed Paper**	3.0%	714.45
Office Paper**	2.7%	643.01
Magazine / Books / Mail**	4.2%	1,000.23
Cardboard**	12.6%	3,000.69
Other Paper	6.9%	1,643.24
<b>Plastics</b>	<b>5.6%</b>	<b>1,333.64</b>
Recyclable**	1.9%	452.49
Film	1.8%	428.67
Other	1.9%	452.49
<b>Glass</b>	<b>4.4%</b>	<b>1,047.86</b>
<b>Metals**</b>	<b>7.7%</b>	<b>1,835.49</b>
Aluminum Cans	0.8%	190.52
Tin Cans	1.0%	238.15
Other Metals	5.9%	1,406.82
<b>Diapers</b>	<b>1.5%</b>	<b>357.23</b>
<b>Food Waste***</b>	<b>11.9%</b>	<b>2,843.99</b>
<b>Yard Waste***</b>	<b>3.4%</b>	<b>803.27</b>
<b>Lumber &amp; Wood***</b>	<b>7.5%</b>	<b>1,779.92</b>
<b>Electronic Waste</b>	<b>1.1%</b>	<b>262.97</b>
<b>Batteries</b>	<b>0.1%</b>	<b>23.82</b>
<b>Other</b>	<b>22.5%</b>	<b>5,358.38</b>
<b>Total</b>	<b>100.0%</b>	<b>23,815.10</b>
<b>Notes:</b>		
** Recyclable Materials – tons		8,813.29
% of waste stream by weight		37.0%
*** Compostable Materials – tons		5,417.18
% of waste stream by weight		22.8%



CDL states that landfill numbers have been flat at 30,000 tons a year for many years. CBJ's recycling program handles around 1,800 tons annually, which is just 6% of CDL's estimated annual landfill tonnage. Not included in these figures is the tonnage of recyclables collected by private entities not contracting with RecycleWorks.

Since the landfill is unlined, CDL's ADEC permit does not require them to control, sample, or manage leachate. As approved by the CBJ, the liquid from the collection system is directly discharged into the public sewer system for treatment and disposal, which does put pressure on the Mendenhall wastewater facility and its ability to maintain compliance with its ADEC wastewater permit. CBJ Engineering and Public Works Department is currently working to assess and address commercial and significant industrial users of the public wastewater facility.

The conditions under which the commodity recycling contracts were developed have changed dramatically over the years. When the Solid Waste Management Strategy of 2008 was conducted, as well as the Solid Waste Action Plan of 2015, the commodities market for recyclables was high. In 2018 China announced the [SWARD policy](#), which overnight caused the commodities market to crash, and left nowhere for recyclables to go. According to CBJ RecycleWorks, aluminum and cardboard are currently the only two commodities that bring in revenue.

In 2016 there was a revenue sharing agreement between CBJ and WM to incentivize WM to increase recycling. Even though revenues were high, the expenses exceed revenues. Ms. Elfers, then manager of the RecycleWorks program, stated that "If the programs continue to be successful and grow, and the community and the Assembly continue to value their impacts, we will have the following options: 1. Increased fees, 2. Scaled-back programs, 3. Consolidation of programs at one location may allow for cost savings." At that time, she noted that CBJ RecycleWorks received revenues primarily from a \$4 monthly fee on utility bills and a \$22 annual fee for Motor Vehicle Registration, which were set in 2003-2004. If the commodity recycling program was not financially sustainable at the time when commodity revenues were high, it is likely that the numbers are worse off now.

Ordinance 2019-40 repealed the \$4 fee as of January 2020, and the DMV vehicle registration revenues were directed to the CBJ Fleet/Streets division beginning in FY2021. RecycleWorks funding was shifted from an enterprise fee-based program to a general-funded program in FY2020. In FY2020 the contract for WM to receive and bale all recyclables was \$256,500, the shipping was \$149,161, and revenue generated was \$39,930, for a total program cost of \$365,731.

Below is a breakdown of recycled materials collected in FY2020:

<b>Material</b>	<b>Tons Collected in FY2020</b>
Tin	17.47
Paper	459.41
Cardboard	826.3
Plastic	55.91
Aluminum	19.99
Glass	299.36 (this is crushed and used in landfill operations. Not technically diverted)
Total	1,379.08 excluding glass 1,678.44 including glass

In FY2021, the WM contract is budgeted for \$540,000, but the actual cost will depend on several factors: the amount of material collected, shipping costs, revenues for materials sold, and expenses for materials disposed of. There is a fixed “operating fee” of \$27,000 per month, \$10,500 of which covers the cost of the new building over the next 10 years. It is worth reviewing whether the continuation of a commodity-based recycling program is the most effective use of funding intended to divert materials from the landfill.

Without taking into account CBJ staff time for day-to-day operations in FY2020, CBJ paid \$365,730 for diverting 1,678 tons of material from the landfill. The price per ton of diversion was \$265.20/ton excluding glass, and \$217.90/ton if glass is included. Dividing the total cost by total pounds, comes to \$0.11-\$0.13 per pound. With the additional building fee of \$126,000/yr., the rate will likely be closer to \$0.15-\$0.17/pound. This rough number can be valuable in assessing the financial prospects of other types of landfill diversion, including source-reduction, reuse, and local recycling.

# Appendix E

## What's the History of Juneau's Solid Waste Management?

- In the 1960s, Juneau's current landfill began operation with the Tonsgaard family under the business name of Channel Sanitation.
- In 1985 Channel Sanitation installed a garbage incinerator.
- In 1992 a CBJ study analyzed [municipal ownership of the landfill and collection services](#). It found that ownership was in the city's best interest so it could control the waste stream. **The city did not purchase the landfill, gain collection rights, or gain control of the waste stream.**
- In 1993 the idea of a new landfill was assessed and [locations were evaluated](#). **The city did not follow up on the recommendations.**
- In 1999, the landfill was sold to Waste Management, dba Capital Disposal Landfill which continued to operate the incinerator until 2004. Due to costs of required environmental upgrades, the incinerator was decommissioned in 2004, and MSW again went into the landfill.
- In 2007-2008 CBJ prepared a [Solid Waste Management Strategy](#). The executive summary states:

“The original Request for Proposals (RFP) issued by the CBJ...stated the Strategy should address methods of achieving Juneau's commitment to integrated solid waste management practices as expressed in the Comprehensive Plan and Assembly Resolution 1433 (March 19, 1990). Those practices are, in order of priority:

  - Waste reduction,
  - Recovery / recycling of resources,
  - Recovery / recycling of heat or electricity from waste incineration,
  - Treatment and processing of waste to reduce volume,
  - Waste incineration, and,
  - Landfilling in an environmentally sound manner”
- In 2007 [Southeast Conference](#) conducted a study on [a regional Southeast landfill](#). Juneau produces about one-half of the waste stream of SE Alaska (based on population). Regional interest was high, but it was deemed infeasible without the commitment of Juneau's waste stream.
- In 2009 the CBJ Assembly initiated a plasma arc Feasibility Study on Plasma Arc Gasification and Waste to Energy Options. The project was deemed infeasible by Waste Management.

- In 2015, CBJ created a [Solid Waste Action Plan](#) which included branding RecycleWorks as a program to divert materials from the landfill, and developing contracts to execute programs. A drop-box recycle program provided the community with 24-hour access to receptacles for glass, cardboard, and paper recycling. No measurable increases in recycling resulted from the containers, and contamination with regular garbage was an issue, so the program was halted in 2020.
- In 2016 the CBJ and Cedar Grove LLC (based in Seattle) performed a Municipal Compost Feasibility Assessment. The city unsuccessfully attempted to purchase a new property for this in 2017. Permission to lease a site at CDL for composting was secured through 2018 CBJ Ordinance 2018-37.
- In 2018 - 2019 CBJ adopted Ordinances 2018-37 and 2019-13, which outlined Waste Management as the recycling contractor at CDL for a 30-year term.

# Appendix F

## How Well is Juneau Doing in its Effort to Improve MSW Disposal and Diversion?

- The CBJ efforts regarding Household Hazardous Waste have been successful with a high level of HHW recovery, which avoids pollution and takes stress off the CBJ wastewater utility. However, the program has little tangible effect on the volume of material diverted from the landfill.
- Juneau improved from a 4% recycle rate in 2006 to a 6% recycle rate in 2019. CBJ does not have any targeted diversion goals, so direction is not focused. Many progressive communities have significantly higher recycle rates and clear, ambitious goals. For example, Whitehorse, Yukon Territory, recycles 33 % of waste and has a goal of zero waste (90% diversion) by 2040.
- Despite a CBJ 2008 solid waste study, Juneau has made little progress regarding landfilling and reusing our waste stream resources wisely. While a drop-off recycling program, a HHW program, and curbside recycling program have been established, these programs are insufficient to forestall the inevitable filling of Juneau's sole landfill.
- The CBJ has accumulated many reports and studies declaring a general concern with MSW. However, goals have been vague and disjointed and action steps lacking. The CBJ has taken few steps to develop a robust and comprehensive MSW system that is compatible with Juneau's community values outlined in the [Comprehensive Plan](#) and that is in sync with the modern resource-recovery/circular-economy approach of the current times.
- Juneau's multi-decade waste management problems are made difficult by a complex web of conflicting interests - a private landfill owner, a private refuse collector, and public (CBJ) recycling efforts. Each entity has different goals, objectives, and motives that are not aligned with each other and may not be aligned with community values. The CBJ, as a Home Rule municipality in Alaska, however, has the ability to establish controls that: 1) reduce waste (i.e., eliminate certain commodities used by the community, such as single-use plastic bottles, utensils, food containers, bags); and 2) divert food, yard, and construction wastes from the landfill.

# Appendix G

## Adopting a Zero Waste Plan

In order to come up with a percent diversion goal, CBJ will need the data from its formal solid waste assessment and will need to engage stakeholders. The level of control CBJ chooses to enact will determine what levels can be achieved.

CBJ does not place restrictions on what is landfilled, so anything other than hazardous waste is allowed to be landfilled. With control of the waste stream CBJ could mandate certain types of recycling by rejecting them or charging additional fees for them at the landfill. It could also implement a tighter pay-as-you-throw price structure, which incentivizes generators to produce less waste. If trash and recycle service was bundled into taxes, there could be a low baseline trash volume and a high baseline recycle volume so that those who generate excessive trash would have to pay additional fees. Contamination education and fines would need to be part of the equation. Controlled waste streams and actions to focus on are:

**Restrict the landfilling of organics.** (~35% of waste stream by weight) More than 20 states have banned yard debris from landfills, which tends to be an easy category for municipalities to regulate and is an easy diversion to extend landfill life. This type of diversion would require increased composting infrastructure and could be developed by the private sector. Five states have banned landfilling food scraps, though it is a much more involved action that requires strategic, incremental implementation. This action would also help increase local food production as called for in the Juneau Climate Action Plan. (p 62)

**Redirect Construction and Demolition (C&D) debris.** (~23% of waste stream by weight) C&D debris includes many different types of material. Wood, metal, plastic, insulation, drywall etc. After gathering stakeholder input, a process could be established for sorting material on job sites so it can be directed for recycling. A C&D recycling facility could be developed by the private sector.

**Restrict the use of single-use plastics.** Many municipalities have various types of banned single-use plastics. The European Union and Canada both have nation-wide bans. While these items are a relatively small portion of the waste stream, they are significant sources of litter. More importantly, they are “low-hanging fruit” to be used as an education tool to create a cultural mind-shift around solid waste. Restricted materials typically include plastic bags, cutlery, straws, and Styrofoam food service ware. These items are generally replaced by reusables or compostables.

**Redirect usable goods.** Items which are still usable should be rerouted. A robust network of thrift stores, consignment shops, repair and upcycle shops, agencies seeking donations, and people wanting used goods can prevent unwanted items from becoming waste.

## Can the CBJ control the waste stream?

Past CBJ documents state that CBJ could not control the waste stream because they do not own the landfill. But many states, counties, and municipalities regulate the waste stream without owning landfills or collection rights. A key point of consideration is that hauling recyclables is not regulated by the RCA, so items deemed as *resources* instead of *MSW* could be hauled by any number of companies. The city could theoretically control a portion of the waste stream by providing incentives for the private sector to develop resource recovery models that coordinate alongside the landfill model. Examples of this could include developing contracts with service providers, providing access to land and equipment, running education campaigns, and providing tax incentives for those who reduce their waste. Even if CDL did not enforce waste stream controls, if Juneau has alternatives to landfilling, they would be used.

Additionally or alternatively, legislators could enable regulatory changes and spur resource-recovery economic development. While broad, state-wide legislation on solid waste may seem unlikely due to the vastly different conditions across the state, it should be noted that the Alaska Department of Environmental Conservation (ADEC) has different classes of landfill permits. It could be possible to make changes to Class Three Landfill regulations without affecting landfills in rural communities. In terms of economic development, many states provide grants to catalyze sustainable businesses. See Appendix I for examples.

Until recent years, commodity markets for recyclables made recycling financially attractive to waste management companies. When China declined to buy recyclables from the United States starting in 2018, prices fell to the point that most recycling became no longer profitable. When the cost of recycling cannot be recovered, a profit-making company has incentive to reclassify recyclables as waste and add them to landfills. Community values may dictate that recycling should occur for reasons other than profit, however. Moreover, many raw materials from the waste stream can be economically recovered to make value-added products with public-private partnerships. Locally-owned, locally operated, waste recovery programs create new jobs, diversify the economy, and create a more sustainable community that keeps dollars circulating locally.

Encouraging the retention of MSW in the community has multiple benefits. One benefit has social and environmental justice ties. By keeping Juneau's MSW in the region instead of shipping it to outside communities, we build our own reliance rather than degrade the environment and lives of others. Exporting trash is not a problem unique to Juneau or even Alaska. New York City ships waste to many states, including South Carolina. It is a matter of which communities are desperate enough for money to accept waste from other communities. There is evidence to show that a disproportionate number of landfills are in low-income neighborhoods and communities of color. If and when those communities say no to "outside" trash, like China did with recycling in 2018, what would CBJ do then? Exporting fosters an "out-of-sight-out-of-mind" mentality that disincentivizes waste reduction and recycling. If residents are forced to see or smell their own waste, they will be more inspired to act in ways that mitigate or prevent the problems.

# Appendix H

## Preparing for the inevitable closing of the landfill

A concerted effort to reduce/divert waste may extend the life of the landfill, but the evaluation of alternatives should begin soon. Permitting, planning, and construction will take many years. Strategic plans and actions now will prevent panic in 2039.

## Why should we begin planning for an alternative to the current landfill?

When the landfill closes, the most likely “no action” scenario is to operate a transfer station where Juneau trash is collected, packaged, and shipped “Down South.” Juneau prides itself on being a progressively more sustainable community. Shipping Juneau trash via barge and train to landfills located in Eastern Washington is not only a move away from sustainability, but it would also put Juneau in a precarious situation. Concerns include:

1. Increased transportation and handling costs (and their effect on waste disposal costs);
2. Increased use of fossil fuels required to transport waste and the associated greenhouse gas (GHG) emissions;
3. The willingness or unwillingness of other states and the Canadian government to allow Juneau to transport waste through their territory or use their landfills as dumping grounds long-term; and
4. The Out-of-Sight-Out-of-Mind aspect of distant disposal may discourage finding a sustainable solution to Juneau’s waste problem.

If the Assembly/community deems the above “no action” scenario as unacceptable, then planning should begin soon. Identifying land and addressing ownership, land preparation, and permitting issues could take many years. Appendix C of the 2008 SWMP plan (p 77) has details on the process and requirements for opening a new landfill.

## What are the options for a replacement landfill?

There are several paths to a replacement landfill:

1. The CBJ plays no role other than encouraging the private sector to purchase land and set up a new private landfill. This option does not address the issue of controlling the waste stream.
2. CBJ identifies land and establishes a new landfill, alone or in cooperation with private sector partners.



3. CBJ teams up with other SE communities and participates in a regional landfill. Options under this scenario range from allowing other communities to use a CBJ-owned landfill to transporting Juneau's waste to a regional landfill elsewhere. The Southeast Conference has taken some steps on this, but work was halted because Juneau, whose waste was critical to the project, was not ready to participate. Shipping charges would need to be reevaluated.

## **What about Incineration or Waste-to-Energy (WTE) Instead of Landfilling?**

While incineration and WTE alternatives may seem like attractive methods of making waste “disappear,” they would be a step in the wrong direction. WTE plants require a consistent volume of material, so waste reduction and recycling become disincentivized. Incinerators are also incredibly bad polluters. To make the same amount of energy as a coal power plant, trash incinerators release 28 times as much dioxin than coal, 2.5 times as much carbon dioxide (CO<sub>2</sub>), twice as much carbon monoxide, three times as much nitrogen oxides (NO<sub>x</sub>), 6-14 times as much mercury, nearly six times as much lead and 70% more sulfur dioxides. Considering Juneau prides itself on clean and inexpensive hydropower energy, something “dirtier” than coal should not be considered. In addition, incineration does not eliminate the need for a landfill since 15-25% of weight of incoming trash remains as toxic ash, which requires disposal. [Waste to Energy International](#) provides consulting, full development cycle, equipment supply, construction supervision and commissioning of waste-to-energy (WTE), the hydro, wind, and solar power plants. A quick [online quote](#) calculation from them shows that a facility to handle Juneau's 30,000 tons of trash per year would cost \$32.8 million dollars and would operate at a cost of \$1095 per ton.

## **What Can CBJ do to Start the Landfill Planning Process?**

The planning process must identify concrete goals so city staff, residents, and businesses have clear expectations of how the city wants to handle MSW. Education is key to setting goals. “Recycle” is in the common lexicon, but many people do not really know what that means in today's world. People need to be educated on the entire waste hierarchy, the circular economy, and also have easy access to information on the specifics of Juneau's programs. A shift in mindset from “waste management” to “waste reduction and resource recovery” can make the efforts seem more appealing both socially and economically.

A new landfill requires extensive planning and permitting. The steps, basic requirements, and preliminary cost estimates were compiled in Appendix C (p77) 2008 SWMP and could serve as a starting point. It states that the general steps for opening and operating a landfill include:

- Site Selection
- Solid Waste Management Plan
- Land Use Permit Application
- Waste Disposal Permit Application

- Fatal Flaw Analysis
- Site Characterization and Hydrogeologic Report
- Design Report
- Design Drawings
- Construction Quality Control and Quality Assurance (QC/QA) Plan
- Plan of Operation
- Closure, Post-closure Plan and Financial Assurance Plan
- Related Permitting Requirements
- Construction Documents
- Construction, Construction Management and QC/QA

**Table 1: Preliminary Costs Estimates  
Permitting, Design, Construction for New CBJ Landfill  
- 4 – Acre Lined Cell -**

PROCESS ELEMENT	LOW \$ ESTIMATE	HIGH \$ ESTIMATE
<b>Permit Costs (A through E)</b>		
A/ Preliminary Site Selection Process	25,000	50,000
B/ Prepare Solid Waste Management Plan	85,000	200,000
C/ Prepare Land Use Permit Application	150,000	700,000
D/ Prepare Waste Disposal Permit Application	395,000	850,000
E/ Related Permit Applications	50,000	400,000
<b>Build Costs (F through J)</b>		
F/ Landfill Construction Documents	50,000	105,000
G/ Leachate Treatment System Construction Documents	60,000	120,000
H/ Other Infrastructure Construction Documents	30,000	60,000
I/ Cell Construction (4 – acre lined cell)	3,500,000	7,000,000
J/ Construction Management & Monitoring	140,000	285,000
K/ Leachate Treatment System Construction	500,000	2,000,000
<b>TOTAL</b>	<b>\$4,985,000</b>	<b>\$11,770,000</b>

# Appendix I

## Funding

- One potential funding source is the federal [Save Our Seas 2.0 Act](#) (co-sponsored by Dan Sullivan), which is marked to provide funding to prevent plastic pollution.
- The Alaska Department of Environmental Conservation has a [Funding Resource Guide](#), which lists federal and state grants applicable to solid waste all in one place. It is not all-inclusive, but it is a good starting point.
- The [Grants.gov](#) database is can easily be searched for solid waste.
- Some states have grant and low-cost loan programs to spur private development in the solid waste sector as a way to boost regional economies, maximize resource use, and save money long-term. Examples of private sector support programs include:
  - The [Colorado Dept of Health and Environment](#) offers a grant program called the Recycling Resources Economic Opportunity (RREO) Program. It provides funding that promotes economic development through the management of materials that would otherwise be landfilled. Funds are available to support recycling, composting, anaerobic digestion, source reduction, and beneficial use/reuse. The assortment of projects funded is really wide-ranging, as seen with a few examples below.

Project	Award
Waste Reduction Wood Grinder Project	\$161,675
Creating Construction Materials from Food and Beverage Cartons	\$1,545,820
Building Mattress Recycling Capacity	\$298,310
Food Donation Program Expansion	\$20,313
Waste Wood Conversion to Biochar	\$352,645
● Bear-Proof Compost Carts and Dumpsters Project	\$120,000

- Another program of theirs, called Front Range Waste Diversion (FRWD, or “forward”), provides grants and technical assistance for communities to increase recycling, composting, and waste reduction. Several funded projects include:

Project	Award
Wompost: to provide food and yard waste recycling bins in Aurora.	\$158,185
Town of Erie: to relocate Erie’s recycling center and add cardboard and organic waste, and to complete a zero-waste policy assessment which responds to the town’s Sustainability Master Plan.	\$247,078
Scraps: to expand yard waste collections in Edgewater, Arvada, and Wheat Ridge.	\$76,908.42

- Similarly, but on a smaller scale, the Maine Department of Environmental Protection has a [Solid Waste Diversion Grant Program](#) for recycling and organics management projects statewide. These projects are targeted to divert waste from disposal by expanding composting and recycling opportunities and to help businesses, institutions, and municipalities address solid waste management challenges. In 2020 \$129,627.75 was used to fund 7 projects.

CBJ and the State of Alaska could work on similar programs to catalyze sustainable economic development and reduce landfill burden and costs. Offering grants along with RFPs could spur new and existing private companies to develop waste reduction and recovery services. The return-on-investment might work out better on things like this compared to continuing the commodity market recycling regiment that CBJ tax money already funds.

# Appendix J

## Source Documents and Additional Resources

### Links to CBJ Documents and Studies:

CBJ 2016 Municipal Composting Feasibility Assessment (not published online)

[CBJ 2015 Solid Waste Action Plan Update](#)

[CBJ 2011 Climate Action and Implementation Plan](#)

[CBJ 2013 Comprehensive Plan](#)

[CBJ 2008 SWMS Executive Summary](#)

[CBJ 2008 Solid Waste Management Strategy](#)

[CBJ 1993 Technical Reconnaissance Study for New Landfill Site Selection](#)

[CBJ 1983 Solid Waste Management Study](#) (calls for planning a new landfill on CBJ land in Lemon Creek.)

### Additional Resources:

[CBJ Recycleworks](#)

Whitehorse [2013 Solid Waste Action Plan](#)

Anchorage [2019 Climate Action Plan](#) (p52-57 relates to MSW)

Anchorage private C&D facility [Central Recycling Services](#)

Economic benefits of Zero Waste - [Ecoecycle Solutions](#)

Tool kits for plastic pollution legislation/action - [Break Free from Plastic](#)

Paper on [Designing and Implementing Organics Waste Bans and Mandatory Organics Recycling Laws](#)

Example legislation and policies for organics bans - [Institute for Local Self-Reliance](#)

Compost Economic and Environmental impacts [infographic](#)

Capitol Disposal's 2015 [Closure, Post-Closure, and Financial Assurance Plan](#)